Language, culture & cognition

Grammars of Space

Explorations in Cognitive Diversity

Edited by
Stephen C. Levinson
and David Wilkins

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Grammars of Space

Spatial language – that is, the way in which languages express space and time – is an important area of current research, offering new insights into one of the most central areas of human cognition. In this pioneering study, a team of leading linguists and psychologists review the spatial domain across a wide variety of languages. Contrary to existing assumptions, they show that there is great variation in the way space is conceptually structured across languages, thus substantiating the controversial question of how far the foundations of human cognition are innate.

Grammars of space is a supplement to the psychological information provided in its companion volume, *Space in language and cognition* (also available from Cambridge University Press). It represents a new kind of work in linguistics, 'semantic typology', which asks what are the semantic parameters, or semantic notions, used to structure particular semantic fields. The authors exemplify new methods, involving controlled data collection across a dozen languages without reliance on a common intermediary language. Comprehensive and informative, this book will be essential reading for all those interested in comparative linguistics, spatial cognition and the interface between them.

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Language, culture and cognition

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This series looks at the role of language in human cognition – language in both its universal, psychological aspects and its variable, cultural aspects. Studies will focus on the relation between semantic and conceptual categories and processes, especially as these are illuminated by cross-linguistic and cross-cultural studies, the study of language acquisition and conceptual development, and the study of the relation of speech production and comprehension to other kinds of behaviour in social context. Books come principally, though not exclusively, from research associated with the Max Planck Institute for Psycholinguistics in Nijmegen, and in particular the Language and Cognition Group.

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Preface

This book is about the way languages structure the spatial domain. Spatial language is an important topic of current research, because it offers insights into a central area of human cognition. The research in this book shows that, contrary to the prevailing assumptions, there is quite unexpected variation in the conceptual structure of this central domain across languages. Semantic universals do not lie at the complex conceptual level that many linguists and psychologists had supposed, but rather at a more abstract level.

This book is designed as the companion volume to *Space in language and cognition* (Cambridge University Press, 2003), which is focussed on the psychology of space, and the cognitive consequences of language difference. In contrast, the present volume provides the methods, empirical materials and the wide survey of language variation which are presupposed and form the basis for the study of cognition in the companion book.

This book represents a new kind of work in linguistics, which we are calling 'semantic typology'. Most work in typology takes some function, and asks how different languages use different formal means to satisfy this function. Instead, in this book, starting out from a functional base (centrally, how one answers 'Where'-questions), we ask what are the *semantic* parameters, or semantical notions, used to structure the relevant semantic field. Such semantic parameters are reflected in both major grammatical distinctions and the structure of lexical fields. Semantic typology of this kind requires a new way of working, involving much more carefully controlled methods for data collection.

An introduction to the book sketches the background to this work, explaining how the spatial domain comprises a number of coherent sub-domains, especially relevant for this book being the sub-domains of topology, frames of reference and motion description. The introduction also establishes a common terminology for the volume. It further provides details about the methods employed uniformly across a sample of languages, allowing controlled cross-linguistic comparison.

The body of the book collects together in one volume closely comparable descriptions of spatial language in a dozen languages, nearly all from unrelated stocks in Australia, New Guinea, Mexico, the Amazon, West Africa, Japan

and Europe (for details see below). These studies were conducted by staff of the same research unit, each having long-standing expertise in the relevant language, and they are based on repeated field trips specifically aimed at the questions here addressed. The collection of papers allows one to see, more or less at a glance, how differently languages may treat a single important semantic domain. Information of this kind has never before been made available – instead comparisons have focussed on particular parts of speech (like spatial adpositions), or have focussed on the particular resources of an individual European language. Information on spatial description can of course be found in grammars, but it is distributed and always incomplete, and one cannot reliably compare one such description with another. In contrast in this book, in order to achieve close comparison, the papers each touch upon a series of key topics, and the researchers have all used a shared set of eliticitation techniques. Each paper represents a summary of in-depth research, which has been subject to extensive mutual discussion.

The most important chapter is the last, which surveys what has been collectively discovered. It is shown how these individual language descriptions, because they have a common referential base, can be used to build a cross-linguistic typology of the spatial domain. Three major domains are reviewed in depth: topology, frames of reference and motion description. It becomes obvious that many suggested universals of spatial language evaporate, and many important parameters of spatial language have been entirely neglected. There are, for example, no universal IN and ON concepts, and in many languages the important locative information is coded in verbs, not adpositions, as so often assumed. Similarly, the semantics of 'motion verbs' like ENTER or EXIT is underlyingly quite different across languages, in some languages coding motion, in others change of location, in others only change of locative relation between figure and ground. Nevertheless, there are some remarkable constancies in the more abstract semantic parameters that are relevant to spatial morphemes and constructions, and thus the overall picture that emerges is one of unexpected variation across languages in the semantic packages constituting the meanings of morphemes, coupled with constraints on the boundaries of the domain and probable universals in underlying semantic parameters.

The volume as a whole thus contributes to the linguistic sciences on a number of dimensions. First, it is an important contribution to the study of spatial language, a topic of much current interest and central to the study of human cognition. Second, it introduces a new subfield of linguistics, semantic typology, which is deeply relevant to many current debates about nativism in human cognition – it is a crucial field, for example, for the study of child language, for it shows that children cannot be presumed to know in advance what kinds of meanings map onto words. Third, it introduces new methods of quite general application for cross-linguistic comparison. Fourth, it contributes much

substantial detail about individual languages – many of the chapters would make excellent assigned reading as a source of insights into language difference. Fifth, the book as a whole outlines a whole set of plausible universal constraints and parameters in this area, while debunking many simpler ideas.

But the book will also be of interest outside linguistics, to all those in philosophy and psychology interested in the status of 'innate ideas'. For the first time, it is possible to inspect in a restricted but important domain, using controlled comparison, just how shared or divergent are the concepts that languages presuppose.

1 The background to the study of the language of space

Stephen C. Levinson and David P. Wilkins

1.1 Spatial language and cognition

Spatial cognition is a fundamental design requirement for every mobile species with a fixed territory or home base. And there is little doubt that it plays a central role in human thinking and reasoning. Indeed, the evidence for that centrality is all around us, in our language where spatial metaphors are used for many other domains, in the obvious cognitive utility of diagrams and tables, and in the special role of place in memory. The idea that space is a fundamental intuition built into our nature goes back at least to Kant (1768), and the idea that our apperception of space is governed by cognitive universals informs much current cognitive science.

But in some ways human spatial cognition is puzzling. First, it is unspectacular – we are not as a species, compared to bees or pigeons, bats or whales, particularly good at finding our way around. Second, human spatial cognition is obviously variable – hunters, sailors and taxi-drivers are in a different league from the ordinary city-dweller. This suggests that many aspects of effective spatial thinking depend on cultural factors, which in turn suggests limits to cognitive universals in this area.

The language of space becomes an important focus of research, then, for a number of reasons. First, it may help to reveal the underlying conceptual structure in human spatial thinking, which may be much harder to extract from an inarticulate species. Naturally, universals of spatial thinking should be reflected in universal conceptualizations in spatial language. Second, and contrastively, the very variability of language promises an interesting insight into the possible cultural variability of spatial thinking. Third, this reasoning presumes a close correlation between spatial language and spatial thinking – essentially, a (possibly partial) isomorphism between semantics and conceptual structure. Where we have linguistic universals, the correlation may be presumed to be driven by cognitive universals. But where we have cultural divergences, language may not so much reflect underlying cognition, as actively drive it.

All this suggests a natural line of research, namely a parallel, independent investigation of spatial language and human spatial thinking. In a concerted

effort over nearly a decade, in a project involving over forty researchers and as many languages, researchers at the Max Planck Institute (MPI) for Psycholinguistics have tried to pursue these parallel investigations in as many cultures of independent tradition as possible. The outcome has been surprising. Human spatial thinking is indeed quite variable, sometimes based on incommensurate conceptual systems. Languages reflect this variability, for semantic distinctions do indeed closely match conceptual structure. Moreover, sometimes there is a good case for supposing that language, and more broadly communication systems, are causal factors in inducing specific ways of thinking about space. These correlations between language and cognition, and the methods employed to probe non-linguistic spatial thinking, are the subject of the companion volume to this book, *Space in language and cognition*.

These findings give the subject of spatial language a new and vital interest. Since linguistic differences can have cognitive consequences, what exactly are the limits to the variation? What kind of semantic typology can be constructed to encompass the variation? If fundamental spatial concepts are not given in advance but vary from language to language, how can children acquire such notions? Is there a conceptual bedrock of spatial ideas on which children build? These and many further fundamental questions arise.

This books deals centrally with linguistic variation in this domain. It illustrates in detail how languages may mismatch on fundamental spatial distinctions. But it also suggests a number of constraints and a restricted inventory of possibilities. It demonstrates a method of controlled comparison which can reveal both recurrent regularities and contrastive differences across languages. In the conclusions to this volume, both universal patterns and axes of variation will be reviewed and illustrated from the material elsewhere in the book.

1.2 Nature of this book

This book collects together in one volume closely comparable descriptions of spatial language in a dozen languages, nearly all from unrelated stocks. It allows one to see more or less at a glance how differently languages may treat a single important semantic domain. Curiously, information of this kind has never before been made available – instead comparisons have focussed on particular parts of speech (like spatial adpositions), or have focussed on the particular resources of an individual European language. Information on spatial description can, of course, be found in grammars, but it is distributed and always incomplete, and one cannot reliably compare one such description with another. In contrast in this book, in order to achieve close comparison, the papers each touch upon a series of key topics, and the researchers have all used a shared set of elicitation techniques. In each case, fieldwork has been undertaken specifically

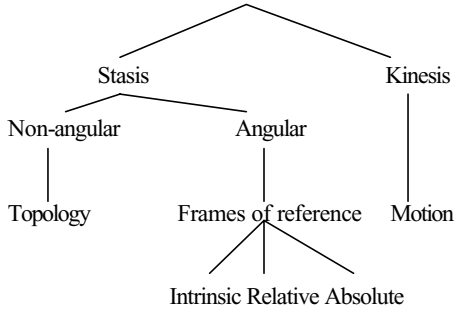


Figure 1.1 Conceptual subdivisions of the spatial domain

to illuminate the issues at hand, and each paper represents a summary of in-depth research, which has been subject to extensive mutual discussion. This kind of collaborative work is rare in the social sciences, and we hope that it will inspire more joint efforts of this kind.

This book therefore provides a unique window on how an important conceptual domain may be coded differentially across languages. For many researchers in linguistics and cognitive science the degree of diversity will come as a profound surprise. On the other hand, the existence of underlying constraints on the spatial imagination is also clearly revealed in the very extent to which close comparison and contrast is possible.

The basis of comparison has emerged from a long-term project on spatial language and cognition at the MPI for Psycholinguistics. The reader will find that the spatial domain has been partitioned into 'topological description', 'motion description' and 'frames of reference'. This partition does not exhaust the domain – spatial deixis, for example, is orthogonal and will be treated in a sister publication – but we have selected these sub-domains because they cover the major themes in the literature. The partition itself reflects major conceptual cleavages in the domain: stasis vs. kinesis on the one hand, and angular vs. non-angular static descriptions on the other (see Figure 1.1).

Leibniz and Newton (through his protégé Clark) had a heated exchange on the essential nature of spatial concepts, Newton insisting that space was an abstract envelope, while Leibniz insisted that it was relational. Most (but not all) natural language descriptions of spatial scenes are Leibnizian – that is, they describe the location or motion of one thing with respect to other things. Thus in a spatial description, something – call it the 'figure' (theme or trajector) – is generally located with respect to something else – call it the 'ground' (or landmark).

The conceptually simplest spatial description simply indicates a spatial coincidence of figure and ground. This is the core concept in the topological

sub-domain, but we can also subsume relations of propinquity, contact and containment – thus English prepositions 'at', 'on' and 'in' are usually considered to lie at the heart of the topological sub-domain (Herskovits 1986).[1] Once figure and ground are separated in space, such non-angular specifications are not of much use – we want to know in which direction from a ground we need to search to find the figure. Some kind of coordinate system now comes into play. One way to specify an angle is to name a facet of the ground and indicate that the figure lies on an axis extended from that facet, as in 'The statue is in front of the cathedral'. We call this the 'intrinsic' frame of reference, since it relies on a prior assignment of 'intrinsic' or inherent parts and facets to objects. Another way to specify an angle is to use the viewer's own bodily coordinates, as in 'The squirrel is to the left of the tree'. This is, of course, useful where an object seems to lack intrinsic facets useful for horizontal discriminations, like trees. A third way to specify angles is to use fixed bearings – independent of the scene – to specify a direction from a ground or landmark, as in 'The coast is north of the mountain ridge'. We call this the 'absolute' frame of reference, because the names and directions of the fixed bearings are fixed once and for all. Although there are many intriguing variants of these three kinds of coordinate systems or 'frames of reference', these three types (intrinsic, relative, absolute) seem to exhaust the major types used in natural languages.

Nearly all descriptions of motion also involve Leibnizian reference to landmarks or ground locations (exceptions are statements like 'In the summer the geese fly west', where 'west' is not a place but a direction). Motion is typically specified as motion to (or towards) a 'goal', or from a 'source'. Specification of both (as in 'He went from Antwerp to Amsterdam') determines a unique vector – so one can specify a direction without employing frames of reference. Deictic verbs of motion (as in 'He came late') may specify a goal (or source), namely the place of speaking. Often, though, frames of reference will be employed either exclusively (as in 'In the summer the geese fly west') or as part of, or in addition to, goal or source specification (as in 'He ran off behind the building'). Apart from deictic contrasts, verbs of motion may build in 'attainment of goal' as in 'reach, arrive', or departure from source as in 'leave'. Verbs of motion may also package other semantic material, like manner of motion, and even languages with very restricted verbal inventories seem to have a set of contrastive motion verbs (see the description of Jaminjung in Chapter 3).

There are many other kinds of variation in spatial coding across languages, as the reader will find exemplified in this volume. First, within each of these sub-domains, there are quite variable conceptual distinctions. For example,

[1] 'Topology' is here used with some departure from the well-defined mathematical concept. The term came into linguistic description through Piaget's analysis of the spatial concepts of children and includes a number of spatial relations that are not strictly speaking topological.

the topological relationships encoded in specific languages overlap and cross-cut one another – there is no one-to-one mapping of spatial relators cross-linguistically. In the frame-of-reference domain, not all languages utilize all three frames of reference, and each frame of reference may be instantiated in quite distinct concepts across languages. For example, where languages have a 'left'/'right'/'front'/'back' system used in such expressions as 'behind the tree', 'behind' and 'left' can mean exactly the converse of what they mean in English. And in the motion domain, languages differ in what is conceptually grouped or packaged in motion verbs.

A second major axis of variation is how these concepts are coded linguistically. Existing literature on spatial language gives the impression that the heart of spatial description is generally encoded in a set of contrastive spatial adpositions. Thus in English we use the same kind of prepositional phrases in topology ('in the bowl'), frames of reference ('in front of the building') and motion description ('into the building'). But many languages deploy distinct grammatical and lexical systems in these different domains. Further, some languages have no spatial adpositions. Others have only one general-purpose adposition. Such languages perforce code spatial relations elsewhere in the clause, frequently in the verb, or in local cases, or in special spatial nominals, or in adverbials. In general, most languages distribute spatial information throughout the clause. For example, a topological relation (as in 'The cup is on the table') may often be expressed through the simultaneous deployment of a number of contrastive choices in lexicon and morphology – one may say in effect something like 'The cup table top-AT stands', where 'top' is drawn from a set of contrastive spatial nominals, AT is expressed by case or adposition, and 'stand' contrasts with 'sit', 'hang' and other locative predicates.

There are no simple, hard generalizations about exactly where in the clause different kinds of spatial information are encoded. Nevertheless, as a generalization, one can say that the shape of the figure is normally encoded in locative predicates, and only occasionally in adpositions, while the shape and geometry of the ground is typically coded in adpositions and spatial nominals; the spatial relation between figure and ground may be encoded in locative verbs and case, but is especially to be found in adpositions and spatial nominals.

It is the combination of these two axes of substantial variation – semantic and grammatical – that is illustrated throughout this book. This variation raises the fundamental cognitive questions alluded to in the prior section – how are we to reconcile incommensurable semantic parameters with 'the psychic unity of mankind'? How do children then learn semantical concepts for which they cannot be prepared by independent cognition? The variation also raises a series of questions within comparative linguistics:

- What constraints are there on the *semantic parameters* involved – in short, what does the *semantic typology* of space look like?

As we shall see, despite a great deal of variation, the high-level typology here seems quite constrained. But at a greater level of detail there is sufficient variation to ensure that comparable expressions in different languages scarcely ever have the same meaning and extensional range.

- What constraints are there on the formal expression of these semantic types – what does the morphosyntactic typology of spatial expression look like?

  Contrary to the literature, we will find that spatial notions are not universally encoded in specific parts of speech like adpositions or case inflections but are distributed throughout the clause.
- Are the various kinds of conceptual domain in spatial description (as in Figure 1.1) formally distinguished in languages?

  As already hinted, the answer is not always, but the distinctions exist often enough to suggest that these domains do mark natural cleavages.
- How much spatial information is coded in language and how much inferred, and are the patterns the same across languages?

  What we will find is that although the same kind of pragmatic principles are arguably universally in play, languages do not universally code semantically to the same level of specificity. For example, in many languages the distinction between 'on the table' vs. 'in the bowl' will not normally be coded, but rather left to pragmatic inference from expressions of the kind 'table-LOCATIVE' vs. 'bowl-LOCATIVE'.

1.3 The language sample

It is not possible in a volume of this kind to have sketches from a representative sample of the world's languages – such a book would have perhaps 400 chapters! Instead, what we have collected here is something of an opportunistic sample, which has arisen from the chance the authors have had to work closely together, and thus produce closely matched descriptions of the languages in which they are expert. Nevertheless, it is a happy sample, in the sense that the languages are geographically distributed over five continents, representing cultures with major variations in environment and land use. Both small-scale and large-scale societies are represented, and there is a bias to relatively little-known languages, so that nearly all the material presented here is new, and not to be found properly laid out in existing grammars. Altogether, seven language families are represented, along with two isolates. Some regional and linguistic clusters of languages (Australian and Mayan) allow readers to come to their own conclusions about the importance of areal and genetic factors in semantic typology. Table 1.1 gives some basic details about the languages and their speakers. From a grammatical point of view, the languages offer a wide spectrum of linguistic types. There are languages with most of the predominant word orders:

Table 1.1 *Grammars of space – language sample*

Language	Language affiliation	Country where research was done	Number of native speakers
Arrernte (Eastern and Central)	Australian, Pama-Nyungan	Australia	2,000
Jaminjung	Australian, non-Pama-Nyungan	Australia	100
Warrwa	Australian, non-Pama-Nyungan	Australia	2
Yélî Dnye	Papuan, Isolate	Papua New Guinea	4,000
Kilivila	Austronesian	Papua New Guinea	23,000
Tzeltal	Mayan	Mexico	200,000
Yukatek Maya	Mayan	Mexico	800,000
Tiriyó	Cariban, Taranoan	Brazil, Surinam	2,000
Ewe	Niger Congo, Kwa	Ghana	2,000,000
Tamil	Dravidian	India	70,000,000 (world-wide)
Japanese	Isolate? / Altaic?	Japan	118,000,000
Dutch	Indo-European, Germanic	Netherlands	15,000,000 (in the Netherlands)

PHRASE ORDER IN TRANSITIVE CLAUSES (S=subject, O=Object, V=Transitive verb)

Ewe: SVO

Yélî Dnye: SOV tendency; *Japanese*: SOV [canonical]; *Tamil*: SOV

Tzeltal: VOS [both prefixes and suffixes]; *Yukatek Maya*: VOS; *Kilivila*: VOS

Jaminjung: Free Phrase Order; *Arrernte*: Free Phrase Order [V-final tendency]

Tiriyó: Free Phrase Order

There are languages of both 'head-marking' and 'dependent-marking' types (where S=subject and O=object):

ARGUMENT MARKING ['cross-referencing'] ON VERB/IN VERB PHRASE:

Ewe – No; *Japanese* – No; *Arrernte* – No [optional number marking for subject]

Kilivila – Yes, just S; *Dutch* – Yes (reduced), just S; *Tamil* – Yes, just S [suffix]

Jaminjung: Yes, both S and O; *Tzeltal*: Yes, both S and O; *Yélî Dnye* – Yes, both S and O, by free particles in VP; Tiriyó – Yes, S and O.

From a morphological point of view, within the sample there are languages of isolating vs. agglutinating vs. (mildly) polysynthetic types. And there

are various forms of morphological ergativity vs. morphological nominative-accusative patterns. In short, most of the major formal types of language are represented in the sample.

1.4 Controlled comparison: the stimuli

Cross-linguistic (and more generally, cross-cultural) comparison is fraught with difficulties. Although isolated features or traits may be readily extracted and compared, their value or function depends on the system in which they play a part. But comparing whole systems is like comparing apples and oranges, and anyway is rarely possible. Comparative linguistics and linguistic typology proceed, nevertheless, most confidently across related languages, or in areas where there are intrinsic limits to variation (like phonetics) or where there seem to be strong universals or limited types (as in morphosyntax). Comparative semantics as a systematic enterprise has hardly begun – there are only isolated domains like colour, ethnobotany or kinship where we have any overall idea about patterns of variation across unrelated languages. In these domains, the structure of the natural world (colour and its perception, the differentiation of species, biological reproduction) gives us some 'etic' metalanguage of comparison. An 'etic' metalanguage (coined on the model of 'phonetic' by Pike) is some objective description of the domain which makes maximal discriminations, so that we can specify precisely how a language groups these discriminations within its own 'emic' (cf. 'phonemic') concepts. These groupings are most easily appreciated extensionally, that is, by looking at the range of denotation for a native term; to understand the meaning or intension, we need to look at the kinds of contrasts the terms make with one another.

The semantic domain of space is altogether more complex and abstract than these more referential domains and, as we have seen, is internally differentiated into sub-domains. A simple 'etic' metalanguage is not available. Nevertheless, there are obvious ways in which to proceed. A good sample of unrelated languages will give us a sense of which kinds of discriminations are likely to be made. We can then build these maximal contrasts into a series of spatial 'scenes', and see for any one language whether they are in fact discriminated, and if so how. We can then readily compare these extensional groupings, and then (not quite so readily) explore the intensional principles upon which the groupings are made.

During the course of the space project at the MPI for Psycholinguistics, many specialized stimuli have been developed for exploring spatial language. These include specialized stimuli for eliciting deictic motion verbs, a specific instrument for deciding on the precise semantics of enter/exit verbs, various methods for eliciting demonstratives, stimuli geared to discriminations in contrastive locative verbs, and so forth. All the papers in this volume are informed

by these systematic stimuli and mutual discussions about results. But here we have chosen to focus on three main stimuli, as an illustration of the method and the kinds of comparative results that can thus be obtained.

1.4.1 Topology Series 'Picture-Book'

This stimulus is a book of seventy-one line drawings, 'The Topological Relations Picture Series', to be used in elicitation sessions with three or more native speakers. Each picture shows principally two objects, one of which is designated (by an arrow, or coloured yellow in the original) to be the figure object, the other the ground. The native speaker is asked how one might colloquially answer the question 'Where is the X (the figure object)?', given the kind of association between figure and ground indicated in the picture. This is not intended to be a mechanical elicitation procedure – the investigator may need to choose alternative local items to be found in similar configurations, and a range of answers should be collected, noting which occur in which order, and which are said to be preferred or most normal. Three or more consultants allow some qualitative and quantitative analysis of preferred solutions.

The edition used in the chapters below is the 1993 version from the MPI for Psycholinguistics (the original design is by Melissa Bowerman, with supplementary additions by Penelope Brown and Eric Pederson). The book was specifically designed to investigate the maximal range of scenes that may be assimilated to canonical IN- and ON-relations (and thus includes a number of scenes unlikely to be so assimilated). English, for example, might be held to have a prototype ON-relation at the heart of the preposition *on* (as exemplified in *The cup is on the table*), but many other kinds of spatial relations – like a ring on a finger, a picture on a wall, a shoe on a foot – are assimilated to the same preposition. Not surprisingly, perhaps, even closely related languages like Dutch prefer other contrastive adpositions for many of these scenes. The full set of pictures include spatial relations that contrast on a range of partially overlapping dimensions:

+/− horizontal support
+/− vertical support (hanging)
+/− adhesion
+/− liquid/mastic adhesion
+/− marks on surface
+/− living creature on non-horizontal surface
+/− attachment of projecting figure to ground
+/− attachment by cord
+/− encirclement
+/− envelopment
+/−clothing/adornment

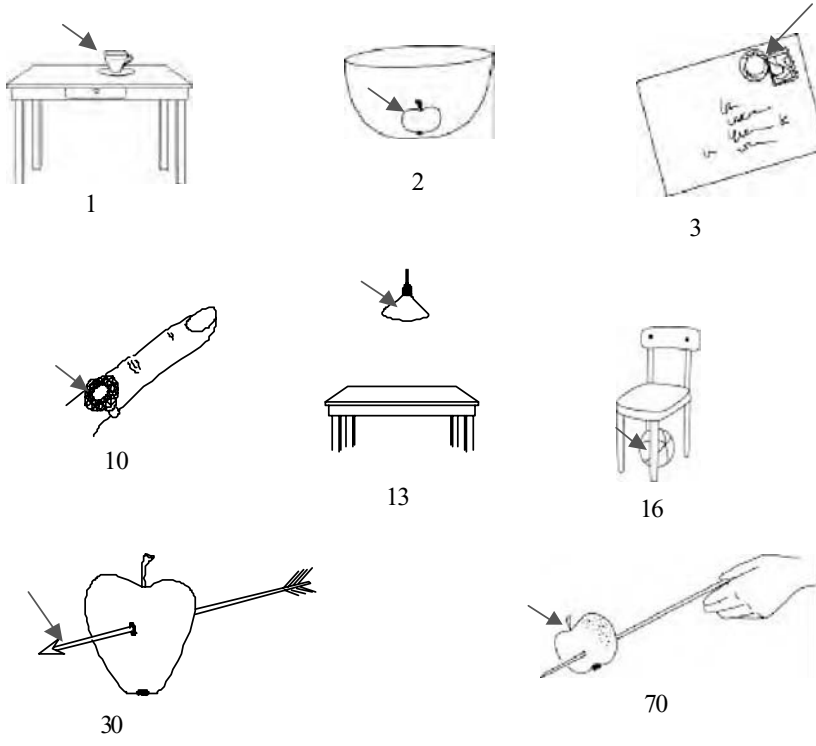


Figure 1.2 Set of pictures from the 'Topological Relations Picture Series'

+/− complete containment
+/− partial containment
+/− containment in liquid or mass
+/− containment in encircling boundary
+/− attachment by piercing
+/− negative spaces (holes, cracks)
+/− vertical non-contact (above)
+/− behind
+/− in front of
+/− under
+/− next to

For reasons of space, we have chosen just eight of these pictures to form a set over which the languages represented in each chapter can be compared. They are reproduced in Figure 1.2, with their original numbers (Pictures 1, 2, 3, 10, 13, 16, 30, 70). Authors of the chapters below occasionally mention other pictures, and the full set can be found in Appendix 4 at the end of the book. The pictures were selected on the basis of a prior study which showed

that these represent maximally different scenes from the point of view of the differentiation of spatial adpositions.[2] They include both canonical IN- and ON-relations, and then some other relations allowing some maximal contrasts between, for example, contact and non-contact, or attached vs. non-attached, as well as what happens in figure/ground alternations. For reasons that are discussed in Section 1.5.1 below, it is interesting to see how freely placed objects contrast with attached ones, and how such special spatial relations like figure piercing ground, or figure as personal adornment, are dealt with in spatial descriptions. Experience shows that languages differ greatly in the extent to which these more specialized situations are assimilated to central topological codings.

1.4.2 The Men and Tree Space Game

Structured elicitation sessions using controlled stimuli as in the picture-book described above are not the only way in which controlled information can be obtained about spatial description. An often more revealing method is to structure an interaction between native speakers over a set task. In the Space Games series, a native speaker 'director' describes a stimulus to a native speaker 'matcher', who is screened off from the director in such a way that the matcher can find the stimulus from a set of contrasting stimuli, randomly arranged. Director and matcher know that both of them have the same full set of stimuli, they know they are both facing the same direction, and they know they must find descriptions adequate to identify the stimuli in the absence of shared vision. The director freely describes the stimulus, and the matcher queries the description, until both parties feel convinced that, although they have no visual contact, they have identified the same stimulus. Such games can involve photo-photo matching, as in the game described here, or photo-object matching, or object-object matching. Matching can require recognition (as in the game described here), or construction, as in the Tinkertoy game where a director has a model that the matcher must construct again from pieces (see chapter 6 on Kilivila).

The Men and Tree photo-matching series was developed specifically to investigate frame-of-reference choice. The core set of contrasts from one of these games (Men and Tree Game 2) is illustrated in Figure 1.3 (the game includes another six photos that act as controls). There are six photos (here reproduced as line drawings) of a toy tree and toy man in various positions. The structured oppositions involve both alternations in relative position (which we call *standing* relations) – tree to visual left of man, or tree to visual right of man – and alternations in the orientation of the man (which we call *facing* relations) – facing left, facing right, facing the viewer, or facing away from the viewer. In the chapters of this book, descriptions will focus on just three of these, labelled

[2] The study was by Eric Pederson and Melissa Bowerman, and remains unpublished.

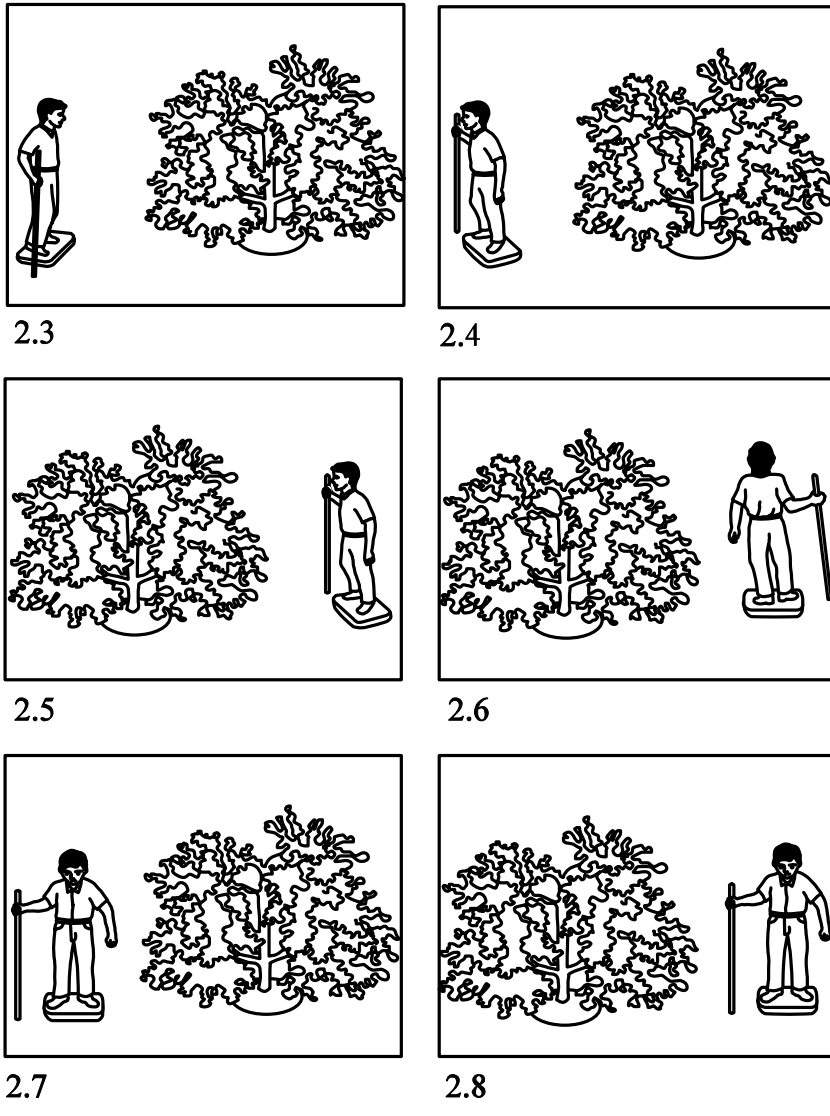


Figure 1.3 Men and Tree Game 2

2.3, 2.4 and 2.5 in the figure. The discourse that results from the game can be transcribed and queried, and can also be systematically coded for comparative purposes. A method of coding for this particular game is described in Pederson et al. 1998. The coding method allows one to isolate expressions that can be said to be *functionally equivalent*, in that they make the same distinctions, and

further, to isolate the propositional content used to make the functional distinction. For example, 'man to left of tree' may contrast with 'man to right of tree'; propositions in terms of 'man to south of tree' and 'man to north of tree' may make the same functional contrast, but involve different semantic parameters (or propositions) – in this case, different frames of reference.

A number of other 'games' of this sort have been employed by the authors of the chapters below to arrive at their general conclusions about how spatial description works in the languages in question. For example, another game (the Route Directions task) was specifically devised to elucidate frames of reference in motion description, and involved a director describing the motion of a toy man through a model landscape in such a way that the matcher could emulate it in an identical landscape.

1.4.3 The Frog Story

As an example of the stimuli that may be used to obtain motion descriptions, we have chosen the 'Frog Story' to exemplify different patterns of motion description across languages. The story comes from the wordless picture-book *Frog, where are you?* by M. Mayer (1969), published as a first book for children. It has been successfully used as a stimulus in the study of the development of narrative skills in Western children by Berman and Slobin (1994; the full set of pictures is published there as an appendix). This study has revealed major differences across languages in the way in which complex motion scenes are coded linguistically. The Berman and Slobin procedure (1994: 20) is to present the picture-book to children, who leaf through the twenty-four pages, and then retell the story to an interlocutor as they leaf through the book again. The story is recorded and transcribed in the normal way.

As a stimulus for cross-cultural research the Frog Story has certain limitations – as Wilkins has pointed out (see Berman and Slobin 1994: 21–2), it presupposes many details of Western semiotic conventions. In many of the cultures reported on in the chapters below, picture-books have no currency at all, and straightforward narratives are not always obtainable. Still, the very fact that it has been used in well over fifty different languages makes it an invaluable point of comparison. Except where noted below, the Frog Story retellings are by adults to other native speaker adults who have not seen the book.

For the purposes of this book, as an illustration of complex motion description, we have chosen four pictures that detail a crucial event in the story (what Slobin calls a *journey* – see §1.5.2 below), where a boy (the hero of the book) is picked up on the antlers of a deer and, with his dog running beside, is taken to a cliff and dumped over the cliff into a pond. This allows us to compare how such complex events are coded, how manner and path (or trajectory) are expressed, how source and goal are specified, and how simultaneous vs. sequential events

Figure 1.4 The cliff scene from the Frog Story

are coded. More detailed analyses of these descriptions in Arrernte and Tzeltal can be found in Wilkins (1997b), and Brown (2000).

1.4.4 Other elicitation tools

A number of other, more carefully designed elicitation devices for motion semantics are referred to in the chapters below. One of these is the 'COME' and 'GO' Questionnaire, a series of scenes devised to elucidate deictic distinctions in motion verbs. This questionnaire provides a series of twenty scenes,

discriminating, for example, motion to vs. towards vs. obliquely towards the deictic centre. The questionnaire and some results are described in Wilkins and Hill 1995. Another such tool is the ENTER/EXIT elicitation film designed by S. Kita, where motion vs. change of state are precisely distinguished. Some of the interesting contrasts here are exemplified in the Japanese chapter below (see also Kita 1999, Senft 1999b).

1.5 Patterns of variation

In the conclusions to this book, the reader will find a systematic comparison of the patterns of variation exemplified in the languages described in this book. But here it will be useful to preview some of the themes and provide some comparative terminology to aid the reading of the individual chapters. Each chapter touches on the three sub-domains mentioned earlier – topology, motion verbs and frames of reference – and we will take these in turn.

1.5.1 Topology

When comparing spatial language it is essential of course to compare like with like, and specifically to specify *functional equivalents*. Since all languages appear to have Where-questions, we can use this as a functional frame: we will call the predominant construction that occurs in response to a Where-question (of the kind 'Where is the X?') the *basic locative construction* or BLC for short. (Note that this expression is a shorthand for 'the construction used in the basic locative function' – constructions can have different functions.) Locative descriptions, of course, occur outside the Where-question context, as in a guidebook description of the kind *The Cathedral stands at the heart of the old city, overlooking the Rhine*. Notice that such a sentence would be odd indeed as an answer to a *Where*-question, which is more likely to be something of the kind *It's in the central square*, where the locative verb is *be* and the location is given in terms of a concrete landmark. For English, then, the BLC is of the form NP BE PP, where the first NP (noun phrase) is the figure, and the PP (prepositional phrase) expresses the ground, as in *The apple is in the bowl*.

Different languages have quite different structures in their BLCs. Some, of course, have no prepositions, or adpositions, using case marking and/or spatial nominals instead (as in 'square-LOCATIVE' or 'square middle' or 'square middle-LOCATIVE'). Some languages have no locative verb, assimilating the BLC to nominal predication, but more often there are a number of locative verbs to chose from. Many languages have a small set of locative verbs or *positionals*, often related to posture verbs like 'stand', 'sit', 'lie', but also often including predicates like 'hang'. These then contrast and their usage is usually determined by the shape and function of the subject (the figure NP), under certain

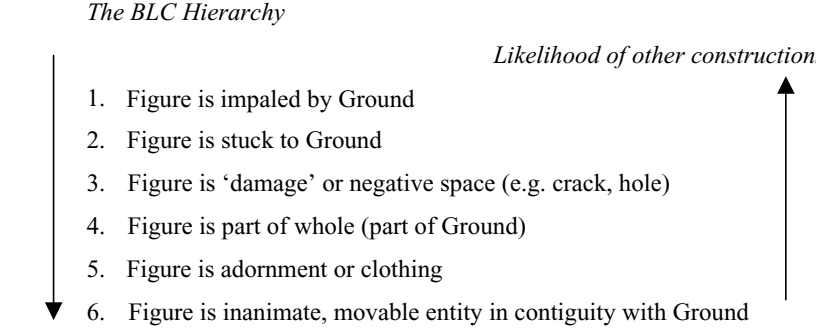


Figure 1.5 The hierarchy of scenes most likely to get BLC coding

orientational constraints (see, e.g., Chapter 5 on Yélî Dnye). Other languages have a much larger set of *dispositional* predicates used in the BLC, where the precise orientation and disposition of the subject with respect to the ground is the crucial determinant of choice (see, e.g., Chapter 7 on Tzeltal).

The BLC is thus constructed from distinct form classes – adpositions, nominal predicates, case inflections, locative verbs – according to the language. These choices are themselves influenced not only by semantic factors but also by systematic pragmatic factors. In many cases the BLC may be abbreviated. This is not merely ellipsis (as in *Where's the cup – On the table*), but a systematic way of indicating that figure and ground are in a canonical or stereotypical relation, as in the use of the locative case without further specification (as in 'The cup table-AT', where this will be understood as 'The cup is table-top-AT'). Pragmatics provides some theory for understanding these alternations (Levinson 2000a), although as a practical matter it is not always easy to decide whether the BLC has a reduced form, expanded in certain circumstances, or has an underlying expanded form, reduced in certain circumstances.

Even in response to Where-questions, languages generally deploy a number of quite different constructions. Identifying the BLC relies on the notion of a prototypical kind of scene – e.g. a moveable object on a restricted surface. Speakers of many languages will not use their BLCs to describe, for example, a ring on a finger, or a crack in a vase, or a spike through an apple – they may use other specialized constructions or resultative constructions (as in 'The spike has been speared through the apple'). In fact, it turns out that spatial scenes can be ordered in what we shall call *the BLC Hierarchy* according to the likelihood that they will be encoded using the BLC. A portion of the hierarchy is depicted in Figure 1.5. Linguistic theorizing about topological relations has suggested that spatial relations are concentrated in spatial relators – typically

adpositions – which have a limited kind of semantic content (Talmy 1985, Landau and Jackendoff 1993, Svorou 1994). As we have just seen, spatial information is in fact potentially distributed across the clause, some languages putting all the burden in the locative verb, others in case (as in Finnish). The semantic content is also not nearly as predictable as these accounts suggest. Landau and Jackendoff suggest, for example, that such semantic content is abstract and axial, while Talmy suggests it is abstract but topological rather than Euclidean. In fact, as we shall see, the information can be very specific and language-particular, reflecting cultural preoccupations. Look out, then, in the chapters below, for such specificities as the 'aquatic' ground, or distinctions between different kinds of container built into locative verbs!

1.5.2 Motion

As a first approximation, we can say that motion involves spatial change, although, as we will see, perhaps not all change of spatial relations involves motion. Change involves time, and dynamic change over time is the typical province of verbs. There has been a great deal of linguistic theorizing about the nature of the semantic content of verbs in general, and verbs of motion in particular (see Frawley 1992, Chapter 4, for a useful survey). Here we will review a number of recurring themes – the typology of lexical packaging in motion verbs, the underlying notions of path and manner, the tendency in languages for motion verbs to constitute minor form classes, the way in which source and goal are encoded, and constraints on the complexity of motion components that can be packaged within the single clause.

Talmy (1985) influentially proposed a major typological dichotomy between different kinds of motion coding in languages: verb-framed vs. satellite-framed. The typology rests on a dissection of the components in a motion event into (a) the figure, i.e. the thing moving, (b) the ground, specifying source or goal of motion, or both, (c) the path or trajectory of the motion, (d) manner of motion, (e) the predicated event itself (other elements are the site or medium in which the motion takes place, and the means or instrument of motion). Thus in *The bird flew up into a tree*, the figure is the bird, the ground is the tree, the path is expressed by *up into*, and the predicated motion together with manner of motion is expressed by *flew*. Talmy's typology rests on a simple observation: languages tend either to package the path with the predication, as in Spanish *entrar* 'to go in', *salir* 'to go out', *cruzar* 'to go across', leaving manner to an additional clause or gerund, or alternatively to package the predication with manner, leaving the path to be expressed in 'satellites' as in the English particles in *run in, crawl up, climb down*. Although the two types clearly do capture major differences in the way in which motion is packaged in languages, the

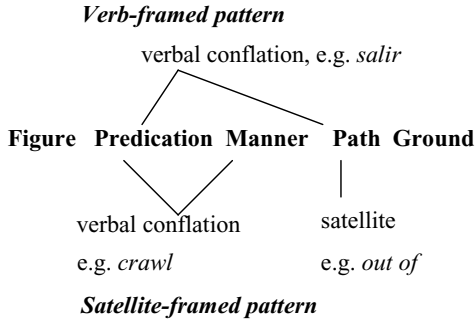


Figure 1.6 Talmy's (1985) typology of path encoding

typology has been subject to critique and revision.[3] A simple difficulty is that many languages allow both kind of packaging (as in English *go in* vs. *enter*), requiring Talmy to discern what he calls the 'characteristic mode of expression' (thus English is satellite-framed, with Romance loans displaying the contrary type in a minority, but many languages resist this kind of easy conclusion). More problematic is what exactly is to count as a satellite, since many different form classes may carry path or trajectory information – are deverbal directionals as in the Mayan languages satellites or verbs (see the chapters on Tzeltal and Yukatek below)? Some languages have very restricted inventories of verbs, but supplement them with preverbs or coverbs – see, for example, the chapters on Warrwa and Jaminjung below – and it is then no longer clear how to apply the typology.

Another doubt is raised by the notion of path. The core of a motion event might be thought to be displacement of the figure in space along a trajectory, where this trajectory constitutes the path. But careful analysis suggests that in some languages the displacement of the figure over time along a trajectory is not actually what is coded by motion verbs. We tend to think that motion must be conceptualized as *translocation*, that is as a durative event involving passage through an indefinite series of points in space over time. But there are other possibilities, with different Aktionsarten, and differential focus on figure–ground relations. In fact, on the basis of the kind of work reviewed in the chapters below (and see especially the chapter on Japanese), we will propose in the final chapter a new semantic typology of motion conceptualization.

Incidentally, although much of the dynamic component of motion events tends cross-linguistically to be encoded in verbs, this is not exclusively so. Many languages have special constructions that indicate 'motion while doing' or 'motion with purpose'. In the languages detailed below, Arrernte provides a case where there is an elaborate array of fifteen alternative categories, indicated

[3] See Frawley 1992, Schultze-Berndt 2000, Talmy 2000, Slobin n.d.

by suffixes attached to non-motion verbs, encoding motion components such as 'do upwards while VERB-ing' or 'VERB while going back'. Such rich 'associated motion' categories may be an isolated areal feature, but many of the other languages exemplified in this book have more limited categories of this sort encoded elsewhere than in the verb root.

So far, we have been concentrating primarily on the semantics of the verb, and different kinds of lexical packaging of the verb in cross-linguistic perspective. But for comparative purposes we need to consider larger units of motion description, what Slobin (1996) calls a *journey*: an extended, complex path that can include 'milestones' and subpaths each with sources and goals, possibly situated in different media. For example, the Frog Story scene pictured in Figure 1.4 was described by an English-speaking five-year-old as *He threw him over a cliff into a pond*, or by a nine-year old as *He [the deer] starts running and he tips him off over a cliff into the water. And he lands*. (Slobin 1996: 202). Slobin points out that this kind of accumulation of prepositional phrases is vanishingly rare in Spanish Frog-stories, where only one prepositional phrase per clause tends to occur. Slobin analyses this as a stylistic feature induced by structural facts. But in some of the languages described below there seem to be hard grammatical constraints on the number of ground-specifying phrases: thus both Yélî Dnye and Yukatek seem to allow at most one such phrase per clause – specification of both source and goal will require two clauses of the kind 'He left the source, and arrived at the goal.'[4] Further, it will turn out that the actual coding of source and goal is cross-linguistically variable, being sometimes coded on these adjuncts, sometimes coded in the verb, and sometimes both. In the final chapter we will propose a typology of this kind of variation.

Finally, another interesting dimension of variation concerns the extent to which languages use the same resources in the description of motion vs. stasis. Again, Talmy has suggested that they universally tend to do so, since static locatives are derivative from or modelled on motion descriptions. Thus in English, *He went out of the office* is very similar in structure to *He is out of the office*. But some languages make very fundamental distinctions between the two domains. Tzeltal, for example, uses quite different resources in the two domains – even frame-of-reference information has different coding in stasis vs. motion. Further comparisons on this dimension will be found in the final chapter of the book.

1.5.3 Frames of reference

As already sketched above, once a figure object is removed in space from a relevant ground object or landmark, it becomes pertinent to specify a direction,

[4] This contradicts assumptions in the literature that all languages permit both source and goal to be simultaneously encoded in the clause. See, e.g., Frawley 1992: 173.

or angle, relative to the landmark in which the figure may be found. Such angular or directional specifications of location require some form of coordinate system. Natural languages seem to employ only polar coordinates, specifying a direction by rotation around a ground object. As mentioned, there seem to be only three major abstract types: intrinsic, relative and absolute. These have different logical and rotational properties, which make the distinctions quite clear.

Consider, for example, a spatial array of the following kind: a toy man is placed at the front of a toy truck on a rotatable board. In the case of the relative and absolute frames of reference, the angular distinctions are mapped onto the scene from outside it, using the observer's own axes (as in 'The man is to the left of the truck') in the relative frame, and fixed absolute bearings (as in 'The man is to the north of the truck') in the absolute frame. Now if we rotate the board, the description of the scene will change – the man is now to the right of the truck, or to the south of it. But in the intrinsic frame of reference the angles are found by naming a designated facet of a landmark or ground object (like 'at the front of') within the scene to be described, and if the whole scene is rotated the description may stay the same (as in 'The man is at the front of the truck'). The intrinsic frame is thus sometimes said to be 'orientation free', while the other two frames are 'orientation bound'. However, the latter also differ in their rotational properties – if the describer walks around the scene to the other side, the relative description changes (now 'The man is to the right of the truck') but the absolute description remains the same (the man is still 'to the north of the truck').

These fundamental semantic differences justify the typology into three main types (see Levinson 1996b, 2003 for additional properties). Incidentally, although the three main types had been distinguished on the vertical dimension by psychologists interested in perception, it was not until the comparative work exemplified in this volume that it became clear that these types also structure the linguistic distinctions on the horizontal plane – partly because languages systematically using the absolute frame of reference on the horizontal had not before been properly described.

Despite the fact that there are from a logical and rotational point of view only three main types of frame of reference, there is nevertheless within each of the three main types a great deal of variation in conceptualization and coding. This is because these directional properties can be constructed in rather different ways. Let us take the three frames of reference one by one and examine the kind of internal variation they exhibit.

The intrinsic frame of reference requires some kind of partitioning of the ground object or landmark into named facets, from which search domains can be projected. All languages provide at least some such segmentations, and nearly all use them in spatial descriptions. English or Dutch does this by a complex

mixture of criteria – the 'front' of a truck is the direction in which it moves, the 'front' of a television the side one watches, the 'front' of a building the side one normally enters, and so on. These criteria thus include canonical orientation of object, functional orientation, normal direction of motion, characteristic orientation of the user, etc. (see Miller and Johnson-Laird 1976: 400–5). But some languages partition objects by more consistent criteria – for example, Tzeltal uses almost exclusively the internal geometry of the ground object (according to its longest axes and the shapes of sides – see the chapter below and Levinson 1994). Interestingly, Tzeltal largely ignores orientation with respect to the vertical, while many languages make this fundamental, what is 'top' becoming 'bottom' upon rotation. There are thus many fundamentally different ways in which this assignment of parts or facets to an object can be achieved. Despite these arbitrary complexities, children seem to master these notions surprisingly early.

The relative frame of reference involves a mapping from the observer's own axes (front, back, left, right) onto the ground object, so that, for example, one can say 'The cat is in front of the tree' by deriving a front for a tree from the observer's front – in this case, clearly, by assigning a front to the tree as if the tree was a confronting interlocutor. These mappings are complex, involving a triangulation of figure, ground and viewer, and they can be made in different ways – in some languages the 'front' of the tree is the far side of the tree (as in the well-known Hausa case, Hill 1982), and in others, what we would call the left side of the tree is the right! There are at least three distinct types of such mappings attested, and languages may mix them (for the details see Levinson 1996b, 2003). An additional source of complexity is that some languages, like English, use the same terms like 'front' and 'left' in both the intrinsic and relative frames of reference. Thus 'The tree is to the left of the man' may be ambiguous: it may mean that the man is facing us, with the tree at his left hand, and thus to our right (an intrinsic interpretation), or it may mean that the tree is in the left visual field regardless of the man's orientation (a relative interpretation). Some languages reduce the ambiguity, either structurally (requiring, e.g., a possessive like 'the man's left' for the intrinsic interpretation), or by procedural rule (as in Kilivila where an intrinsic interpretation takes priority over a relative one wherever the ground has inherent named sides). These systematic interactions between the intrinsic and the relative frame of reference are thus further sources of variation.

The absolute frame of reference in ordinary language use requires fixed bearings that are instantly available to all members of the community. English has a word for 'north', but few Englishmen can effortlessly and reliably point to north, and it does not figure in normal discourse about small-scale spatial relations. Nor do we have clear conventions about what range of horizontal arc will count as north. But there are many communities where conventional

fixed arcs are established and instantly available to all competent speakers of the local language. Such a system can then make the relative frame of reference irrelevant and unnecessary, and there are thus many languages which do not employ a relative 'front', 'back', 'left', 'right' system. Absolute coordinates can be based on many different sources – solar compass, sidereal motion, wind directions, river drainage, mountain slopes, and many of these show up in language systems. For example, in this volume, the Tenejapan Tzeltal system is transparently based on mountain slope, and the Jaminjung system on river drainage. More abstract systems, as exemplified by Arrernte in this volume, are probably based on a fusion of different cues, e.g. solar compass and prevailing winds. What is essential about such systems, if they are to function in everyday communication on a range of scales, is that speakers have internalized the fixed directions so that, for example, in an unfamiliar building in the dark, they still know where the named directions lie.

A major dimension of variation concerns the selection from this inventory of three main types of frames of reference. Although some languages use all three, most languages make do with two frames of reference in everyday communication – in particular, many use either the relative or the absolute frame but not both. The intrinsic frame of reference is nearly always present, at least in some residual form. Where more than one frame of reference is available, each may have restrictions on its use – for example in Tenejapan Tzeltal, once objects are substantially separated in space, the intrinsic frame is dropped in favour of the absolute one. Scale may also be a relevant factor, so that objects on a table top may be described in a different frame from houses in a village. Where all three frames of reference are available, one can expect scale differences to play a role in which frame is normally used in which circumstances (although the restriction of the absolute frame to large-scale space is perhaps a European association).

In summary, then, frame-of-reference coding in language can vary on many dimensions. Although there appear to be only three available frames, a language may draw on only one or two of them, each of them can be constructed in quite different ways, and usage of them may be combined and constrained in restricted ways.

1.6 Conclusion

We hope in this introduction to have given the reader sufficient background to read the individual chapters within a comparative perspective. In the conclusions to this book, we provide a detailed summary of some of the major patterns of variation exemplified in the twelve languages for which detailed chapter-length sketches are given. Because contrastive cases are compared in the conclusions, readers may like to use the conclusions as a road-map to help them navigate

the chapters. In that case, readers may like to go straight to the conclusions, get an idea of the variations in the specific spatial sub-domains, and then go back to the chapters, or, alternatively, they may prefer to read the chapters for their own conclusions. Either way, we guarantee that no reader of this volume will come away without a much deeper appreciation of the richness and surprising variation of this important semantic domain.

2 Towards an Arrernte grammar of space

David P. Wilkins

In this chapter, I present a sketch of the linguistic properties of spatial description in Arrernte (otherwise known as Arunta, Aranda), an Aboriginal language spoken in Central Australia. In particular, I examine data collected from Eastern and Central (i.e. Mparntwe) Arrernte speakers living in Alice Springs.

2.1 The language and its speakers

Eastern and Central Arrernte are, from a linguist's standpoint, dialects of one language which is simply labelled Eastern Arrernte. Eastern Arrernte belongs to the Arandic group within the Pama-Nyungan family of Australian languages. Other members of the Arandic group include Kaytetye, Alyawarr, Anmatyerr, Western Arrernte and Lower Arrernte. Eastern Arrernte traditionally covered an area of more than 40,000 square kilometres in the Central Australian desert, encompassing the Eastern Macdonell and Harts Ranges and regions of the Simpson Desert. Neighbouring languages are (or, traditionally, were): Anmatyerr and Alyawarr to the north, Western Arrernte and Luritja to the west and south-west, Lower Arrernte, Pitjantjatjara and Yankunytjatjara to the south, and the Arabanic languages to the east.

It is estimated that there are approximately 2,000 speakers of Eastern Arrernte, making it one of the healthiest Australian languages. The language is in daily use and children are still learning it as a first language. In fact, it is used

I am indebted to all the Arrernte-speaking communities and individuals who patiently tolerated my presence and questions between the years 1982 and 2000. The work on Arrernte spatial language was especially facilitated by three important Arrernte teachers – Margaret Heffernan, Veronica Dobson and Rosalie Riley – in the period 1993–9. Fieldwork in that period was funded by the Max Planck Gesellschaft. The home of Robert Hoogenraad and that of Sue Morrish and John Boffa provided a haven for work and collegiality during my stays in Alice Springs. This chapter had both the advantage and disadvantage of being the first written so as to provide a 'model' for other authors to follow. It benefited from critical comments from other members of the Space Project at the Max Planck Institute, including Felix Ameka, Penny Brown, Jürgen Bohnemeyer, Melissa Bowerman, Eve Danziger, John Haviland, Sotaro Kita, Steve Levinson, Bill McGregor, Eric Pederson, Eva Schulze-Berndt, Gunter Senft, Dan Slobin and many others. Finally, I'd like to thank Jacqueline French for her fine work and suggestions in copy-editing this chapter and this book.

as a medium of instruction at the Yipirinya School in Alice Springs and the Ltyentye Apurte (Santa Teresa) school. Eastern Arrernte early childhood curriculum materials are being produced by the Intelyape-lyape Akaltye Project, and courses in the language, for non-native speakers, are taught at the Institute for Aboriginal Development in Alice Springs. The Central Australian Aboriginal Media Association regularly broadcasts programmes in Eastern Arrernte on CAAMA radio, and their TV and video section broadcasts programmes with Eastern Arrernte content on Imparja television.

Speakers of Eastern Arrernte are typically multilingual, usually controlling at least one variety of Australian English and one other Arandic language. It is not unusual for speakers to know one of the non-Arandic languages of Central Australia as well, such as Luritja, Pitjantjatjara or Warlpiri. However, as Henderson and Dobson (1994: 8) observe:

> The Arrernte region is large and traditionally there are many different family areas within it, each with their own dialect. Language is strongly connected with family membership and the relationships to land and dreamings that go with this. Identifying a speaker of a particular language or dialect can be very important for Arrernte people in a way that goes beyond just the actual language. It is a way of expressing membership in a particular family, or association with some particular country. The differences between dialects, even when they are only small differences, are often very significant for speakers.

2.2 Brief overview of the main features of Arrernte grammar

Substantial linguistic work has already been done on Eastern Arrernte (i.e. the Eastern and Central Arrernte varieties). There is an extremely good dictionary (Henderson and Dobson 1994), a learner's guide (Green 1995) and a reference grammar (Wilkins 1989). Text collections can be found in Henderson (1986), Wilkins (1989) and Turner-Neale (1996). Further research on the language includes Wilkins (1986, 1988, 1991, 1993a, 1995 and 1997a), Harkins and Wilkins (1994), Henderson (1998, 2002), Breen and Pensalfini (1999). In this section, I will present a simple overview of the language, elaborating only those elements that are of direct relevance to the discussion which follows.

Extensive sound changes have left the Arandic languages with an aberrant phonology, not only in relation to other Pama-Nyungan languages but also when considered in a wider typological context (Breen and Pensalfini 1999). In terms of grammar, however, Arrernte has many typical Pama-Nyungan features. It is an agglutinating language which employs only suffixes, no prefixes. It has an extensive case system, and ordering of phrases within a sentence is pragmatically determined and does not convey basic grammatical information (i.e. it is a free phrase order language). In transitive clauses, common nouns (and indefinite NPs) are marked in what is typically identified as a morphologically

[Gen.Noun	Spec.Noun]$_{Hd}$	Adj.P	Quant.P	Demonstrative	3pnDef -CASE
[*kere*$_{Gen.N}$	*aherre*$_{Spec.N]Hd}$	*akngerre*$_{Adj}$	*urrpetye*$_{Qnt}$	*nhenhe*$_{Dem}$	*itne3*Def-*nhe*$_{Case}$
game/meat	red kangaroo	big	few/three	this	3pl-ACC

'(hunted and killed) these three big red kangaroos'

Figure 2.1 The fully expanded noun phrase

ergative-absolutive pattern while pronouns (and definite NPs) are marked in a nominative-accusative pattern. Thus, nominals show a split case-marking pattern which basically conforms to the observations of Silverstein (1976). Clause-level syntax, however, shows a clear tendency towards a nominative-accusative grammar. For instance, although reference tracking across clauses may be done by pronouns or zero anaphora, there is also widespread use of switch-reference marking, and this indicates whether the subject (i.e. S or A (nominative pattern)) of the dependent clause is the same as or different from the main clause subject (Wilkins 1988). Arrernte is distinct from many Australian languages in that it no longer possesses ancestral verb conjugations, and it does not have bound pronominals to reference the arguments of a clause. In the remainder of this section, the discussion will focus on the structure of the Arrernte noun phrase and the structure of the verb.

Word order within noun phrases is fixed and case is marked on the final element of the phrase (i.e. case marking is by peripheral attachment). The order of elements in a fully expanded NP is shown in Figure 2.1.[1]

An Arrernte noun phrase minimally consists of case and any one of the other elements. Thus, an overt head noun is not obligatory in a noun phrase. A noun phrase can, for instance, just consist of an adjective marked for case (e.g. *akweke-ke* little-DAT 'for the little one') or a quantifier marked for case (e.g. *ingkerreke-nge* all-ABL 'from all of them'), and so on. As the figure shows, a generic noun and specific noun can enter into construction and together function as the head of the (fully expanded) noun phrase, but either may occur on its

[1] The following abbreviations occur in the glosses, and explanation, of Arrernte examples: Adj – adjective; Quant – quantifier; Dem – demonstrative; 1 'first person'; 2 'second person'; 3 '3rd person'; sg. – singular; dl. – dual; pl. – plural; S – subject of intransitive; A – subject (agent) of transitive; O – object of transitive; DEF – definite; ERG – ergative; NOM – nominative; ACC – accusative; DAT – dative; INST – instrumental; LOC – locative; ABL – ablative; ALL – allative; POSS – possessive; PROP – proprietive; ASSOC – associative; COMIT – comitative; pc – past completive; npp – non-past progressive; rem.p.hab. – remote past habitual; CONT – continuous aspect; INCH – inchoative; CAUS – causative; PURP – purposive; SS – same subject; DS – different subject; dlS – dual subject agreement; plS – plural subject agreement; INTENS – intensifier; ADV – adverbial; AUX – auxiliary; AVER – aversive; EMPH – emphatic; freq. redup – frequentative reduplication; IMP – imperative; PP – past progressive; REFL – reflexive; REL – relative clause; SBSQT – subsequent; TOP – topic.

own as the sole member of the head of the NP. Note that third person pronouns function in NPs to indicate that the phrase is definite. Demonstratives and definiteness marking can co-occur, as in the example in Figure 2.1, giving phrases that would literally translate as 'the this kangaroo' or 'the that (mid.distant) emu'.

As will soon become apparent, case marking plays a key role in Arrernte spatial description. As a preview, consider the various nuances of questioning which arise through combining the interrogative form *nthenhe* 'where' with different case suffixes to form a one-word utterance consisting of a simple (interrogative) NP.

nthenhe-le? (where-LOC) 'where at?; where (generally) is X located?; through/along where is X moving?'

nthenhe-ke? (where-DAT) 'where did X end up?; where was X put? where is the end point location of X?'

nthenhe-nge? (where-ABL) 'where did X move from?; where is the beginning point location of X?; where is X oriented away from?; at what place is the dynamic action V located?'

nthenhe-werne? (where-ALL) 'towards where is X moving?; where is X oriented to?'

nthenhe-arenye? (where-ASSOC) 'where does X originate from?; what is X a part of?; where is X habitually found?'

nthenhe-iperre? (where-AFTER) 'where has X been?; where is the original cause of state S?; where is the source of X?'

nthenhe-ke-akerte? (where-DAT-PROP) 'up until where?; where does X extend to?'

nthenhe-larlenge (where-COMIT) 'what is X contained in?; where is X attached to?'

On its own, *nthenhe* 'where' (without any case marker attached) is used to ask about the basic static location of an entity or event, and as such can replace certain uses of *nthenhe-le* (where-LOC), *nthenhe-ke* (where-DAT), and even *nthenhe-nge* (where-ABL). Furthermore, the previous list by no means exhausts the list of possible one-word 'Where-questions'. There is a rich stock of other elements besides cases which commonly appear attached to *nthenhe*. Below is a representative list of these other questions.

nthenhe-ntyele? (where-onwards) 'from where onwards?; away from where?'

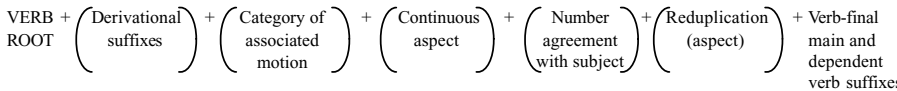
nthenhe-theke? (where-wards) 'towards where?'

nthenhe-ampinye? (where-vicinity) 'in the vicinity of where?'

nthenhe-thayete? (where-SIDE) 'which side?'

nthenhe-kerleke? (where-CONNECT) 'on outer surface of where?; attached to what?'

nthenh-ulkere? (where-MORE) 'Where exactly is it? I want to see it.'



angke-	**-rr**	**-inty.alpe**	**-rle.ne**	**-rre**	**-pe-rre**	**-me**
speak-	-RECIP	-DO COMING BACK	-CONT	-dl.S/A	-FREQ.rdp	-non-past prog

(two people) frequently speaking continuously to each other while coming back (towards here)

Figure 2.2 The structure of the Mparntwe Arrernte verb

If one were to provide a complete account of the contexts in which such questions are asked and the spatial descriptions that are used to answer them, one would certainly go a long way towards providing a complete account of Arrernte spatial description. We will barely be able to scratch the surface of such an account in this chapter.

Turning now to the Arrernte verb, one finds a relatively complex structure with seven distinct positions in the stem: the verb root, a slot for derivational suffixes, four slots for other quasi-inflectional suffixes, and a final slot for obligatory verb inflections. The structure of the verb is presented in Figure 2.2. The only obligatory elements in a verb are the verb root and one of the verb-final suffixes. For main verbs, the obligatory final inflection will be one of the tense or mood suffixes, while for dependent verbs the obligatory final inflection may be a switch-reference suffix, or one of a set of other suffixes which form complement clauses, temporal adjunct clauses or clauses with a causal or conditional relation to the main clause. A verb is negated by attaching the suffix **-***tyakenhe* 'verbal negation' (or *-tyange*) in the verb-final slot. The verb may carry a non-obligatory 'quasi-inflection' indicating the number, but not the person, of the subject (S or A), and there are two slots for different optional aspectual distinctions.

From the point of view of spatial description, one very interesting feature of the verb morphology is a distinct slot for an elaborate category of 'quasi-inflections' which Koch (1984) has named the 'category of associated motion' and which is used to indicate that the verb-stem action happens against the background of a motion event with a specific orientation in space. An example of one of these forms has been underlined in the example in Figure 2.2: *-inty.alpe* 'DO COMING BACK' indicates that the verb-stem action (here, 'speaking to each another') is happening while the subjects of the verb are moving back towards the place where the speaker is now. The category of associated motion will be discussed further in Section 2.4.

As a final note on the Arrernte verb, I would point out that available tests of argument-hood in Arrernte indicate that there are a number of intransitive verbs which, alongside their subject argument (nominative S), also take one or two spatial (ground) arguments. In other words, spatial cases are obligatory in the

case arrays of such verbs. For instance, on the basis of available tests, the verb *ane-* 'to sit; stay; be' takes two arguments and its case array is {Nominative, Locative} and the verb *alhe-* 'go' takes three arguments and its case array is {Nominative, Allative, Ablative}. Thus, ground elements that are often realized as adjuncts in other languages are, in Arrernte, sometimes treated as arguments inherent to the semantics of certain spatial verbs.

2.3 Topological relations

In order to understand how specific topological relations are encoded in Arrernte, one must first understand the encoding of general location, without any specific reference being made to topological features. In many languages, one and the same grammatical element (case or adposition) is used to mark (i) the place where a person or thing is at rest (i.e. statically located); (ii) the place where an object has been moved to; (iii) the place where the object of an action such as 'seeing' or 'spearing' is located; and (iv) the place within which an active on-going event is contained (i.e. dynamic location). For instance, as the Warlpiri examples in (1) show, the case suffix *-ngka/-rla* 'locative' can be used for all four of these situations (as can the English preposition 'in').

(1) WARLPIRI

a. *Wati ka ngurra-ngka nyina-mi.*
man AUX camp-LOC sit-nonpast
'The man is sitting in camp.'

b. *Karnta-ngku ka miyi ngurra-ngka/ parrija-rla yirra-rni.*
woman-ERG AUX food camp-LOC/ coolamon-LOC put-nonpast
'The woman is putting the food in the camp/in the coolamon.'

c. *Wati-ngki ka jurlpu watiya-rla/ ngurra-ngka nya-nyi.*
man-ERG AUX bird tree-LOC/ camp-LOC see-nonpast
'The man sees the bird in the tree/ in the camp.'

d. *Wati-ngki ka nantuwu warru-warrka-rni ngurra-ngka.*
man-ERG AUX horse around-ride/climb-nonpast camp-LOC
'The man is riding the horse around in the camp.'

In Hale's (1982: 258) terms, the Warlpiri locative in all the above examples indicates the figure is portrayed as being *coincident* with (i.e. at the same place as) the ground. Arrernte, however, contrasts significantly with Warlpiri (and English) in that no one single case form can be used to cover all the locational descriptions presented in (1). Arrernte uses *-le* 'locative' only in the equivalent of (1a), where there is simple static location. For the equivalents of (1b) and (1c), where there is location at an end point (of a motion or action path), the dative case form *-ke* must be used, and for the equivalent of (1d), where an

active event is being located (i.e. dynamic location), *-nge* 'ablative' must be used to indicate location. The Arrernte equivalents are presented in (2) below.

(2) ARRERNTE

a. *Artwe-ø apmere-le ane-me.*
man-NOM camp-LOC sit-npp
'The man is sitting in camp.'

b. *Arelhe-le merne-ø apmere-ke/urtne-ke arrerne-me.*
woman-ERG food-ACC camp-DAT/coolamon-DAT put-npp
'The woman is putting the food in the camp/in the coolamon.'

c. *Artwe-le thipe-ø arne-ke/apmere-ke are-me.*
man-ERG bird-ACC tree-DAT/camp-DAT see-npp
'The man sees the bird in the tree/ in the camp.'

d. *Artwe-ø nanthe-ke kwete anthurre apmere-nge*
man-NOM horse-DAT keep.on INTENS camp-ABL
antye-rlape-me.
climb/ride-DO.ALONG-npp
'The man is riding the horse around in the camp.'

Thus, the Arrernte locative case and the Warlpiri locative case do not have the same range of application. From a Warlpiri perspective, Arrernte requires three separate case forms – *-le* 'LOC', *-ke* 'DAT' and *-nge* 'ABL' – to denote different instances of the one notion, *coincident* location. From an Arrernte perspective, it appears that Warlpiri can ignore such significant distinctions as whether or not location is at the end point of a path, or whether or not it is a dynamic action that is being located.[2]

Of the three case forms used to express location of a figure at a ground, the locative case **-le** is the one with the basic core locational sense. In other words, in this function, it simply predicates that the figure is statically located at the same place as the ground (with no implication of prior action or path). The dative (*-ke*) and ablative (*-nge*) cases, as their gloss suggests, have other more central uses in keeping with their designation.

When it comes to topological relations, the locative case is highly general and presents no information about contact, containment, or the like (and so is quite unlike English 'in'). The notion of what it means for the figure to be 'at the same place as' the ground is very broad, and the suffix *-le* 'locative' can commonly be translated into English as 'at', 'in', 'on', 'by', 'besides', 'along',

[2] Ken Hale (p.c.) points out that a usage preferred by many Warlpiris would use the allative case for (1b and c), and the perlative case for (1d), although they may also use the locative in such situations. So, while Warlpiri can use the locative for all of (1a–d), it also has another usage which is not unlike the Arrernte one. Still, there is a critical difference between the languages as far as the range of application of the locative case is concerned, which is the main point here.

'around', 'over' and so on. The exact interpretation of the locative relation is dependent on several aspects of the situation described, including the nature of the figure, the nature of the ground, and the typical relationship, if any, between figure and ground.[3] In other words, the specifics of topological relations are very frequently left to pragmatic interpretation rather than being coded directly. For instance, if we take *ure* 'fire' as our ground and *aperrke* 'a coal' or *arelhe mape* 'women' as our figure, then in the former case the typical interpretation would be that the coal is 'in' the fire (e.g. 3a) while in the latter case it would be that the women are 'around' the fire to keep warm (e.g. 3b). These are not entailments, but merely typical pragmatic interpretations.

(3) a. *Aperrke-ø ure-le ane-me.*
coal-NOM fire-LOC sit-npp
'A coal is in the fire.'

b. *Arelhe mape ure-le inte-rle.ne-tyeme.*
woman pl(grp) fire-LOC lie down-CONT-pp
'The women were lying around the fire.'

Of course, in the absence of context, it is not always clear how the exact spatial relation is to be interpreted. For instance, a *tyampite* 'billy; can', a metal container used to make tea and boil water in, has several typical positional relations to fire – it is frequently suspended above a fire, or placed directly in the fire, or even placed beside the fire (to keep its contents warm). Thus, in example (4), the locative *-le* could be interpreted in context as 'on', 'in' or even 'beside', and all that is really entailed by the sentence is that the billy-can is to be found at the same place as the fire (i.e. if you are looking for the billy-can all you have to do is look at the fire and you should also see the billy-can).

(4) *Tyampite-ø ure-le (ane-me).*
billy-NOM fire-LOC (sit/stay-npp)
'The billy is on/in/beside the fire.'

This is not to say that Arrernte does not possess means for expressing more specific topological relations. Where it is relevant to specify the exact nature of the locational relation, either because context is insufficient to provide a reading or because one wants to emphasize the spatial relation, then one can draw on various spatial nominal and adverbial lexemes and use these in combination with the locative. For example: *ure itere-le* (fire side-LOC) 'beside the fire'; *ure kwene-le* (fire in/inside/bottom/ under-LOC) 'in the fire; at the bottom of the fire'; and *ure kertne-le* (fire top/up/above-LOC) 'on top of the fire'. These other elements and the constructions they enter into form our next main topic for discussion.

[3] Hale (1982: 260–1) makes the same point with respect to the Warlpiri locative case.

To digress for a moment, though, it is important to note that simple locative descriptions, like other forms of equative clause, are commonly verbless, hence the brackets around the verb in example (4) and in many of the sentence examples which follow. All verbless clauses have present (or generic) reference and must take a positional-existential verb marked for tense when the temporal reference is other than the present. The three primary verbs functioning as positional-existential verbs are *ane-* 'be; sit; stay; exist', *tne-* 'be standing; exist in an upright position' and *inte-* 'be lying down; exist in a horizontal position'. The verb *ane-* 'be; sit; stay' is the most general and the most commonly occurring, and it is possible to replace most equative and existential uses of *tne-* 'be standing' and *inte-* 'be lying down' with *ane-* 'be; sit; stay'. These three verbs are used to indicate that the S [Nominative] argument exists in a characteristic orientation or stance. Thus, while *ure* 'fire' habitually 'sits' (5a), *ure* 'firewood' habitually 'lies down' (5b), and, while *arne* 'trees' habitually 'stand' (e.g. 5c), *arne* 'sticks' habitually 'lie down' (e.g. 5d). Thus, 'positional-existential' verbs frequently help to clarify the sense in which a polysemous noun is used.

(5) a. *Ure-ø* *ahelhe-le* *ane-ke*.
fire/firewood-NOM ground-LOC sit/be-pc
'A fire was on the ground.' (i.e. there had been a fire 'sitting' on the ground)

b. *Ure-ø* *ahelhe-le* *inte-ke*.
fire/firewood-NOM ground-LOC lie/be-pc
'Firewood was on the ground.' ('Firewood lay on the ground')

c. *Arne* *yanhe-ø* *arlpentye* *tne-me*.
tree/stick that(mid)-NOM tall/long stand-npp
'That tree is tall.' ('That tree stands tall')

d. *Arne* *yanhe-ø* *arlpentye* *inte-me*.
tree/stick that(mid)-NOM tall/long lie-npp
'That stick is long.' ('That stick lies long')

We now leave the digression and return to the main thread of discussion. Considering data from the 'Topological Relations Picture Series' (see Chapter 1, §1.4.1, for a description of this elicitation tool; picture numbers below refer to those presented in Figure 1.2), it is important to note that many of the relations depicted are typical or canonical relations between figure and ground and so would generally elicit utterances only with a general locative case (i.e. Figure Ground-LOC), leaving the full spatial interpretation to pragmatics. Thus, 'a cup on a table' (Picture 1) or 'an apple in a bowl' (Picture 2) would, in most typical instances, be simply rendered as *panikane tipwele-le* (cup table-LOC) or *apwele iperte-le* (apple bowl-LOC). However, by emphasizing contrastiveness of relations, more specific descriptions can be elicited, as the examples in (6) show.

(6) a. *Panikane-ø tipwele akertne-le (ane-me)*
cup-NOM table up/top/above-LOC (sit-npp)
'The cup is on top of the table.' (i.e. the cup is (sitting) at the table's top)

b. *Apwele-ø iperte kwene-le (ane-me)*
apple-NOM hole/deep/bowl in/inside/under/down-LOC (sit-npp)
'The apple is inside the bowl.' (i.e. the apple is (sitting) at the bowl's inside)

In the above utterances, *tipwele akertne-le* 'at the table's top' and *iperte kwene-le* 'at the bowl's inside' are both complex noun phrases which encode the specific nature of the spatial relation of the figure to the ground. Each of these complex NPs has three relevant parts which together contribute compositionally to the spatial description – (i) the locative case, which simply predicates 'figure at same place as ground'; (ii) the spatial lexemes (*akertne* 'up/top/above' and *kwene* 'in/inside/under/down'), which provide more specific information about spatial orientation; and (iii) a part-whole construction[4] involving the ground nominal followed immediately by the spatial term, which indicates which part of the ground is being referenced (i.e. 'upper part of table', 'inner part of bowl'). Thus, taking into account these three bits of information, a fairly literal translation of the phrase *tipwele akertnele* would be 'figure is at the same place as the upper part of the table'. The overall effect, however, is to indicate that the figure is in contact with the spatial part of the ground indicated.

Consider now the descriptions of 'a lamp over a table' (Picture 13) or 'a ball under a chair' (Picture 16) which are presented in example (7). Note how these descriptions, in which lack of contact (or insignificant contact) is encoded, contrast nicely with the spatial description given in (4) above.

(7) a. *Alkngenthe-ø (ampe-rle.ne-me) tipwele-nge akertne-le.*
light-NOM (burn-CONT-npp) table-ABL up/top/above-LOC
'The light is (burning) above the table.' (i.e. the light is (burning) at above from the table)

b. *Typaperapere-ø chair-nge kwene-le (ane-me).*
ball-NOM chair-ABL in/inside/under/down-LOC (sit-npp)
'The ball is under the chair.' (i.e. the ball is (sitting) at under from the chair)

[4] Blake (1987: 94) observes that in expressing the inalienable possession of a part by a whole 'Australian languages usually place the word for the whole and the word for the part in the parallel with no genitive expression.' This is essentially the situation in Arrernte. In the Arrernte part-whole construction, a nominal referring to the whole typically precedes a nominal referring to the part, and together they form an NP with the part nominal as the head. For example *artwe kaperte* (man head) 'the man's head'; *untyeye arntape* (corkwood.tree bark) 'the bark of the corkwood tree'. Thus, in these constructions the spatial term is behaving as a part nominal. For further clarification see Section 2.5, and also Wilkins (1989: 411–13).

Here again our focus of interest is two complex phrases: *tipwele-nge akertne-le* 'above the table' and *chair-nge kwene-le* 'under the chair'. As before, the phrases involve the locative case and the spatial terms *akertne* 'up/top/above' and *kwene* 'in/inside/under/down'. However, instead of the 'part-whole' construction, these phrases involve a construction in which the NP representing the ground object is suffixed with the ablative case (*-nge*) and is followed immediately by one of the spatial terms. This structure predicates of the figure that it is not in contact with the ground but is close enough that it can be located by reference to the spatial (positional) relation it holds with respect to the ground. This construction will be labelled the 'relative location' construction since the figure is not located 'at' the ground but 'relative' to it. Taking the contribution of all the elements into account, *tipwele-nge akertne-le* might be more literally rendered as 'figure is at the same place as the region which extends upwards from the table'.

To reiterate, in the descriptions exemplified in (6) and (7), there is a case element predicating general location (*-le*), a lexical element giving general orientational information (*akertne* or *kwene*), and a construction (the part-whole construction or the relative location construction) specifying the relevant 'search domain' as calculated with respect to the ground object. An object localized in this fashion with respect to a spatial part of the ground, by use of the part-whole construction, is typically understood as being in contact with that part, whereas if it is localized with respect to a region projected (in the same general orientation) from the ground, by use of the relative location construction, it is generally understood as not being in contact with the ground but slightly away from it. Thus, the work done by the choice of 'on' vs. 'above' in English is rendered through a combination of elements in Arrernte.

The forms *akertne* 'up/top/above' and *kwene* 'in/inside/under/down' belong to what may be considered a 'closed' lexical class of 'spatial-part-cum-relational' terms. The membership of this class is identified, on formal grounds, by their occurrence in a specific set of constructions, of which we have already encountered two, the part-whole construction and the relative location construction. Such forms can also occur, without any further marking, as spatial adverbs, indicating that an action was performed with a certain spatial orientation. For example, *'Akertne ar-ø-aye!'* (up/top/above look-IMP-EMPH) translates as 'Look up!' All the elements belonging to this class are given in Table 2.1. They have an indistinct part-of-speech membership, taking on nominal or adverbial functions depending on the nature of the construction they enter into. As the table shows, each term has a wide range of spatial readings, falling into three sense types: spatial part, spatial relation or spatial adverb. However, since such readings appear to be a function of the construction used, rather than the lexical elements themselves, I am presuming that the elements are, at least as far as these three types of reading are concerned, monosemous rather

Table 2.1 *Arrernte 'closed'-class spatial (part-cum-relational) terms*

	Spatial part	Spatial relation	Spatial adverb
A. Verticality			
akertne	(i) 'top'	(ii) 'above; over'	(iii) 'up; upwards'
kwene	(i) 'bottom'	(ii) 'below; under'	(iii) 'down; downwards'
B. Containment			
kwene	(i) 'the inside of'	(ii) 'in, inside, within'	(iii) 'in; inwards'
akethe	(i) 'the outside of'	(ii) 'outside from; out of'	(iii) 'out; outwards'
C. Front/back			
arrwekele	(i) 'the front'	(ii) 'in front of; before'	(iii) 'in front; ahead; before'
ingkerne	(i) 'the back'	(ii) 'behind; in back of'	(iii) 'in back; behind; after'
D. Peripheral/central			
itere	(i) 'the side of'	(ii) 'along side of; beside'	(iii) 'to the side; sidewards'
mpwepe	(i) 'the middle; centre'	(ii) 'in between; amongst'	(iii) 'to the middle; between'
E. Deictic			
angathe	(i) 'this side of G'	(ii) 'F be on this side of G'	(iii) 'do towards this side'
intwarre	(i) 'the side of G' that's away from speaker'	(ii) 'F be on the other side of G from speaker'	(iii) 'do towards the side away from speaker'
F. Opposite side			
arrengakwe	(i) 'the side part of Y that is away from Z'	(ii) 'X be on the other side of Y away from Z'	(iii) 'do towards the other side of Y away from Z'

than polysemous. They each have a general spatial orientational meaning which gains a particular interpretation when it combines with the meanings of other elements and constructions in an utterance. Although formally a single system, the elements in Table 2.1 fall into a number of semantic subsystems which are labelled in the table. Unlike the Australian language Guugu Yimithirr (Haviland 1979, to appear; Levinson 1997a), Arrernte does possess spatial expressions for '(in) front (of)' and '(in) back (of)' which can have a body-based, relative projection use (i.e. 'the car in front of the tree (from where we're looking now)'). One curiosity already encountered in examples (6b) and (7b) is that one and the same form, *kwene*, is used for both 'inside' and 'under' descriptions. This pattern is fairly common in Australian languages, for example it is shared by Warlpiri *kaninjarra* 'inside; down, underneath; steep downward; deep down';

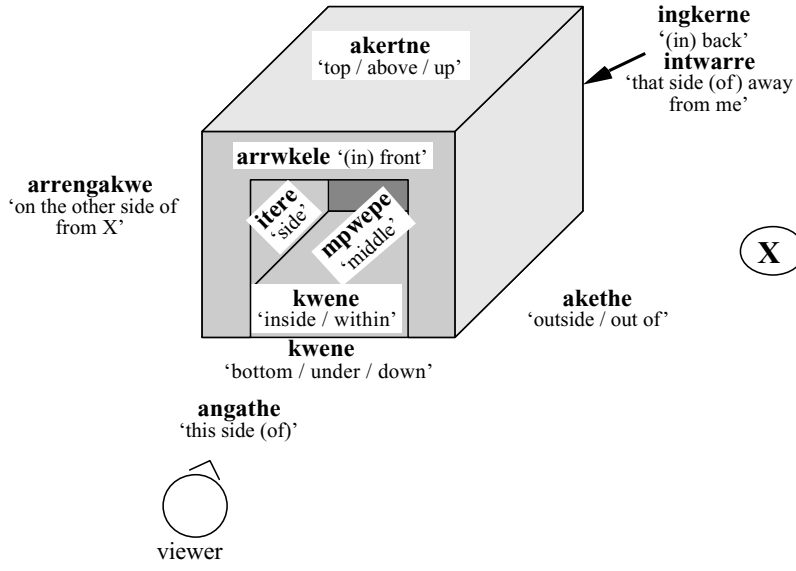


Figure 2.3 The spatial regions identified by the 'spatial-part-cum-relational' forms

Rembarrnga *yarra* 'inside; underneath; down', and Eastern Kunwinjku *kurrurrk* 'inside, within; below, under, down'. In word association tests, Arrernte *kwene* emerges as an antonym of both *akethe* 'out; outside' and *akertne* 'up/top/above'. In trying to explain this pattern of sense conflation, I have elsewhere suggested that 'the notion which may link *kwene*'s "bottom, below" sense and its "the inside of, inside" sense may be "concealment", that is, they are the parts of an object which one does not first see' (Wilkins 1989: 314). Similarly, it has been suggested that *kwene* indicates (partial) occlusion or 'surroundedness, an observer above who can't see all sides of the thing which is *kwene*' (Harkins and Wilkins 1994: 301). The exact semantics of this form, however, still require investigation.

Examples of the use of some of these 'spatial-part-cum-relational' forms is given in (8). A diagram roughly sketching out the spatial regions identified by the terms is given in Figure 2.3 (which depicts a tin shed, a common local dwelling).

(8) a. *Re ingke alhe-me atyenge-nge ingkerne.*
3sgNOM foot go-npp 1sgDAT-ABL behind
'He's walking behind me.' (lit. 'he's foot going at the behind from me')

b. *Artwe-ø relhe-nge arrwekele-le tne-me.*
man-NOM woman-ABL in.front-LOC stand-npp
'The man is standing in front of the woman.'

c. *Angathe-irr-ø-aye, ure itere-le ane-tyeke.*
this.side.of-become-IMP-EMPH, fire side-LOC sit-PURP
'Move over here (i.e. shift to this side), in order to sit by the side of the fire.'

d. *Re re-nhe are-ke apwerte inteye kwene-le*
3sgA 3sg-ACC see-pc rock cave 'inside'-LOC
ane-rlane-rlenge kwatye-nge akertne-le.
sit-CONT-DS water-ABL 'above'-LOC
'She saw him sitting inside a cave above the water.'

The above account details the properties of what may be called the Basic Locative Construction in Arrernte (see Chapter 1). However, a number of spatial configurations which can be treated in English as stative static topological relations have to be treated in Arrernte as the end result of a prior action, not as a Basic Locative Construction. For instance, where in English speakers would say things such as *There's a stamp on the letter* (Picture 3) or *The ring is on the woman's finger* (Picture 10), Arrernte speakers provide descriptions like those in (9).

(9) a. *Stampe pipe-ke arrerne-ke-arle.*
stamp paper-DAT put-pc-REL
'The stamp has been put on the paper.' (lit. a stamp which (someone) put on paper)

b. *Ring iltye-ke arrerne-lhe-ke.*
ring finger-DAT put-REFL-pc
'The ring has been put on the finger.' (lit. a ring (someone) has put on (her own) finger)

In these examples, the spatial relation is treated as the result of an act of transfer, namely an act of 'putting'. Note that the verbs have the past completive suffix (*-ke*). In (9b) the verb *arrerne-* 'put' also has the reflexive suffix *-lhe* added to it to indicate the construal that the wearer of the ring put it on her own finger. As has already been noted at the outset of this section, a ground NP which refers to the end point location in an act of transfer is marked by the dative case (*-ke*), and an example with *arrerne-* 'put' was given in (2b). The verb *arrerne-* 'put' takes three arguments and its case array is {ERG, ACC, DAT}, but in the examples in (9) the ergative argument is not mentioned since the discursive focus is on the 'figure' which is the undergoer/theme in the act (and hence the inherent accusative argument). Although the English translations

are in the passive voice, Arrernte itself does not have a passive construction. Finally, note that once again the exact construal of the topological relation is left to pragmatics. From knowing what a stamp is, one infers that it is stuck to the paper (i.e. letter), but this is not entailed by the description (just as it was not entailed by the English equivalent); similarly, on the basis of knowing what the canonical relationship between a ring and finger is, one can infer that the person has put the ring so that it is 'around' her finger and has not simply balanced it on the upper surface of her finger, although this latter interpretation could also be described by the same Arrernte sentence.

As further instances where static configurations are treated as the end result of prior action, consider the following descriptions of 'an apple on a skewer' (Picture 70) and 'an arrow in/through an apple' (Picture 30).

(10) a. *apwele interlpe-le atanthe-ke mpwepe-le-angkwerre.*
apple skewer-INST spear-pc middle-LOC-through/via
'The apple was skewered with a skewer through the middle.'

b. *pwenarre apwele-le anpere arrate-ke.*
arrow apple-LOC through/past appear-npp
'The arrow emerged right through the apple.'

Once again the utterances contain action (i.e. non-stative) verbs in the past completive tense. In (10a) we have the transitive verb *atanthe-* 'to spear' and in (10b) an intransitive verb *arrate-* 'to appear; emerge', both of which entail, or at least strongly imply, motion. Of interest in these utterances is how one form of what may be labelled 'boundary crossing' is treated. More particularly, how does one describe a long thin object extending from one side to the other through another object as the result of some form of motion act? First, note the occurrence of the locative case (*-le*) in both sentences. Here the locative case is not really used to indicate that something is statically located in/at the apple. Instead, with motion verbs, or verbs that have or imply a motion component, *-le* 'locative' indicates the path along which something travels or the thing that something moves through or along (for further examples of this use see Wilkins 1989: 175 and Henderson and Dobson 1994: 457–8). So, in these examples, the locative indicates that the motion path of the long sharp object was along or through the apple. In each case, the reading is further specified by another specifically spatial morpheme that emphasizes 'boundary' crossing. In (10a), the suffix **-***angkwerre* 'via a place; go along a path which leads through something' is attached to the locative suffix, which itself is attached to *mpwepe* 'middle', one of the 'spatial-part-cum-relational' terms we discussed earlier. This morpheme complex specifies that the apple was speared such that the skewer went 'along a path which leads through the middle part of the apple'. In (10b), on the other hand, it is the spatial adverbial *anpere* 'by, past, through' which is used to emphasize 'boundary crossing'. Henderson and Dobson (1994: 149) note that when *anpere* is used to modify an action where a weapon or tool

is being put into something, the typical reading is 'right through something' (from one side to the other). In this instance, then, the arrow emerges along a motion path which goes right through the apple from one side to the other. Note that *anpere* 'past, through, passing by' belongs to a small class of adverbs of orientation, which also includes the forms *atalkwe* 'across, crossing, over', *ularre* 'facing towards' and *untyeme* 'facing away from'. Unfortunately space does not permit further discussion of these forms and their use (but see Wilkins 1989: 311–13).

As has just been demonstrated, to understand the Arrernte description of certain apparently 'static' topological configurations, it is necessary to understand the description of motion (and causative motion). This is the topic we turn to in the following section.

2.4 Motion

In the discussion of Arrernte motion descriptions which follows, I will make constant reference to the extended text fragment presented in (11). This fragment comes from a narrative elicited using the wordless, picture storybook entitled *Frog, where are you?* by Mercer Mayer (1969). The scene described involves four pictures (pp. 15–16) which depict a *journey*; i.e. a complex motion path built up from a series of linked paths, or an extended path with subgoals (Slobin 1996). The Arrernte description begins (in line a.) with a static description stating that a child (the boy who is the main protagonist) had previously been standing on a boulder, and the form of this locative description should now be familiar from Section 2.3. In line b., however, we find the boy unwittingly launched on a journey by an angry deer. Lines d. and e. take the deer and the boy rushing past us (the viewers). Line f. reveals that the deer carried the boy to a cliff to drop him over, and line g. encodes that the boy is in free fall, along with his dog. Finally, line h. tells us that the boy and his dog landed in some water (at the base of the cliff). The purpose of this section is to provide sufficient contextualizing information on motion description to enable the reader to decode and interpret the Arrernte version of this journey. This primarily requires a description of motion verbs and their subclassification, and a discussion of the quasi-inflectional category of 'associated motion' which was mentioned briefly in Section 2.2. In (11), associated motion forms have been underlined in lines b. and d., as have the motion verbs in lines d. to h. Other motion-related features of this text fragment will also be touched upon in passing.

(11) Excerpt from 'Frog Story', the cliff scene (Narrator: V. D.)

(p. 15) a. *Apwerte arlwe ikwere-le ampe re tne-tyeme*
rock boulder 3sgDAT-LOC child 3sgS stand-pp

kenhe tiye,
BUT deer

b. *kenhe tiye-le re-nhe ine-rl.alhe-rlenge rrwelywelye-le*
BUT deer-ERG 3sg-ACC get-DO&GO-DS horns-INST

c. *akertne-lhile-me-le.*
top/up-CAUS-npp-SS
'The child was standing on the boulder, when the deer got him and went off, having (first) lifted him up with its horns.'

(p. 16) d. *Tiye re anteme – ampe urreye re kaperte-le*
deer 3sgS now child boy 3sgS head-LOC
inte-nhe-rlenge
lie-DO.PAST-DS

e. – *unte-ke, akngwelye akenhe yanhe 'kine unte-rlenge.*
hurry.off-pc, dog BUT there(mid) again hurry.off-DS
'The deer now – with the boy lying on its head as he moves past – ran off, with the dog running along there as well.'

(p. 17) f. *Arnkarre kngerre-werne-theke aknge-me-le re-nhe*
bank big-ALL-wards carry-npp-SS 3sg-ACC
ante ankerte-iwe-ke.
and push-pc

g. *Ampe akweke re itnye-ke ante akngwelye re itnye-ke*
child little 3sgS fall-pc and dog 3sgS fall-pc
akwene-kerle.
down-downwards
'(The deer) carried him to(wards) a cliff and pushed him off. The little child fell and the dog fell downwards.'

(p. 18) h. *Re-therre therre-anteye kwatye-ke itnye-ke, tiye re kenhe*
3dlS two-as.well water-DAT fall-pc, deer 3sgA BUT

i. *akertne-nge-ntyele nhenhe are-rlene-rlenge.*
top/above-ABL-onwards here see-CONT-DS
'The two of them both fell into the water, while the deer watched on from here above.'

The discussion will begin with motion verbs. For Arrernte, I identify as 'motion verbs' all those verbs which can occur in a clause with both an ablative case-marked ground and an allative case-marked ground, and entail that the subject of the clause changed location from the vicinity of one ground to the vicinity of the other. That is, the subject is the figure which changes location. This criterion identifies both intransitive and transitive forms.[5] Examples are given in (12).

[5] It is important to note that this criterion does not distinguish semantically between a verb which in its *Aktionsart* entails discrete change of state (at t1 be at place 1, at t2 be at place 2), and a verb

(12) a. *ampe-ø* *alhe-ke* / *itnye-ke* / *artnerre-ke* *arne-nge*
child-NOM(S) go-pc / fall-pc/ crawl-pc tree-ABL
apwerte-werne.
rock/hill-ALL
'A child went / fell / crawled from the tree to the hill.'

b. *Ampe-le* *re-nhe* *aknge-ke* / *alwerne-ke* *arne-nge*
child-ERG 3sg-ACC carry-pc / chase-pc tree-ABL
apwerte-werne.
rock/hill-ALL
'A child carried/chased it from the tree to the hill.'

Motion verb roots identified by the above criteria can, by and large, be further subdivided into three formally and semantically distinct subclasses – 'deictic' motion verbs (e.g. *alhe-* 'go'); oriented motion verbs (e.g. *itnye-* 'fall') and manner of motion verbs (e.g. *artnerre-* 'crawl'). We will describe each class in turn.

There are four basic 'deictic' motion roots, and these are given in Table 2.2. It may be useful to delineate the features of semantic opposition among these roots. Firstly, one of the roots, *alpe-* 'to go back', entails a return path (i.e. a path shape where the figure moves away from and then back towards a particular point of origin), while the other three roots entail an essentially straight path (i.e. a path shape in which the places on the path become progressively more distant from prior points on the path). Secondly, another of these roots, *aknge* 'to carry something; to take something along', is a transitive root, while the other three are intransitive. The use of this transitive root is exemplified in (11), line f. Finally, only one of the verb roots, *unte-* 'to hurry, to go along quickly', entails a speed component, and this is exemplified in (11), line e. It could be argued that *alhe-* 'go' is the most general (unmarked) motion verb in this set since it is intransitive, encodes an essentially straight path and does not have a speed component. Among the formal criteria which identify this group are: (i) these are the only verb roots which take the suffix *-rltiwe* as the inflection for plural subject agreement (e.g. *itne alhe-rltiwe-me* 3plS go-plS-npp 'they are going'); (ii) these are the only verb roots in the language which cannot take the category of associated motion; and (iii) they are involved in processes of derivation and compounding that do not occur with other verb roots. The processes referred to in this last criterion lead to the formation of six new motion verb stems which are presented in Table 2.3. The basic motion roots which indicate a 'straight', rather than a 'return', path take the suffix *-tye* 'towards a place thought of as

which entails a transition phase in which there is translocation through intermediate place points (see Kita 1997). Both types of verb are classed as 'motion verbs' under this criterion, and so one should not read into the term 'motion verb' any claims about verb Aktionsart (or an entailment of 'path' which is construed as a series of place points).

Table 2.2 *The basic (underived) verb roots of the 'deictic' motion subclass*

Basic motion roots	**alhe-** 'go'	**unte-** 'hurry away; hurry off'	**aknge-** 'take, carry off'	**aple-** 'go back'

Table 2.3 *The six derived verb stems of the 'deictic' motion subclass*

-tye 'hither' (motion towards [ego-] deictic centre)	**apetye-** 'come'	**unte-tye-** 'hurry hither'	**aknge-tye-** 'bring'
Compounds with **alpe-** (motion back towards [ego-] deictic centre)	**apety-alpe-** 'come back'	**unt-ty-aple-** 'hurry back'	**aknge-ty-aple-** 'bring back'

the place where speaker is (i.e. hither)' to derive verb stems which encode that 'the figure moves along a straight path towards the place thought of as the place where speaker is'. This 'hither' morpheme does not occur anywhere else in the language. The three 'hither'-derived motion verbs can then be compounded with the basic motion root *alpe-* 'go back' to give verbs which encode that 'the figure moves back along a return path towards the place thought of as the place where the speaker is'. Looking at Table 2.3 reveals an irregularity in the system, instead of **alhe-tye-* (which is an impossible form) we get *apetye-* 'come', which is formed from the proto-Arandic 'go' verb **ape-* and the suffix *-tye* 'hither' (see Wilkins 1989 and Wilkins and Hill 1995).

Together, the four basic motion roots (Table 2.2) and the six complex motion stems which are derived from them (Table 2.3) form a semantically coherent ten-member subsystem of the verbal lexicon. While the system involves deixis, I have argued elsewhere (Wilkins and Hill 1995) that, in fact, the four basic motion roots are not deictic in their lexical semantics but are general (deictically unmarked) motion verbs which are frequently interpreted as deictic (i.e. interpreted as 'motion not towards speaker') due to systemic opposition with the truly deictic forms in the larger system. The verbs in this set are, by far, the most frequently occurring motion verbs in Arrernte. For further examples where verbs from this subclass are used, see examples (18), (25), (26) and (27).

The second subclass of motion verbs are the 'oriented' motion verbs. One formal criterion which is diagnostic of this class is that they can occur with a ground marked in the dative case (*-ke*) to indicate the final end point goal of motion (cf. discussion in §2.3). That is to say, while the verbs in the 'deictic'

motion subclass just discussed can mark a goal only with the allative case marker *-werne*, the verbs in the oriented can occur with either a goal marked in the allative or in the dative. This means that, only for the verbs in this class and no others, one can make a distinction akin to that in English between 'towards' and 'to' (e.g. (13)). With respect to the 'deictic' motion class, an allative-marked ground is vague as to whether the landmark is the end point goal or whether the path is merely oriented towards that point. Thus, in (11) line f., it is not made explicit whether the deer carried (*aknge-*) the boy 'to' or 'towards' the big cliff (*arnkarre kngerre-werne-theke*), although context and knowledge of the picture being described suggests that it is, in fact, 'to the big cliff'. By contrast, in (11) line h., it is unambiguous that the boy and the dog fell 'into' the water (not just 'towards' it).

(13) a. *Ampe itnye-ke kwatye-werne.*
child fall-pc water-ALL
'The child fell towards the water.'

b. *Ampe itnye-ke kwatye-ke.*
child fall-pc water-DAT
'The child fell into the water.'

The most frequently occurring verbs in this subclass are *itnye-* 'fall', *arrate-* 'rise; appear; come out' (see, e.g., (10b)); *antye-* 'climb; get up on to; ride' (see, e.g., (2d)); *atnarnpe-* 'get down off of; climb down' and *irrpe-* 'enter' (see, e.g., (16a, b)). As the English glosses of these verbs reveal, their semantics encode that the motion vector has a specified (non-deictic) orientation in space (upwards, downwards, inwards, etc.), hence the label 'oriented motion verbs'.

Motion roots from the 'oriented' motion class, but not the 'deictic' motion class, can be causitivized with the suffix ***-lhile*** to derive verbs of causative motion and/or causative location which entail that 'an agent causes an object to move along a path with the motion vector specified in the verb root'. Examples are, *itnye-lhile-* (fall-CAUS-) 'drop', *irrpe-lhile-* (enter-CAUS-) 'insert', and *arrate-lhile-* (come.out-CAUS-) 'make something come out; extract'.

The final subclass of motion verbs are the manner-of-motion verbs. In fact, there are very few motion roots which specify a particular motor pattern for motion. There are, for instance, no monomorphemic verbs meaning 'walk' or 'slither' or 'run (with legs)' or 'hop' or 'fly' or 'swim', or 'roll' and so on. The paucity of manner-of-motion verbs correlates with the fact that verbs from the 'deictic' motion verb class have a very high functional load for describing the motion of all sorts of entities (humans, animals, inanimates). One could, for instance, choose to gloss a verb like *alhe-* as 'move in the manner characteristic of the entity', and a similar observation holds for the other members of the 'deictic' motion class. So, for instance, where in English one would say *the river flows to the sea*, *the snake slithered towards its prey*, and *the kangaroo hopped*

across the plain, Arrernte would have to use *alhe-* (possibly accompanied by a modifier, see, e.g., (8a)). Note that *unte-* 'to hurry off' is translated as 'run' in (11), but all that is entailed by the verb is motion with speed, and it is only because the subjects (the deer and the dog) have legs that the translation is rendered as 'run'. This same verb can be predicated of water, snakes and rocks when they are moving at speed. To specify 'flying' or 'swimming' one simply identifies the medium in which motion takes place; i.e. *alkere-le alhe-* (air-LOC go) 'going in the air = fly' or *kwatye-le alhe-* (water-LOC go) 'going in the water = swim'.

Among the few actual manner-of-motion roots are *artnerre-* 'to crawl', *urnte-* 'to do the men's dance', *perte-* 'creep along; sneak up on'. There are no manner of motion verbs in the text fragment given in (11). Unlike the 'deictic' motion subclass, manner-of-motion roots can host the associated motion inflection, but unlike the 'oriented' motion subclass, they cannot occur with a ground in the dative case indicating end-point location. In fact, there tends to be a fixed relative ordering of verbs from each subclass when they are strung together in a modifying chain. In Wilkins (1988) I have described how adverbs can be derived from verbs through the suffixation of *-mele*. An adverb derived from a verb in the 'manner-of-motion' subclass can modify verbs from the other two classes, but not vice versa. Moreover, a manner adverb derived from a verb in the 'oriented' motion subclass can modify a 'deictic' verb, but not vice versa. When all three are strung together the ordering of motion types is: 'manner-of-motion derived adverb' precedes 'oriented motion derived adverb' precedes 'deictic motion main verb'. Thus one can say *artnerre-mele antye-me* (crawl-ADV ascend-npp) 'ascend by crawling', but not **antye-mele artnerre-me*, and one can say *antye-mele apetye-me* (ascend-ADV come-npp) 'come by ascending', but not **apetye-mele antye-me*, and when one strings all three classes together the resultant ordering of the modifying chain is necessarily *artnerre-mele antye-mele apetye-me* (crawl-ADV ascend-ADV come-npp) 'come by ascending upwards by crawling'.

In Talmy's terms, Arrernte is a verb-framed rather than a satellite-framed language, and to say things like 'crawl into X' or 'sneak down X', one would actually say something like 'enter X by crawling' or 'descend X by sneaking' with the 'oriented' motion verb, as the main verb, specifying ground and orientation (rather than a satellite like 'into X' or 'down X' as in English). It is an interesting typological fact that most verb-framed languages are, like Arrernte, impoverished in the area of manner of motion verbs (Slobin 1996).

Interestingly, based on available tests of argumenthood, intransitive verbs from each of the three motion classes appear to have different argument-structure patterns. Intransitive verbs from the 'manner-of-motion' subclass have only a single argument, the figure, and their case array is simply {NOM}. By

Table 2.4 *Criteria for the identification and subclassification of Arrernte motion verbs*

	'Deictic' (e.g. *alhe-* 'go')	**Oriented** (e.g. *itnye-* 'fall')	**Manner** (e.g. *artnerre-* 'to crawl')
Can occur with ABL (*-nge*) and ALL (*-werne*) marked grounds in the one clause and entail Subject = figure	+	+	+
Basic verb roots take the morpheme *-rltiwe* to indicate plural subject agreement	+	−	−
All verbs in subclass can host each of the 15 associated motion forms	−	+	+
Can occur with DAT (*-ke*) marked grounds indicating end-point location of figure	−	+	−
Ordering in a full modifying chain of derived adverbs	3rd (main verb)	2nd (derived adverb)	1st (derived adverb)
Argument structure: typical case array of intransitive verbs in class	{NOM, ALL, ABL}	{NOM, DAT}	{NOM}

contrast, intransitive verbs from the 'oriented motion' subclass have two arguments, the figure and the end-point (or orienting) goal, and the typical case frame of verbs in this class is {NOM, DAT}. Finally, intransitive verbs in the 'deictic motion' class have three arguments – the figure, the goal and the source – and their case frame is {NOM, ALL, ABL}. This means that, for deictic verbs allative and ablative grounds are arguments, whereas for the other two subclasses they are adjuncts (Wilkins 1989).

The criteria for identifying three primary subclasses of motion verbs in Arrernte are summarized in Table 2.4. One common way to derive intransitive motion verbs is by suffixing the morpheme *-irre* 'become' to: (i) any of the 'spatial-part-cum-relational' terms listed in Table 2.1 (in §2.3); (ii) the cardinal point terms listed in example (19) (in §2.5); and (iii) other forms with a spatial adverbial usage, such as *anpere* 'past, through, passing by' and *atalkwe* 'across, crossing, over'. Such derived forms are members of the 'oriented' subclass of motion verbs. When the same base roots take causative morphology (i.e., either *-ile* or *-lhile* 'CAUS'), they are derived into transitive verbs of causative position or causative orientation. Example derivations are presented in (14).

(14)

	Derived motion verbs using *-irre* 'become'	**Derived verbs of causative orientation/position using *-ile* or *-lhile* 'CAUS'**
akertne 'up, above, top'	*akertne-irre-* 'to rise'	*akertne-lhile-* 'to raise or lift something up'
angathe 'this side of G'	*angathe-irre-* 'to move to this side of G'	*angathe-lhile-* 'to cause something to be on this side of G'
ayerrere 'north'	*ayerrere-irre-* 'to go north'	*ayerrere-ile-* 'to move or turn something northwards'
anpere 'past, through'	*anpere-irre-* 'to go past G'	*anpere-ile-* 'to move something past G'

In the text excerpt in (11), where the speaker describes the deer lifting up the boy with its antlers, the narrator describes the deer's action using the derived verb *akertne-lhile-* (up-CAUS-) 'to raise something upwards'. In example (8c), we find the derived intransitive motion expression *angathe-irre-ø-aye* (this.side-become-IMP-EMPH) 'move over here!'.

Before going on to discuss the category of associated motion, I'd like to introduce another set of suffixes which is well represented in the Frog Story text fragment in (11). Arrernte possesses a system of four '-wards' suffixes which are used to indicate that some entity or event (static or dynamic) is aligned with respect to a given point of orientation. This system has two major oppositions. The first opposition is between *-ntyele* 'from G onwards; away from G' and *-theke* 'towards G', while the second opposition is between *-ntape* 'upwards' and *-akerle* 'downwards'. Corresponding to these oppositions, each pair of suffixes has a special affinity for another pair of spatial morphemes which manifest comparable oppositions. The suffixes *-ntyele* 'from onwards' and *-theke* 'towards' have a special association with the case suffixes *-nge* 'ABLative' and *-werne* 'ALLative', respectively, and they are commonly found attached after these cases. Thus, in line i. of example (11), the deer is looking *akertne-nge-ntyele* (top/above-ABL-onwards) 'from above' (i.e. from the top of the cliff onwards), as he watches the boy and dog fall. And, earlier in the story, in line f., the deer carries the boy *arnkarre kngerre-werne-theke* (cliff big-ALL-wards) 'towards the big cliff' (see also examples (22), (26) and (27)). The morphemes *-ntape* 'upwards' and *-akerle* 'downwards', almost always occur attached to the 'spatial-part-cum-positional' terms *akertne* 'up, top, above' and *kwene* 'in; inside; into; down; under; below', respectively. The form

kwene-akerle unambiguously means 'downwards' and cannot mean 'inwards', and in line g. of (11) this adverbial phrase modifies the verb *itnye-ke* 'fall' and emphasizes that the dog and boy are, at this point in the narrative, caught in the middle of their downward trajectory (no goal is mentioned at this point). As well as attaching to the ends of NPs marked with the ablative or allative case (and which function either as arguments or adjuncts), the forms *-ntyele* 'from G onwards' and *-theke* 'towards G' may also attach directly to nominals or adverbs which function as points of orientation (see examples (18), (20), (23), (25)).

The final topic to be discussed under the rubric of 'motion' is the category of 'associated motion'. As I noted in Section 2.2, this category of 'quasi-inflections' has its own slot in the verb (see Figure 2.2) and is used to indicate that the verb-stem action happens against the background of a motion event with a specific orientation in space. Example (15) shows four instances of the verb *angke-* 'to speak' inflected with some of the different 'associated motion' forms.

(15) a. *angk-intye-ke*
speak-DO.COMING-pc
'spoke while coming this way'

b. *angke-nhe-ke*
speak-DO.PAST-pc
'spoke while going past (a point)'

c. *angk-artn.alpe-ke*
speak-Quick:DO&GO.BACK-pc
'quickly spoke and then went back'

d. *angke-ty.intye-ke*
speak-DO.on.ARRIVAL.of-pc
'spoke to Z as soon as Z arrived'

The associated motion inflections can occur on all verbs, with the exception of verbs from the 'deictic' motion subclass. As noted in Wilkins and Hill (1995: 22), this incompatibility seems predictable, since much of the information encoded by the associated motion forms is identical to information lexicalized in the 'deictic' motion forms and, as will become apparent, a number of the associated motion suffixes include the basic 'deictic' roots *alhe-* 'go' and *alpe-* 'go back'. However, as noted above, motion verbs from the other two subclasses can take this inflection (e.g. (16)).

(16) a. *Artwe re warle kwene-ke irrp-intye-ke.*
man 3sgS building inside-DAT enter-DO.COMING-pc
'The man came into the building.' (lit. entered coming)

b. . . . *ahelhe-ke anteme itne irrpe-ty.alpe-ke.*
. . . ground-DAT now 3plS enter-GO.BACK&DO-pc
'. . . they (the ancestral caterpillars) went back (to Emily Gap) and now entered the ground (there).' (lit. entered after having returned)

c. . . . , *ampe akweke kenhe artnerre-ty.akerle-rlenge*
. . . , child small BUT crawl-DO.DOWNWARDS-DS
ngentye-werne.
soakage-ALL
'. . . , while the child, on the other hand, crawled down (the bank) to the soakage.'

To date, fifteen associated motion forms have been identified and these are given in Table 2.5.[6] As Table 2.5 shows, the associated motion inflections of Mparntwe Arrernte divide naturally into further subgroupings. The first main distinction is between those forms which encode that the subject of the verb-stem event is also the moving figure of the associated motion event, which is true of the top fourteen forms, and the one at the bottom of the table (*-ty.intye* 'do on Z's arrival'), which entails that the subject of the verb-stem event is different from the figure in the associated motion event. In this latter case, the moving entity is the object or dative argument of the verb stem, and the referent of the subject argument is at a place which is the goal of this other entity's motion (e.g. *twe-ty.intye-* 'hit Z on Z's arrival at place of subject'). Within the top fourteen forms, there is a primary division based on the temporal relation between action and motion. The verb-stem event may either be concurrent with motion, or it may be non-concurrent with motion, occurring either immediately before or after motion. By concurrent, it is not entailed that the verb-stem action happens all the way along the motion path, although this is one possible interpretation, instead what is entailed is that the action happen at least once in the midst of the path. Consider the interpretations of the following examples in (17), which also show that associated motion is consistent with the static positional (stance) verbs *ane-* 'sit', *tne-* 'stand' and *inte-* 'lie' (see §2.3). These examples also help to emphasize that the argument and adjunct patterns are those dictated by the main verb stem, not the 'associated motion' inflection; the verbs are not derived as motion verbs and one can only mark motion grounds if the verb stem allows them, otherwise such grounds for the motion path are implicit only in context.

(17) a. *Alhere-le re arelhe ikwere-nge*
creek.bed-LOC 3sgS woman 3sgDAT-ABL (with)
an-intye-ke.
sit-DO.COMING-pc
'He (stopped) and sat in the creek-bed with that woman on his way coming here.'

[6] In previous works (Wilkins 1989, 1991), I have claimed that there are fourteen forms. I have now included the form *-artn.akerle* 'quickly do while moving downwards'. This form was first brought to my attention by John Henderson (and appears in Henderson and Dobson (1994)), who suggests that there may be even more forms than I have identified.

Table 2.5 *Subclassification of associated motion forms*

CATEGORY OF ASSOCIATED MOTION

Action and Motion Concurrent

(Performer of Action is also moving entity)

Directed: Deictic	Oriented
-intye = 'DO COMING'	-nhe = 'DO PAST'
-inty.alpe = 'DO COMING BACK'	-ty.antye = 'DO UPWARDS'
-inty.alhe = 'DO COMING THRU'	-ty.akerle = 'Do DOWNWARDS'
-irtne = 'REVERSIVE' : (a) DO going back; (b) Do back to	-artn.akerl = 'Quickly Do DOWNWARDS'

Action and Motion Non-concurrent

	GO (-lhe)	GO BACK (-alpe)
Prior Motion (-tye)	-ty.alhe = 'GO & DO'	-ty.alpe = 'GO BACK & DO'
Subsequent Motion (-rle)	-rl.alhe = 'DO & GO'	-rl.alpe = 'DO & GO BACK'
Subsequent Motion Hurried (-artne)	-artn.alhe = 'Quickly: DO & GO'	-artn.alpe = 'Quickly: DO & GO BACK'

(Performer of Action is NOT moving entity)

(prior) -ty.intye = 'DO ON Z's ARRIVAL'

b. *Ampe re ulyentye-le inte-ty.antye-ke*,
child 3sgS shade-LOC lie.down-DO.UPWARDS-pc
uterne-ketye -nge.
sun/heat- AVER-ABL
'The child lay down from shade to shade while going upwards lest (he suffer from) the hot sun.' (i.e. the child is climbing a hill and keeps getting tired out from heat and exertion)

c. *Artwe makite-akerte Toyota ingkerne-le*
man gun-PROP Toyota behind-LOC
tn-inty.alpe-me; *aherre-ke unthe-mele*.
stand-DO.COMING.BACK; kangaroo-DAT look.for-SS.
'The man with the gun is standing coming back this way in the rear of the vehicle, while looking for kangaroos.' (i.e. he's standing all the way along as the vehicle moves back this way)

All associated motion suffixes convey some type of information about the character of the motion path. The 'action concurrent with motion' forms further subdivide according to whether motion is 'deictically' anchored or merely oriented, where these notions are analogous to those used in the description of motion verb subclasses. The four deictic forms roughly translate 'do while coming', 'do while coming through an intermediate place or point', 'do while coming back' and 'do while going back'. Thus we have two forms which encode a straight path towards deictic centre, and two which encode a return path (one towards, and one away from, deictic centre). The notion 'do while going' is unmarked within this category, but there is a continuous aspect form *-rle.ape* 'do continuously while in motion' which often has this sense (see example (2d)). The four oriented forms all encode 'do while moving relative to some given ground point' and translate to 'do while moving past', 'do while moving upwards', 'do while moving downwards' and 'quickly do while moving downwards'. The 'non-concurrent' forms, by contrast, simply divide according to whether the motion path's shape is 'straight' or 'return', and this is cross-cut by a division into whether motion is 'prior', 'subsequent' or 'subsequent and hurried' with respect to the verb action.

In the journey recounted in (11), there are two associated motion examples. In line b., the beginning of the journey is signalled by the form *ine-rl.alhe-rlenge* (get-DO&GO-DS) which indicates that the deer gets the boy (with its horns) as a prelude to moving off (i.e. the deer gets the boy and then starts on a motion path). Thus, we have a non-concurrent associated motion form where the action is prior to motion and the path shape is 'straight'. By way of contrast, in line d. of (11), the verb form is *inte-nhe-rlenge* (lie-DO.PAST-DS) which encodes that the boy is lying (belly down) on the deer's head as he moves past. This is an example, like those in (17), where a static positional (i.e. stance) verb takes a form which marks action and motion as concurrent. In this case, the suffix is one of the 'oriented' forms and indicates that the motion path extends past a given ground. In the picture described, the viewer sees the deer from the side as it approaches the cliff, and the interpreted point past which the boy travels (lying all the way) is the viewer's perspective point (i.e. it travels across deictic centre).

It is important to point out that, at least as far as older speakers are concerned, if a main event is associated with a background motion path, and the motion path is known to the speaker, then failure to report this by use of an associated motion

form is seen as being 'unco-operative' or as resorting to children's speech. Indeed, older speakers themselves identify the associated motion system as one of the areas of the language which is in danger of being lost. It is only older speakers who identify and use all the forms given in Table 2.5. Young adults often only identify and use eight of the associated motion forms, having 'lost' all the forms referring to motion in the vertical dimension, as well as all the forms that encode 'quickness', and the forms glossed as 'do coming through a place' and 'do on Z's arrival'. This leaves: *-intye* 'do coming', *-inty.alpe* 'do coming back', *-irtne* 'do going back; do back to'; *-nhe* 'do going past'; *-ty.alhe* 'go and do'; *-ty.alpe* 'go back and do'; *-rl.alhe* 'do and go'; and *-rl.alpe* 'do and go back'. As Henderson and Dobson (1994) show, even for some of these preserved forms, there are younger speakers who use them with a different sense from that of older speakers. For example, *-intye*, which is used by older speakers to mean 'do verb action while coming towards deictic centre (i.e. in the midst of the motion path)', can be used by some younger speakers with a 'non-concurrent' reading to render 'come up and do verb action (to someone)', which older speakers find unacceptable. Of course, the associated motion system is of particular interest when it comes to determining what types of motional and spatial features can be grammaticalized (see Talmy 1985), and the patterns of attrition and change in the system may provide some clues as to which features are more or less natural within the grammatical system. The 'quickness' forms within this system seem to contradict Talmy's (1985: 132) claim that rate is never indicated inflectionally. However, it may indeed be very rare and the loss of a rate distinction from the systems of young adults may reflect the unnaturalness of such a grammaticalized notion.

The distinctions made in the associated motion system of Arrernte are very similar to those reported for Kaytetye (Koch 1984) and Adnyamathanha (Tunbridge 1988). Indeed, as Tunbridge (1988: 15) points out, the high degree of similarity between the Arrernte, Kaytetye and Adnyamathanha systems, as far as semantic distinctions are concerned, appears to be a result of areal diffusion within the central and south-east desert regions. In his discussion of verb compounding in the languages spoken in the area around the junction of the borders of South Australia, Queensland and New South Wales, Austin (1989) extends, and more clearly delineates, the linguistic area within which the diffusion of these same semantic distinctions takes place (although, they often have very different formal realizations). A fuller discussion of the category of associated motion in Arrernte can be found in Wilkins (1989, 1991). There I discuss how the category of associated motion is distinct from aspect, and I present arguments as to why the complex forms in this class cannot be analysed as synchronic compounding but must be treated as complex suffixes with an essentially inflectional status.

As a final comment, I would point out that both motion verbs and associated motion suffixes can be used to convey metaphorical motion, or what Talmy

has labelled 'fictive motion'. In the examples given in (18), a static situation is encoded 'in a way that evokes a sense or a conceptualization of something in motion' (Talmy 1996).

(18) a. *Kele anteme iwerre alturle-ntyele apetye-mele*, . . .
O.K. now path west-from.onwards come-SS, . . .
'So, at this point a path comes from the west (into another path), . . .'

b. *Apere artekerre-le*, *arlpentye akngerre ahentye*
red.gum root-LOC, long big tube
tne-ty.akerle-me, . . .
stand-DO.DOWNWARDS-npp
'In a river red gum root, a tube (of witchetty grub) leads a very long way down (from the surface to where the grub is).' (lit. the tube 'stands as it moves downwards') [Example from Turner-Neale 1996: 31 – my morphological analysis and glossing.]

To conclude, I would like to stress that the types of narratives which Arrernte speakers like to tell, and listen to, are typically cast in the mode of 'travelling narratives'. Traditional Dreamtime stories, tales about hunting, personal histories, monster stories and made-up stories used for children's readers all tend to map major events into the framework of a journey. Thus the motion resources utilized in the text fragment in (11), and discussed at length in this section, have a very high functional load. In fact, in narratives from older speakers, it is usually the case that 40 to 70 per cent of the verbs in the narrative code a motion event in some way (i.e. through the verb-stem meaning or through the associated motion forms or both). For instance, in the narrative *Ayeye artwe mperlkere arrwekelenye akerte* 'The story of the first white man', told by W. Rice and included in Henderson (1986: 26–35), of 66 verbs, 22 are motion verbs, 13 are non-motion verbs with associated motion attached and 11 are motion verbs which are also marked with an associated motion form. This means that 46 of 66 verbs in the narrative encode motion (i.e. 69.7 per cent). In short, an understanding of the Arrernte 'grammar of motion' will take one a long way towards being able to interpret and understand Arrernte narratives appropriately.

2.5 Frames of reference

As we have seen in Section 2.3, a locative case by itself simply indicates a general contiguity of figure and ground but does not give any more specific angular specification. Similarly, in motion events, the ablative case and the allative case respectively mark grounds away from and towards the vicinity of which motion

takes place, but they do not by themselves specify the exact angular direction or orientation of the motion path. This is simply to say that the case markers do not, on their own, embody a coordinate system for specifying an angular location from a specified deictic centre (i.e. perspective point or anchoring point for spatial calculation). In this section, however, we are concerned with the linguistic means Arrernte speakers deploy when they need, or choose, to locate a figure or describe its movement by identifying a ground object at some remove from the figure, and then specifying a search domain by specifying an angle from the ground. In English, for example, a sentence such as *The ball is to the left of the tree*, locates 'the ball' with respect to the 'tree' by using the speaker's/viewer's body as the source of a coordinate system for specifying an angle from the tree; the search domain is to the left of the ground as calculated from the deictic centre. In short, we are interested in the 'frames of reference' Arrernte speakers employ.

It should be clear from many of the preceding examples, that there are many situations in which Arrernte speakers do not employ a coordinate system to give more specific angular or orientational information, even where they use a more specific spatial locution than just a ground marked with the locative. In context, it is, for instance, simply possible to say something like *artwe arne itwe-le* (man tree near-LOC) 'the man is near the tree', which provides information only about contiguity, but not angular relations. When a coordinate system is needed, however, one does not hear the terms 'left' and 'right' used, even though there are body-part terms which mean 'right hand' (*akwarratye*) and 'left hand' (*akwalyenge*). Instead, it is typical to hear cardinal point terms being used. That is to say, Arrernte speakers, like members of most other desert-dwelling Central Australian language groups, tend to rely on an absolute frame of reference. In other words, they make use of fixed bearings (absolute coordinates) like north, south, east and west to specify an angle from a ground. The situation described by Laughren (1978: 2) for the Warlpiri is very similar to that of the Arrernte.

> Warlpiris use compass orientation terms far more than Europeans. A Warlpiri will ask a fellow passenger in a car to move north, south, east or west rather than just 'move over'. He will refer to his right or left arm or leg as the north, south, east or west arm or leg, depending on his actual orientation.

There are four basic cardinal point terms in use in Arrernte, and these are given in (19). In Warlpiri, the cardinal point system is a six-term set which also includes forms meaning 'up' and 'down' (Laughren 1978: 5), but in Arrernte these two notions are expressed by forms in the class of 'spatial-part-cum-relational' terms described in Section 2.3 (see Table 2.1). In other words, the Warlpiri system covers the six cardinal regions of 3-D space, including the

vertical dimension, whereas the Arrernte system covers only the four cardinal regions of horizontal space.[7]

(19)[8] *ayerrere* 'north'
ikngerre 'east'
antekerre 'south'
alturle 'west'

The Arrernte cardinal point terms are adverbs, but they can also be used as adjectival modifiers. Thus, *arne ayerrere* (tree north) means 'the northern tree' or 'the northerly tree', but cannot mean 'the north part of the tree'. I point this out in order to help demonstrate, and emphasize, how the class of 'spatial-part-cum-relational' terms described in Section 2.3 are a distinct formal class. Remember that when a member of that class occurred immediately after a (ground) noun it had a nominal part reading; for example, *arne arrwekele* (tree front) means 'the front of the tree' and cannot mean 'the tree in front'. All the cardinal point terms can be derived into nominal part terms by the addition of *-thayte*, a borrowing of English 'side'. As a nominal, these derivations can then enter into a part-whole construction, and so *arne ayerrere-thayte* is the way to express 'the north part of the tree' or 'the north side/face of the tree'. Beyond this difference with respect to the part-whole construction, however, cardinal point terms appear in most of the same sort of constructions as 'spatial-part-cum-relational' terms, as we shall see.

Consider example (20) which is taken from transcripts of the Men and Tree task. Remember that, in this task (see Chapter 1, §1.4.2), the director and the matcher are screened off from one another and both have several photos showing 'a man' and 'a tree' and minimal differences in the lateral (across-axis) standing and facing relations. The Arrernte director is describing Photo 2.3, which in English could be described as: 'The man is standing on the left looking at the tree which is on the right-hand side.' Note that in playing the game, the 'man'

[7] Some speakers from the south-eastern region of the Eastern Arrernte language area have told me that the use of the four-point cardinal system given in (19) is in fact relatively recent, at least for their family community. Instead, they remember that their elders more commonly used terms for 'upstream' (*ntyutye*) and 'downstream' (*arliwe*). Given that the all the major river systems in the area have a roughly north to south flow, it is not surprising to find that some speakers of Arrernte now use the upstream term to mean 'north' and the downstream term to mean 'south' (see Henderson and Dobson 1994: 208, 514). I myself have not recorded anyone who uses an 'upstream'/'downstream' coordinate system. The shift in systems, however, would be from one form of absolute frame-of-reference strategy to another.

[8] I have also managed to elicit the compound cardinal terms ayerrere-alturle 'north-west', antekerre-alturle 'south-west', ayerrere-ikngerre 'north-east' and antekerre-ikngerre 'south-east'. However, I have not recorded these in natural language usage. More precise specification of cardinal direction tends to be given by paralinguistic means (e.g. through pointing with the hands or lips, or through drawing an absolutely oriented map on the ground).

is usually taken by Arrernte speakers as the continuing discourse topic and so is often not mentioned in the initial clauses of descriptions.

(20) Men and Tree Game Photo 2.3. Players facing south. Director speaking.
Nhenhe-le alturle-theke atne-rle.ne-me-rle, arne re kenhe
this-LOC west-wards stand-CONT-npp-REL, tree 3sgS BUT
ikwere-nge alturle-ampinye, kenhe re ikngerre-le-arle
3sgDAT-ABL west-vicinity, BUT 3sgS east-LOC-REL
atne-rlane-rlenge.
stand- CONT-DS
'In this one (he's) standing (facing) westwards, the tree, however, is in the region west from him, while he, on the other hand, is standing in the east.'

To assess whether (20) is an accurate description of Photo 2.3, one must know that the players are facing south. Each clause contains a cardinal point term (underlined): the first clause renders the man's facing orientation ('westwards'), the second clause renders the tree's standing relation with respect to the man ('west from') and the third clause renders the man's standing relation ('in the east').

Note, that cardinal point terms can take the same endings and case suffixes as NPs referring to grounds (or Landmarks). Unlike many Australian languages, for instance Warlpiri (Nash n.d.) and Guugu Yimithirr (Levinson 1997a, Haviland to appear), there are no bound morphemes which are used only with cardinal point terms.[9] Thus, the third clause of (20) is the same basic form of locative description described in Section 2.3, with the general locative case *-le* suffixed to *ikngerre* 'east'. Similarly, in the first clause of (20) the '-wards' suffix *-theke* (see §2.4) is attached to *alturle* 'west' to indicate that the man is standing 'westwards'. With a featured object, such a description expresses that the man's front or face is positioned towards the west, whereas, if it had been referring to an unfeatured object like a tree, the same clause would have expressed

[9] For Arrernte, I have yet to find any formal criteria which distinguish the cardinal point set as a distinct formal class. However, the four Arrernte terms form a tight-knit semantic class, as is evidenced by the fact that in word association tests conducted in Arrernte, cardinal point terms only ever call up other cardinal point terms. Interestingly, in such word association tests, there is no tendency at all for 'north' (*ayerrere*) to attract the response 'south' (*antekerre*) or for 'east' (*ikngerre*) to attract the response 'west' (*alturle*), which is the dominant response pattern for English word association tests. Instead, there appears to be a slight tendency in the Arrernte data for a cardinal point term to attract a response which is the term for the cardinal region that is located clockwise by 90 degrees from the prompt. That is, *ayerrere* 'north' tends to attract the response *ikngerre* 'east', *ikngerre* 'east' tends to attract the response *antekerre* 'south' and so on. The strong finding is that the terms are not semantically organized in opposition pairs in the manner that appears to be natural for English speakers.

something like the tree standing with a prominent lean (or extra bushiness) towards the west.

As the second clause of (20) exemplifies, cardinal point terms can occur in the 'relative location' construction previously discussed in Section 2.3 above. Here the relevant phrase is *ikwere-nge alturle* (3sg-DAT-ABL west) 'west of him (i.e. west of the man)'. So, the relative location construction renders notions like 'east of X', 'north of X', etc. Another example of this construction is given in (21)

(21) *Itne apwerte-nge alturle(-le) ane-me.*
3plS rock/hill-ABL west(-LOC) sit/stay-npp
'They live west of the hill.'

Example (20) above can be compared with example (22) below, where the same director from the same game is describing Photo 2.5. In this photo the standing positions of the 'man' and the 'tree' have been swapped relative to Photo 2.3. So, as the director states, the man is now standing *alturle-thayte-le* (west-side-LOC) 'on the west side [part of the photo]', while the tree is now *ikngerre-ampinye-le* (east-vicinity-LOC) 'in the eastern region'. The formative *-ampinye*, which appears in both examples (20) and (22), attaches to various spatial terms, including body parts and place names, to designate the region or area that is associated with the entity referred to by the form to which it is attached. It can often be translated as 'the vicinity of X' or 'the X region' (e.g. *kaperte-ampinye* 'in the vicinity of the head', 'somewhere in the head region').

(22) Men and Tree Game Photo 2.5. Players facing south. Director speaking.
Artwe nhenhe re alturle-thayte-le anteme tne-rle.ne-me,
man this 3sgS west-side-LOC now stand-CONT-npp
arne ikwere-werne-theke anteme, arne re kenhe
tree 3sgDAT-ALL-wards now, tree 3sgS BUT
ikngerre-ampinye-le anteme.
east-vicinity-LOC now.
'The man here is now standing on the west side, (facing) towards the tree now, but the tree is now in the eastern region.'

Example (22) contrasts with example (20) by virtue of the fact that the facing information is not expressed (overtly) in terms of a given coordinate system. That is to say, the second clause of (22) merely states that the man is now 'towards the tree'; there is no angular specification and it is only by common inference in this context that one interprets that the man (as a featured entity) has his face (and front) towards the tree. This contrasts with yet a third possibility which is exemplified in (23).

(23) Men and Tree Game Photo 2.4. Players facing south. Director speaking.
Nhenhe, *ikngerre-thayte-le tne-rle.ne-me arne re-nhe*
this, east-side-LOC stand-CONT-npp tree 3sg-ACC
artepe-lhile-me-le.
back-CAUS-npp-SS
Arne arlarte re kenhe ikwere-nge ingkerne-le ne-me,
tree shady 3sgS BUT 3sgDAT-ACC behind-LOC be-npp,
kenhe re ikngerr-theke-arle tne-rle.ne-rlenge.
BUT 3sgS east-wards-TOP stand-CONT-DS
'This (next one), (he's) standing on the east side while putting the tree at his back. The shady tree is behind from him, while he is standing (facing) towards the east.'

In (23), again involving the same players as (20) and (22), the director describes Photo 2.4 in which the man is facing away from the tree (instead of towards it, as in Photos 2.3 and 2.5). The facing relation of the man is described in three different ways. Unsurprisingly, one form of description involves the use of the absolute frame of reference (*ikngerre-theke* 'towards the east') and is fully analogous to the expression of facing relations in (20). However, two other clauses simultaneously indicate both the facing relation of the man with respect to the tree, and the standing relation of the tree with respect to the man, by employing an intrinsic frame of reference. That is, both descriptions employ a coordinate system which locates the figure object (the tree) with respect to intrinsic features of the ground object (the man's back). Each of these descriptions refers to the intrinsic part, the man's back, with different terms. In the first instance, the body-part term *artepe* 'the back' is used, while in the second instance the 'spatial-part-cum-relational' term *ingkerne* 'behind; back; in back of' is used. In the case of the body part, a rather idiomatic expression is used, in which *artepe* 'the back' is the base of a causative verb formed with *-lhile* and meaning 'to put something at one's back'. That is, the man has put the tree at his back, which entails both that the tree is intrinsically behind the man, and that the man is facing away from the tree. In the case of the 'spatial-part-cum-relational' term, we find a construction which the reader should now be familiar with, namely the relative location construction. That is, we have a static locational clause in which the phrase *ikwere-nge ingkerne-le* (3sgDAT-ABL behind-LOC) 'behind him; at the behind from him' specifies the search domain for the tree (the figure) by giving a coordinate calculated with respect to an intrinsic part (*ingkerne* 'behind; back region of') of 'the man' (the ground). Note that this phrase, and indeed the whole clause of which it is part, is actually as ambiguous as the English description which translates it (i.e. 'the

shady tree is behind him'). That is, as mentioned previously, the terms *ingkerne* 'behind; back; in back of' and *arrwekele* 'front; in front of' can be used with a relative frame-of-reference interpretation as well as an intrinsic frame-of-reference interpretation, and so there is a potential reading of (23) in which the tree is behind the man on the away-axis as projected from the speaker/viewer. However, since there were no positionings on the away axis in the photos in Game 2 of the Men and Tree task (they were all on the lateral, across-axis), this description has one preferred interpretation in context (i.e. intrinsic).

Lest one presume that it would be natural in all situations to prefer an absolute frame of reference when describing the photos from the Men and Tree Game, I should point out that the use of cardinal point terms, which is certainly predominant in the screened-off condition, almost disappears when two Arrernte speakers are sitting together and viewing the same set of pictures. Example (24) presents a typical example of a description of Photo 2.5, recorded when two people were examining the same photo, seated side by side, with the addressee to the speaker's left. In such a situation it is very common to use deictic terms, especially the two deictic forms from the set of 'spatial-part-cum-relational' terms: *angathe* 'this side; on this side of' and *intwarre* 'that side; the other side away from me'.

(24) Men and Tree Game Photo 2.5. Players facing south: no screen. One set of pictures. Speaker on west, addressee on east. Seated side by side.
Artwe re arne-ø are-rle.ne-me. Re arne itere-le
man 3sgA tree-ACC see-CONT-npp. 3sgS tree side-LOC
tne-me, angathe-le. Kenhe arne kenhe intwarre-le
stand-npp, this.side-LOC BUT tree BUT that.side-LOC
tne-me, ngkwenge-ampinye-le.
stand-npp, 3sgDAT-vicinity
'The man is looking at a tree. He is standing beside the tree, on this side. The tree, however, is standing on that side, in your vicinity.'

In everyday language use and in traditional narratives, the absolute frame of reference is much more often to be found in motion descriptions than in static locational descriptions. This holds for motion descriptions at all scales, but accounts of travel and route descriptions pertaining to traditional country – very common and popular topics for conversation – tend to be particularly rich in cardinal point terms. Example (25) is an excerpt from a recorded description about how one should travel to a certain camp.

(25) *Ikwere ngkerne-lhe-me, ikngerre-theke-irre-tyenhenge*
3sgDAT put.standing-REFL-npp, east-wards-INCH-SBSQT
alhere tyane-tyeke. Awethe ayerrere-werne alhe-me
creek.bed cross-PURP. again/more north-ALL go-npp

alhere itere ikngerre-le, kweke-ware.
creek.bed side/edge east-LOC, little-just
'Stopping at this point, and (you) then turn eastwards in order to cross the creek. (Then you're) going to the north again along the eastside of the creek, just a little.'

As with locative descriptions, we see in example (25) that cardinal point terms take standard motion cases and morphology. Moreover, we see two common means for describing changes in direction (i.e. 'turns'). The first is to derive an intransitive verb by suffixing the inchoative verb *irre-* 'become' to a spatial term (here a cardinal point term) which has *-theke* 'wards' attached: i.e. *cardinal.term-theke-irre-* 'become cardinal.point-wards; turn towards the direction of the cardinal point' (see also examples (26) and (27)). In the second instance, one simply uses a basic motion verb (here *alhe-* 'go') and a cardinal point term in the allative case (see also (26)). Literally this just means 'going in the given cardinal point direction' (e.g. going north-wards), but pragmatically it is inferred that one must turn in order to travel in the given direction.

While the generic description of the typical route one follows to a place, like that in (25), is given in the 'present tense' (more accurately the non-past progressive tense), when a person in a car is giving on-line directions, it is not surprising to find that the imperative is used, as in example (26).

(26) *Ayerrere-werne-theke alh-ø-aye! Kele anteme*
north-ALL-wards go-IMP-EMPH OK now
ikngerre-theke-irre-ø.
east-wards-INCH-IMP
'Go northwards. OK, now turn east.'

In fact, on-line route descriptions are typically accompanied by various conventionalized pointing gestures which specify more precisely the intended travel path, and it is not unusual for gesture and hand sign to be the only form of direction a driver gets. Still, real on-line route descriptions like (26) are very similar to the sort of elicited route descriptions Arrernte speakers gave when they were playing a table-top route description game in which director and matcher were screened off from one another, and the director had the task of describing a route through a toy landscape in such a way that the matcher could reproduce the route by moving a toy doll through the landscape. An excerpt from one such game is given in (27):

(27) Tabletop route description. Players facing north: screened off. Director speaking.
itepe pente-nhe-ø, antekerre-werne-atheke-kemparre
edge follow-DO.PAST-IMP, south-ALL-wards-FIRST

petye-ϕ. Kele imerte alhe-pe-alhe-ϕ akwete, awethe-akine imerte
come-IMP O.K. then go-freq.redp-IMP still, again-again then
ayerrere-werne-atheke-irr-irtne-me-le, . . .
north-ALL-wards-become-DO.BACK-npp-SS,
'follow the edge (of the fence) as you go past, first come southwards. So then keep on going and going, and then once again you will be turning back towards the north.'

Of interest in example (27) is the manner in which associated motion forms, basic deictic motion verbs, and cardinal point specification all work together to specify the motion path. For instance, these speakers are facing north, so when the path moves 'south' it is also moving towards the speaker, thus the phrase 'come southwards' is used. When the 'go' verb *alhe-* is then used, we know there has been a change of path; in this case it is in fact along the across-axis with respect to the viewers, and when the next change of direction is specified we have a derived motion verb specifying a turn towards the north (*ayerrere-werne-atheke-irre-*), but this derived verb is also marked with the associated motion form ***-irtne*** 'DO BACK', indicating both that the route of travel is away from the speaker and that it is returning towards a direction from which the figure had previously come.

In sum, Arrernte speakers often get by without employing any frame of reference (i.e. system of coordinates) for specifying location and motion. Although the relative frame of reference is available for the front–back axis and the intrinsic frame of reference is also available, speakers of Arrernte rely far more heavily, at all scales, on the absolute frame of reference than do English speakers. In this language, where 'left' and 'right' do not exist as spatial terms, the cardinal point system functions to specify angles on the horizontal. Unlike some Australian languages, the vertical dimension is not included within the cardinal system of Arrernte, but instead is included within the system of 'spatial-part-cum-relational' terms. In everyday language use, the absolute frame of reference is especially common with motion descriptions. As has just been demonstrated, the precise specification of motion path vectors is often accomplished through the co-deployment of cardinal point terms and deictically anchored motion verbs and associated motion forms.

2.6 Conclusion

The primary aim of this chapter has been to provide some insight into the linguistic resources which Arrernte speakers deploy in spatial description. Although three very important areas have been covered – static location (and topological relations), motion description, and frames of reference – there are many critical areas that have not been touched upon. A more complete account would

elaborate upon Arrernte's rich set of spatially deictic demonstratives and would also outline the means used for describing dimension, shape and distance. Moreover, by focussing on the linguistic aspects of spatial description, the discussion has necessarily avoided the ethnographic issues of spatial practice. The expression of spatial relations is rarely a purely linguistic matter but tends also to involve other semiotic systems such as gesture, an auxiliary sign language, and sand drawing (Wilkins 1997b). Furthermore, as Levinson (1996b: 377) observes:

> It is a commonplace of the Australianist ethnography that landscape and locality are the media on which cultural knowledge and social history are written. Spatial orientation is the key to understanding myth, art, camping arrangements, gesture – almost every aspect of social life.

To truly understand the Arrernte conception of space, one would need to understand the Arrernte sense of place and country, and the nature of a Dreamtime geography in which the landscape is a visible record of the travels, actions and existence of the Dreamtime ancestors. These are not issues beyond linguistics. For instance, the patterns of Arrernte place naming are a direct reflection of such cultural concerns, and elsewhere (Wilkins 1993a) I have shown that notions of place and space are intricately bound up with notions of kinship and totemism in a fashion that is reflected not only in lexical semantics, but in grammar and use.

Shortcomings notwithstanding, it should be obvious that in each domain covered, the semantics and pragmatics of spatial description are organized in a fashion which bears little similarity to English. In the domain of topological relations, the same observation which Heine, Claudi and Hünnemeyer (1991: 144) have made for West African languages like Ewe also holds for Arrernte: namely, English prepositions look like portmanteau morphemes which conflate several different types of spatial information. As was demonstrated in Section 2.3, in order to reproduce the sense of English prepositions like 'above' or 'in' using Arrernte materials, one requires three different semantic elements: a spatial case marker, a 'spatial-part-cum-relational' term, and either a part-whole or a relational construction. Of course, unlike English or Ewe, one is not obliged to make one's spatial description so explicit, and more often than not an Arrernte locative description is heavily underspecified, leaving the details of topological relation to be filled in by context and pragmatics (cf. Ameka 1995).

While Arrernte may, from an English point of view, appear to 'under-attend' to topological relations, in the domain of motion it appears to 'over-attend' to the existence of motion events and motion paths. Certainly, the category of associated motion is a form of inflection for which English has no real equivalent. This ability to specify that a main verb event happened against the background of a motion event with a given orientation (and shape and timing and

speed) gives Arrernte narratives a unique character, and may in fact contribute to a different form of narrative attention as compared to English (Wilkins 1997a). Similarly, the fact that Arrernte is a verb-framed language, while English is a satellite-framed language, also seems to have consequences which go beyond mere differences in clause-level packaging, affecting, for instance, the degree to which manner of motion is explicitly mentioned.

Finally, as far as frames of reference are concerned, the big difference between Arrernte and English is that, when a coordinate system is used, Arrernte relies far more heavily on the absolute frame of reference than English, while English relies far more heavily on the relative frame of reference than Arrernte. In fact, Arrernte speakers commonly deploy cardinal point terms in contexts where the vast majority of English speakers would and could not employ the English equivalents (e.g. in small-scale space and in localizing body parts). While Arrernte does use 'front' and 'back' terms according to a relative frame of reference, there are no 'left' and 'right' spatial terms for the lateral (across) axis. As Pederson et al. (1998) have shown, the frame of reference a community of speakers uses correlates with differences in behaviour on non-linguistic cognitive tasks involving spatial arrays. Arrernte speakers, for instance, show absolute behaviour in non-linguistic tasks involving the rebuilding of a memorized array under 180-degree rotation, whereas speakers of English show relative behaviour. Myers (1986: 54) writes about how spatial orientation can reach deeply into the psychology of individuals from another Central Australian group, the Pintupi.

> Orientation in space is a prime concern for the Pintupi. Even their dreams are cast in a framework of spatial co-ordinates. It is impossible to listen to any narrative, whether it be historical, mythological, or contemporary, without constant reference to where events happened. In this sense, place provides the framework around which events coalesce, . . . Not temporal relation but geography is the great punctuator of Pintupi story telling.

In stressing the differences between Arrernte and English, it is not my intention to exoticize the Arrernte facts, nor do I intend to over-emphasize a relativistic perspective. Instead, I wish to suggest that a careful examination of less familiar languages like Arrernte gives a clearer picture of the extant variation, and thereby enables us to move closer to pinpointing the basic notions that are required for describing the semantics, pragmatics and discourse deployment of spatial language. Furthermore, I would argue that our linguistic understanding of spatial description will remain impoverished if our analysis of the language facts proceeds independently of an analysis of community social practice, on the one hand, and an exploration of individual non-linguistic cognition, on the other. To conclude, I would hope that, at the very least, this chapter has given readers an idea of how answers to many of the Where-questions listed in Section 2.2 would be framed by an Arrernte speaker.

3 Sketch of a Jaminjung grammar of space

Eva Schultze-Berndt

3.1 Introduction

The aim of this paper is to describe the systems of spatial orientation and the linguistic resources that are employed in descriptions of spatial relations and motion events in Jaminjung, an Australian language. The most notable features of Jaminjung in this domain are, first, the existence of two distinct predicative word classes, verbs and coverbs. These show a clear division of labour with respect to the expression both of spatial relations and of the components of motion events. In motion expressions, verbs encode only the fact of motion and the 'anchoring' of the path, while both manner of motion and other aspects of the path are expressed by coverbs. This means that Jaminjung falls outside the verb-framed/satellite-framed typology as it is currently conceived.

The second interesting feature, which is notable in that Jaminjung differs in this respect from other Australian languages whose system of spatial orientation has been investigated in more detail, is the existence of a drainage-based absolute frame of reference, rather than one based on compass directions. In descriptions of small-scale spatial arrangements, however, speakers prefer to employ expressions based on an intrinsic frame of reference, or expressions describing an overall configuration.

The paper is structured as follows: Section 3.2 presents a brief introduction to the language and its speakers. Section 3.3, in describing the grammatical and lexical resources for spatial descriptions, also serves as a brief introduction to the grammatical properties of the major word classes and to other grammatical features of Jaminjung. In Section 3.4, strategies of encoding topological relations are discussed. Section 3.5 is dedicated to the description of motion events. Section 3.6 deals with the ways that both a drainage-based absolute frame of reference and an intrinsic frame of reference are employed in spatial descriptions. The results are summarized in Section 3.7.

3.2 The language and its speakers

The language name Jaminjung is used here as a cover term for Jaminjung and Ngaliwurru, two closely related linguistic varieties spoken in the Victoria River

Area of Northern Australia, in the border region between the Northern Territory and Western Australia. Together with a somewhat more distantly related language, Nungali, now almost extinct, they constitute a language family which has been referred to as 'Jaminjungan'/'Djamindjungan' or 'Yirram' in the literature (Hoddinott and Kofod 1976a, b, c; Chadwick 1984, 1997; Green 1995), and which belongs to the non-Pama-Nyungan group of language families in Australia. Previous work on the grammar and lexicon of these languages consists of three unpublished sketch grammars (Cleverly 1968, Bolt, Hoddinott and Kofod 1971a, b), a thesis focusing on the syntax and semantics of complex verbs in Jaminjung and Ngaliwurru (Schultze-Berndt 2000), and a few articles (Hoddinott and Kofod 1976a, b, c; Schultze-Berndt 2001, 2002), as well as unpublished field notes by Arthur Capell, Michael Walsh and Mark Harvey.

Jaminjung, Ngaliwurru and Nungali people traditionally occupied a contiguous area along both sides of the lower Victoria River, between the Fitzmaurice River in the north, the East Baines River in the west, Jasper Gorge in the south, and *Langgay* (Victoria River Crossing) in the east. The Victoria River is a major tidal river, and together with its tributaries constitutes the most prominent geographical feature of this area. The rivers cut through steep-rising plateaus, forming mostly narrow valleys and gorges, and only partly wider plains (around the West Baines River). It is therefore not surprising that the direction of the flow of water plays an important role in the Jaminjung and Ngaliwurru system of spatial orientation (see §3.6).

Today, Jaminjung and Ngaliwurru speakers mainly live in Timber Creek and surrounding outstations; a few speakers also live in the townships of Kununurra, Wadeye (Port Keats) and Katherine, but only constitute a minority in each of these places. Like Aboriginal people elsewhere in the region, Jaminjung, Ngaliwurru and Nungali people have suffered, and continue to suffer, from the effects of European settlement and the establishment of cattle stations in their traditional country. This is also reflected in the situation of the languages in the area. There are approximately 100 remaining speakers of Jaminjung and Ngaliwurru, and the language is no longer acquired by children. The first language of the children, and the language of much of the daily interaction even among older people, is Kriol, an English-based Creole language. Even when the traditional languages are spoken, code-switching and borrowing are very common. All older speakers are multilingual in Jaminjung or Ngaliwurru, Kriol, and one or more neighbouring languages, such as Murrinh-Patha, Miriwoong, Gajirrabeng, Ngarinyman, Bilinarra or Wardaman. This situation reflects traditional and ongoing social and cultural relationships with surrounding language groups.

3.3 Grammatical and lexical resources for spatial description

The main grammatical features of Jaminjung are typical of many of the non-Pama-Nyungan languages of Australia. Word order (or rather, phrase order)

on the clause level is 'free', i.e. serves to indicate information structure rather than grammatical relations. Core argument roles are marked by pronominal prefixes on the verb. In addition, Jaminjung has an elaborate case system. Case marking of core arguments follows an ergative-accusative pattern, although there is some freedom of marking, i.e. 'actors' in transitive clauses are not necessarily ergative-marked (for details see Schultze-Berndt 2000: 169–73). Lexical arguments can be freely omitted.

A crucial aspect of the language, which is also highly relevant for the structure of spatial expressions, is the division of predicative lexemes into two distinct lexical categories. Verbs, that is those lexemes carrying verbal inflections, constitute a closed class with around thirty members. Members of an open class of uninflected elements, termed 'coverbs' here, cover a semantic area which is usually covered by verbs, but also by adverbs and adpositions, in other languages.

The differences between Ngaliwurru (Ng) and Jaminjung (J) are mainly lexical or concern the realization of cross-reference marking on the verb. Phonologically, the two dialects differ in that Jaminjung has an additional lamino-dental stop <th>; Ngaliwurru cognates of Jaminjung words which contain this consonant have the palatal stop <j> instead. Where differences are of relevance for the present paper, they will be indicated.

In the following subsections, the grammatical properties of the major lexical categories – nominals, coverbs and verbs – are discussed briefly, with special consideration of those properties of relevance for spatial expressions in Jaminjung.

3.3.1 Nominals

Nominals in Jaminjung can be identified by their ability to function as constituents of case-marked or absolutive (unmarked) noun phrases functioning as referential arguments, as in (1), and as ascriptive or equative predicates in verbless clauses, as in (2).[1]

[1] The following abbreviations are used in the glosses: ABL – ablative, ABS – absolutive case (unmarked), ALL – allative, COMIT – comitative, CONTR – contrastive focus marker, DAT – dative, DEM – neutral demonstrative, du – dual, DIR – directional marker, DIST – distal demonstrative, DUBIT – dubitative clitic, ERG – ergative, excl – exclusive, IMP – imperative, IMPF – past imperfective, incl – inclusive, INTERJ – interjection, IRR – irrealis, L.ALL – locational allative, L.ABL – locational ablative, LOC – locative, NEG – negative, N – nominal, OBL – oblique, pl – plural, POSS – possessive, POT – potential/future marker, PRED – predicative, PROPR – proprietive, PROX – proximal demonstrative, PRS – present tense, PST – past tense, QUAL – quality nominaliser, RDP – reduplication, REFL – reflexive/reciprocal, RESTR – restrictive clitic, SFOC – sentence focus marker, sg – singular, SUBORD – subordinator. Boundary symbols used are '-' for a word-internal morpheme boundary, '=' for a clitic boundary, ' \ ' for a final (falling) intonation unit boundary, and a comma (',') for a non-final (rising) intonation unit boundary. Short pauses within an intonation unit are indicated by '. .'.

(1) *lawu* *gani-yu* [*ngabulu*]$_{NP(ABS)}$ [*janju-ni* *jalig-ni*]$_{NP\text{-}ERG}$
spill 3sg:3sg-SAY/DO.PST milk DEM-ERG child-ERG
'that child spilled milk'

(2) [*ngayug*]$_{NP(ABS)}$ *gurrany* [*gujarding* *ngunggina*]$_{NP(PRED)}$
1sg NEG mother 2sg:POSS
'I am not your mother'

Jaminjung has a rich case system of thirteen cases (twelve in Ngaliwurru). Three of these, the locative *-gi* ∼ *-g* (J) / *-gi* ∼ *-ni* (Ng), the allative *-bina* and the ablative *-ngunyi* (J) / *-giyag* (Ng), have primarily (though not exclusively) spatial functions, and will be discussed in more detail in Sections 3.3 and 3.4. In addition to the ablative case, Jaminjung (but not Ngaliwurru) has an 'origin' case, *-nyunga,* which serves to indicate a spatial origin (as in 'she is from Timber Creek'), or a material origin or cause, but not a starting point of motion. The case markers, although treated here as suffixes for simplicity's sake, are better described as postpositional enclitics, somewhere in between postpositions and suffixes in terms of their degree of grammaticalization (see McGregor this volume, on Warrwa). They can follow any one constituent of a noun phrase, and also more than one constituent.

Nominals can be divided into further subclasses based on their predominant function, and, in some cases, based on distinct morphological marking. The subclasses can be arranged in a continuum ranging from pronouns and nouns denoting entities (with mainly referential function), to quantifiers and adjectival nominals (with mainly modifying or predicative function), and demonstratives, locationals and time nominals (with mainly adverbial function). A subset of demonstratives also function as determiners, as in (1) above. Only the subclasses of locationals and demonstratives will be considered in more detail in Sections 3.3.1.1 and 3.3.1.2.

3.3.1.1 Locational nominals

Expressions that function as unmarked locational and temporal adverbials are considered here as subclasses of nominals rather than as members of a separate adverb class. This is in line with observations made for other Australian languages (see Wilkins 1989: 301) but is not unproblematic in all instances (see below).

The locational interrogative is *warnang* 'where', which, as (4) shows, also functions as a locational indefinite ('somewhere'/'anywhere'). Usually, the unmarked form is used with a locative interpretation (see (13) below for an example), but *warnang* may also take locative case. As (3) and (4) show, *warnang* has a special allative or directional form, *warnaja*, and does not combine with the regular allative case; however, it takes the regular ablative case.

(3) *ngayin warnaja ga-jga-ny*
meat/animal where:DIR 3sg-GO-PST
'Where did this animal go?'

(4) *gurrany=biya warnaja ga-jga-ny*
NEG=now where:DIR 3sg-GO-PST
'she didn't go anywhere then'

Directional nominals form a distinct subset of locational nominals. Unlike many other Australian languages, Jaminjung does not make regular use of compass direction terms. Instead, Jaminjung speakers regularly employ two directionals based on water flow, *manamba* 'upstream' and *buya* 'downstream' (Ng *buyagu)*, and two directionals based on verticality, *thangga* (Ng *janggagu)*'up' and *thamirri* (Ng *jamurrugu)* 'down'. The use of these terms is discussed in Section 3.5. Directionals may also be derived from demonstratives with the directional suffix *-wurla,* as in (5) below.

Formally, directionals can be identified as a distinct subset of nominals in that they are unmarked in stative locational function (and often also in goal function), and may take special spatial cases (see Dixon 1980: 282f.): the locational allative (L.ALL) is *-ngining* in Jaminjung and *-ngarnang* in Ngaliwurru, and the locational ablative (L.ABL) is *-yun* ∼ *-yin* in both dialects. However, the general allative and ablative suffixes are also found on directionals. The use of the locational allative suffix is illustrated in (5).

(5) *pigipigi mung ga-yu yina-wurla-ngining* \
pig look.at 3sg-BE.PRS DIST-DIR-L.ALL
manamba-ngining \
upstream-L.ALL
'a pig is looking that way, upstream' (Farm Animals 7)

While directionals are easily identified by their special spatial case forms, class membership is more difficult to determine for other locational expressions such as *warriya* (J) / *warrgayin* (Ng) 'far', *ganjagawu* 'close', *gamurr* '(in the) middle' and *balarrgu* 'outside'. Two of these are illustrated in (6).

(6) *warrgayin-ngunyi ga-ram yina,*
far-ABL 3sg-COME.PRS DIST
gamurr waga ga-yu girrb gan-unggu-m
middle sit 3sg-BE.PRS quiet 3sg:3sg-SAY/DO-PRS
'he comes from a long way over there, halfway he sits down and stops'

Usually, these forms are not inflected when expressing stative location or direction and could therefore be considered positional coverbs (see §3.3.2) rather than nominals. On the other hand, they regularly take ablative case, as in (6),

Table 3.1 *Jaminjung nominal demonstratives*

Gloss	Adverbial	Adnominal
PROXimate	*ngi(yi)ya*	*(ngi)yinthu* (J) *(ngi)yinju(ngiya)* (Ng)
DISTal	*yina(ya)*	*(ngi)yina*
neutral DEMonstrative ('given')	*thanthiya* (J) *janjiya* (Ng)	*thanthu* (J) *janju(ngiya)* (Ng)

and always occur outside a complex verb formed with a positional, as is also illustrated in (6) – that is, the order *waga gamurr gayu* is not found. It may also be necessary to posit a separate class of adverbs for these forms, as McGregor (this volume) does for comparable items in Warrwa (cf. also Merlan 1994: 254f.). The word-class status of locational expressions of this type requires further investigation.

3.3.1.2 Demonstratives

A complete 'grammar of space' of Jaminjung would have to contain a full description of the syntax and conditions of use of demonstratives. Here, only a very brief overview can be given. The core set of nominal demonstratives comprises six forms (with dialectal variants), listed in Table 3.1.

As Table 3.1 shows, a three-way distinction is made between a proximal and a distal demonstrative (based on distance from the speaker), and a third form, simply glossed as 'DEM' in examples, which is distance-neutral. Its function can be roughly circumscribed as (re)introducing a contextually 'given' referent: it can be used to refer to an entity 'given' in the extralinguistic context (e.g. in interactional space), but also anaphorically, to refer to a previously mentioned entity (as, e.g., in (1) above). In its adnominal form it functions as a general determiner and is on its way to grammaticalizing to a definite article. It is therefore not surprising that it is far more frequent than the proximal and distal demonstratives.

All three demonstratives occur in two forms, labelled 'adverbial' and 'adnominal' in Table 3.1. The 'adnominal' forms mainly occur in determiner function, as in (1) above and in (8). In Ngaliwurru, the proximal and the neutral 'adnominal' demonstrative may be reinforced with the proximal adverbial form *ngiya*, as indicated in Table 3.1. Data are too scarce to allow generalizations on the use of these forms; impressionalistically, they function similarly to the corresponding German reinforcements like *der hier* 'the one here' or *dieser hier* 'this one here'.

The 'adverbial' forms function not only as adverbials,[2] as in (7), but also as head nouns and as adnominal modifiers, as in (8), and as the predication base in identificational clauses or identification questions.

(7) *majani ngiya walyag ya-rdbaj*
maybe PROX inside IRR:3sg-FALL
'maybe here he got inside' (Frog in Frog Story, p. 9; see Chapter 1, §1.4.3, for a description of this elicitation tool)

(8) *gurrany jurriya ngarrgu ngiya yagbali*
NEG know 1sg.OBL PROX place
'I don't know this place'

Furthermore, adverbial demonstratives can be extended with the suffix *-ngurrinygi* (J) / *-wulguli* (Ng) to yield forms with the meaning '(on) this/that side'. The Jaminjung form contains the locative marker *-gi*, but apart from that the forms are non-transparent. (The equally non-transparent form *jilinymu* 'this side' was also heard from Jaminjung speakers.) The use of one of these forms is illustrated in (9) (a response in an elicitation with toy figures).

(9) *yeah, ngiyi-ngurrinygi gurdij ga-yu,*
yes PROX-SIDE stand 3sg-BE.PRS
gurrurrij=biyang birang-ngunyi ga-yu=nu \
car=now behind-ABL 3sg-BE.PRS=3sg.OBL
'yes, he is standing up on this side, the car is behind him' (elicitation with toy figures)

3.3.2 Coverbs

As already indicated at the beginning of this section, Jaminjung has two distinct parts of speech in predicative function. The term 'verb' is reserved here for a closed class of lexemes which obligatorily take verbal inflections (see §3.3.3). Members of the open class of lexemes with 'verbal' (and adverbial) semantics do not inflect; these are termed 'coverbs' here (cf. Kofod 1996, Wilson 1999). The term 'coverb' – rather than 'preverb' (e.g. Tsunoda 1981, Nash 1986, McGregor this volume) or 'verbal particle' (e.g. Hoddinott and Kofod 1976c, Merlan 1994) – is used here because (i) it does not suggest a fixed order with respect to the verb and (ii) it does not have the connotation of a minor word class restricted in size. It also captures the dependent nature of members of this class: coverbs do not function as the main predicate in a finite clause but have to be combined with a verb to form a complex predicate. This is illustrated in

[2] In this function, the demonstrative may take any of the spatial case markers, although most often it occurs unmarked in locative function.

(10) where three coverbs, *waga* 'sit', *burrb* 'finish' and *durd* 'hold/pick up a single entity', occur in combinations with different verbs.

(10) *waga ngaj=nu, burrb ganu-wu-yu skul,*
sit 1sg:POT:BE=3sg.OBL finish 3sg:3sg-POT-SAY/DO school
durd nga-bili
hold.one 1sg:3sg-POT:GET/HANDLE
'I will wait (lit. 'sit') for her, and when school finishes, I will pick her up'

Coverbs may also function as the predicate in a subordinate clause (without an accompanying verb), and in this function can take one of a number of case markers. Coverbs can, however, be distinguished from nominals in that they are necessarily predicational and do not occur as constituents of referential case-marked noun phrases. Coverbs may reduplicate and take a number of derivational suffixes. Nominals can be derived from coverb roots, but not vice versa. Coverbs cannot, in fact, be derived from words of other classes, but the class is massively extended by borrowings.

Coverbs are a crucial component of most spatial expressions: they are used to express topological relations (see §3.4) and manner and direction of motion (see §3.5.2), and they also play a role in expressions employing the intrinsic frame of reference (see §3.6.2). However, it is important to note that coverbs are not restricted to the spatial domain but cover a wide range of semantic areas including speech and sound emission, physical and emotional conditions, change of state, contact and affectedness, and social interaction (see Schultze-Berndt 2000, Chapter 6 for a detailed discussion of coverb classes).[3]

3.3.3 Verbs

Verb roots form a closed class, in contrast to coverb roots.[4] There are twenty-six verb roots that are well attested both in Jaminjung and in Ngaliwurru, and in addition nine that are very marginal in terms of frequency; moreover, some of these marginal verbs only occur in the Ngaliwurru dialect. Since one of the closed-class verbs is obligatory in every finite clause, they can be regarded as overt 'classifiers' of events (see Schultze-Berndt 2000, Chapter 5 for a detailed account). In order to remind the reader of the semantically generic nature of the verbs, their glosses are in capitals; the same gloss is used consistently for each

[3] Depending on the semantic class that a coverb belongs to, the nearest available English translation equivalent will be used as its gloss. This could be an infinitival verb form (e.g. 'drink') or a participle (e.g. 'hidden'), an adverb (e.g. 'inside'), or a phrase ('go up'). Differences in glossing should not be taken to imply differences in word class status of the forms in question.

[4] In the literature on Northern Australian languages, the inflecting verbs forming a closed class are often termed 'auxiliaries'.

verb and thus does not necessarily correspond to the closest English translation equivalent in context.

Verbs can be identified by their obligatory inflectional morphology comprising pronominal prefixes, mood prefixes and tense/aspect suffixes. The structure of the inflected verb is represented – in a somewhat simplified form – in (11).

(11) (Mood1-)Bound Pron-(Mood2-)Verb Root(-REFL)(-Tense/Aspect)

In the tense/aspect/mood system, four mood categories are distinguished: indicative, potential/future (glossed here as 'POT'), irrealis and imperative. The last three categories are marked by prefixes to the verb stem, while the indicative is unmarked. Tense or aspect distinctions are made only in indicative and potential mood. The tense system distinguishes past and present tense; imperfective and perfective aspect are distinguished in past indicative and potential/future forms. For a number of verbs, some tense/aspect categories are expressed by stem suppletion rather than suffixation. In addition to these inflectional categories, Jaminjung has an analytic progressive construction.

Pronominal prefixes obligatorily occur in all verb forms (except in some imperative forms with singular addressee). Intransitive and reflexive/reciprocal verbs take pronominal prefixes marking a single participant; transitive verbs take prefixes for an actor/undergoer combination. Both an intransitive verb (*-irna* 'BURN') and a transitive verb (*-arra* 'PUT') are illustrated in (12).

(12) *ga-rna-ya* *gurunyung*
3sg-BURN-PRS head
gan-arra-ny=biya *walyawalya* *gulaga-ni*
3sg:3sg-PUT-PST=now hat head-LOC
'(his) head is burning (from the sun) and he put a hat on his head'
(TRPS[5] 5)

Verbal derivational morphology is limited to the reflexive/reciprocal suffix. There are no other morphological valency-changing devices; the combination of a coverb with verbs of different valency often fulfils the same function as applicative markers, causativizers and other valency-changing morphology in many languages. Verbs cannot be nominalized and do not have non-finite forms. The functions fulfilled by non-finite verb forms in other languages are fulfilled by coverbs in Jaminjung.

Of particular interest for a Jaminjung 'grammar of space' are those verbs which are used in descriptions of static location and motion. The general verbs of location/existence and possession will be of importance in the discussion of

[5] 'Topological Relations Picture Series' stimuli – see Section 3.4, and Chapter 1, §1.4.1 for a description of this elicitation tool.

topological relations in Section 3.4. A comparatively large number of verbs can be used in the description of motion events; their meaning and function will be described in some detail in Section 3.5.

3.4 Topological relations

3.4.1 Subtypes of the basic locative construction

In order to investigate the way in which topological relations are expressed in Jaminjung, we need to consider the various subtypes of the 'basic locative construction', i.e. the construction that is employed in answers to a 'Where'-question such as (13).

(13) *nami=malang warnang=warra na-yu?*
2sg=GIVEN where=DUBIT 2sg-BE.PRS
'you, where are you?'

The maximally expanded basic locative construction in Jaminjung contains the following components, illustrated in (14): (i) a coverb encoding the specific topological relation between figure and ground; (ii) the verb *-yu* 'BE', with a pronominal prefix representing the figure; (iii) a locational nominal encoding a region in absolute space, or an ablative-marked noun phrase encoding the region of the ground where the figure can be found; and (iv) a locative-marked noun phrase (or an unmarked locational nominal, see §3.3.1 above) representing the ground.

(14)

Relation	Figure-LocV	Region	Ground	
Coverb	Bound Pron.-BE	NP(-ABL)	NP-LOC	
bayirr	*ga-yu*	*thangga-yun*	*mawud-gi*	*thanthu*
supported	3sg-BE.PRS	up-L.ABL	glass-LOC	DEM

'it is up on top of that bottle' (can balancing on top of a plastic bottle)

The figure, which is always represented by a pronominal prefix, may in addition be represented by a noun phrase in the absolutive, as in (15) and (17) below. Any locative-marked noun phrase can encode the ground object in a basic locative construction. If the ground is animate, it is also obligatorily cross-referenced by an oblique pronominal clitic; examples can be found in (9), in lines a. and d. of (66), and in the first line of (73).

The coverb encoding the specific relation between figure and ground comes from a large set of coverbs of spatial configuration (to be discussed in more detail in §3.4.2), which includes items such as *bayirr* 'supported' in (14), *nang* 'sticking' in (16) and (18), *walthub* (J) / *walyag* (Ng) 'inside' in (17), or *thuny* 'buried in a hole (of animal)' in (19).

The verb *-yu* 'BE' which combines with all coverbs of spatial configuration is the only intransitive stative verb in Jaminjung. It serves to express location as well as existence (see below) and may also function as an auxiliary signalling atelicity in complex verbs (see Schultze-Berndt 2000: 225–7). Thus, there are no (inflecting) positional verbs in Jaminjung; all positional notions are expressed by coverbs.

A few remarks are in order on the expressions of 'Region'. The region can be defined with respect to absolute angles, encoded by the drainage-based directionals or the verticality-based directionals. Expressions of this type are discussed in more detail in the context of the absolute frame of reference in Section 3.6 (see also §3.3.1.1). In other words, absolute spatial terms assist in the description of topological relations such as those expressed by the prepositions 'on' or 'under' in English. An example is (15); note that the verticality-based directional *janggagu* does not indicate a region to be projected from the ground object ('on top of the house') but indicates the absolute region where the figure can be found ('up'); this search space is narrowed down further by the mention of the ground object ('house-LOC'). Thus, just like English *up* and *down* and German *oben* and *unten,* the verticality-based directionals are absolute, not relational terms, indicating a region which is higher or lower on the vertical axis than the speaker or an implicit reference point, rather than indicating a region with respect to a ground.

(15)

Figure	Ground1	Figure-LocV	Region	Ground2
NP(ABS)	NP-LOC	Bound Pron.-BE	Loc. N	NP-LOC
julag wuju-wuju	*jurru-ni*	*ga-yu*	*janggagu*	*haus*-gi
bird RDP-small	nest-LOC	3sg-BE.PRS	up	house-LOC

'a little bird is in its nest up in the house'[6]

In order to indicate a region which is projected from a reference point, an ablative-marked noun phrase can be used. Most frequently, the ablative is found on the two verticality-based directionals, as in (14) above and in (16). It enforces a relational interpretation of these terms, that is, the resulting forms refer to a region below or above a ground. Recall that directionals have special allative and ablative case markers; the ordinary ablative is also used occasionally or may even reinforce the locational ablative, as in (16). Note also that in (16), the unmarked locational *thamirri* is used in addition to the ablative-marked form; in other words, both absolute and relative region are indicated. This use of the ablative is further discussed in Section 3.6.

[6] Single underline in examples is used to indicate Kriol or English borrowings.

(16)

Region	Relation	Figure-LocV	Region
Loc. N	Coverb	Bound Pron.-BE	Loc. N-ABL
thamirri	*nang*	*ga-yu*	*underneath-ngunyi*
down	stick	3sg-BE.PRS	underneath-ABL

thamurru-yun-ngunyi
down-L.ABL-ABL
'it is sticking down (from) underneath, (from) underneath' (chewing gum under table, TRPS 53)

Not all five components of the maximal basic locative construction have to be present. For example, more often than not there is no specification of a region; examples are (17) and (18). Note also that the order of these components is not fixed (since Jaminjung has free phrase order); compare (14), (17) and (18) in this respect. Coverb and verb, forming a complex predicate, tend to be contiguous and occur in the order coverb-verb, but this is a tendency rather than a rule. Example (17) illustrates the alternate ordering.

(17)

Ground	Figure-LocV	Relation	Figure	
NP-LOC	Bound Pron.-BE	Coverb	NP(ABS)	
mulugun-ni	*ga-yu*	*walyag*	*yag*	*wurdugulaman*
glass-LOC	3sg-BE.PRS	inside	fish	small

'it is inside a glass, the small fish' (TRPS 32)

(18)

Relation	Figure-LocV	Ground
Coverb	Bound Pron.-BE	NP-LOC
nang	*ga-yu*	*larriny-gi*
stick	3sg-BE.PRS	paperbark-LOC

'it is sticking on the paper' (stamp on envelope, TRPS 3)

Another reduced variant of the basic locative construction is one where the noun phrase representing the ground is omitted. In this case, the ground is either understood from context, or inferred from the meaning of a specific coverb, as in (19), or from the specification of a region, as in (20) and in (16) above.

(19)

ah,	*malajagu*	*thuny*	*ga-yu*
INTERJ	goanna	buried.in.hole	3sg-BE.PRS

'ah, a goanna is buried' (in a hole in the ground)

(20)

thanggagu	*jalalang*	*ga-yu*
up	hang	3sg-BE.PRS

'it is hanging up' (lamp over table, TRPS 13)

In a further type of basic locative construction, a ground expression is present, but the relation between figure and ground is left unspecified, that is, the predicate consists only of the verb *-yu* 'BE' without a coverb. The locative case on the noun phrase referring to the ground indicates that figure and ground

are in a spatial relationship but leaves this relationship unspecified, just like the locative case in many other languages (see, e.g., McGregor (this volume) and Wilkins (this volume)). The most likely interpretation in these cases corresponds to a stereotypical relation between figure and ground. For example, the interpretation of (21) is that the onion is in the bowl. Another example where the stereotypical 'containment' relationship (a bird in the nest) is only understood but not expressed is (15) above.

(21) *lambung-gi* *ga-yu* *gayalarriny*
coolamon-LOC 3sg-BE.PRS bush.onion
'the onion is in the bowl' (TRPS 2)

In the absence of both a ground expression and a coverb encoding the relation between figure and ground, the verb *-yu* 'BE' is interpreted as an expression of existence, as in (22), or of continuous location (corresponding to English *stay*), as in (23). Expressions like these should probably not be considered as instantiating the basic locative construction, since they would not be used in answer to a 'Where'-question.

(22) *wagurra* *thanthiya* *gujugu* *ga-yu=ngardi,*
rock DEM big 3sg-BE.PRS=SFOC
'there is a big rock!' (on the road)

(23) *that's* *where* *gurrany* *bawu* *ga-jga-ny=mindi,* *gugu,*
NEG open 3sg-go.PST=1du.incl water
ga-gba=biyang \
3sg-BE.PST=now
'that's where it didn't flow out "on you and me", the water, it stayed' (causing flooding)

The frequencies of the various subtypes of the basic locative construction are tabulated in Table 3.2 for a variety of text genres (uses of the verb *-yu* 'BE' alone were included for the sake of completeness). As the examples in this section have shown, the most specific semantic contribution to a locative description is made by the coverb, which expresses the relation between figure and ground. It is therefore not all that surprising that three-quarters of the descriptions elicited with stimuli such as the 'Topological Relations Picture Series' (TRPS) contain a coverb (the number of expressions containing a coverb is indicated in Table 3.2 in brackets after the total number of expressions counted). However, in coherent texts the specific relation between figure and ground can more often be inferred from context, or is simply irrelevant, as in a text about two hunters and two kangaroos, where only the presence of the hunter or the game in a certain location is repeatedly asserted, or in a text about the travels of a mythical dog, where also mainly the presence of the dog or its traces in a specific location are at stake.

Table 3.2 *Frequencies of subtypes of the basic locative construction*

Construction type	TRPS elicitation	Frog Story	Kangaroo Story	Dog Story	Hunting Story
'BE' + CoV + Reg + Gr	3	0	0	0	0
'BE' + CoV + Reg	2	0	0	0	0
'BE' + CoV + Gr	30	1	0	4	2
'BE' + CoV	23	5	0	1	6
'BE' + Reg + Gr	0	1	0	0	0
'BE' + Reg	2	0	0	0	0
'BE' + Gr	14	2	7	7	4
'BE'	1	1	1	3	3
Total	75 (58)	10 (6)	8 (0)	16 (5)	14 (8)

The text survey also revealed that the type of basic locative construction where a coverb is present, expressing the relation between a figure and a ground, is clearly preferred in descriptions of movable inanimate figures which are relatively small when compared to the ground, as is the case for most stimuli in the TRPS. It is also preferred when the posture of an animate figure is of some relevance. More specifically, this construction is almost always used when the figure is in direct contact with the ground, whether it is in a relation of support with the ground, as in (14), in a containment relation, as in (17) and (19), or in a relation of attachment, as in (16) and (18). The semantic range of the coverbs specifying the type of contact in expressions of this type is discussed in more detail in the next subsection.

Where there is no contact between figure and ground, the relation between figure and ground is usually not indicated, but only the general region (absolute or projected from the ground) where the figure can be found. An example is the scene of a lamp hanging over the table, which was described in a way similar to (20) by all consultants. Although a coverb is also present in this example, it describes the disposition (*jalalang* 'hanging') of the figure, not its relation to the ground. An exception, though, is the 'underneath' relation (in absence of contact). Although in descriptions of scenes like that of a ball under a chair a 'region' expression (*thamirri* 'down') is often present, as in (24), this configuration can also be described as a containment relation, with the coverb *walthub* (J) / *walyag* (Ng). For example, the spontaneous utterance in (25) referred to a dog that had moved underneath my car (but could just as well have been used for a dog inside the car). Furthermore, the coverb expressing the containment relation and the directional are frequently combined, as in (26).

(24) *mali . . nulung-bari . . ga-yu thamurru-yun*
clothing round-QUAL 3sg-BE.PRS down-L.ABL
'a round thing is there underneath' (TRPS 16)

(25) *walthub ga-jga-ny*
inside 3sg-GO-PST
'it went underneath' (lit. 'inside')

(26) *majani ga-yu thamirri walthub*
maybe 3sg-BE.PRS down inside
'maybe it is down inside' (echidna in hole)

In Jaminjung, thus, the coverb *walthub* (J) / *walyag* (Ng), which encodes a containment relation (e.g. in a three-dimensional container, encircled by a fence, or amidst trees), may also describe 'partial enclosure from above', i.e. configurations that would be described by 'under' in English, similarly to its translation equivalents in Arrernte (Wilkins this volume) and Warrwa (McGregor this volume).

The basic locative construction is not used to describe scenes that call for a figure–ground reversal. This applies where the ground is animate, and/or where the figure is in a part-whole relation with the ground, or the figure is a negative space like a hole. In these cases, a possessive construction is used involving the general possessive verb *-muwa* 'HAVE'. Both figure and ground are cross-referenced on the verb, the ground by the actor prefix, the figure by the undergoer prefix. Examples for scenes described with this construction are a cigarette in a person's mouth, as in (27), a ring on a person's finger, as in (28), or a crack in a cup, as in (29), as well as a plant part in relation to the whole (see (34) below).

(27) *gana-ma-ya tharrmarrb jarra-g*
3sg:3sg-HAVE-PRS stick.out mouth-LOC
'he has it sticking out in his mouth' (cigarette, TRPS 39)

(28) *bardag gana-ma-ya*
tight.fit 3sg:3sg-HAVE-PRS
'she has it on' (ring, TRPS 10)

(29) *jarriny gana-ma-ya*
hole 3sg:3sg-HAVE-PRS
'it has got a hole' (crack in bottle, TRPS 26)

As (27) shows, the ground may be further specified by a locative noun phrase, and the relation between figure and ground may be specified by a coverb (see also (34) for another example). In this respect, the possessive construction is very closely related to the basic locative construction involving the verb

-yu 'BE'. The close semantic and formal relationship between expressions of location/existence and expressions of possession has of course been repeatedly noted in the literature (e.g. Lyons 1967, Clark 1978, Freeze 1992, Lehmann 1995: 26).

The basic locative construction is also dispreferred when a configuration invokes an action leading to it. Of course an action – e.g. of the transfer type – could be imagined for almost any configuration, especially since transfer into a configuration can be expressed by using the same coverb as in the corresponding basic locative construction and replacing the verb *-yu* 'BE' with the verb *-arra* 'PUT' (see also §3.4.2). Thus, both (30) and (31) were spontaneous responses to the stimulus showing a fruit in a bowl.

(30) *gujarding-ni walyag gan-arra-ny jalig-di yani-ngawu*
mother-ERG inside 3sg:3sg-PUT-PST child-ERG IRR:3sg:3sg-SEE
'the mother put it inside (since) the child might see it' (fruit in bowl, TRPS 2)

(31) *walthub ga-yu lambung-gi*
inside 3sg-BE.PRS coolamon-LOC
'it is inside the bowl' (fruit in bowl, TRPS 2)

A 'dynamic' expression with a transitive verb is clearly preferred over the basic locative construction to describe configurations like that of a skewer pierced through an apple in (32).

(32) *thabba gan-ijja-ny mangarra*
stick.out 3sg:3sg-POKE-PST plant.food
'someone pierced the fruit such that it (arrow) is sticking out' (TRPS 30/70)

However, although in (32) the transitive dynamic verb *-ijja* 'poke' is used, the coverb *thabba* is a (stative) dispositional predicate expressing the relation between two entities, and thus belongs to the same class as coverbs like *bayirr* 'supported' in (14) and *walthub / walyag* 'inside' in (31) (see also §3.4.2). This becomes clear from the existence of the alternative expression in (33), where the verb *-yu* 'BE' is used.

(33) *thabba ga-yu mangarra*
stick.out 3sg-BE.PRS plant.food
'the fruit has something stuck in it'; 'the fruit is pierced' (TRPS 30/70)

Note that the coverb *thabba* describes a complex configuration of 'an entity that has something protruding from it'. The available data did not reveal a distinction between the description of the TRPS stimuli 30 and 70 (with the apple and the skewer as the figure, respectively).

3.4.2 Coverbs of spatial configuration

As the examples in Section 3.4.1 have already shown, coverbs in Jaminjung, in making explicit the spatial relation between figure and ground, take on the function fulfilled by positional verbs, preverbs, adverbs, relational nominals and adpositions or case markers in many other languages. They are often semantically more specific than, for example, adverbs or prepositions in Germanic languages, and so are quite comparable to the large positional classes in some Mayan languages (see, e.g., Brown this volume, and Bohnemeyer and Stolz this volume).

Coverbs of spatial configuration constitute a formally defined subclass of coverbs. In addition to combining with the intransitive verb of existence and location *-yu* 'BE' in the basic locative construction and with the transitive verb *-muwa* 'HAVE' in a possessive construction, as already illustrated in Section 3.4.1, they also combine with the verb of change of locative relation[7] *-irdba* 'FALL' and with its causative counterpart *-arra* 'PUT' to yield expressions of entering a spatial configuration and of placement in a spatial configuration, respectively. The possibilities are illustrated for the coverb *bayirr* 'supported' in (14) above and in (34) to (36) below.

(34) *mangarra galya=gun, gana-ma-ya bayi-bayirr* \
plant.food lily.seeds=CONTR 3sg:3sg-HAVE-PRS RDP-supported
'the seed bulb food, it has them on top' (i.e. the lily has the seeds in a supporting relation)

(35) *ah, bayirr buny-irdba-ny* na *ngayin minyga*
INTERJ supported 3du-FALL-PST now meat/animal what's.it.called
'ah, the two got on top of that animal, what's it called' (Frog Story, p. 15)

(36) *ngiya bayirr gan-arra-ny, ba-ngawu,*
PROX supported 3sg:3sg-PUT-PST IMP-SEE
'here it put him on top, look' (deer and boy, Frog Story, p. 15)

The coverbs that formally pattern like *bayirr* 'supported' constitute a large class with around 50 members, in a coverb dictionary of 520 entries. These coverbs of spatial configuration are by no means restricted to expressing topological relationships in the strict sense, such as support, attachment or containment, but also include notions traditionally classified as 'postures' (see below), and coverbs which encode a configuration of a featured object to a ground, or a figure to a featured ground, and thus pertain to the domain of the intrinsic frame of reference (see §3.6.2).

One semantic subgroup of coverbs of spatial configuration consists of terms for various postures and support relations; its most important members are

[7] For a justification of the semantic analysis of this verb, see Section 3.4.1.

Table 3.3 *Coverbs of spatial configuration: posture and support*

Coverb	Dial.	Translation	TRPS stimuli
waga	J/Ng	1. sit (of animates) 2. stay in a place	38, 40, 47
jalu	J	squat, crouch, sit on haunches (e.g. of animals sitting, including birds)	6, 67
mugurn	J/Ng	1. lie (of animates) 2. sleep	
gurdij	J/Ng	stand, stand still (of animates and inanimates)	65
jalalang	J	hang, i.e. hang down from support point (e.g. clothes on hook or line, animal on tree, leaf on branch, spider on ceiling)	7, 9, 13, 20, 37, 41, 56, 63
ngamang	J	ride, be astride, sit on s.o.'s back/shoulders (of animates)	
jard	J/Ng	be upright (of inanimate with long axis, e.g. tree/pole in the ground, book on shelf)	8, 17, 65
bayirr	J/Ng	be on top of s.th., be supported (of animates and inanimates, e.g. birds on a branch, objects on a table or branch, one stick lying on top of another)	1
gurlurl	J/Ng	be on top of a small raised base, e.g. an ant-hill, a fire, a branch, a car; also for something balanced on someone's head. Partly overlapping extension with *bayirr.*	
nud	J	be on s.th. as a weight (e.g. stones)	
diridi	J	lean over/against s.th.	58
ngardurdug	J/Ng	curled up, folded, bent (of flexible animates and inanimates, e.g. snakes, clothes), crossed (of arms, legs)	23

Included here are stimuli that were described by the coverb in question in combination with a verb other than *-yu* 'BE' (e.g. a transitive verb encoding an action by an agent leading to the configuration in question), as long as the coverb was attested in the basic locative construction in other contexts.

listed in Table 3.3. It is difficult to maintain a strict division between posture and support, since many coverbs, such as *ngamang* 'be astride' and *jalalang* 'hang' conflate both a component of posture of the figure and a specific support relation. Coverbs of this subgroup may further lexicalize properties of the figure (e.g. animacy, weight, flexibility) or of the ground (e.g. 'small raised base' for *gurlurl*). Further examples of coverbs of this type can be found in (6), (20), (73) and line d. of (66).

Coverbs expressing types of attachment, listed in Table 3.4, may also encode postural information (e.g. *balb* 'be flat on something') and information on the nature of the figure (e.g. 'long flexible entity' for *dibird* 'be wound around, entwined'), as well as on the nature of the attachment (e.g. by means of stickiness, by means of tying). The use of coverbs of this type is illustrated in (16), (18), (27), (28), (32) and (33).

Table 3.4 *Coverbs of spatial configuration: attachment*

Coverb	Dial.	Translation	TRPS stimuli
balb	J	be flat on a surface (of animates and inanimates, irrespective of orientation), be painted/engraved on a surface (e.g. rock art)	52
dirrg	J	be tied up, be fastened (e.g. of dog, boat)	4
dibird	J	be wound around s.th., be tied up, be entangled (e.g. of a rope tangled up or wound around a tree, a snake around a tree, a bandage around a limb, or a necklace)	4, 20, 51, 55
nang	J/Ng	stick, adhere to a surface (e.g. of an insect, smeary substance, gum)	3, 7, 12, 53
narrng	J/Ng	be stuck on/in s.th. (e.g. of fish on hook, fishing line on submerged branch, tight clothing, dog's head in jar in Frog Story)	
thabba, tharrmarrb	J	have something protruding, sticking out (e.g. splinter in foot, arrow in apple, branch on a tree, cigarette in mouth)	30, 70, 39
bardag	J/Ng	joint, be in tight fit (e.g. of headband, hat, ring or shoes on body, lid)	5, 10, 21, 46, 62
jalarr	J	joint, of spearhead to spear	

Jaminjung also distinguishes various kinds of containment, by the nature of the containment (e.g. *jubard* 'be shut in') or a property of the ground (e.g. *bagurr* 'be in a flat container with open top'; *thawu* 'immersed in liquid'), or a combination of these features. The most general coverb of containment, *walthub* (J) / *walyag* (Ng) is illustrated in (17), (30) and (31); the coverb *thuny* 'be buried in a hole' is illustrated in (19). Coverbs of containment are listed in Table 3.5.

A number of coverbs from the same formal class can only be predicated of a featured location (e.g. *birang* 'behind') or a featured figure (e.g. *wamam* 'face up'). Coverbs of spatial configuration may further specifically apply to complex figures, i.e. figures that consist of several parts or entities; an example is *balbba* 'be side by side' (of two entities). The use of these types of coverbs will be discussed in connection with the intrinsic frame of reference in Section 3.6.2. Other coverbs of spatial configuration may involve the perspective of an observer or a purpose for the spatial configuration, as is the case for *marrug* 'hidden' or *jarlwab* 'be safe / in a safe place'. All these coverbs express a configuration with respect to a ground, as shown by their compatibility with the verbs *-irdba* 'FALL' and *-arra* 'PUT' in expressions of inchoative and causative position, respectively.

Table 3.5 *Coverbs of spatial configuration: containment*

Coverb	Dial.	Translation	TRPS stimuli
walthub, *walyag*	J, Ng	inside, enclosed (e.g. animate in dwelling, under 'roof', in scrub or shade; movable entity in container; building enclosed by fence; also: 'put on clothes')	2, 14, 19, 31, 32, 54, 60, 71
bagurr	J	be in a flat, bowl-shaped container with open top independent of size (e.g. coolamon (traditional carrying dish), bird's nest, valley); also for containment in a vehicle	
jubard	J/Ng	be shut in/off, enclosed	
bardbard	J/Ng	covered with a layer (e.g. leaves, blanket)	24
thuny	J	be buried in a hole (of animal, e.g. goanna)	
mirrbba, *mujud*	J, Ng	be covered up, buried (in the ground)	
thawu, *gulb*	J, Ng	be submerged, be immersed in a liquid, soak	

In addition, there is also a smaller class of true posture coverbs which can be rather specific semantically, e.g. *jardagaj* 'have legs standing up or crossed (while lying down)' or *mununyjurrgu* 'have one's hand behind one's back'. These do not encode the locative relation of a figure with respect to a location, but rather the shape or the configuration of parts (e.g. body parts) of a single figure (cf. Talmy 1985: 146, footnote 30). Consequently, they mainly combine with the verb *-yu* 'BE' and do not allow the combination with *-irdba* 'FALL'. Coverbs of direction of gaze, such as *mung* 'look at', are similar to coverbs of posture in this respect, but in addition allow the combination with the verb *-ngawu* 'SEE' (see §3.6.2, and for details Schultze-Berndt 2000: 438–40). There also exists a small class of bivalent coverbs of 'holding' which also describe a spatial configuration between two entities; examples are *durd* 'hold a single entity' in (10) and *wurlg(ba)* (J) / *juburru* (Ng) 'carry on shoulder, at shoulder height, or on head' in (50) and in line h. of (66). Coverbs of this type describe configurations where the ground has control over the configuration of the figure. Therefore they do not combine with *-yu* 'BE' or other intransitive verbs but form stative complex verbs only with *-muwa* 'HAVE', and dynamic expressions of transfer with *-mili*/ *-angu* 'GET/HANDLE', with *-arra* 'PUT', or with transitive locomotion verbs.

This discussion shows that there is no formally circumscribed domain of 'expressions of topological relations' in Jaminjung. Coverbs of spatial configuration express both topological and intrinsic notions, as well as postures, the orientation of featured figures and the configuration of complex figures. Moreover, there is a formal relationship between monovalent coverbs of spatial configuration and bivalent coverbs of 'holding', i.e. of control of a configuration.

3.5 Motion

The division of labour between members of the two inherently predicative lexical classes (verbs and coverbs), which was described for stative locative expressions in Section 3.4.1, is also important for understanding the expression of motion events in Jaminjung. As a first example, consider (37), describing a scene in the Frog Story picture-book where the boy has just gone out of the house to pick up his dog who had jumped out of the window. The general locomotion verb *-ijga* 'GO' is combined with two coverbs, one (*yugung* 'run') expressing manner of motion, and one (*walig* 'around') encoding a path.

(37) *jalig=malang yugung walig ga-jga-ny=nu*
child=GIVEN run around 3sg-GO-PST=3sg.OBL
'the child ran around for him' (Frog Story, p. 7)

Verbs that are employed in the description of motion scenes include both translocational verbs and verbs of change of locative relation and ballistic motion; the semantic contrasts involved are discussed in Section 3.5.1. Manner and direction of motion are always expressed by coverbs, which fall into various subclasses showing different patterns of combination with the motion verbs (§3.5.2). The distinctions made in the encoding of motion events are summarized in Section 3.5.3, which also includes some remarks on the position of Jaminjung in the verb-framed/satellite-framed typology of motion expressions (as it appears in Talmy 1985, 1999, 2000).

3.5.1 Verbs used to describe motion events

The range of motion events that will be considered here consists of all those that allow for an expression of a starting point ('source') and a goal of motion by means of the ablative and allative case (or sometimes an unmarked locational noun in goal reading), respectively.[8] As (38) shows, both a source and a goal expression can appear in the same clause (although more usually only one of the two is present).

(38) *yinyju-ngunyi ngarrgina ngaba ga-jga-ny buru*
PROX-ABL 1sg:POSS brother 3sg-GO.PST return
Myatt-bina na,
[place.name]-ALL now
'from here my brother went back to Myatt then' (recorded by Mark Harvey)

[8] Motion, in this sense, necessarily involves a change of location, and has to be distinguished from what could be termed 'internal motion', e.g. events of shivering, wriggling and the like. Internal motion in Jaminjung is never expressed by means of any of the motion verbs to be discussed in this section, but rather by the general performance verb *-yu(nggu)* 'SAY/DO', in combination with a specific coverb (see Schultze-Berndt 2000: 349–69 and 459–61 for details).

The verbs that are used to describe motion events defined in this way can be further subdivided into true locomotion verbs entailing motion along a path (§3.5.1.1) and the remaining verbs which encode change of locative relation, ballistic motion, or emerging (§3.5.1.2). This classification is undertaken on formal grounds: the different verbs may combine with different sets of coverbs.

3.5.1.1 Locomotion verbs

Considering that verbs in Jaminjung constitute a closed class of around thirty members, it may come as a surprise that locomotion verbs – that is, verbs that entail translocational motion – form a rather large set with seven members. The most general and most frequent verb of locomotion, *-ijga* 'GO', has already been illustrated in (37) and (38) above. This verb is often interpreted as a functional antonym to a second, deictic locomotion verb, *-ruma* 'COME', as example (39) shows.

(39) *yina ga-jga-ny manamba, buru ga-ruma-ny* \
DIST 3sg-GO.PST upstream return 3sg-COME-PST
'she went upstream, and came back'

Following Wilkins and Hill (1995), 'motion away from deictic centre' can be regarded as a pragmatic inference, not a semantic entailment, of the verb. Under this analysis, *-ijga* 'GO' is a general locomotion verb which is unspecified with respect to deixis and only conveys the fact of translocational motion as such. It is the verb used to describe not only scenes of motion away from the deictic centre, but also scenes where the figure is actually moving towards the deictic centre for some time, while the overall event cannot be described as motion towards the deictic centre. For example, events of 'passing' are always expressed with *-ijga* 'GO' (or *-unga* 'LEAVE'; see (43) below), but never with *-ruma* 'COME'. This is illustrated in (40), which referred to a car moving towards the speaker and the addressee at the time of the utterance.

(40) *marraj ga-w-ijga*
go.past 3sg-POT-GO
'let it go past'

Likewise, *-ijga* is used in descriptions of undirected motion (e.g. circling or meandering), and in questions where the direction of motion intended by the addressee is at stake, even if the addressee is moving towards the speaker (cf. Wilkins and Hill 1995: 230, and Schultze-Berndt 2000: 258–61). Thus, *-ijga* 'GO' is in opposition to the verb *-ruma* 'COME' – which does entail motion towards the deictic centre – on the level of pragmatics only.

The semantic relationship between the two intransitive motion verbs *-ijga* 'GO' and *-ruma* 'COME' has a parallel in that between the two transitive

verbs of 'accompanied locomotion' or transport, *-uga* 'TAKE' and *-anthama* 'BRING' (Ng. *-anjama)*, the latter being specified for deixis. These verbs are illustrated in (41) and (42). The verb *-uga* 'TAKE' was also generally employed to describe the scene in the Frog Story where the deer runs off with the boy on its back; see lines h. and k. in (66) below.

(41) *warrgayin=nyanying gan-uga gugu-giyag larrman-bina*
far=properly 3sg:3sg-TAKE.PST water-ABL dry-ALL
'she took it right away from the water onto the dry (land)' (a woman dragging along a large fish that she has caught)

(42) *jag birrarr-anjama=biya jamurrugu gugu-bina*
go.down 3pl:1pl.incl-BRING.IMPF=now down water-ALL
'they used to bring us downwards down to the water then'

The three remaining locomotion verbs are also transitive and encode the orientation of the path with respect to a second participant. If the path is oriented away from the participant serving as the reference point, the verb used is *-unga*, which in most of its occurrences can be translated as 'leave'. However, unlike its English translation equivalent, it is regularly used in expressions of passing (in the sense of overtaking); compare (43) with (40) above. As example (43) also shows, *-unga* 'LEAVE' may combine with a coverb specifying the manner of motion, just as the other locomotion verbs do.

(43) *warrngwarrng gan-unga-ny marraj*
RDP:walk 3sg:3sg-LEAVE.PST go.past
'she walked past her' (lit. 'she left her walking past')

The verb *-arrga* 'APPROACH' is the converse of *-unga* 'LEAVE': it is used to describe scenes where a figure moves not away from, but towards a participant which is encoded as undergoer. In (44), *-arrga* combines both with a coverb of manner of motion (*warrngwarrng* 'walk'), and with a positional (*wamam* 'face up') in an 'associated motion' reading (see below).

(44) *ngiya=ma wamam gan-karrganthi-ya=mindag*
PROX=SUBORD face.up 3sg:1-APPROACH-PRS=1du.incl.OBL
warrng-warrng walthub-ngunyi \
RDP-walk inside-ABL
'here he walks towards us, facing us, from inside' (man in Enter/Exit animation video)

The last of the seven locomotion verbs, *-wardagarra,* quite straightforwardly translates as 'follow', and describes a type of motion oriented towards a second participant which is also moving. This is illustrated in (45), where the verb also occurs in combination with a coverb of manner of motion.

(45) *janyungbari pigibigi=biya birang yugung gani-wardagarra-m*
another pig=now behind run 3sg:3sg-FOLLOW-PRS
'another pig follows it running behind' (Men and Tree 8; see Chapter 1, §1.4.2, for a description of this elicitation tool)

The notion of 'pursuit' can also be encoded by a coverb, *yurl*, which however, never combines with locomotion verbs, but usually with the verb *-mili/-angu* 'GET/HANDLE', as in (46). This verb also occurs in combination with the coverb *gabarl* 'come close to, catch up with'.

(46) *yurl gan-angga-m=biya wirib-ni*
pursue 3sg:3sg-GET/HANDLE-PRS=now dog-ERG
'he is chasing it now, the dog' (Frog Story, p. 16)

The coverb *yurl* 'pursue' can also combine with a verb that specifies the type of contact that the 'chaser' aims for, e.g. 'bite' or 'hit'. These more idiomatic complex verbs will not be further considered in this section, even though they also allow for an allative-marked noun phrase specifying the goal.

By way of summary, the semantic distinctions between the seven locomotion verbs are graphically illustrated in Figure 3.1.

Note that all of these verbs could be said to express 'path' only in the most general sense of 'motion along a sequence of locations', and further in the sense of 'motion oriented with respect to the deictic centre or a ground' (none of the verbs of oriented motion entails that the ground is reached or was the original starting point). In other words, Jaminjung verbs may encode 'end-anchored' paths, but not path shapes or intermediate grounds (as in 'return', 'pass'). As already indicated, these notions are encoded by coverbs, to be discussed in Section 3.5.2 (see also §3.5.3.3).

Locomotion verbs may also combine with coverbs other than coverbs of path or manner, i.e. with coverbs which do not themselves have a semantic component of motion. The resulting combinations have two possible interpretations, one simultaneous and one sequential: either the state or activity encoded by the coverb is ascribed to the figure (or one of the figures) during motion, or it is interpreted as the purpose of the locomotion, i.e. immediately following it. The types of associated motion that can be expressed as complex verbs (i.e. construed as single events) appear quite limited when compared with those in languages like Kaytety or Arrernte which have a grammaticalized system of associated motion forms (Koch 1984, Wilkins 1991, 1997a, this volume). The most frequent subtype of complex verbs of 'simultaneous associated motion' contains a coverb of spatial configuration or posture which describes the position of the moving figure, as in (44) and (47), or which describes the position of the concomitant with the verbs of accompaniment *-uga* 'TAKE' and *-anthama* 'BRING', as in line h. of (66) below.

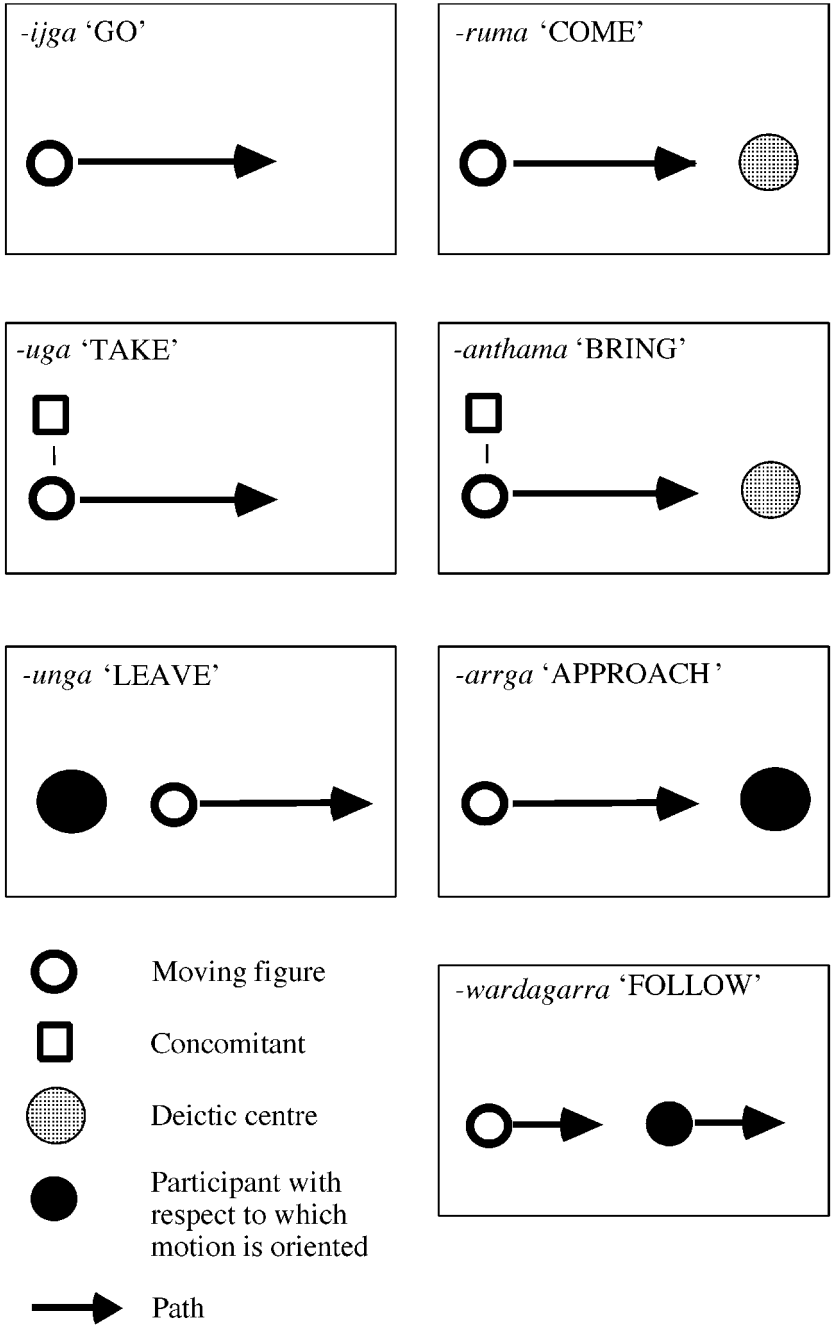


Figure 3.1 Graphic illustration of the semantics of Jaminjung verbs of locomotion

(47) *gurrurrij-gi ga-ngga gurlurl*
car-LOC 3sg-GO.PRS on.small.base
'it goes along on the car sitting (on it)' (toy dog on toy car)

In addition, coverbs of continuous activity – encoding, for example, types of sound emission – are found with locomotion verbs in an associated motion interpretation (i.e. 'activity during motion'). Some coverbs of spatial configuration or activity may also form complex verbs with locomotion verbs in a 'motion-cum-purpose' reading. Logically speaking, these receive a sequential interpretation: the coverb encodes the (sub)event (a configuration, state or activity) corresponding to the purpose of the motion. An example is (25) in Section 3.4.

3.5.1.2 Verbs of change of locative relation and ballistic motion

In addition to the locomotion verbs described in the previous section, there are three other verbs, *-irdba* 'FALL', *-wardgiya* 'THROW' and *-arra* 'PUT', which may combine with expressions of source and goal, as illustrated in (48) to (50). With these verbs, though, the goal location may be expressed not only by an allative-marked noun phrase, but also by a locative-marked noun phrase, as, e.g., in (51) and (53). Locomotion verbs, on the other hand, do not allow a locative-marked noun phrase, unless the intended reading is that the locomotion event as a whole took place at the specified location. Another difference between the locomotion verbs and the three verbs of change of locative relation and ballistic motion is that only locomotion verbs combine with coverbs of manner of motion, although all combine with coverbs of path (see further §3.5.2).

Example (48), from a Frog Story narration, is a particularly rich single clause description of a motion event, since in addition to the verb it also contains specifications of the source (*warrangan-ngunyi*), the goal (*gulban-bina)*, the absolute direction (*thamirri*) and the path (*jid*). In both (49) and (50), in addition to the verb and the allative noun phrase encoding the goal, there is a positional coverb (see §3.4.2) which indicates the spatial configuration that the moving figure assumes at the goal location.

(48) *jid ga-rdba-ny warrangan-ngunyi thamirri gulban-bina*
go.down 3sg-FALL-PST cliff-ABL down ground-ALL
'he went down from the cliff down to the ground' (Frog Story, p. 17)

(49) *bayirr nganth-ardgiya-ny=biya langiny-bina na,*
supported 2sg:3sg-THROW-PST=now wood-ALL now
'you threw it over a branch now' (fishing line, in order to hold it up)

(50) *ngiyi=biya horn-bina wurlg gan-arra-ny *
PROX=now horn-ALL carry.on.shoulder 3sg:3sg-PUT-PST
'here it put him on the horns to carry' (Frog Story, p. 15)

Let us now examine more closely the meaning of these three verbs. Both *-irdba* 'FALL' and *-wardgiya* 'THROW' are regularly employed to describe the 'fall from the cliff' scene in the Frog Story, as in (48) and (51), and also in (64), (65) and in lines m. and p. of (66) below.

(51) *gugu-ni=biyang ganuny-bardgiya-ny*
water-LOC=now 3sg:3du-THROW-PST
'it threw the two into the water' (Frog Story, p. 17)

However, the transitive verb *-wardgiya* 'THROW' is not simply the causative counterpart of the intransitive *-irdba* 'FALL'. As I have argued in more detail in Schultze-Berndt (2000: 230–6), *-irdba* 'FALL' is not semantically equivalent to English *fall* in that it does not entail downward motion, and in fact does not entail motion at all. For example, the verb can be used to describe inadvertently bumping into an obstacle, entering a car by climbing upwards into it, and even getting stuck on something, without prior motion, as illustrated in (52). What is expressed here is merely the change of locative relation of the dough with respect to the drum from 'not sticking on' to 'sticking on', the position specified by the coverb *nang*.

(52) *nang ya-rdbaj*
stick IRR:3sg-FALL
'it might get stuck' (bread dough on drum)

Thus, *-irdba* 'FALL' only entails that a figure enters into a configuration with a ground; whether this is achieved by prior motion (or even by motion downwards terminating on the ground, in the narrow sense of the word) or not is irrelevant. This is also, I would like to argue, why the ground location is often a locative rather than an allative-marked noun phrase, as in (51) and (53). Although the Frog Story scenes described in these two examples also involve 'falling', what is focussed on here is the arrival on the ground rather than the path leading towards it.

(53) *jalig=malang biyang gulban-gi=guji ga-rdba-ny* \
child=GIVEN now ground-LOC=already 3sg-FALL-PST
'the child fell already on the ground' (Frog Story, p. 13)

Thus, while *-irdba* 'FALL' is compatible with specifications of a path by a coverb as well as with source and goal expressions, it is these path specifications and not the verb itself that lead to a motion interpretation of the clause as a whole. In this respect, Jaminjung contrasts with, e.g., Yukatek Maya (see Bohnemeyer and Stolz this volume), where verbs of change of location are not compatible with path specifications at all but can only combine with either a source or a goal expression.

The transitive verb *-arra* 'PUT' is the causative counterpart of *-irdba* 'FALL' in the sense that it also entails that a figure enters into a locative relation with a ground, and it has been attested to describe events where the figure does not actually move, as in (54). Not surprisingly, the ground location here is also marked with the locative, not the allative case; compare this with (50) above.

(54) *jubard nganth-arra-ny kap-gi*
shut.in 2sg:3sg-PUT-PST cup-LOC
'you enclosed it in the jar' (addressee was pretending to catch a fly in a small jar, turned over, by moving the jar)

In contrast to *-irdba* 'FALL' and *-arra* 'PUT', *-wardgiya* 'THROW' does not entail that a figure reaches a specifiable ground location. For example, this verb can also be used to describe swinging an entity round and round, as in (55).

(55) *birdinyiny gan-ardgiya-m,*
rotate 3sg:3sg-THROW-PRS
en diwu gan-unggu-m
and fly/throw 3sg:3sg-SAY/DO-PRS
'she swings it round and round, and throws it then' (fishing line)

On the other hand, *-wardgiya* 'THROW', unlike *-irdba* 'FALL' and *-arra* 'PUT', does entail that motion of some sort takes place. The semantic characterization proposed in Schultze-Berndt (2000: 337) is 'cause something to move along a trajectory determined by gravity and/or the direction of force applied'. This characterization is intended to bring out the contrast between this verb and the verbs of locomotion ('move along a path'), where the path is construed as controlled by the moving figure. The kind of motion encoded by *-wardgiya* 'THROW', on the other hand, can be termed 'ballistic motion': the path that the moving figure takes is predetermined, usually by gravity. This is presumably why *-wardgiya* 'THROW', too, is compatible with a locative-marked noun phrase specifying the end location, as in (51) above: the path section of the motion event is irrelevant, since it is already inherent in the force that sets the figure on its trajectory (but of course the allative case may be used to emphasise the motion aspect, as in (49)). As we will see in Section 3.5.2 below, *-wardgiya* 'THROW' does function as the causative counterpart of *-irdba* 'FALL' in the context of coverbs which themselves encode a type of ballistic motion.

There are a few other verbs which may be used in descriptions of motion events, but which only have this function in combination with a very small set of coverbs. One of these, the verb *-mili/-angu* 'GET/HANDLE', has already been mentioned in relation to example (46) above. It not only appears in expressions of pursuit, but also in combination with the manner coverb *dibard* 'jump' in the

reading 'jump off'. The second verb that has to be mentioned here is *-yu(nggu)* 'SAY/DO'. This is a general performance verb which combines regularly with coverbs of internal motion but is only exceptionally found with coverbs of manner or direction of motion (see also §§3.5.2.1 and 3.5.2.2). It may also combine in a causative reading with some coverbs of ballistic motion, e.g. *diwu* 'fly, throw' in (55) and in line r. of (66), but, as I have argued in Schultze-Berndt (2000: 333–8), complex verbs of this type are not compatible with a goal expression and encode only release, not caused motion. Finally, the verb *-ma* 'HIT' occurs with some coverbs of path to indicate completion of a path (see §3.5.2.2), and regularly combines with coverbs of 'emerging' (see §3.5.2.4).

3.5.2 Coverbs of manner and direction of motion

The common denominator of the various subgroups of coverbs discussed in this section is that they can combine with the verbs described in Section 3.5.1, or with a subset of these. Coverbs of manner of motion (§3.5.2.1) and coverbs of path and separation (§3.5.2.2) generally only combine with locomotion verbs. Coverbs of change of location (§3.5.2.3) may combine both with locomotion verbs and with the verbs of change of locative relation *-irdba* 'FALL' and *-arra* 'PUT'. Coverbs of emerging (§3.5.2.4) form a special subclass and can be formally identified by their ability to combine with the verb *-ma* 'HIT' in a secondary sense of 'change of location', as well as with locomotion verbs. Finally, coverbs of ballistic motion (§3.5.2.5) allow only the combination with the verbs *-irdba* 'FALL' and *-wardgiya* 'THROW'.

3.5.2.1 Coverbs of manner of motion

Coverbs of manner of motion encode a motor pattern and, in a few cases, velocity. 'Manner of motion' should be read as 'manner of locomotion', since these coverbs constitute a class which is formally distinct from coverbs of internal motion. The latter combine with *-yu(nggu)* 'SAY/DO', while coverbs of manner of motion combine only with the locomotion verbs. There are a few exceptions to this generalization: the coverbs *yugung* 'run' (see line i. of (66) below), *yawal* 'run (of multiple entities)' and *warrngwarrng* 'walk' are also attested with *-yu(nggu)* 'SAY/DO'.[9]

The attested coverbs of manner of motion are listed in Table 3.6. Two of them, *burdurdub* 'rush, race, gallop' and *yugung* 'run', are illustrated in (56) in combination with two locomotion verbs, *-ijga* 'GO' and *-uga* 'TAKE' (here in its suppletive present tense form *-antha)*. The example is a description of

[9] It is interesting to contrast Jaminjung with Warrwa (McGregor this volume) in this respect. In Warrwa, preverbs of manner of motion regularly combine with the general performance verb JI 'say, do', which is roughly semantically equivalent to Jaminjung *-yu(unggu)*.

Table 3.6 *Coverbs of manner of motion*

Coverb	Dial.	Translation
warlnginy, *galu(wirrb)*	J, Ng	walk, be on foot, walk around
warrng	J/Ng	move by moving legs or wings, walk, fly
yugung	J/Ng	run, race, speed
yawal	J	run (of multiple animates)
burdurdub	J/Ng	race, rush, gallop
dibard	J/Ng	jump
didid	J/Ng	roll
mingib, *mingiwarrb*	J, Ng	crawl
ngarrang	J/Ng	stagger
digurrgba	J	limp
diwu	J/Ng	1. fly, 2. throw
jaburrb	J	wade
liwu, *lilaj*	J, Ng	swim
bulumab, *wumbalb*	J, Ng	float
rayib, *burlgub*	J, J/Ng	sneak

the scene from the Frog Story where the deer carries off the boy (for further examples see (37), (43), (44) and (45)).

(56) *burdurdubba=biya* *ga-ngga* *ngayin* *thanthu* \
rush=now 3sg-GO.PRS meat/animal DEM
yugung=biya *gan-antha* *jalig-mij=jung,*
run=now 3sg:3sg-TAKE.PRS child-COMIT=RESTR
wurlgba, *horn-gi* \
carry.on.shoulder horn-LOC
'it is racing off now that animal, it runs away with the child, carrying (him), on the horns' (Frog Story, p. 16)

Coverbs which encode the manner of hunting and searching (not listed in Table 3.6) formally also behave like coverbs of manner of motion. They combine with verbs of locomotion (mainly *-ijga* 'GO') and can enter the same case frames as other complex verbs formed with locomotion verbs, as shown for the coverb *wurdbaj* 'look around' in (57) (see also line q. of (66)).

(57) *jalig=biyang* *wurdbaj* *ga-jga-ny* *jarriny-bina*
child=now look.around 3sg-GO-PST hole-ALL
'the child while looking around went up to a hole' (Frog Story, p. 9)

3.5.2.2 Coverbs of path and separation

Coverbs encoding a path shape (like *walig* 'go around, i.e. on a circle or semi-circle-shaped path') or a path defined with respect to an intermediate ground

Table 3.7 *Coverbs of path*

Coverb	Dial.	Translation
jarubaj	J/Ng	go back and forth
laginy	J	take a turnoff
marraj, *ngirr*	J, Ng	go past (point), go through (volume)
walig	J/Ng	round, around (in circle- or semi-circle-shaped path)
jurdug	J/Ng	straight
buyi	J/Ng	continue, keep going in same direction

(like *marraj* 'go past') also only combine with locomotion verbs; examples are (37), (40) and (43). These coverbs are not compatible with the verbs *-irdba* 'FALL' or *-arra* 'PUT', because these only encode a change of locative relation, rather than motion along a path (see §3.5.1.2).

A few coverbs of path may also combine with the verb *-ma* 'HIT', which has a secondary sense of 'affect' (see Schultze-Berndt 2000: 314–17). This combination yields the reading 'complete the path with respect to a ground'; the resultant reading with *walig* 'go around' is 'go around something completely'. Note that here the ground is encoded as undergoer, not as a locative- or allative-marked noun phrase. The most frequent coverbs of path are listed in Table 3.7.

(58) *walig gani-ma-m gurrurrij*
around 3sg:3sg-HIT-PRS car
'he walks around the car'

Like coverbs of path, coverbs of 'rising' (with animate participants), and coverbs of 'separation' in a narrow sense (with inanimate participants) combine with locomotion verbs, as illustrated in (59) and (60) for *bunburr* 'take off (of multiple animates)' and *gub* 'come off, detach (of inanimates)', and in (23) above for *bawu* 'open, go out'. In addition, they may combine with the transitive verb *-mili/-angu* 'GET/HANDLE' in a complex verb with a causative reading, as shown for *bawu* 'open, go out' in (60).

(59) *bunburr yurru-w-ijga yagbali-bina buru*
take.off.multiply 1pl.incl-POT-GO place-ALL return
'let's all take off to go back to the camp'

(60) *nginthu guru nganthi-bili bawu* \
PROX screw 2sg:3sg-POT:GET/HANDLE open
(. . .) gub ga-ram \
come.off 3sg-COME.PRS
'you should loosen this screw (. . .) it comes off'

Table 3.8 *Coverbs of rising and separation*

Coverb	Dial.	Translation
gud	J/Ng	get up, rise (animate)
bunburr	J	take off, leave (of multiple animates)
bib	J/Ng	move up, rise
larara	J/Ng	separate, go separate ways (of multiple animates)
bawu, *walg*	J, Ng	open up, go into the open, get out
gub	J/Ng	come out, come off (general)
jab	J/Ng	get detached, of long entity attached with its end point (e.g. hair, grass)

Coverbs of rising and separation are not attested with the verbs of change of locative relation *-irdba* 'FALL' and *-arra* 'PUT'. A list of these coverbs can be found in Table 3.8.

3.5.2.3 Coverbs of change of location ('vector')

Coverbs of change of location encode a direction of motion (or 'vector') which can be described in terms of just two points. For example, *jag* 'go down' in (61) and (62) encodes a vector defined with respect to two points, one of which is higher or lower than the other in the vertical dimension.

(61) *jag* *yirr-ijga-ny* *binka-bina*
go.down 1pl.excl-GO-PST river-ALL
'we went down to the river'

(62) *thanthu=gun* *bardag* *ba-rra* *jag=ma* *ga-rdba-ny*
DEM=CONTR tight.fit IMP-PUT go.down=SUBORD 3sg-FALL-PST
'fasten that one that fell down' (pipe of washing machine)

Coverbs of change of location have to be distinguished from coverbs of path shape (see §3.5.2.2), which are only compatible with locomotion verbs, because they encode a type of path that cannot be defined as a vector. Coverbs of change of location, on the other hand, are also compatible with the verbs of change of locative relation *-irdba* 'FALL' and *-arra* 'PUT', as example (62) shows. Coverbs which show this formal and semantic property are listed in Table 3.9.

3.5.2.4 Coverbs of emerging

Coverbs of emerging, just like coverbs of path and separation, combine with locomotion verbs, but not with *-irdba* 'FALL' or *-arra* 'PUT'. This is because coverbs of emerging are used to describe a change of location from concealment to visibility, but not a change of locative relation with respect to a specific end location, as entailed by these two verbs.

Table 3.9 *Coverbs of change of location*

Coverb	Dial.	Translation
burduj	J/Ng	climb up, move upwards
jid, *jag*	J, J/Ng	move downwards
buru	J/Ng	return, go back
wirriny	J/Ng	turn, turn around
yirrbag	J/Ng	move over, shift place
malang	J/Ng	go across, cross
darrug	J/Ng	go down, set (of celestial body)
wurlurlu	J/Ng	enter 3D container
ngabulg	J/Ng	enter water, bathe

Table 3.10 *Coverbs of emerging*

Coverb	Dial.	Translation
bul	J/Ng	emerge, appear
yirr, *wirr*	J, Ng	move out, move along
lany	J	rise, come out (of celestial body)
riyi	J	peep over/out from something

Instead, coverbs of this type combine with *-ma* 'HIT', which – in this context only – serves as a functional equivalent of *-irdba* 'FALL' in that it entails only change of location, not locomotion (for details see Schultze-Berndt 2000: 317–9 and 474–5). The description of a sunrise in (63) illustrates the use of two coverbs of 'emerging', *bul* 'come out, emerge' (see also line b. of (66) below) and the semantically more specific *lany* 'rise (of celestial body)', in combination with the locomotion verb *-ruma* 'COME' and the verb *-ma* 'HIT', respectively.

(63) *ya, "wulngan bul ga-ram", bastaim olabat tok*
yes sun emerge 3sg-COME.PRS first 3pl talk
"lany=biyang gani-ma-m"
sunrise=now 3sg:3sg-HIT-PRS
'yes, "the sun is coming out," they say at first – "the sun rises now"'

The coverbs of emerging attested to date constitute a very small set, listed in Table 3.10.

3.5.2.5 Coverbs of ballistic motion

Coverbs of ballistic motion do not combine with locomotion verbs, but with *-irdba* 'FALL' and/or *-wardgiya* 'THROW'. This is illustrated for the coverb *bu* 'enter water' in (64) and (65), both from descriptions of the 'fall from the cliff' scene in Frog Story narrations.

Table 3.11 *Coverbs of ballistic motion*

Coverb	Dial.	Translation
dibard	J/Ng	jump
dididd	J/Ng	roll
jaraj, *bilili*	J, Ng	slip, slide
yirrirrij	J	slide down
diny	J	lie down, fall over
jarndang	J	get down
ngad	J	get bogged
buwu	J	enter water
birdirdib	J	drip, dribble
dulb	Ng	fall, of multiple small entities (e.g. dust, leaves)
burrurrug	J	scatter, get scattered
lawu	J/Ng	spill, pour
jurug	Ng	scatter, pour

(64) *barr ga-rdba-ny=ni jamurrugu,*
smash 3sg-FALL-PST=SFOC down
gugu-bina bu ga-rdba-ny \
water-ALL enter.water 3sg-FALL-PST
'he fell smashing to the bottom, and fell into the water' (Frog Story, p. 17)

(65) *bu ganuny-bardgiya-m* \
enter.water 3sg:3du-THROW-PRS
'it throws the two into the water' (Frog Story, p. 17).

Some of the coverbs listed in Table 3.11 also combine with other transitive verbs, including *-yu(nggu)* 'SAY/DO' in a causative reading (i.e. a reading of 'throw'), as in (55) and in line r. of (66) below. These coverbs closely correspond to a class that has been termed 'non-agentive verbs of motion' in the literature (e.g. Levin and Rappaport Hovav 1992, 1995). However, lack of agentivity is not the crucial component, because some of these coverbs, e.g. *dibird* 'jump' and *bu* 'enter water', can have an agentive interpretation. Therefore, the term 'ballistic motion' was chosen here. It describes a type of motion where the trajectory is determined by gravity, and therefore, even though the initiation phase of the event may be controlled, the motion phase is not controlled, and necessarily comes to a standstill after a relatively short period of time (see also §3.5.1.2). This necessary termination of the motion phase would explain the compatibility of coverbs of ballistic motion with *-irdba* 'FALL', which entails change of a locative relation with respect to a fixed end location (see also §3.5.1.2). The lack of control over the motion phase would explain the incompatibility of these

coverbs with locomotion verbs, which entail motion along a specifiable path. Exceptions are *dibird* 'jump' and *didid* 'roll', which are cross-listed as manner of motion coverbs in Table 3.6 (§3.5.2.1). Crucially, in their 'manner' use, they have an iterative reading; in other words, iterated phases of ballistic motion can be taken to describe a manner of motion.

Coverbs which encode stopping in movement (e.g. *jajurr* 'halt', illustrated in line l of (66)) or refraining from potential movement (*wilng* 'stay back') also behave formally like coverbs of ballistic motion but have not been included in Table 3.11.

3.5.3 Motion expressions in Jaminjung: summary

3.5.3.1 The 'fall from the cliff scene'

The full description of the 'cliff scene' in one Frog Story narration, given in (66), can serve as the starting point for a summary of the ways in which Jaminjung verbs and coverbs combine in descriptions of motion.

(66) Excerpt from Frog Story, the clff scene (Narrator: Clara Paddy)
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a. *julag=biyang . . janggagu ga-gba=nu,*
bird=now up 3sg-BE.PST=3sg.OBL

b. *ngayin xx bul gani-mangu=nu *
meat/animal ?? emerge 3sg:3sg-HIT.PST=3sg.OBL

c. *wumburumburu \ [. . .]*
horn
'the bird then was up with respect to him, and an animal appeared for him, (with) horns'

d. *ngamang ga-rda-ny=nu,*
astride 3sg-FALL-PST=3sg.OBL

e. *xxx=biyang langiny majani gani-yu=nu *
??=now tree maybe 3sg:3sg-SAY/DO.PST=3sg.OBL
'he got onto it astride, maybe he thought it was a tree (??)'

f. *wirib-ni=malang ngabuj gana-ngu=nu *
dog-ERG=GIVEN smell 3sg:3sg-GET/HANDLE.PST=3sg.OBL

g. *ngarlma gana-ngayi-na majani, jamurru-yun *
bark 3sg:3sg-SEE-IMPF maybe down-L.ABL
'the dog smelled it for him, he was barking at it, maybe, from below'

Page 16

h. *yinju=biyang wurlgba gan-uga:,*
PROX=now carry.on.shoulder 3sg:3sg-TAKE.PST

i. *wirib=malang=biyang* *jamurru-yun* *yugung*
dog=GIVEN=now down-L.ABL run
gani-yu=nu \
3sg:3sg-SAY/DO.PST=3sg.OBL
'here now, it took him on its back; the dog then ran below it'

k. *gan-uga=biyang* *janju-ni* *ngayin-ni,*
3sg:3sg-TAKE.PST=now DEM-ERG meat/animal-ERG
'it took him then, that animal'

Page 17

l. *balarraj-gi=biyang* *jajurr* *ga-rda-ny*
cliff-LOC=now halt 3sg-FALL-PST

m. *jalig=malang* *bu* *ga-rda-ny* \
child=GIVEN enter.water 3sg-FALL-PST

n. *wirib-mij=jung* \
dog-COMIT=RESTR

o. *[VP: gugu-bina]* *gugu-bina* \
water-ALL water-ALL
'at the cliff it stopped, and the child fell in, together with the dog, into the water'

p. *bu* *buny-girda-ny* \
enter.water 3du-FALL-PST
'the two fell in(to the water)'

Page 18

q. *majani* *wurdbaj* *ga-jga-ny* *bunyag,*
maybe look.around 3sg-GO-PST 3du.OBL

r. *diwu=ma* *ganuny-ju,* *wirib* *en* *jalig* \
throw=SUBORD 3sg:3du-SAY/DO.PST dog and child
'maybe it went looking for the two, the two that it threw down, the dog and the child'

In line b. of example (66), the appearance of the deer is expressed with a complex verb consisting of a coverb of emerging, *bul*, and the verb *-ma* 'HIT' which, as pointed out in Section 3.5.2.4, expresses change of location (as opposed to locomotion) with this class of coverbs only.

In line d., the scene where the boy gets onto the back of the deer is described with the intransitive verb of change of locative relation, *-irdba* 'FALL', in combination with a coverb specifying the resulting position (*ngamang* 'astride') (see §§3.4.2 and 3.5.1.2).

The verb *-uga* 'TAKE' is used to describe the motion of the deer which is carrying away the boy in lines h. and k. In line h., the spatial configuration

between deer and boy is in addition specified with a coverb, *wurlgba* 'carry on head or shoulder'. The simultaneous motion of the dog is expressed (in line h.) in the rather exceptional combination of a coverb of manner of motion and the verb *-yu(nggu)* 'SAY/DO', a verb which more usually combines with coverbs of 'internal motion' (but see §3.5.2.1).

In lines l. and m. the same verb, *-irdba* 'FALL', is employed twice, first with a coverb meaning 'halt' to describe the stopping of the deer, and then in combination with a coverb of ballistic motion, *bu* 'enter water' (already familiar from examples (64) and (65) above), to describe the fall of the boy. The same complex verb is resumed in line p., this time with reference to both the boy and the dog. Line r. also describes the 'throwing' scene, this time using a transitive complex verb. Although the verb *-wardgiya* 'THROW' would also be applicable (see (65) and the discussion in §3.5.1.2), the expression that is used here consists of the coverb of ballistic motion *diwu* 'fly, throw' and the 'general-purpose' verb *-yu(nggu)* 'SAY/DO'.

Finally, line q. illustrates the parallel between coverbs of manner of motion and coverbs of searching and hunting such as *wurdbaj,* which also combine with locomotion verbs like *-ijga* 'GO' (see also (57) in §3.5.2.1).

3.5.3.2 Semantic distinctions relevant for the choice of a motion expression

Figure 3.2 presents a summary, in the form of a flow chart, of the semantic distinctions that can be encoded through the use of one of the various motion verbs discussed in Section 3.5.1, on their own or in combination with coverbs from one of the classes discussed in Section 3.5.2. The decisions leading to the choice of one of the verbs are represented in boxes linked by arrows. The classes of coverbs that may be combined with the verbs are indicated in capitals in the right corner (top or bottom) of each of the 'semantic subfields' that are delimited by a line.

The basic division (indicated by a double line) is that between expressions of locomotion and expressions of either mere change of location or ballistic motion. The latter are represented in the top half of Figure 3.2. Expressions of both change of locative relation and ballistic motion are formed with the verb *-irdba* 'FALL'; expressions of caused change of locative relation with *-arra* 'PUT', and expressions of caused ballistic motion with *-wardgiya* 'THROW'. The first two of these verbs do not entail motion, but only a change of locative relation. However, they may be used to describe motion events and may be combined with the allative and ablative case specifying direction and source of motion, respectively. They are therefore also compatible with coverbs encoding a change of location or 'vector' (see §3.5.2.3). Coverbs of ballistic motion, on the other hand, can only be combined with *-irdba* 'FALL' or *-wardgiya* 'THROW'. Coverbs of emerging, which constitute a small set (see §3.5.2.4), may combine

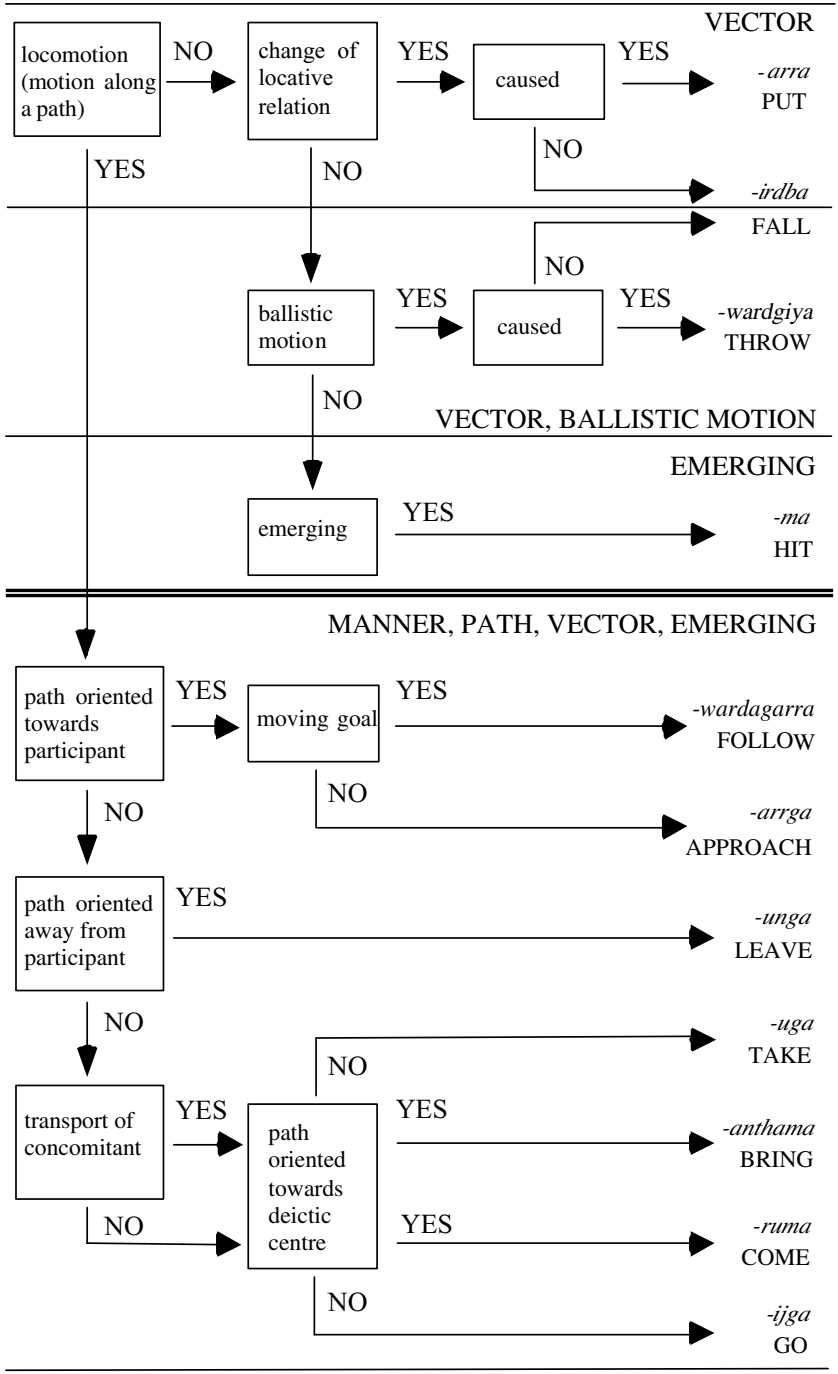

Figure 3.2 Choosing a motion expression

with the verb *-ma* 'HIT' in a secondary sense (construing 'emerging' as a change of location), as well as with the true locomotion verbs (construing 'emerging' as motion along a path).

The bottom half of Figure 3.2 represents the seven verbs which entail translocational motion rather than mere change of location. Only these locomotion verbs may combine with coverbs of manner of motion and coverbs of path which specify the shape of a path. They may also form complex verbs with coverbs encoding a vector or with coverbs of emerging, but not with coverbs of ballistic motion. The set of locomotion verbs is subdivided, first, according to the direction of motion. The path can be oriented with respect to another participant, more precisely towards a participant which may be moving (*-wardagarra* 'FOLLOW') or not (*-arrga* 'APPROACH') or away from a participant (*-unga* 'LEAVE'). Jaminjung also distinguishes two verbs of accompanied locomotion, *-uga* 'TAKE' and *-anthama* 'BRING'. The latter specifies that the locomotion is directed towards the deictic centre and thus parallels the intransitive deictic verb *-ruma* 'COME'. The most general motion verb, unspecified for orientation or deixis, is *-ijga* 'GO'.

3.5.3.3 Jaminjung and the verb-framed/satellite-framed dichotomy

The existence, in Jaminjung, of two predicative word classes which may be combined to form complex predicates is interesting from the point of view of a comparative investigation of lexicalization patterns in motion expressions. Note, for example, that Warrwa (McGregor this volume), a language with a similar verb system, also has a similar distribution of lexical components in inflecting verbs and preverbs: verbs encode the fact of motion and end-anchored paths, while preverbs encode other path types and manner of motion. There are only two major differences between the Jaminjung and Warrwa systems: deixis is encoded by verbs in Jaminjung, but outside the verb in Warrwa, and notions of boundary crossing ('enter', 'emerge') are lexicalized as verbs in Warrwa, but as coverbs in Jaminjung.

In order to account for lexicalization patterns in motion expressions, a typology of verb-framed vs. satellite-framed languages has been proposed by Talmy (1985, 1991, 2000). The typology is based on the encoding of path notions. Motion verbs in verb-framed languages lexically conflate path, but not manner. In typical verb-framed languages, e.g. the Romance languages, manner can only be expressed in relatively marked constructions, and is therefore frequently left unexpressed (cf. Slobin 1997). Motion verbs in satellite-framed languages, such as the Germanic languages, lexically conflate manner, while path notions are typically expressed not by verbs but by 'satellites'.

As I have demonstrated in this section, in Jaminjung notions of path and notions of manner are both encoded outside the inflecting verb, by coverbs. It is of course possible to argue that some of the verbs lexically conflate properties

of the path, namely orientation towards the deictic centre, or orientation with respect to another participant (i.e. away from, towards, or in the same direction as this participant). However, this is hardly sufficient in order to subsume Jaminjung under the verb-framed languages since it is true for the – satellite-framed – Germanic languages to about the same extent as Jaminjung: consider the existence and unmarked nature of verbs like *come*, *bring*, or *leave*. It seems that anchoring of a path, as encoded by some Jaminjung verbs, should be distinguished from properties of the path itself (such as shape or vector), which are consistently encoded by coverbs in Jaminjung.

Both formally and semantically, coverbs correspond to many of the satellite types discussed by Talmy – not only to path 'satellites' (or 'verb particles') in languages like English, but also, for example, to result expressions in resultative complex predicates (cf. Talmy 1985: 129, 1991: 495–509). Indeed, Talmy (1991: 486) lists Warlpiri – which has a verb system very similar to the Jaminjung one, with a somewhat larger verb class of around 120 members – as a satellite-framed language. On the other hand, Talmy (1985: 110–11) suggests that languages like Nez Perce with an 'uncommon satellite type' expressing manner have developed from a Spanish-type (i.e. verb-framed) language. We would therefore have to conclude that Jaminjung, with 'satellites' of both path and manner, is both a verb-framed and satellite-framed language at the same time. Moreover, unlike in typical verb-framed languages, manner expressions are relatively frequent in Jaminjung texts, even where no exceptional manner of motion is reported, and manner expressions are freely combined with specifications of path, as for example in (37) and (43) above. This, of course, correlates with the fact that manner of motion can be encoded by relatively unmarked expressions, i.e. by coverbs as constituents of complex verbs, rather than, e.g., by subordinate clauses.

The problem arises partly because in the discussion of the verb-framed/satellite-framed dichotomy, it seems to be at least implicitly assumed that satellites constitute a closed class. For example, Talmy (1985: 111–13) also subsumes the set of causal or 'instrumental' prefixes of Atsugewi under 'satellites'. Semantically, however, these are very similar to a subset of the closed-class verbs in Jaminjung. It is therefore questionable whether the Jaminjung coverbs, constituting the open class of predicates in this language, really meet the definition of 'satellite'.

I conclude – as McGregor (this volume) does for Warrwa – that Jaminjung falls outside the verb-framed/satellite-framed typology as it is currently conceived, since this does not account for a language with a closed class of verbs, where both path and manner are encoded externally to the verb, by members of the same major class of non-inflecting elements. These findings also suggest that 'manner' and 'path' components of motion events may be more equally weighed in terms of their potential information contribution than the verb-framed/satellite-framed dichotomy seems to suggest.

3.6 Frames of reference

The importance of the absolute frame of reference in spatial orientation has been stressed in reference to a number of Australian languages.[10] It is therefore not unexpected that Jaminjung speakers also make use of an absolute frame of reference and do not employ a relative frame of reference: terms for the left and right hand are only used as body-part terms, as in (67), but not for projecting a region.[11]

(67) *gurrija na-yu . . thalgbilij-ngunyi* \
digging 2sg-BE.PRS right.side-ABL
'you are digging . . with your right hand'

The Jaminjung absolute system, though, is of a type that has been described less frequently for Australian languages than the compass direction system. Perhaps not surprisingly considering the geographical location of Jaminjung and Ngaliwurru country on both sides of a major river (see also §3.2), it is based on the direction of water flow ('drainage'), and is thus similar to the systems described for some Austronesian languages (see, e.g., Adelaar 1997, McKenzie 1997). Some Australian languages of the Cape York peninsula also appear to have a system based on water flow (Whitehead 1990),[12] and this system is used alongside (or overlaps) with a compass-direction system in a number of Pilbara languages such as Martuthunira, Panyjima and Yindjibarndi (Dench 1995: 127f.), in the Bunuban languages Gooniyandi (McGregor 1990a: 156–62) and Bunuba (Rumsey 2000), and in Yir Yoront (Alpher 1991: 64–7). The use of both systems is also attested for some of the languages bordering onto Jaminjung, e.g. Ngarinyman (Jones 1994), Wardaman (Merlan 1994: 150–3) and Miriwoong (Frances Kofod p.c.). In Jaminjung, although compass-direction terms could be elicited from some older speakers, they were never used spontaneously in my observation.

The discussion of the Jaminjung absolute system in Section 3.6.1 will show that it has a rather restricted use compared with the compass-direction systems of some of the other Australian languages mentioned above, including Arrernte (Wilkins this volume). Especially in small-scale spatial descriptions, like those elicited by the Men and Tree stimuli and Farm Animals stimuli, speakers rely

[10] E.g. Warlpiri (Laughren 1978), Guugu Yimidhirr (Haviland 1979: 74–87, Levinson 1997a), Djaru (Tsunoda 1981: 246), Yankunytjatjara (Goddard 1985: 253f.), Arrernte (Wilkins 1989: 316–23, and this volume), Warrwa (McGregor this volume), Martuthunira (Dench 1995: 127–9) and Kayardild (Evans 1995: 215–27).

[11] However, the English terms *left* and *right* are confidently used by some (even some older) people for giving directions en route (as in 'turn left now'), but (presumably) only in communicating with Non-Aboriginal people.

[12] Dyirbal (Dixon 1972) possesses both motion verbs and demonstrative forms based on water flow, but no locational nouns like Jaminjung.

Table 3.12 *Directionals based on water flow and verticality*

Gloss	Jaminjung (Ngaliwurru)	Kriol
'upstream'	*manamba*	*hairrap* ~ *haidap* < higher up
'downstream'	*buya* (Ng *buyagu)*	*lodaun* < low down
'up'	*thangga* (Ng *janggagu)*	*antap* < on top
'down'	*thamirri* (Ng *jamurrugu)*	*daun* < down
'across'	*malang*	*other side*

almost exclusively on an intrinsic frame of reference (and marginally on a relative interpretation of 'front'/'back' terms), to be discussed in Section 3.6.2.

3.6.1 The absolute frame of reference based on water flow

The absolute directionals of Jaminjung, listed in Table 3.12, are based both on the direction of water flow and on verticality. Both Jaminjung and Ngaliwurru terms are given where these differ, and their Kriol translation equivalents (which are in daily use by virtually everyone in the communities) are included as well.

The first four terms in Table 3.12 belong to the class of locational nouns, and have already been listed in Section 3.3.1.1 above. The fifth term, *malang* 'across', should be considered a coverb rather than a nominal, because it does not take the same special locational cases as the locational nouns. This term often takes the ablative suffix to indicate a region ('the other side of the river') rather than a direction ('across') (see also §§3.4.1 and 3.6.1). Moreover, it is a landmark-based rather than an absolute term – it is always used with a river or another 'separation line' (e.g. a road) as a reference point. A typical example of the use of *malang* is (70) below.

The two terms *thangga* (Ng *janggagu*) 'up' and *thamirri* (Ng *jamurrugu*) 'down' can be characterized most generally as encoding an absolute region or direction on the vertical axis (with the deictic centre as the reference point). This use of the terms has already been illustrated in Section 3.4.1; see, e.g., examples (15), (16), (20) and (26). The two 'vertical' directionals are, however, also conventionally used to express the direction towards the river (*thamirri)* and away from the river (*thangga),* respectively, as, e.g., in (71) below. They thus cover the cross-axis with respect to the two terms based on direction of water flow, *manamba* 'upstream' and *buya* 'downstream'. The system is schematically represented in Figure 3.3.

In the actual use of the terms, the direction is not absolutely fixed in the same way as it is in a compass-direction system. Rather, the local terrain overrides the global direction of drainage. For far-away locations (i.e. in large-scale orientation) 'downstream' is towards the sea (roughly, north) and 'upstream' correspondingly in the opposite direction, and the verticality-based terms are

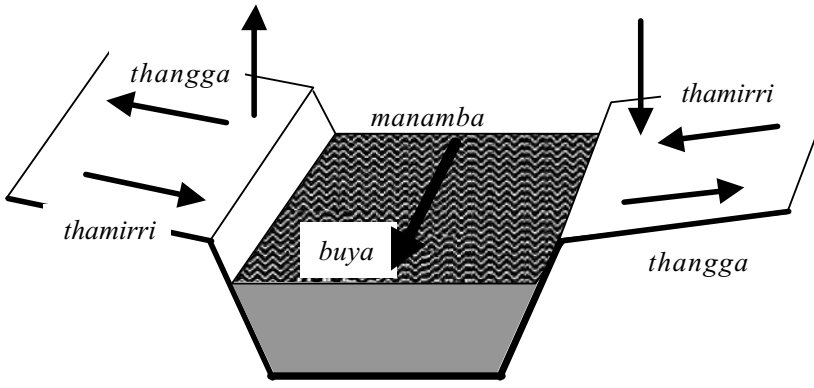

Figure 3.3 Directionals based on water flow and verticality

not used (to my knowledge). The system breaks down for reference beyond the drainage system which includes the territory that the speakers are familiar with. Thus, when I asked for the direction of Alice Springs, one speaker pointed out that she did not know in which direction the water was flowing there. (This notwithstanding, speakers point confidently to far-away locations.) In smaller-scale orientation (e.g. in giving directions during, or recounting, a hunting trip), it is the nearest salient watercourse which determines the use of the terms (this, of course, does not affect the use of the two verticality-based terms in their reference to absolute 'up' or 'down').

After these general remarks, let us examine the functions of the directionals in more detail. The directionals are used, first, in determining the location of a place or entity relative to the deictic centre, usually on a relatively large scale. Thus, in (68), the speaker indicates the direction where the crocodiles were eating cattle, with her own position as the reference point.

(68) *yinawurla=biya buya thawaya burr-inji, yalamburrma* \
DIST:DIR=now downstream eat 3pl-GO.IMPF crocodile
'over there, downstream, they were eating, the saltwater crocodiles'

The ablative case may be used to indicate a general region projected from a point located upstream or downstream from the deictic centre, in the same way as it is done for the directionals based on verticality (see (14) and (16) in §3.4.1 for examples). In (69), presumably, this type of expression is used to make explicit that a locative rather than a directional reading is intended, i.e. that people were crossing the river in a place located upstream, rather than moving upstream.

(69) *malang-malang yirr-ijga-ny manamba-yun*
RDP-across 1pl.excl-GO-PST upstream-L.ABL
'we were crossing (at a place) upstream'

Second, and most frequently, the directionals indicate the direction of motion, again relative to the deictic centre. Usually the motion takes place on a relatively large scale, as in (70) and (71), which are spontaneous route directions. In reference to small-scale motion (e.g. for moving 'upstream' on a blanket, or in a room), I overheard directionals in only very few cases; here the use of ad hoc landmarks seems to be preferred.

(70) *malang yirri-w-ijga, buya yirri-w-ijga*
across 1pl.excl-POT-GO downstream 1pl.excl-POT-GO
'we will cross (the river), (and then) we will go downstream'

(71) *manamba ba-jga,*
upstream IMP-GO
laginy ba-jga, jamurrugu na jid
turnoff IMP-GO down now go.down
'go upstream, take the turnoff, then down downwards (i.e. towards the river)'

Finally, the directionals (but also demonstratives and allative- or directional-marked noun phrases referring to ad hoc landmarks) may be used to indicate the direction of gaze or, more general, the orientation of a featured figure (see also §3.6.2 below). This is illustrated in (72), from the Men and Tree photo-matching task.

(72) *mayi=biya jirrama bunthu-yu,*
man=now two 3du-BE.PRS
janyungbari ngiyina-wurla ga-yu=ni juwiya,
other PROX-DIR 3sg-BE.PRS=SFOC nose
*janyungbari manamba-ngining ga-yu *
other upstream-L.ALL 3sg-BE.PRS
'there are two men, one has his nose that way, the other is facing upstream'
(Men and Tree 4.10; 4.9 matched. Director and matcher facing towards the river; river visible)

The directional terms are never used in order to locate a figure with respect to a ground which is not the deictic centre, i.e. a ground that has to be made explicit as the reference point (as in 'the man is downstream of the tree'). The Jaminjung absolute system thus differs considerably from the system of compass directions described, for example, for Arrernte (Wilkins this volume).

Therefore, not surprisingly, the only way in which the absolute frame of reference plays a role at all in descriptions of small-scale arrangements of entities (e.g. in the Men and Tree and Farm Animal tasks) is in the way illustrated in (72), in describing the orientation of a featured figure. In this respect, the

strategies of Jaminjung speakers appear to be very similar to those described for Yélî Dnye (Levinson this volume): in descriptions of small-scale arrangements, only orientational information is given in absolute coordinates, while 'standing' (placement) information is given in terms of intrinsic coordinates. However, in the Jaminjung case, the 'absolute orientation' strategy was never consistently employed in the Space Games, and was not used at all by some speakers – for example, it was not employed in any of the descriptions of the Men and Tree pictures 2.3, 2.4 and 2.5 that I collected. Consequently, matching was often 'incorrect' when photos were identical except for absolute orientation. I suspect that this is due, to a large extent, to the fact that the elderly speakers in the director's part were not particularly comfortable with the task and were not sufficiently aware of the 'minimal pair' character of the pictures, possibly related to failing eyesight. However, the spontaneous use of descriptions based on an intrinsic frame of reference (including the orientation of a featured figure or an overall configuration), rather than descriptions in terms of absolute location, reflects a real preference which is consistent with spontaneous usage. These types of expression will be discussed in the next subsection.

3.6.2 The intrinsic frame of reference

As indicated in Section 3.6.1, the main way to express the location of an entity relative to another in Jaminjung is in terms of the intrinsic frame of reference. The term 'intrinsic frame of reference' is used here to cover expressions pertaining to a location in a region projected from an intrinsic side of the ground (§3.6.2.1) as well as expressions based on the orientation of a featured figure (§3.6.2.2) and expressions describing the overall configuration of complex figures (§3.6.2.3).

3.6.2.1 Location with respect to a featured ground

The term 'intrinsic frame of reference', in its narrow sense, pertains to expressions where a figure is located with respect to a region projected from a featured ground. In Jaminjung, three types of expressions are used with an intrinsic interpretation. Expressions of the first type involve body-part nominals describing the relevant feature of the ground object, followed by the ablative case which in this usage indicates the region (or 'search space') which is projected out from the featured object (see also §3.4.1).

Body-part terms are used only occasionally, and in an ad hoc manner; Jaminjung has no grammaticalized relational nouns or adpositions of the type found, for example, in Ewe (Ameka and Essegbey this volume). An example of the use of ablative-marked body-part nominals is given in (73).

(73) *ngarlu ga-yu=nu langa-ngunyi gurdij,*
shade 3sg-BE.PRS=3sg.OBL ear-ABL stand
en mulurung-ngunyi gurdij ga-yu, ngarlu jirrama,
and bottom-ABL stand 3sg-BE.PRS shade two
en buliki gurdij ga-yu,
and cow stand 3sg-BE.PRS
binka-bina-wari mung ga-yu
river-ALL-QUAL look.at 3sg-BE.PRS
'there is a shade (i.e. tree) standing at his ear, and at his bottom there is (one) standing up, (thus) two shades (i.e. trees), and a cow is standing (there), it is looking towards the river' (Farm Animals 3)

The second type of intrinsic expressions involves the two (absolute) directionals based on verticality, which are converted into relational terms by the use of the ablative case. Examples were already given in Section 3.4.1 (see, e.g., (14) and (16)).

Expressions of the third type contain one of the two coverbs (or adverbs) *walyang* 'in front' and *birang* 'behind'; generally, these have to be interpreted with respect to the intrinsic front/back of the ground. Unlike body-part nominals, these terms cannot be used in a noun phrase designating a part (e.g. 'the front of the car'), although they can be used to indicate a region within, rather than projected from, an object, as in (74).

(74) *walyang ba-rum*
in.front IMP-COME
'come (to sit) in front (of the car)'

In order to give them an unambiguous reading of a 'projected region', the ablative case is occasionally also used on these terms; an example of this usage is (9) in Section 3.3.1.2. Alternatively, the ablative may be used to mark the ground object from which the region is projected, as in (73) above and in (75). This rare construction type is reminiscent of the Arrernte 'relative location' construction (Wilkins 1989 and this volume). More frequently, the ground object takes locative case; examples are (78) and (79) below.

(75) *wirlga walyang ga-yu,*
foot/shoe in.front 3sg-BE.PRS
birdigud birang ga-yu wirlga-ngunyi
tin behind 3sg-BE.PRS foot/shoe-ABL
'a shoe is in front, a tin is behind "from" (i.e. with respect to) the shoe' (elicitation with arrangement of a can of coke and a shoe)

Both terms are also regularly combined to describe a configuration as a symmetrical arrangement of equivalent figures, as in (76).

(76) *walyang birang buny-angga*
in.front behind 3du-GO.PRS
'they walk one behind the other' (lit. 'they go in front (and) behind')

Example (77) illustrates the clearly intrinsic (rather than relative) use of *birang*. In the arrangement of toy figures that is being described here, the fence was positioned between the viewer and the man, that is 'in front' of the man from the perspective of the viewer, but in the (intrinsic) back of the man, i.e. the ground object.

(77) *mangurn tharda ga-yu, barrigi birang ga-yu*
whitefellow face.away 3sg-BE.PRS fence behind 3sg-BE.PRS
'a whitefellow is standing with the back to us, a fence is behind (him)'

Nevertheless, *walyang* and *birang*, just like English 'in front of' and 'behind', can have relative uses, such that *walyang* gets interpreted as 'between viewer and ground' and *birang* as 'ground between viewer and figure'. Thus, in a stimulus arrangement of a can of coke and a (larger) bottle, with the bottle in between the viewer and the can, the following description was offered spontaneously:

(78) *birang ga-yu mawud-gi*
behind 3sg-BE.PRS glass-LOC
'it is behind the bottle'

This is the only intrusion of a relative frame of reference in the Jaminjung system of spatial orientation. The relative use has mainly been observed with unfeatured ground objects like the bottle in (78), or else with large ground objects which (at least partly) block visibility (such that 'behind' becomes 'not in view of speaker'), e.g. with reference to a car between the viewer and a human figure.

3.6.2.2 Orientation of a featured figure

In many spontaneous and elicited descriptions of spatial arrangements, Jaminjung speakers describe the orientation of a featured figure. Expressions of this type are based on an intrinsic frame of reference in the sense that they semantically incorporate an intrinsic feature of the figure, but the orientation itself can, in principle, be indicated (i) with respect to an absolute direction, as in (72) above, (ii) with respect to a landmark, as in the last line of (73) above, (iii) with respect to a relative frame of reference (e.g. 'the man is facing left', not found in Jaminjung data), or (iv) with respect to a ground (which may also be the deictic centre; see the discussion of (79) below).

A subset of the coverbs of spatial configuration (see §3.4.2) encodes the orientation of a specific side of a featured figure; these are listed in Table 3.13. The orientation of the front of the figure with respect to the vertical dimension is lexicalized in *bilwa/warrngalab* 'belly up' and *mun* 'belly down', and the

Table 3.13 *Coverbs of spatial configuration: orientation of a featured figure*

Coverb	Dial.	Translation
bilwa, *warrngalab*	J, Ng	belly up, on the back
mun	J/Ng	belly down, upside down, bent over
wamam, *walalam*	J, Ng	'face up', facing s.th./s.o.
tharda, *jarda*	J, Ng	facing away, back turned to s.th./s.o.
linkid	J/Ng	turning one's side, sidewards, on the side

orientation with respect to a reference point in *wamam/walalam* 'facing s.th./s.o.' and *tharda* 'facing away'. The term *linkid* 'sidewards' can be interpreted both with respect to a reference point ('turn one's side to s.th./s.o.') and with respect to the vertical dimension ('lie on one's side'). The reference point with coverbs like *jarda* 'face away' can be either the deictic centre, or a ground that is different from the deictic centre. The second interpretation is intended in (79), but the first interpretation at first leads to the choice of the wrong picture (the picture where the man is turning his back to the viewer). The choice was then corrected, presumably in the light of the second part of the description, which makes it clear that the tree is positioned at the man's back. Example (79) (as well as (77) above) thus nicely illustrates the contrasting use of a coverb encoding the orientation of a featured figure (*jarda* 'face away') and of a coverb encoding a region projected from a featured ground (*birang* 'behind').

(79) *jarda* *ga-yu,* *ngarlu* *ngagaj-gi* *ga-yu* *birang*
face.away 3sg-BE.PRS shade back-LOC 3sg-BE.PRS behind
'he is turning his back, a shade (tree) is behind his back'
(Men and Tree 2.4; 2.6 matched, then corrected to 2.4)

The reference point can also be a second figure in the case of a symmetrical arrangement like that described in (80).

(80) *tharda=yirram* *tharda* *bunthu-yu*
face.away=two face.away 3du-BE.PRS
'the two are (standing) back to back' (elicitation with two toy men)

The orientation of an animate figure (e.g. of a man facing a tree) cannot only be expressed with the coverb *wamam* 'facing s.o./s.th.', as in (81), but also with coverbs encoding the direction of gaze, such as *mung* 'look at' in (82), (83) and (84).[13] All of these coverbs may combine with *-yu* 'BE', and can therefore

[13] The coverb of direction of gaze *mung* 'look at' in combination with the intransitive verb *-yu* 'BE' was occasionally also used to describe the orientation of inanimate objects, e.g. a cliff face 'overlooking' a valley.

be regarded as coverbs of spatial configuration (see §3.4.2). Only orientational information of this type was provided in the data collected with the Men and Tree stimuli 2.3 and 2.5; that is, no attempt was made by the directors to specify the absolute position of the man relative to the tree, or the absolute orientation (see also §3.6.1).

(81) *wamam ga-yu*
face.up 3sg-BE.PRS
'he is facing it' (Men and Tree 2.3)

(82) *ngarlu mung gani-ngayi-m*
shade look.at 3sg:3sg-SEE-PRS
'he is looking at the tree' (Men and Tree 2.3)

(83) *gurdij ga-yu,*
stand 3sg-BE.PRS
mung gani-ngami=ni, ngarlu \
look.at 3sg:3sg-SEE:PRS=SFOC shade
'he is standing up, and he is looking at the shade (i.e. the tree)'
(Men and Tree 2.5; 2.3 matched)

If a coverb of direction of gaze is combined with the verb *-ngawu* 'SEE', the ground (i.e. the 'entity looked at') is encoded as the undergoer, as in (82) and (83). The allative, in this case, can be used to indicate the location of the 'entity looked at', comparable to the dative in Arrernte (Wilkins this volume); an example is (84).[14]

(84) *nindu-ngunyi=malang mung gani-ngayi-m buliki ngarlu-bina*
horse-ABL=GIVEN look.at 3sg:3sg-SEE-PRS cow shade-ALL
'the horse is looking at the cow (which is) in the shade' (i.e. at the tree)
(Farm Animals 5)

The allative is also used in intransitive clauses to express the direction of orientation of a figure, as in (5), in (72) and in the last line of (73) above. Most frequently, though, the reference point of the orientation is left implicit, as in examples (79) and (81).

3.6.2.3 Complex figures

The use of body-part nominals and of coverbs that lexicalize an intrinsic (or marginally, relative) frame of reference, or the orientation of a featured figure, does not exhaust the possibilities in describing small-scale spatial arrangements

[14] Note that the ablative in this example marks the entity from which the gaze emanates. In fact the ablative can be used more generally as a contrastive agent marker replacing the ergative; see Schultze-Berndt (2000: 168f.) for details.

Table 3.14 *Coverbs of spatial configuration: complex figures*

Coverb	Dial.	Translation
warrb	J/Ng	be together
balbba	J	be side by side, close together (of two entities)
darl	J/Ng	lined up, be in a line side by side (of multiple entities)
yarr	Ng	be in one line side by side
mundalung	Ng	back to front, head to toe
lula	J	lie (of multiple entities)
yirrb	J/Ng	be together, gather around s.o./s.th.
murruny	J	heaped up, in a heap
jurrb	J	be left in a place, be put down together (of multiple entities)
yirrginy, *yulij*	J/Ng, J	1. be symmetrical 2. reciprocate

in Jaminjung. There is a relatively large set of coverbs which encode a configuration of multiple or complex figures, such as *balbba* 'side by side' in (85) below. Coverbs of this type, listed in Table 3.14, can also be regarded as a subset of the coverbs of spatial configuration discussed in Section 3.4.2.

The existence and relatively frequent use of these terms is in line both with the Jaminjung 'obsession' with lexicalizing posture terms (such as *tharndawayi* 'stand on one leg', *mununyjurrgu* 'hands behind back', *rang* 'ears up') and with a preference for 'symmetrical' descriptions of configurations of similar entities. In other words, it is often preferred to describe a spatial arrangement as if it was a complex figure, rather than deciding on a figure–ground relationship. Examples of this strategy have already been given in (76) and (80); (85) is a further example, describing two toy men at a little distance from each other. The preference for the symmetrical description is reflected even in the Kriol translation provided by the speaker, which was *little bit long way him, dijan little bit long way.*

(85)

gurrany	*balbba*	*bunthu-yu,*
NEG	side.by.side	3du-BE.PRS
ji	*warriya*	*ga-yu=ni,*
3sg	far	3sg-BE.PRS=SFOC
ji	*warriya*	*ga-yu=ni* \
3sg	far	3sg-BE.PRS=SFOC

'the two are not side by side, he is further away, and he is further away'

3.7 Summary

This chapter has focussed on three aspects of a Jaminjung grammar of space: descriptions of topological relationships, of motion and of the location of a figure with respect to a ground in terms of absolute or intrinsic coordinates.

Jaminjung is an interesting language for the study of the lexicalization of spatial expressions, because it only has a closed class of around thirty inflecting verbs and, in addition, a second, open class of inherently predicative (but non-inflecting) coverbs. The latter form complex predicates together with verbs, and fulfil most of the functions fulfilled by relational nouns, adpositions, spatial adverbs, positionals, directionals and also verbs in many other languages.

A coverb encoding the specific spatial configuration of a figure with respect to a ground is the semantically most specific component of the basic locative construction in Jaminjung. Coverbs of spatial configuration lexicalize both specific topological relations, such as different kinds of containment, attachment or support, and other types of configurations, including those pertaining to intrinsic features of a figure or ground. Other components of the basic locative construction are the generic verb of existence and location *-yu* 'BE', an unmarked (absolutive) noun phrase referring to the figure, a locational or ablative-marked noun phrase referring to a region projected from the ground, and an inherently locational or locative-marked noun phrase referring to the ground. Most of these components can be omitted if the resulting expression can be interpreted on pragmatic grounds. For example, the coverb may be omitted in the case of a stereotypical relationship between the figure and the ground, and the ground expression may be omitted if the ground has been previously mentioned or is identical with the deictic centre. Thus, several subtypes of the basic locative construction had to be recognized.

In descriptions of motion, likewise, we find a division of labour between inflecting verbs and coverbs. Jaminjung has seven verbs of translocational motion, which all encode the fact of motion and in addition the orientation (or 'anchoring') of a path, either with respect to another participant (e.g. for *-unga* 'LEAVE' and *-wardagarra* 'FOLLOW') or with respect to the deictic centre (e.g. for *-ruma* 'COME' and *-anthama* 'BRING'). Coverbs, on the other hand, encode the shape or vector of a path, or manner of motion. Since both manner and path are encoded by elements that formally resemble 'satellites' but constitute an open class and can be freely combined with each other, it was argued that Jaminjung falls outside the typology of verb-framed vs. satellite-framed motion expressions as it is currently conceived.

Jaminjung further distinguishes translocational motion from change of location (encoded by the verbs of change of locative relation *-irdba* 'FALL' and *-arra* 'PUT', and, in combination with coverbs of 'emerging', the verb *-ma* 'HIT') and ballistic motion (encoded by *-irdba* 'FALL' and *-wardgiya* 'THROW'). Most coverbs of path are compatible with these verbs as well as with the locomotion verbs, but coverbs of manner of motion can only combine with locomotion verbs.

Jaminjung does not make use of compass-direction terms; terms for absolute directions are exclusively based on water flow and on verticality. Jaminjung also

differs from many other Australian languages which rely heavily on the absolute frame of reference in that the absolute terms are never used to describe the relative location of one entity with respect to another. They are only employed to locate a figure with respect to the deictic centre, or to indicate the direction of motion or direction of gaze.

Especially with reference to small-scale configurations, Jaminjung speakers clearly prefer descriptions based on an intrinsic frame of reference, or gestalt-based descriptions of arrangements of entities. A figure can be located with respect to a featured ground by means of the ad hoc use of body-part terms, or by means of the two coverbs *birang* 'behind' and *walyang* 'in front', which also have some marginal relative uses. Alternatively, the orientation of a featured figure can be described by means of coverbs encoding such an orientation, or encoding the direction of gaze. A further set of coverbs is used to encode complex, symmetrical configurations.

Thus, just as in the expression of topological relations, the main informational load in intrinsic expressions is carried by coverbs. In fact, coverbs expressing topological relation and coverbs describing a relation between a figure and a ground based on the intrinsic frame of reference do not constitute two neatly separated classes; rather, they are subsets of a larger class of coverbs of spatial configuration.

4 Prolegomenon to a Warrwa grammar of space

William B. McGregor

4.1 The Warrwa language and its speakers

Warrwa is a non-Pama-Nyungan Australian language, one of a small group of about ten languages referred to as the Nyulnyulan family (McGregor 1988). Its closest relatives are Nyikina, Yawuru and Jukun. These four languages together form the Eastern group of the family; the remaining five or six languages constitute the Western group (Stokes and McGregor 2003). The Western Nyulnyulan languages were traditionally located on the Dampier Land peninsula, to the north of Broome, in the far north-west of Western Australia. The Eastern Nyulnyulan languages were spoken in a crescent surrounding the peninsula to the south and east, extending into the Kimberley region. Warrwa itself was spoken in the north-eastern part of this crescent, in the vicinity of the present township of Derby (Burula), and eastwards along the Meda and May Rivers; see Figure 4.1. It abutted the Worrorran languages Unggarrangu and Unggumi, traditionally located to the north and east (see also maps in McGregor 1994: 6, and Tindale 1974: 259).

Today a single full speaker of Warrwa remains, aged around seventy, who lives in the township of Derby; she survives an elder brother, also a full speaker, who died in 2000. Her children (and possibly some grandchildren) have some passive knowledge of Warrwa, though they normally speak either Kriol or Aboriginal English. Being closely related to Nyikina, there is a fairly high degree of mutual intelligibility between the two languages, to the extent that the fifty-odd speakers of Nyikina probably have a good passive understanding of Warrwa. Conversely, the last speaker (like her brother) has an active control of both Kriol and Nyikina, which at times influence her Warrwa. This seems to

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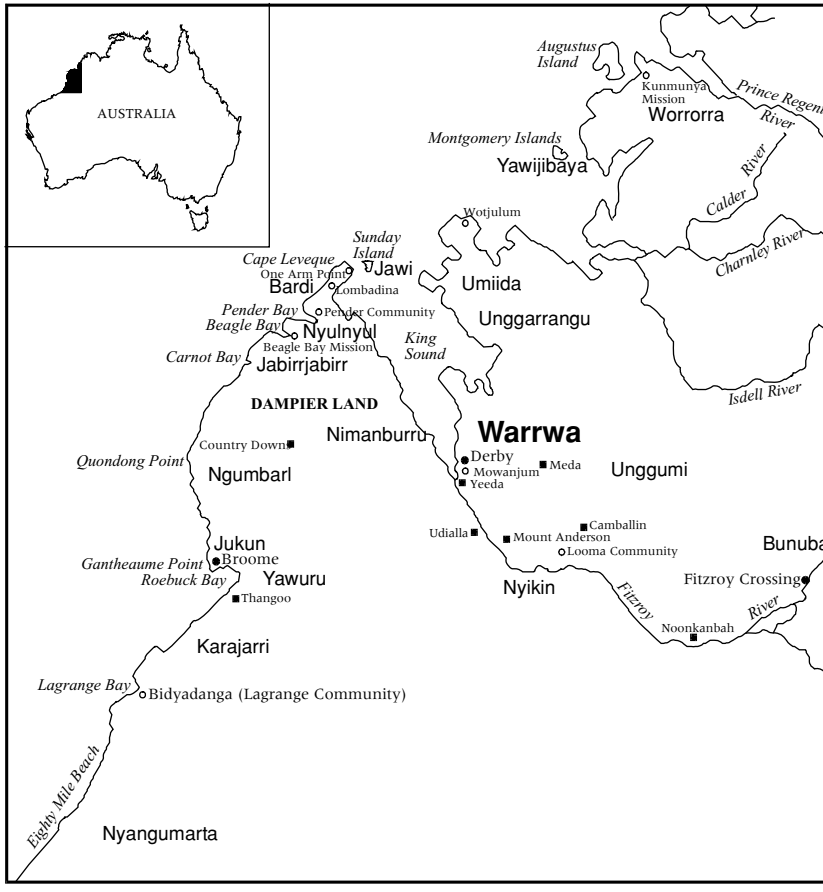


Figure 4.1 Warrwa and neighbouring languages

be principally in terms of lexical choice. For instance, she frequently expresses the proposition 'he hit him' as *muk jiny* (hit he:said/did), where *muk* 'hit' is borrowed from Nyikina and *jiny* is the appropriate Warrwa form of the verb -JI 'say, do' (it takes a different form in Nyikina). Only rarely does she use the 'correct' Warrwa verb form *nankany* 'he/she hit him/her'. The main context of use of Warrwa these days – indeed, since the mid-1980s, if not earlier – seems to be in linguistic elicitation sessions.

The significance of place, and by implication space and spatial relations, in Australian Aboriginal cultures is well known. Evidence of this can be found in the organization of various aspects of daily life, such as sleeping and residential arrangements; narrative, mythology and religion; knowledge; and language (e.g. Myers 1986, Wilkins 1993a, Levinson 1997a: 377). Thus it might be hypothesized that this semantic domain would be fairly robust, and resistant

to loss or influence from the dominant language in language-endangerment situations. A number of considerations suggest that this is indeed the case in Warrwa, and that there has been little change in the systems of spatial relations. For one thing, the Warrwa systems appear to be basically the same as those employed in other Nyulnyulan languages, including the more viable Nyikina (Stokes, Johnson and Marshall 1980) and Yawuru (Hosokawa 1991: 371–83), and moribund Nyulnyul (McGregor in preparation: §6.3); for another, the speaker appears to employ different **conceptual** systems when speaking English.

The main source of data for the present investigation is my own corpus of elicited words, sentences and texts gathered from the remaining speaker and her recently deceased brother during half a dozen field trips, totalling around eight months, since the mid-1980s. In 1999 I had the opportunity to spend about six weeks in Derby, eliciting data relevant to the present paper with the aid of the 'space kit' produced by the Language and Cognition Group (formerly the Cognitive Anthropology Research Group) of the Max Planck Institute for Psycholinguistics. Naturally, it was not possible to deploy all of the materials in the recommended manner, due to the small size of the speech community. Nevertheless, all pre-1999 stimuli were trialled with both speakers, with varying degrees of success, and the results recorded on video- and/or audiotape.

4.2 Overview of Warrwa grammar

4.2.1 Basic typological features

Little has been published to date on Warrwa grammar. Aside from a short sketch grammar (McGregor 1994), there are just a few articles discussing either some aspect of Warrwa grammar or Nyulnyulan grammar generally, with substantial information on Warrwa (e.g. McGregor 1998a, 1999b, 2000 and 2002a). A comprehensive grammar is in preparation. No sizeable dictionary or text collection is yet available. The following brief remarks provide sufficient information on the grammar to facilitate understanding of the following sections.

Like most non-Pama-Nyungan languages, Warrwa is prefixing (Capell 1940): it shows prefixes (mainly to verbs), as well as suffixes (to verbs and nominals); in this respect it contrasts with the average Pama-Nyungan language, which is entirely suffixing. As is typical of Australian languages, the order of NPs in a clause is not fixed and does not mark grammatical relations; NPs can occur in virtually any order with respect to one another and other clausal items. However, NPs are almost always continuous; phrasal discontinuity is more restricted in Warrwa (and other Nyulnyulan languages) than in most Australian languages (e.g. Hale 1983, McGregor 1997b).

Typical of languages of the region, Warrwa does not distinguish cases as inflectional categories of nominals. Rather, case relations are marked by

postpositional enclitics – hereafter 'postpositions', phrase-level enclitics that are usually distributed one per phrase, attached to the first word (McGregor 1994: 14, 26; see also Dryer 1997), as in the following examples:[1]

(1) a. *warany -kan buru*
other -LOC place
'at the other place'

b. *kinya -yi wamba*
that -DAT man
'that man's'

c. *ngajanu -ngany nga-mala*
my -INST 1:SG-arm
'with my arm'

There are about a dozen postpositions: ergative (*-na* ∼ *-ma* ∼ *-nma*), dative (*-yi* ∼ *-ji*), locative (*-kan* ∼ *-an* ∼ *-n*), allative (*-ngana*), two ablatives (*-junu* and *-nkawu* ∼ *-kawu*), perlative (*-marru*), instrumental (*-ngany*), and two comitatives (*-barri* ∼ *-warri* and *-nyarri*).[2]

The ergative postpositions normally mark subjects of transitive (example (2)) and middle clauses (example (3)),[3] though not of intransitive clauses (example (4)). Warrwa is not 'split' ergative: ergative marking is not sensitive to person and number of the subject, or to verbal categories such as tense, mood, aspect and so forth. Bound pronominals in the inflecting verb (see below) also cross-reference participant NPs (arguments): a nominative prefix cross-references the subject of all three clause types, while an accusative enclitic cross-references the object of a transitive clause, and an oblique enclitic cross-references the indirect object of a middle clause. This system is thus nominative/accusative/oblique in orientation (McGregor 2002a).

(2) *yila -na kujuk ø-na-ng-ka-ny-ø*
dog -ERG swallow 3:MIN:NOM-TR-EN-carry-PER-3:MIN:ACC
warli.
meat
'The dog swallowed the meat.'

[1] The following abbreviations are used: ABL – ablative; ACC – accusative; AG – agentive (derivational morpheme); APP – applicative; AUG – augmented number; COMIT – comitative; CONT – continuous; CVC – compound verb construction; DAT – dative; DU – dual; EMP – emphatic; EN – epenthetic nasal; ERG – ergative; FUT – future; IMP – imperfective; INST – instrument; IRR – irrealis; IV – inflecting verb; LOC – locative; MIN – minimal; NFUT – non-future; NOM – nominative; OBL – oblique; PA – past; PER – perfective; PL – plural; PP – postpositional phrase, PRES – present; PV – preverb; SG – singular; SVC – simple verb construction; TR – transitive conjugation class; 1 – first person; 1&2 – first and second person; 2 – second person; and 3 – third person. IVs are cited in capitals.

[2] The alternant forms cited represent the major allomorphic variants. Various morphophonemic processes further alter the shapes of roots and the postpositions; these need not concern us here.

[3] Middle clauses have two inherent NPs, one marked by the ergative, the other either unmarked or marked by the dative. The ergative NP is cross-referenced by a nominative pronominal prefix to the IV, the other by an oblique pronominal enclitic, not an accusative, as in transitive clauses. As I have argued elsewhere (McGregor 2002a), middle clauses are not transitive but are intermediate in transitivity between intransitive and transitive clauses.

(3) *ngayi -na ø-nga-murungu-ny-jina kinya wamba.*
I -ERG 3:MIN:NOM-look-PER-3:MIN:OBL this man
'I looked for that man.'

(4) *juwa jawu mi-n-ja-n.*
you swim 2:MIN:NOM-TR-say-PRES
'You are swimming.'

The typical form for an NP involves a nominal or pronominal designating an entity together with, optionally, a determiner and one or two modifying nominals, usually a nominal specifying a quality or number (adjectives do not constitute a distinct part of speech). Modifying nominals usually (though not invariably) precede the head noun; determiners precede or follow it with about equal frequency. Some examples are given in (5) and (6). However, modifying nominals are infrequent textually, and it is rather rare for an NP to show more than one word; examples like (7) are uncommon and are attested only in elicitation. If the head is a pronominal, quantity modification is the only type that is at all common: determiners and quality modifiers are not normally used.

(5) a. *kinya baalu* b. *nyinka wila* c. *wuba jandu*
this tree this water little woman
'this tree' 'this water' 'girl'

(6) a. *kundulu wali* b. *nyinka kujarra wali*
kangaroo meat this two meat
'kangaroo meat' 'these two (pieces of) meat'
c. *wamba-rnirl baawa*
man-PL child
'many boys'

(7) *kujarra marril miyarra kururr-ngkaya yila*
two grey two black-CONT dog
'two old black dogs'

Possession within NPs is indicated in two main ways: (i) by a dative-marked NP or oblique pronominal designating the possessor, or (ii) by an unmarked NP designating the possessor, linked to the NP designating the possessed entity by an oblique pronominal. These are illustrated in the following pair:

(8) a. *jiya-yi wanangarri* b. *yangki jina wanangarri*
you-DAT stone who 3:MIN:OBL stone
'your money' 'someone's money' or 'whose money'

Corresponding to verbs in languages such as English, Warrwa distinguishes two parts of speech, inflecting verbs (IVs) and preverbs (PVs). IVs are

morphologically quite complex, with a variety of inflectional forms; their structure can be described by the order-class formula shown in (9).[4]

(9) NOMINATIVE:PRONOMINAL+(MOOD)+(NUMBER)+
(CLASS)+(TENSE)+(REFLEXIVE/RECIPROCAL)+
(EPENTHETIC: NASAL)+ROOT+(REFLEXIVE/
RECIPROCAL)+(TENSE)+(ASPECT)+(RELATOR)+
($\left\{\begin{matrix}\text{ACCUSATIVE}\\ \text{OBLIQUE}\end{matrix}\right\}$ PRONOMINAL) +(DUAL)

Two positions are obligatory, the initial bound pronominal cross-referencing the subject, and the root, in eighth position. Between these are a number of order-classes marking tense and mood distinctions, subject number, conjugation class and reflexive-reciprocal. There are two main conjugations: one marked by *na-* ∼ *a-*, that is primarily transitive; and a second, largely unmarked, that is primarily intransitive. (Pronominal prefixes also show slight differences according to the conjugation class of the IV.) The *na-* ∼ *a-* marker is glossed TR in the interlinear gloss lines; the other class is not indicated. Following the root are three orders of suffix (reflexive-reciprocal, tense and aspect markers), and three orders of enclitics (a relator, either the applicative (McGregor 1998a) or the subordinate marker; an accusative or an oblique pronominal; and a dual enclitic, that specifies that one of the bound pronominals cross-references an NP with just two referents). Finally, morphophonemic processes apply within the IV, with the effect of obscuring the agglutinating structure; these need not concern us.

Of course, not every IV token exhibits every possible order class; indeed, most have half or less of the optional order-classes filled. There are also restrictions on co-occurrence of certain order-classes, and on morpheme choices within them. (10) illustrates two typical IVs.

(10) a. *ø-na-mungka-ny-ngayu*
3:NOM-TR-bite-PER-1:MIN:ACC
'it bit me'

b. *wi-la-rr-a-rli-na-ø*
3:NOM-IRR-PL-TR-eat-IMP-3:MIN:ACC
'they might have eaten it'

PVs by contrast admit no inflections and usually occur in bare root form; the only morphological modifications they permit are reduplication and addition of a small number of stem-forming suffixes, occasionally a postposition. PVs usually occur in collocation with an IV, which typically follows it, as illustrated by examples (2) and (4) above; only exceptionally does one find a PV in isolation, without a nearby IV.

[4] This formula describes the finite IV in Warrwa. IVs also occasionally occur with a *ma-* prefix in place of the nominative pronominal prefix, in what appears to be a non-finite construction. However, this is quite rare in Warrwa in comparison with other Nyulnyulan languages, including Nyulnyul (McGregor 1996) and Nyikina (Stokes 1982).

The present corpus shows just sixty-one synchronically monomorphemic IV roots, plus a few complex stems (derived by derivational processes, mainly reduplication). This is a rather small number for a Nyulnyulan language: Nyulnyul and Bardi have over two hundred, while Nyikina has at least a hundred and fifty. All IVs may occur as the sole item in a VP, in a SIMPLE VERB CONSTRUCTION (SVC).

PVs, by contrast, form an open class with hundreds of monomorphemic members and, as mentioned above, are almost always paired with an IV. A dozen or so IVs are attested in such collocations, which I refer to as COMPOUND VERB CONSTRUCTIONS (CVCs). Obviously the IV serves as an inflectional locus for the CVC; but it does more than this: as argued in McGregor (2002b), the IV root serves as a verbal classifier, categorizing PVs, and their referent events, into a small set of event types.

4.2.2 Fundamentals of spatial reference

Postpositions play an important role in the expression of spatial relations, marking location (by the locative), direction towards (by the allative), direction away from (by the ablatives), and direction through or via (by the perlative). These 'lative' postpositions can be attached to virtually any NP, irrespective of its head nominal, whether it be, for example, a toponym, determiner, common noun (designating a person, thing, place, or whatever), or pronominal. Different interpretations are, of course, likely to be associated with different head nominals: for instance, marked by the locative postposition, an NP with toponym head is likely to specify a scene or setting within which a situation unfolds, whereas an NP with a human NP as head is unlikely to.

One of the most fundamental utterances relating to location is the question 'where is it', which in Warrwa is generally expressed as shown in (11). This involves the indefinite determiner *jana* 'where, somewhere',[5] which usually – though not invariably – hosts the locative postposition, and is normally accompanied by the IV -NGA ~ -NA 'sit, be'.

(11) *kunbulu jana -n i-nga-n*
blood where -LOC 3:MIN:NOM-be-PRES
'Where is the blood?' (Or, 'The blood is somewhere.')

Jana 'where' can, of course, also host a lative postposition, as in questions about direction or orientation, e.g. *jana-ngana* 'where to', *jana-marru* 'via where';

[5] Like many Australian Aboriginal languages, Warrwa does not have a distinct set of interrogative determiners; rather, a single set is used both in questions and in expressing indefinite reference (Mushin 1995). (There may be unmarked associations between these senses and intonation, but that remains to be demonstrated.) Intriguingly, the Warrwa indefinite determiner *jana* 'where, somewhere' is also used in CVCs with -NGA ~ -NA 'sit, be', where it serves as an indefinite verb, again permitting both interpretations 'do something' and 'do what'. It is also used selectively, as 'which', as in *jana yila* (which dog) 'Which (out of a set of potential referents) is (your) dog?'

such questions would of course involve a motion IV such as -ARNDA 'go' instead of -NGA ~ -NA 'sit, be'. Being a determiner, *jana* can occur in an NP with a head nominal such as *buru* 'place' – thus *jana-n buru* 'at which place, where, some place' – though this is rarely done.

Aside from the indefinite *jana* 'where, somewhere', Warrwa has a second, more general, indefinite determiner, *(y)angki* 'who, what', used for people and things. There are also a number of definite determiners, including endophoric *kinya* 'this, that, the aforementioned', and three exophoric (deictic) determiners, or demonstratives. These are often used in the expression of spatial relations, including location and direction. Three degrees of relative distance are distinguished:[6]

nyinka	proximal, relatively close to the speaker
binka	intermediate (neither proximal nor distal)
kanka	distal, relatively distant from the speaker

The recently deceased speaker consistently employed this system in reference to items located in 'tabletop' space (i.e. within arm's reach): thus, if three items were arranged in a line in front of him and oriented in a sequence away from him, he referred to the first as *nyinka*, the middle one as *binka* and the most distant one as *kanka*. He also used these terms in expressions designating objects located in larger spaces, such as in the immediate neighbourhood of the unit in which he lived, the township of Derby and the surrounding region. In these larger regions, of course, something designated as *nyinka* would be in absolute terms much further distant than something in tabletop space designated by *kanka*. The surviving speaker, however, never used the intermediate term *binka* in reference to any entity placed in tabletop space in elicitation. In fact, never once did she volunteer the form in elicitation targeting spatial relations. On one occasion when I asked about two tables, one about 10 metres distant, the other about 15, she referred to the nearest one as *nyinka*, the distant one as *kanka*. When asked whether anything was *binka*, she unhesitatingly pointed to a table perhaps 1.5 metres from herself (and somewhat closer to me). But then the other items were immediately recontextualized, and she referred to both of the other tables as *kanka*. It is clear that she knew the form but simply did not normally use it. This may, perhaps, be a consequence of the decline in use of Warrwa; however, in previous field trips, I did elicit *binka* from her, when there was no focus on space as such.

For both speakers *binka* 'that' seems to be, in terms of usage, the most marked of the three demonstratives. More work is needed on the three demonstratives,

[6] This updates my earlier sketch grammar, where it is claimed that just two degrees of distance, proximal (*nyinka* 'this') and distal (*binka* 'that') are distinguished (McGregor 1994: 17). At least one other Eastern Nyulnyulan language, Yawuru, also shows a system of three demonstratives *nyamba* 'proximal', *kamba* 'distal' and *karda* 'far-distal' (Hosokawa 1991: 321). As the glosses suggest, the Yawuru system appears to differ from the Warrwa system in terms of the nature of the contrast between the two non-proximal terms.

however, to determine with certainty the semantic basis of the system, and how it is used in discourse (not just in tabletop and floortop spaces), as well as in interaction with factors such as givenness, contrastiveness, identifiability, deictic centre, frame and so forth.

The three demonstratives *nyinka* 'this', *binka* 'that mid-distal' and *kanka* 'that distal' are non-specific in terms of the epistemic class of the referent: they can be used for people, animals, inanimates and places. In the last case, the appropriate lative postposition is attached to the determiner to specify the spatial relation involved, whether it be location, direction towards/from, or whatever. There are no separate spatial demonstrative adverbials like English *here* and *there*. There is, however, a pair of deictic directional adverbials, *bawunaarra* 'hither, towards here' and *yab* 'thither, away from here', that have exclusively spatial reference. Like the demonstratives, the endophoric determiner *kinya* 'this, that, the aforementioned' can refer to places as well as entities – indeed, it can also refer to propositions and times.

A number of other spatial adverbials are used in expressing spatial relations, as are, on occasions, body-part terms. These are discussed in Sections 4.3.3 and 4.3.4 below.

4.3 Topological relations

4.3.1 Basic locative construction

The construction normally employed to answer 'Where'-questions such as (11) above also involves the IV -NGA ~ -NA 'sit, be' in an SVC, together with an expression specifying the targeted location, the ground – by one of the forms described in Sections 4.3.2 to 4.3.4 below – and an NP specifying the thing located, the figure. In this context the IV appears to function as a copula, linking the figure and ground expressions together, rather than designating an on-going state or process. This characterizes the full form of the basic locative construction (BLC),[7] an example of which is (12), given in response to (11).

(12) *kunbulu nyinka -n i-nga-n-jina*,
blood this -LOC 3:MIN:NOM-be-PRES-3:MIN:OBL
kunbulu-wudany jumburrari, *kunbulu-wudany jumburrari*,
blood-COMIT knife blood-COMIT knife
'The blood is here on this thing, the bloody knife.'

Both the IV and the NP specifying the figure can be omitted from the BLC, since they convey predictable information, at least when given in response to

[7] For the sake of consistency, I use the term 'locative construction' in the sense outlined in the introduction to this volume. However, there is no implication that it represents an emic sign or construction in the sense of Semiotic Grammar (McGregor 1997a) or Construction Grammar (Goldberg 1995). Indeed, it seems to me highly improbable that it really is a separate construction; 'locative expression' would be a more accurate designation.

a 'Where'-question such as (11). Only the expression specifying the location, the ground, is essential, at least to an informative and appropriate answer to the question. As we will see in Section 4.3.5 below, there are other locative constructions in Warrwa.

4.3.2 Use of the locative postposition

Like many other Australian Aboriginal languages, Warrwa uses its locative marker to encode general static spatial-locational relations of contiguity, containment, adjacency and so on; that is, it covers relations expressed in English by prepositions such as *at*, *in*, *on*, *by*, *over*, *near* and so forth.[8] The following examples illustrate a portion of the range:

(13) *mijala warr-wani kinya -n*,
sit 2:AUG:NOM-FUT-be this -LOC
'Keep sitting here'

(14) *kijkij i-nga-n majaabiy -kan*
joey 3:MIN:NOM-be-PRES pouch -LOC
'The joey is in the pouch'

(15) *jungka -n nga-nga-ni-ny*
fire -LOC 1:MIN:NOM-NFUT-be-PER
'I was by (next to) the fire'

(16) *nyin -kardiny yuk wa-l-yi*, *ngay -an*,
this -SIDE lie 2:MIN:NOM-FUT-say 1:MIN -LOC
'"Sleep this side, with (beside) me!", (he said to her)'

(17) *baala -n i-nga-n wirrwiny kujarra-layina*
branch -LOC 3:MIN:NOM-be-PRES leaves two-alone
'There are three leaves on (i.e. attached to) the branch'

As (14), (15) and (17) illustrate, knowledge of the world influences the interpretation of the general spatial relation in particular examples: knowledge that young kangaroos spend time in their mothers' pouches suggests a containment interpretation for (14); that fires burn make the containment interpretation unlikely for (15), and that people usually sit around them suggests that the speaker was located next to it; and that leaves grow off from branches suggests attachment rather than containment in (17). Of course, (14) admits the interpretation that the joey was by its mother's pouch (and could be followed by

[8] In fact, the locative postposition is even more general than this. It can be used to mark not just spatial relations, but also temporal relations. For instance, *wariny-kan kiliman* (one -LOC moon) may refer to a point in time one month hence – and is more likely to do so than refer to something spatially located at, in, on, or near the moon (though the spatial sense 'in moonlight' is not unlikely).

a sentence to the effect 'then hearing a noise, it jumped into the pouch'), and (15) that the speaker was actually in the fire. It is possible to specify the spatial relation more precisely by adverbials such as *kalbu* 'up, above'; these will be discussed in the next subsection.

Occasionally an overt marker of the spatial relation is lacking – for instance, with toponyms and the indefinite/interrogative determiner *jana* '(some)where'. This does not happen with other demonstratives, which are not inherently (or even predominantly) spatial in reference and are regularly used in reference to entities, including animates and human beings. This suggests that the postposition can be omitted when it can be inferred or guessed that the NP designates a place or location, or that the spatial relation is a general one that can be represented by the locative postposition.

In examples (13)–(17) the general static spatial relationship obtains between one entity, the figure, and a place or another entity, the ground, with respect to which it is at rest. Four of the five examples are BLCs; the other involves a CVC with IV -JI 'say, do' designating an inchoative event, and specifying the intended ultimate stance of the located entity, the addressee.

In Warrwa the locative is not used exclusively to mark this general stative locational relation. It is also used to mark, among other things: (a) the place to which some thing has been moved, as in (18) and (19) – note that in the latter example the location is as imprecise as we encountered for some of the static locations; (b) the place where an active motion event is occurring, as in (20) and (21); and (c) the place where the Undergoer in a non-causative transitive clause (e.g. of seeing, hitting, carrying, holding, spearing) is located when the event occurs, as in (22) and (23). (See McGregor 1994: 28–30 for further uses, again not exhaustive.) In this regard Warrwa is similar to various other Australian languages, including other Nyulnyulan languages, Gooniyandi (McGregor 1990a: 332, 339, 360, etc.), Jaminjung (Schultze-Berndt this volume, and p.c.) and Warlpiri. By contrast, Arrernte employs different case markers for these relations (Wilkins this volume).

(18) *jiljil ø-ngi-rr-a-ma-na bur -an,*
pour 3:NOM-NFUT-AUG-TR-put-IMP ground -LOC
mayi,
vegetable:food
'They poured the flour onto the ground'

(19) *niyambala-kurru, jarrbard ø-na-ng-ka-ny*
foot-AG lift:up 3:MIN:NOM-TR-EN-carry-PER
-ø na-lma -n jina,
-3:MIN:ACC 3:SG-head -LOC 3:MIN:OBL
'He has lifted the shoe over his head' (Mayer 1969: 4)

(20) *wil -an bub-bub ø-ngi-rnda-n*
water -LOC float-float 3:MIN:NOM-NFUT-go-PRES
'It is floating along on the water'

(21) *ngayu inyja nga-rnda-n bura -n*
I travel 1:MIN:NOM-go-PRES camp -LOC
'I am walking on the ground'

(22) *bakal -an julaj ø-na-ng-ka-ny baawa*
coolamon -LOC carry 3:MIN:NOM-TR-EN-carry-PER child
'She carried the child in the coolamon'

(23) *jana -n mi-ny-jala-ny*
where -LOC 2:MIN:NOM-EN-see-PER
'Where did you see him?'

4.3.3 Spatial adverbials

Many of the spatial relations depicted in the 'Topological Relations Picture Series' (TRPS; see Chapter 1, §1.4.1) fall within the range designated by the locative postposition. And, as expected, utterances initially elicited often involved the locative postposition as the only marker of the spatial relation, more precise details going unspecified. For instance, (24) was offered as a description of the 'apple in a bowl' (Picture 2); (25) of 'ring on finger' (Picture 10). Very rarely, the verb is omitted – example (44) below, for 'hooks on wall' (Picture 50), is one of the few exceptions.

(24) *mayi i-nga-n juduw -kan*,
food 3:MIN:NOM-be-PRES vessel -LOC
'The apple is in the bowl.' Or 'There is an apple in the dish'

(25) *nimala -n i-nga-n*, *nimala*
finger -LOC 3:MIN:NOM-be-PRES finger
i-nga-n, *nyinka waalu*,
3:MIN:NOM-be-PRES this thing
'It is on her finger, this thing'

It is, however, possible to specify the spatial relationship more precisely by employing another word in addition to the locative PP. For example, in (26), elicited as a description of 'cup on a table' (Picture 1), we find the word *kalbu* 'up, upon'; in (27), describing the 'apple in a bowl' (Picture 2) *jimbin* 'down, inside' specifies the containment relation more precisely; and in (28), describing 'ball under chair' (Picture 16), we again find *jimbin* 'down, inside', this time in the sense 'underneath'.

(26) *kalbu i-nga-n kinya -n*,
up 3:MIN:NOM-be-PRES this -LOC
'It (the cup) is up on this thing (the table)'

(27) *jimbin i-nga-n jud -an, jud -an baalu*,[9]
down 3:MIN:NOM-be-PRES dish -LOC dish -LOC thing
'It is inside the dish'

(28) *nyinka, mijala i-nga-n, mijala-yina buru, marda*
this sit 3:MIN:NOM-be-PRES sit-AG place play
-yunu, marda -yunu buru, jimbin i-nga-n
-ABL play -ABL place down 3:MIN:NOM-be-PRES
mijala-yina -n,
sit-AG -LOC
'This is sitting, the chair; the ball is underneath the chair'

The last two examples demonstrate that in Warrwa, as in many Australian Aboriginal languages, there is a single term that covers 'under(neath)' and 'inside'. Wilkins 1989: 314 suggests that the linking notion may be 'concealment' or occlusion: what is inside or underneath an entity is concealed or occluded in some way, not necessarily visually (see also Wilkins this volume, and Harkins and Wilkins 1994). However, I am not entirely convinced by this explanation since (28) could just as well refer to a situation in which the ball was on the ground next to the chair, not directly underneath it, and not even partially occluded. More work is required to determine whether there is some commonality of meaning between these two senses of *jimbin* 'down, inside' – and indeed on the semantics and pragmatics of *jimbin* 'down, inside' and *kalbu* 'up, above'.

Nor is contact specified by either *jimbin* 'down, inside' or *kalbu* 'up, above', or the constructions they enter into. *Kalbu* 'up' in (26) does not specify that the cup is actually in contact with the table and admits the interpretation 'the cup is above the table' (e.g. it might be suspended above the tabletop on a string or in a person's hand). On the other hand, contact is not precluded in (28): this is clear from (29), given in response to the depiction of the 'spoon underneath cloth' (TRPS, 24), in which there is contact between the figure and ground.

(29) *mayi-yina baalu, balya -n i-nga-n jimbin*
food-AG thing cloth -LOC 3:MIN:NOM-be-PRES down
wariny -mirri,
one -EMP
'The spoon is underneath the cloth'

[9] The word for 'vessel, container, dish' was variously given as *jud* and *juduw*. What motivates the choice is not known; it does not appear to be ideolectal since both speakers used each form.

I regard *kalbu* 'up, above' and *jimbin* 'down, inside' as members of a separate part of speech, namely adverbials (McGregor 1994: 14, 21–3). They are distinct from both nominals (e.g. *baalu* 'tree', *buru* 'place', *kinya* 'this, that', etc.), and PVs (e.g. *widij* 'dig', *kujuk* 'swallow', *kurrak* 'move off', etc.); they represent a subclass of neither. In this regard the situation in Warrwa contrasts with Arrernte (Wilkins this volume) and Jaminjung (Schultze-Berndt this volume), where the corresponding words form a subclass of nominals. This is not to say that it is always easy to distinguish adverbials from nominals and PVs. The following features – admittedly not criterial – suggest their separate status, however.

Adverbials show greater freedom of word order than PVs: they are not so tightly bound in occurrence to IVs – they are more frequently found separated from the IV of a clause than are PVs and are not strongly associated with preverbal position. Moreover, they provide qualifying information about the situation and can normally be omitted from the clause without affecting its truth value, or the situation designated; this is not normally the case for PVs, the omission of which usually results in reference to a radically different situation (McGregor 2002b).

Although they resemble nominals in being able to host postpositions, adverbials are more restricted than most nominals in terms of the range of postpositions they can occur with. In particular, they never accept the locative postposition; nor may they host either ergative or dative postpositions. When they do host a postposition, usually either allative or ablative, its meaning is not necessarily as would be expected had the postposition been attached to a nominal. Nor do adverbials occur as heads of NPs, in collocation with, and modified by, determiners or number words. (There are other differences, some of which will emerge as the discussion proceeds.)

Neither *kalbu* 'up, upon' nor *jimbin* 'down, inside' forms a complex NP with a locative NP representing a ground, and in this regard the situation in Warrwa contrasts with that described by Wilkins (this volume) for Arrernte. This is not just because – as in examples (26) and (28) above – the adverbial and PP are frequently discontinuous (Warrwa NPs are almost never discontinuous, as remarked above), but also because in those cases where the two are continuous and the adverbial element occurs first, it is still not marked by a postposition, which, it will be recalled, invariably goes on the first word of the NP. This is illustrated by the following example, elicited in response to 'ball under chair' (Picture 16):

(30) *yunguru waalu i-nga-n jimbin mijala-yina*
round thing 3:MIN:NOM-be-PRES inside sit-AG
-n buru,
-LOC place
'The ball is underneath the chair'

As I understand it, both the adverbials and the locative PPs in examples like (26)–(30) independently serve in grammatical relations, specifying spatial location. Either could be omitted, without affecting grammaticality, or the range of potential meanings – though the range of pragmatically likely interpretations may well be affected. The question thus becomes: do the adverbial and locative PP ever enter into a syntagmatic relation? Can they, for instance, form a type of complex appositional construction, as in Gooniyandi (McGregor 1990a: 287–9)? Perhaps this is the case in examples such as (30), where the two units are continuous. Unfortunately, however, I am aware of no language-internal grammatical evidence bearing on the question (although, of course, intuitively the adverbial does seem to specify a static spatial relation using the referent of the locative PP as a specification of the ground for the relation).

Warrwa has a sizeable set of adverbials that can be divided into three groups: spatial, temporal and manner; these show clear differences in grammatical patterning. *Kalbu* 'up, upon' and *jimbin* 'down, inside' are, naturally, spatial adverbials. Various other spatial adverbials are also employed in the expression of static topological relations; the best attested are shown in Table 4.1.[10] There is no reason to believe that these represent a linguistically significant subset of the spatial adverbials, or that the three semantic subtypes shown are emically significant. As indicated, these adverbials admit not just static topological senses but also orientational and regional senses. Three distinct orientational senses can be identified corresponding to the three additional senses (a)–(c) of the locative discussed in Section 4.3.2 above: (a') the direction in which some thing has been moved (example (31)); (b') the orientation of an active motion event (example (32)); and (c') the direction of activity in a non-causative transitive clause (example (33)). Again, a locative PP will designate the ground in respect to which the orientation is specified. Interestingly, just as in the case of static location relations where location is assumed but not marked on the adverbial, here direction towards is assumed, but rarely marked. Occasionally we encounter the 'direction from' sense – (32) is an example: here the motion event of following is oriented from behind the speaker.

(31) *hobblestrap -nyarri buju kaliya, ø-na-ma-na*
-COMIT finish OK 3:MIN:NOM-TR-put-IMP
-ø jimbin jina -n buru,
-3:MIN:ACC down 3:MIN:OBL -LOC camp
'He put hobble straps and things inside his camp'

[10] These are not the only spatial adverbials in Warrwa. There are also a number of static locative relational adverbials, the semantics and uses of which remain rather unclear at present, as well as cardinal direction adverbials (see §4.5 below), motion-orientation adverbials, etc.

Table 4.1 *Warrwa static topological relationship adverbials*

Type	Adverbial	Static relation	Orientational	Regional
Vertical	*kalbu*	'above', 'over', 'upon'	'up', 'upwards'	'above', 'overhead'
	jimbin	'below', 'beneath', 'under'	'down', 'downwards'*	'below', 'bottom side'
Containment	*jimbin*	'inside'	'inwards', 'towards the inside'	'interior'
	kalara, *kirdan, wardawarda*	'outside'	'outwards', 'towards the outside'	'exterior'
Intrinsic	*rirrban*	'by the side of'	'sideways'	'region to the side'
	ngulumba	'in front'; used of objects with intrinsic fronts; also in reference to speaker's side of object	'front-wards', 'ahead'	'region in the front'
	baywarra	'behind', 'at the back of'	'behind-wards'	'region behind'
	burlngurru	'centre', 'middle'	'towards the centre'	'region in between'

*There is another spatial adverbial with apparently the same sense, namely *jidawa* 'downwards'. This appears to be a specifically directional term and is never used in locating objects. How *jimbin* and *jidawa* contrast in reference to the downward direction remains to be determined.

(32) *baywarra wal-a-rwa -ngayu*
behind 2:NOM:NOM/FUT-TR-follow -1:MIN:ACC
'Follow behind me'

(33) *jikiri ø-ngi-rri-yi-na-wili, jimbin, wanangarra -n,*
peep 3:NOM-PA-PL-say-IMP-DU inside cave -LOC
'They peeped inside the cave'

4.3.4 Spatial parts of entities and spatial regions

Warrwa spatial adverbials resemble their Arrernte nominal counterparts in the sense that they can also be used to specify orientation (Wilkins this volume). However, there is an important sense in which they are quite unlike Arrernte spatial nominals (Wilkins this volume): they never admit the 'spatial part' senses – they are not used to designate spatial parts of entities, such as the top of a

table, the bottom of a cliff and so forth. This is presumably in keeping with the observation that Warrwa adverbials do not belong to NPs.

There are two ways in which spatial parts or aspects of an entity can be specified. One is by a locative PP with a body part N as head, as in (34) and (35). Just three body-part terms are known to be used in this way: *nimarla* 'hand', *nur* 'bum' and *ninyji* 'back'. Quite likely there are others, though it is improbable that their number is very large.

(34) *yunguru baalu nur -an i-nga-n.*
round thing bum -LOC 3:MIN:NOM-be-PRES
'The round thing is on its (the candle's) base.' (Or,
'There is a round thing on the base (of the candle).')

(35) *nimarla -n wila*
hand -LOC water
'edge of the water'

The other way of indicating spatial parts of an entity is by ablative-marked spatial adverbials, which appear to be derived forms meaning, roughly, 'side of' or 'aspect of'. Only a few of the adverbials from Table 4.1 are attested in this form:

kalb-ankaw	(up-ABL)	'top side of'
jimbin-kaw	(down-ABL)	'bottom side of', 'underneath side of', 'inside of'
baywarra-nkaw	(behind-ABL)	'behind side of'
ngulumba-yunu	(ahead-ABL)	'front side of'

This mode of expression tends to be employed when there is close or significant contact between the figure and ground. This is how the 'stamp on letter' (Picture 3) was described by one speaker – thus compare (36) with (26), in which the cup is merely located on the top of the table. Other relations treated in this way include 'gum stuck underneath table' (Picture 53), 'cork in bottle' (Picture 62), and 'boy behind chair' (Picture 64), each of which illustrate a particularly close or significant physical connection. Again, the ground is rarely specifically mentioned, but if it is, it is in a locative PP that shows no close syntagmatic relation to the derived adverbial.[11]

(36) *bangarra kalb -ankaw i-nga-n -jina*
paper up -ABL 3:MIN:NOM-be-PRES -3:MIN:OBL
'There's a stamp on it (the envelope)'

[11] Note that in (36) the NP *bangarra* 'paper' refers to the stamp, not the envelope, which is not explicitly mentioned by an NP, though it is cross-referenced by the third person singular oblique pronominal enclitic to the IV.

As shown in Table 4.1, static spatial adverbials can also be used to designate spatial regions. Here the adverbial appears to be used referentially, not to designate part of a whole, but rather a domain within the spatial universe, this domain being situated in the specified spatial relation with respect to some reference point. What distinguishes this usage of spatial adverbials from the others is the presence of a relation-specifying marker: the ablative or allative postposition, or the derivational suffix *-kurdany* COMIT. These indicate, respectively, direction or location away from a region (example (37)), direction towards a region (example (38)) and location within a region ((39) and (40)). (This is an oversimplification; further discussion is provided below.)

(37) *wila ø-jalu-na kalb -ankaw*
water 3:MIN:NOM-fall-IMP up -ABL
ø-na-munda-na -ø
3:MIN:NOM-TR-wet-IMP -3:MIN:ACC
'Rain fell from above, wetting everything'

(38) *mayi jamajama ø-na-ng-ka-na -ø*
food cart 3:MIN:NOM-TR-EN-carry-IMP -3:MIN:ACC
jimbin-ngana,
inside-ALL
'He carted the food back to the inside (of the cave)'

(39) *jalmarra -wudany dumarra ø-n-andi-n kalbu*
feather -COMIT soar 3:MIN:NOM-TR-catch-PRES up
-kudany
-COMIT
'A plane is flying overhead'

(40) *kalbu ø-ngi-rnda-n*; *kalara -wudany*,
up 3:MIN:NOM-NFUT-go-PRES outside -COMIT
'It went up there, on the outside (of the house)'

Two reference points are invoked in this use of spatial adverbials. One is the reference point for the spatial region specified by the adverbial; the other is the region itself, which serves as a reference point for the figure. The initial reference point is not normally mentioned; only in a few examples – including (41) – is it possible to interpret a contiguous locative PP as specifying the reference point. Again, the adverbial and nominal do not form a single NP together (note the two postpositions separately marking the adverbial and the nominal).

(41) *bakidi jina ø-na-ma-ny -ø kalba -nkaw*
bucket his 3:MIN:NOM-TR-put-PER -3:MIN:ACC up -ABL
jungka -n, kaliya, kurrur-ngkay ø-na-marra-ny
fire -LOC finish black-CONT 3:MIN:NOM-TR-burn-PER
-ø,
-3:MIN:ACC
'He put the billy-can onto the fire from above, and cooked the tea'

Some of the targeted static spatial relations from the 'Topological Relations Picture Series' are represented by means of these regional senses of the adverbials. This applies to the 'light over table' (Picture 13):

(42) *windarr kalb -ankaw i-nga-n, nyinka yaalu*
light up -ABL 3:MIN:NOM-be-PRES this stand
ø-ngi-rr-a-ma-ny -ø
3:NOM-PA-AUG-TR-put-PER -3:MIN:ACC
'The light is (hanging) from the ceiling; it has been stood up there'

4.3.5 Other locative constructions

In Section 4.3.1 above the Warrwa BLC was characterized as a structure involving the IV -NGA ∼ -NA 'sit, be' in an SVC, perhaps functioning as copula. The majority of examples given in the previous sections illustrate this construction. There are, however, other means of expressing locative relations, including nominal clauses – clauses without an inherent verb, either SVC or CVC – and verbal clauses involving other verbs and verbal constructions. We will take these possibilities in turn.

First, nominal clauses seem to be rarely employed in expressing basic static locative relations in Warrwa in comparison with many Australian languages, including, for example, Gooniyandi (McGregor 1990a: 302) and Arrernte (Wilkins this volume). The corpus includes just a handful of tokens, including:

(43) *jana -n waangu jiya*
where -LOC wife 3:MIN:OBL
'Where is your wife?'

(44) *mayar -an, dukurr -ngkay baalu,*
house -LOC hang -CONT tree
'In the house (on the wall) are hooks'

What motivates the use versus non-use of the IV -NGA ∼ -NA 'sit, be' – what semantic contrast is invoked – remains to be determined.[12] It is certainly not the case that the IV is employed only in reference to non-present time; nor does the IV merely serve as a locus for marking non-present tense. In fact, many examples cited above with a verb have present reference.

The second non-BLC means of expressing locative relations is by a stative verbal expression other than the IV -NGA ∼ -NA 'sit, be'. Usually this is a basic stance CVC, generally one of the following: *mijala* . . . -NI ('sit . . . be') 'be sitting'; *yaalu* . . . -JARRA ('stand . . . stand') 'be standing' (occasionally this IV occurs alone, rarely in collocation with a different PV); *dukurr* . . . -JI ('hang . . . say, do') 'be hanging'; *dukurr-ngkaya* . . . -NI ('hang-CONT . . . be') 'be hanging'; and (less commonly), *yuk* . . . -JI ('lie . . . say, do') 'be lying'. The choice between the various expressions appears to depend on the dominant or perceived orientation or posture of the figure.

Just a few of the scenes depicted in the TRPS employ more exotic verbs, sometimes stative, sometimes active. Example (45), which describes the 'ring on finger' (Picture 10), employs the stative IV -BA 'have' (in a SVC); another description of the same scene used the active CVC *wirri* . . . -JI ('around . . . do, say') 'go around, surround'.

(45) *nimarla-yina baalu ∅-ba-an -∅,*
hand-AG thing 3:MIN:NOM-have-PRES -3:MIN:ACC
nimarla -n,
hand -LOC
'(She) has a ring on the finger'

Active SVCs were almost always used for scenes such as 'arrow through apple' (Picture 30) and 'apple on skewer' (Picture 70), which were consistently represented by the IV -RA 'pierce, spear':[13]

(46) *mayi ∅-ngi-rr-a-ra-ny jarrwan kujarra,*
food 3NOM-PA-AUG-TR-pierce-PER side two
'(The skewer) has been poked right through the apple'

It will be observed that in example (46), as in the final clause of example (42), there is no external NP specifying an agent. The IV, however, employs the third person augmented nominative pronominal prefix, apparently as a dummy,

[12] I cannot discount the possibility that the nominal clauses are not elliptical verbal clauses, though this seems highly unlikely. On the other hand, IVs are frequently found in contexts where they convey given or predictable information, suggesting that ellipsis of IVs is unusual.

[13] The spatial relationship 'right through' is consistently expressed by the idiomatic collocation *jarrwan kujarra*. The second word is doubtless *kujarra* 'two'; the identity of the first word is uncertain. One possibility is that it can be analysed morphologically as *jarrwa* 'tide, saltwater' plus the locative postposition *-n* (or otherwise derives historically from this source), perhaps invoking reference to the 'side' of the ocean, and, by generalization, to 'side' of any entity.

cross-referencing nothing. This would seem to be a type of impersonal construction similar to the Gooniyandi impersonal construction (McGregor 1990b). Both speakers used this construction in describing spatial configurations in the TRPS stimuli that they interpreted as resulting from prior actions, but for which no agent was apparent. (In the 'ring on finger' picture it would of course be natural to presume that the owner of the hand was the agent, and the impersonal construction was thus not used.)

4.4 Motion

As in most northern Australian languages, both SVCs and CVCs (see §4.2.1 above) are employed in the representation of motion events, by which I mean events in which the subject of the clause changes location from one place to another. The clause can normally contain an allative and/or ablative PP designating one or both terminal points; it may also contain a PP marked by another local postposition, indicating some other aspect of the path, or a spatial adverbial specifying direction. However, none of these specifications is essential, and there is no reason to believe that linguistic units specifying these features are inherent in motion clauses. For simplicity, the two types of verbal construction used in designating motion events will be referred to as SIMPLE MOTION VERBS and COMPOUND MOTION VERBS. Thus simple motion verbs are IVs (and so will also be called motion IVs), while compound motion verbs are PV–IV collocations. As we will see, IVs in compound motion verbs need not be motion IVs; the PVs usually are – most (though not always all) collocations that they enter into designate motion events, suggesting that motion is a part of their inherent meaning. The set of motion verbs defined in this way appears to be an etic one; I am aware of no evidence that it is emically significant, that there are formal patterns of behaviour singling out these verbs as a separate class, as is the case in Jaminjung (Schultze-Berndt this volume) – though it may turn out to be so.

It should be noted from the outset that deictic motion is not encoded verbally, either by IVs in SVCs, or by PV–IV collocations in CVCs. The only way of expressing deictic motion is by a deictic adverbial – either *bawunaarra* 'hither, towards here (deictic centre)' or *yab* 'thither, away from here (deictic centre)' – in a clause of motion (which may involve either a simple or a compound verb of motion).

(47) *kaliya yab kurrak ø-j-an-ngany*,
finish away set:off 3:MIN:NOM-say-PRES-APP
'He is going away with it (the dog)'

Clauses of motion are reasonably frequent in Warrwa discourse. In a corpus of some fifty texts from various genres – including mythological narratives,

conversational reminiscences, personal anecdotes, procedural texts and descriptions of drawing sequences and films – amounting to just over 1500 verbal clauses, a quarter were clauses of motion. Just over half (52 per cent) of these had compound verbs of motion. Motion is implied in a slightly larger proportion of clauses, where it is engendered by adverbials, or by isolated PVs that are not in CVCs. The adverbial *yab* 'away' is quite frequently used to suggest motion, as illustrated by example (48): notice that the CVC does not actually specify motion, but a noise; motion is implicated by various factors, including knowledge of the world (that when planes roar, they usually move), and the presence of the adverbial *yab* 'away'.

(48) *jalmarra-kurdany wurru-ngkaya i-nga-n*
feather-COMIT roar-CONT 3:MIN:NOM-be-PRES
-jirra kaliya yab yirra,
-3:AUG:OBL finish away they
'The plane roared away on them (to Japan)'

Clauses of motion may be of any of the three main types: intransitive, transitive or middle. Intransitive clauses of motion designate the motion of an entity, the figure, sometimes with respect to a ground. Transitive clauses of motion are of two types. One type describes motion of the figure with respect to the ground (either stationary or moving) in regard to which its movement is oriented; such clauses refer to motion events such as leaving, following, approaching and so forth. The figure is subject (Agent); the ground, object (Undergoer). The other type of transitive clause refers to accompanied motion: the figure, the subject, moves in the company of the object, which is also moving. Middle clauses of motion always describe motion of a subject-figure oriented with respect to the indirect object; in contrast with the second type of transitive clause, the latter object is represented as less affected by the motion.

Transitive clauses also describe caused motion, in which the object is induced to move to a new location under the agency of the subject, as in example (49). There is no implication that the subject moves, and so these clauses do not fall into the category of clauses of motion according to the criteria adopted in this paper.

(49) *mayi wajbal -ma*, *ø-ngi-rra-ma-na*
food white:person -ERG 3:NOM-NFUT-AUG-TR-put-IMP
-yirra,
-3:AUG:OBL
'The white people put food out for them'

4.4.1 Simple motion verbs

Around a dozen simple motion verb roots (IVs) are attested in Warrwa, from a set of just over sixty known IVs: thus, about one in five IVs designate motion

Table 4.2 *Simple motion verbs (IV motion roots) in Warrwa*

Simple motion IV roots	Valency	CVCs?	Applicative?
-ARNDA 'go'	ø, mono-	commonly	
-BULA 'emerge, arrive, come out'	ø, mono-	rarely	yes
(-BUR 'blow (of wind)')	ø, mono-	never	
-JALU 'fall'	ø, mono-	rarely	yes
-KARDI 'enter'	ø, mono-	rarely	
-BALYA 'approach'	*na*, bi-	rarely	
-KA 'carry'	*na*, bi-	commonly	
-NGARI 'leave'	*na*, bi-	never	yes
-NGUNDU 'carry (on upper body)'	*na*, bi-	never	
(-RDARDA 'chase, hunt away')	*na*, bi-	never	
-RWA 'follow'	*na*, bi-	never	

events as part of their inherent lexical meaning.[14] They are listed in Table 4.2, along with some basic grammatical information: conjugation class membership and valency, and whether the IV is attested in CVCs. Also indicated is whether it admits applicative marking (where not specified, it is not known whether the applicative is possible, just that it is not attested); for the two intransitive motion IVs applicative marking serves a transitivizing function. (See McGregor 1998a: 174–8 for some discussion of applicativization of motion verbs.) The motion component of the meaning of the IVs is always present in SVCs. Just under half are monovalent and normally occur in intransitive clauses; the remainder are bivalent and normally occur in transitive clauses. Just one IV, -BULA 'emerge, arrive, come out', is attested in a derived stem, -BULAWULA ('emerge-emerge') 'emerge or arrive, of a large number of entities'. (Indicated in parentheses in Table 4.2 are possible, though not entirely certain, motion IVs.) Simple motion verbs fall into three etic types: (i) generic motion; (ii) oriented motion; and (iii) manner of motion. None indicate (iv) deictic motion, as mentioned previously. Belonging to the (i) generic motion type are -ARNDA 'go', -KA 'carry' and possibly -BUR 'blow (of wind)'. Most of the remainder are IVs of (ii) oriented motion, specifying something about the path of motion, the motion vector, which may or may not be anchored with respect to some place, location or entity. Thus -BULA 'emerge, arrive, come out', -BALYA 'approach', -KARDI 'enter', -NGARI 'leave', -RWA 'follow' and -RDARDA 'chase, hunt away' specify anchored paths, while -JALU 'fall' is unanchored. Just a couple of IVs might be regarded as expressing (iii) manner

[14] This is a slightly smaller percentage than is found in Jaminjung, where seven of the thirty-odd IVs are motion verbs, and one more, namely 'fall', is a change of locative relation verb (Schultze-Berndt 2000). On the other hand, it is slightly higher than the fraction in Nyulnyul, where only about a score of simple motion verbs are attested from a set of over 200 IVs.

of motion: -NGUNDU 'carry (on upper body)' (indicating the manner in which the carrying was effected), and perhaps again -RDARDA 'chase, hunt away' (which presumably specifies rapidity). Note that in this paper I will be using the term manner of motion quite generally, in reference to any specification of quality or means of motion, and not specifically to a characteristic motoric pattern exhibited by an animate entity moving in the specified way.

4.4.2 Complex motion verbs

Just two of the four main subtypes of motion events, (ii) oriented motion, and (iii) manner of motion, are represented by complex motion verbs. Furthermore, a not insignificant number of complex motion verbs specify both manner and path, and thus could be assigned to both (ii) and (iii); I refer to this group as (ii)/(iii). Again, I am not aware of formal criteria justifying these three types, which I regard as etic. There are no (i) generic or (iv) deictic complex motion verbs: generic motion verbs are all simple; and deictic motion is always expressed by an adverbial (see above). It is important to stress that for complex motion verbs it is the entire CVC – the PV–IV collocation – that is assigned to one of the three types, (ii), (iii) or (ii)/(iii), not the PV or the IV within it. The inherent meaning of either or both of these components might not signify a motion event.

(ii) ORIENTED MOTION. Around twenty-five PVs (roots and stems) and nine IVs are attested in about thirty-five CVCs specifying oriented motion. In this construction IVs do not themselves refer to events; instead they serve a purely categorizing function (as argued in McGregor in 2002b). They assign the referent event to categories specifiable in terms of three main parameters: valency, *Aktionsart* and vectorial configuration – an abstract schematic structure involving action vectors, landmarks and the like. Because IVs serve this categorizing function in CVCs, they do not lexically specify motion, even if they are themselves motion verbs, and would denote motion events in SVCs. Normally, motion is specified by the PV, sometimes by the PV–IV collocation as a whole.

Only three motion IVs – the two generic motion IVs, and the oriented motion IV -BULA 'emerge, arrive' – occur in complex orientated motion verbs, and these account for under a quarter of the attested collocations. Around half of the CVCs involve the two non-motion IVs, -JI 'say, do' and -ANDI 'get'. The other four IVs are each represented in only a few CVCs. The known oriented complex motion verbs are listed in Table 4.3, grouped under the classifying IV. In most cases the PV appears to specify the orientational component of the meaning of the CVC, the path of motion. In some cases this is in conjunction with the category itself, at least where the meaning of the category involves a vectorial component, as for -BULA 'emerge, arrive', -ANDI 'get', -ø 'give' and -MA 'put'.

Table 4.3 *Complex oriented motion verbs*

IV	PV	Meaning of collocation
-ARNDA ‘go’	*kirrb*	‘go past’
	lakarr	‘ascend, climb up’
	yuur	‘sink’
-KA ‘carry’	*burd*	‘come up to, approach’
	widika	‘take up and carry away’
	jarrbad	‘pick up and carry’
	kanyjakanyja	‘push along’
	yaarr	‘drag along’
-BULA ‘emerge, arrive’	*burd*	‘come up from’
-JI ‘say, do’	*birrb*	‘turn off’
	jib	‘fall out’
	juburr	‘dive into water’
	kanyjayi	‘push along’
	kurrak	‘set off’; +APP ‘carry off’
	lakarr	‘ascend, climb up’
	nguy	‘return’; +APP ‘bring back’
	nguynguy	‘return (of many)’
	warnak	‘get lost, wander about’
	wirri	‘circle around’
	wirriwirri	‘go around in circular path’
	yaarr	‘get dragged along’
	yarri	‘disappear’
-ANDI ‘get’	*juburr*	‘dive in’
	kirdarr	‘drag away’
	kurdiny	‘escape’
	mayurr	‘catch up with’
	widika	‘snatch up and take away’
-ø ‘give’	*kirdarr*	‘drag away’
	widika	‘take away’
	yaarr	‘stretch out, drag away’
	kurrak	‘set off, get moving’
-NGARA ‘become’	*murlurlu*	‘escape’
	yuur	‘go down’
-MA ‘put’	*jalngu*	‘go across’
-NGA ∼ -NI ‘sit, be’	*juburr*	‘sink in water’

Table 4.4 *Paradigm of verbal categories in Warrwa marked by IVs*

Valence	Telic	Atelic	Unmarked
1	-BULA 'emerge, arrive' [exit from condition, state, circumstance, or event] -NGARA 'become' [entry to state, condition, circumstance, or event]	-ANDA 'go' [progressive change in location, state, etc.] -NGA ~ -NI 'sit, be' [stative]	
1/2	-ø 'give' [apply force resulting in change of location] -ANDI 'get' [make or break contact with entity, place, or state] -MA 'put' [caused change of state, position, motion, etc.]	-KA 'carry' [progressive change of location or state in company of another entity engaged in same progressive change]	-JI 'say, do' [active]

At this point a few remarks are in order on the system of verb – and thus event – categorization in Warrwa, although it is, unfortunately, not as yet well understood. In broad outline it seems to be similar to the Nyulnyul system, which has been studied in rather greater depth (McGregor in preparation, Chapter 11, and McGregor 2002b, §§4.3.2 and 4.2.3.2 on categorization of motion PVs). It is convenient to tentatively organize the categories marked by the nine IVs of Table 4.3 into a paradigm according to Aktionsart and valence, as shown in Table 4.4. The collocations shown in Table 4.3 are consistent with this system of features, even though they cannot be predicted from it. (In some cases the agreement is not immediately apparent due to difficulties in providing suitable English glosses.) Indicated in square brackets are more precise specifications of the meanings of the categories marked by each IV; these must be regarded as tentative. The category marked by the generic IV -JI 'say, do' specifies nothing about the event in terms of either its Aktionsart or valence; all it specifies is that the event is active or dynamic: that it is not a state. This category contains both telic and atelic, intransitive and transitive complex motion verbs. Three of the four other ambitransitive categories, marked by -ø 'give', -ANDI 'get' and -KA 'carry' contain mainly transitive verbs of motion; the only motion verb in the -MA 'put' category is, unexpectedly, intransitive; I have no explanation for this collocation.

(iii) MANNER OF MOTION. These are CVCs involving a PV that provides specification of the manner of motion, and usually also of the fact of motion itself. About a score of PVs (simple roots and derived stems) and five IVs are

Table 4.5 *Complex manner-of-motion verbs*

IV	PV	Meaning of collocation
-ARNDA 'go'	*bubub*	'float along'
	dulmarra	'fly'
	inyj	'go, travel'
	kudiji	'walk'
	jawu-ngkay	'float/swim along'
	jurrb-barri	'jump along'
	kudiy	'run along'
	yardab-ngkay	'crawl along'
-KA 'carry'	*jamajama*	'cart along'
	julaj	'carry under arm'
	kurndu	'carry on shoulders'
	rad	'blow something along'
-JI 'say, do'	*burrb*	'dance'
	inyj	'go, walk'
	jawu	'swim'
	jurrb	'jump'
	kalyu	'crawl'
	kudiy	'run'
	yardab	'crawl'
-NGA ∼ -NA 'sit, be'	*burrb-ngkay*	'be dancing'
	jurrb-ngkay	'be jumping'
	munay-ngkay	'be moving'
	jili	'spill out'
-ANDI 'get'	*dalyarr*	'begin slipping'
	dulmarra	'start flying, fly off'
	julaj	'lift up and carry under arm'
	jurrb	'jump down'
	kudiy	'start running, run away'

attested in some twenty-five CVCs. In addition to the two generic motion IVs -ARNDA 'go' and -KA 'carry', the non-motion IVs employed are -JI 'say, do', -NGA ∼ -NA 'sit, be' and -ANDI 'get'. The full list of known PV–IV manner-of-motion collocations is shown in Table 4.5. Just as the PV in a complex oriented motion verb normally specifies the orientational component of the meaning, so also in complex manner-of-motion verbs does the PV specify the manner of motion. Most complex manner-of-motion verbs are atelic, the only exceptions being those assigned to the -ANDI 'get' category, which specify commencement of motion performed in the specified manner. Most are intransitive, the only exceptions being the three PVs assigned to the -KA 'carry' category and

Table 4.6 *Complex orientation/manner-of-motion verbs*

IV	PV	Meaning of collocation
-ARNDA 'go'	*jakard-kay*	'be sneaking up on'
-KA 'carry'	*kilay*	'chase after'
-JALU 'fall'	*jidlarra* *lulya*	'fall down/over' 'fall' (like a 'leaf')
-BULA 'emerge, arrive'	*kudiy* *kudiykudiy*	'run away' 'run away'
-BALYA 'approach'	*jakard*	'approach sneakingly'
-JI 'say, do'	*jakard* *yalaj*	'sneak up on' 'sneak up on'
-ø 'give'	*kilay*	'chase after'

one PV assigned to the -ANDI 'get' category, *julaj* 'lift up and carry under arm'.

For intransitive complex manner-of-motion verbs, the prototypical motoric pattern involved in the motion is specified, which is sometimes peculiar to the medium in which motion occurs. For the few transitive complex motion verbs, the manner is the specified fashion of carrying, according to the location of the carried thing on the carrier's body, or the medium that does the moving (in the case of blowing).

(ii)/(iii) ORIENTED and MANNER OF MOTION. A small but not insignificant class of CVCs specify both manner and path of motion; these are listed in Table 4.6. These complex motion verbs show a considerable range of categorizations, given their small number. It is notable that the three generic categories (marked by -ANDA 'go', -KA 'carry' and -JI 'say, do') account for a slightly smaller fraction of the complex verbs of motion than they do in the case of complex oriented and manner-of-motion verbs. The remaining six complex verbs of motion are assigned to more semantically specific categories – in six cases marked by IVs of oriented motion, in one case by a non-motion IV.

4.4.3 Use of motion expressions in Warrwa

Extended example (50) is one speaker's description of the cliff scene, depicted on pages 15–18 of the picture storybook *Frog, where are you?* (Mayer 1969).

The previous two sentences (describing p. 14) had described the owl watching the child, who had climbed up on a rock, and the dog as frightened.

(50) Excerpt from *Frog, where are you?* narrated by Maudie Lennard, Derby, 1999

(p. 15) a. *ningarra -mirri, warany -ma birrki-wudany -ma*
true -EMP other -ERG horn-AG -ERG
ø-bula-ny-jina kinya baawa,
3:MIN:NOM-arrive-PER -3:AUG:OBL this child

b. *kaliya nga-na-ø-n -ju*
finish 1:MIN:NOM-give-PRES -2:MIN:ACC
ka-na-ng-ka -yu ngayi
1:MIN:NOM:FUT-TR-EN-carry -2:MIN:ACC I
-na,
-ERG

c. *ø-j-an -jina, nyin -ma*
3:MIN:NOM-say-PRES -3:MIN:OBL this -ERG
birrki-wudany -ma,
horn-AG -ERG

d. *yila jina, jimbin jada yaalu i-nga-n,*
dog his inside still stand 3:MIN:NOM-be-PRES

a. 'Truly, some horned animal came up to the child'
b. "I'll take you"
c. 'said the horned one to the child'
d. 'His dog is still standing below'

(p. 16) e. *kaliya kurrak ø-j-an -ngany,*
finish leave 3:MIN:NOM-say-PRES -APP

f. *kaliya ø-na-ngulu-ny yab, birrki-wudany*
finish 3:MIN:NOM-TR-send-PER away horn-AG
-ma,
-ERG

g. *yila jina jimbin ø-ngi-rr-wani-n -bili,*
dog his inside 3:NOM-PA-PL-sit -DU

e. 'He got going with him'
f. 'the horned one carried him away'
g. 'the dog (and boy) are below'

(p. 17) h. *nyinka laj ø-j-an wila -n,*
this throw 3:MIN:NOM-say-PRES water -LOC

i. *dumbu -nma, kilay ø-na-ng-ka-n,*
owl -ERG chase 3:MIN:NOM-TR-EN-carry-PRES

j. *laj ø-j-an jimbin, wila -n,*
throw 3:MIN:NOM-say-PRES inside water -LOC

k. *laj ø-j-an -jirr -wili*
throw 3:MIN:NOM-say-PRES -3:AUG:ACC -DU
kaliya wila -n, dukurr,
finish water -LOC hang

h. 'He throws him in the water'
i. 'The owl is chasing him'
j. 'He is throwing him down into the water'
k. 'He is throwing the two of them into the water; (they are) hanging'

(p. 18) l. *yangki-ngany, jurrb ø-nu-ngka-yi wila*
what-INST jump 3:MIN:NOM-TR-FUT-say water
-n, yangki -ngany,
-LOC what -INST

m. *kaliya burlngurru laj ø-ji-ny wila*
finish middle throw 3:MIN:NOM-say-PER water
-n,
-LOC

n. *jawu ku-rr-a-yi -ngany -bili kaliya,*
swim 3:NOM:FUT-PL-TR-say -APP -DU finish
yangki -ngany,
what -INST

l. 'He's gotta cross over to the other side'
m. 'He (the boy) was thrown into the middle of the water'
n. 'They will have to swim across to the other side'

Three of the six clauses of motion are transitive (lines b., e. and f.); of the remainder, two are intransitive (lines l. and n.), while just one is middle (line a.). Four clauses have compound verbs of motion (lines e., f., l. and n.); two have simple verbs of motion (lines a. and b.) – exactly the proportions one would expect, given the overall relative frequencies of the two types of motion verbs.

Line a. introduces the deer into the scene in a middle clause with IV -BULA 'emerge, arrive', which describes the deer coming up to the boy. Then in line b. the deer offers to give the boy a ride; this is encoded in a direct quote (indicated by line c.) involving the simple generic transitive verb of motion -KA 'carry'.

A compound motion verb with PV *kurrak* 'leave, set off' and generic IV -JI 'say, do' – which categorizes the motion event as simply active (unspecified for Aktionsart and transitivity) – describes the motion of the deer carrying the boy away, in line e. The clause is again transitive, this being indicated by the applicative suffix to the IV (without the applicative, the same collocation is intransitive and means 'get going'). In the following line another transitive clause is used, describing the deer as sending the boy away; this is not a clause of motion, according to the (etic) criteria adopted in this paper, since motion of the subject is not implied (though it is not precluded); rather it is a clause of caused motion.

Lines h.–k. describe the scene of page 17 in which the dog and boy have been launched off the cliff. First, in line h. we have a transitive clause with a CVC of caused motion involving the PV *laj* 'throw' and the IV -JI 'do, say'; this describes the throwing of the boy. This is repeated in line j. with the specification of direction downwards and to the water, and again in line k., with the further specification that both boy and dog have been thrown. In line i. we also have a transitive clause of motion with compound motion verb describing the owl chasing after the boy.[15] This type (ii)/(iii) compound motion verb involves the PV *kilay* 'chase' and IV -KA 'carry'.

Also interesting in line k. is the isolated occurrence of the PV *dukurr* 'hang', which describes the unsupported position of the boy and dog in the air in this scene, as they free-fall towards the water. This (and other evidence) suggests that *dukurr* 'hang' in Warrwa is used to refer to the positioning of an entity that is not supported from below; in contrast with English *hang* which requires some support usually from above (cf. however 'hang in midair'), *dukurr* does not specifically imply support from anywhere.

Line l. ascribes to the boy the intention of jumping from his position in the midst of the water to the (other) side. Again a compound verb of motion is used, also with the generic IV -JI 'say, do'. Line m. is a flashback to the throwing of the boy into the water – now, specifically, to the middle. (The presence of *kaliya* 'finish' signifies completion of this event, as does perfective aspect in the IV: compare use of the present in the contemporaneous descriptions of p. 17.) Finally, line n. indicates the intention of the two protagonists, the boy and the dog, to swim to the other side, expressed by a compound verb of motion with *jawu* 'swim' and -JI 'do, say'. (Note that in this CVC the applicative marker conveys an intentional sense and does not indicate an increase in transitivity of the clause.)

[15] This is obviously a misinterpretation of part of the drawing: the speaker has had many problems with cataracts.

4.4.4 Concluding observations

To conclude the discussion of motion verbs, some remarks are in order on the position of Warrwa in Talmy's typology of verb-framed and satellite-framed languages (Talmy 1985, 1991). The typology is based on the predominant locus of encoding of path notions. In verb-framed languages, path, but not manner, is encoded along with the expression of motion itself, in the verb. In satellite-framed languages, manner is conflated with motion in the verb, while path notions are expressed outside of the verb, in satellites. Verb-framed languages include, among others, Romance languages, Semitic languages, most Mayan languages and Japanese; satellite-framed languages include Germanic languages, Finno-Ugric languages, Chinese and Warlpiri, according to Talmy 1991: 486.

The situation in Warrwa may be summarized as follows. In the case of simple motion verbs the IV itself serves as locus for both the notions of motion and of path. In perhaps one instance, -BUR 'blow (of wind)', the notion of figure (and/or perhaps manner) is combined with motion; and in another two, -NGUNDU 'carry on upper body' and -RDARDA 'chase, hunt away', manner would seem to be encoded. Although the status of two of these as motion IVs is uncertain, -NGUNDU 'carry on upper body' is clearly a motion IV, and it follows that the division of labour between PVs and IVs in Warrwa is not as clear-cut as in Jaminjung where IVs can encode only end-anchored paths (Schultze-Berndt this volume), and manner and direction are exclusive to coverbs (i.e. PVs). Other notions, including causation and association ('motion in the company of'), can also combine lexically with the notion of motion in IVs, as in, e.g., -MA 'put' and -KA 'carry', respectively.

In the case of compound motion verbs, the PV almost always provides lexical specification for the fact of motion; it also serves as the usual locus for expression of path and manner, which, as we have seen, are sometimes conflated in a single PV. True, in some cases the PV itself appears not to specify motion, as seems to be the case for *bubub* 'float', and perhaps also for *burrb* 'dance', and occasionally the category specified by the IV may arguably express path, by virtue of the vectorial configuration it encodes.[16] However, no verbal category seems to express motion as a part of its inherent meaning: they always have more abstract meanings. In those cases where the PV does not express motion either, it would seem that the fact of motion is expressed (or implied)

[16] I repeat that it is necessary to consider the meanings located in the categories marked by the IV rather than the meanings of the IVs themselves, which are not invoked in CVCs (as argued in McGregor in preparation). Even if one were to insist on the lexical meaning of the IV rather than the category, we would find that only in combinations involving three of the nine IVs – accounting for just under half of the compound motion verbs – is motion expressed in the IV itself.

by the combination of the two units. For instance, combining *bubub* 'float' with -ARNDA 'go' – which, although in an SVC always designates a motion event, marks a category that does not necessarily imply motion (see Table 4.4 above) – gives rise to a compound motion verb with the meaning 'float along'. The motion component arises as a consequence of the fact that the category marked by this IV indicates, as an inherent part of its meaning, progress and change over time, that the event is non-static. Categorizing *bubub* 'float' in this way engenders the motion interpretation.

Under the assumption commonly made by Australianists that the IVs are the verb roots, Warrwa cannot be a verb-framed language. Consistent with this, expressions of manner of motion are not infrequent in motion clauses in Warrwa texts – by contrast, in typical verb-framed languages expressions of manner are comparatively rare.

So is Warrwa a satellite-framed language? The answer to this obviously depends on whether it is reasonable to regard PVs as satellites. It is by no means obvious that it is, as also observed by Eva Schultze-Berndt in regard to Jaminjung (Schultze-Berndt this volume). According to Talmy (1991: 486), a satellite is 'the grammatical category of any constituent other than a nominal complement that is in a sister relation to the verb root'. Elsewhere he adds the requirement that '[t]hey relate to the verb root as periphery (or modifiers) to a head' (Talmy 1985: 102). These are not easy criteria to apply in practice, as they invoke highly contentious notions of sisterhood (constituency), and dependency (see McGregor 1997a: 54–8, 64, and McGregor 1998b for some discussion of the issues). Certainly there is no reason to believe that the second requirement is met, that PVs serve as modifiers of IVs that in turn serve as heads of the CVCs. For it is the PV alone that occurs in non-finite contexts; infinitival forms of IVs are restricted to non-finite verbs corresponding to SVCs. And semantically the PVs clearly do not modify IVs (see further McGregor 2002b).

Nor, under the stringent semiotic conceptualization of constituency advocated by McGregor (1997a) would PVs be sisters of the IV. True, under the semiotically unconstrained notions of constituency most linguists adopt, PVs could fall into the class of satellites.[17] But notice that this raises difficulties. For one thing, if Warrwa is satellite-framed, it contrasts with English and other satellite-framed languages in the respect that both motion and path would have their locus in the same unit – the PV – contrary to Talmy's ternary typology (Talmy 1985: 74–5). For another, as Schultze-Berndt (this volume) observes,

[17] A better case could be made for treating the adverbials *yab* 'away' and *bawunaarra* 'hither' as satellites. It is not unreasonable to see them as dependents of the motion verb they occur with (which may be either simple or compound). However, the existence of two such items is insufficient to tip the balance in favour of Warrwa as a satellite-framed language, any more than the existence of a few verbs like *exit* in English makes English a verb-framed language.

the class of PVs is open, thus conflicting with the presumption that satellites are closed-class items.

It can only be concluded that Warrwa, like Jaminjung (Schultze-Berndt 2000, this volume), falls outside of the verb-framed vs. satellite-framed typology of motion verbs. A single lexical class, namely PVs, encodes both manner and path, and there is no justification for identifying words of this class as satellites.

4.5 Frames of reference

As is well known, Australian languages typically make use of absolute, rather than relative, speaker-based, frames of reference, as is the norm for European languages. Warrwa is unexceptional in this regard, and speakers do not use an egocentric system distinguishing left and right in terms of the speaker's body as centre, to specify a search domain for a figure with respect to a ground. The terms for 'left' and 'right' are sometimes used in specifying a hand, or a person's handedness, but little else, certainly not in specifying location or direction in terms of an angle with respect to a ground. This seems to be the case even if the figure and ground are both on, or in the immediate vicinity of, the speaker's body. That is to say, even in highly local circumstances the terms for 'left' and 'right' are not used to specify a search domain.[18] In fact, at least in modern Warrwa, it seems that coordinate systems are rarely invoked to provide angular and orientational information. Usually only topological information is provided: the figure is simply located with respect to the ground, by the resources described in Section 4.3, and without any specification of angular relations. I have never heard utterances such as 'the book is to your left', or 'the boy is to the left of the tree': usually either an adverbial specifying proximity will be used, or a derived nominal meaning 'this side', 'that side', 'one side', etc., as in (51), describing the 'boy next to fire' scene (TRPS 38). Sometimes, though not commonly, an absolute frame of reference is invoked.

(51) *jurrung* *i-nga-ni-ny*, *nyin-kardiny*,
do:that:way 3:MIN:NOM-PA-be-PER this-side
i-nga-n,
3:MIN:NOM-be-PRES
'He is sitting like that, this side'

The absolute frame-of-reference system used in Warrwa employs the cardinal directions, as in many Australian languages, including all other Nyulnyulan

[18] Nevertheless, the English terms *left* and *right* were used quite frequently by both speakers when speaking English. This was quite striking in the performance of some of the stimulus tasks, where *left* and *right* were not infrequently used in providing English explanations and descriptions, though never in the corresponding Warrwa utterances.

languages (e.g. Nyikina (Stokes 1982), Yawuru (Hosokawa 1991), Bardi (Aklif 1999) and Nyulnyul (McGregor 1996)), and, further afield, Arrernte (Wilkins this volume) and Guugu Yimidhirr (Haviland 1979: 74–87, Levinson 1997a and many others). A water-flow-based absolute system, such as exists in Jaminjung (Schultze-Berndt 2000, this volume) is not in evidence in Warrwa (or in any other Nyulnyulan language), although such a system coexists alongside the cardinal system in nearby Bunuba (Rumsey 2000) and Gooniyandi (McGregor 1990a), as well as various Pilbara languages (Dench 1995: 127f.). Nor is there any memory of such a system. Given that Warrwa country is intersected by two rather large rivers, the absence of a water-flow-based system seems somewhat surprising, as is its absence in Nyikina, whose territory is intersected by the largest river in the Kimberley.[19]

The cardinal direction terms are, like the terms for vertical directions, adverbials, rather than nominals (as in Arrernte – Wilkins this volume). Unlike nominals, cardinal direction terms occur in their plain form (unmarked by the locative postposition) when used to specify location; they also exhibit morphological peculiarities distinguishing them from nominals. (The reasons for regarding them as adverbials rather than nominals are substantially as discussed in §3.2 above.) Just four cardinal directions are distinguished:[20]

yarday ~ *yawan*	'north'
yalmban	'south'
banu	'east'
kularr ~ *wardiya*	'west'

As the small size of the system suggests, each term covers a rather wide range of actual directions; as far as I can tell, virtually any direction could be referred to by one of the terms. Speakers never combine two terms to obtain compounds like English *south-east* and *west-north-west*, and so forth (see Wilkins this volume: footnote 9). Pointing gestures are used to specify the actual direction more precisely. Each directional term thus covers roughly a quadrant; however, it seems that within this quadrant some directions are more prototypical than others. Figure 4.2 attempts to illustrate the situation graphically. The outer circle of dots represents localities in respect of a speaker whose position is marked by X. The largest dot represents what I understand to be approximately the prototypical cardinal direction: these are the directions towards which speakers normally pointed when asked 'Which way is north?', etc. The dots get progressively smaller as one moves away from them, indicating that the directions are

[19] Given the complete absence of a water-flow-based system in Nyulnyulan languages, it seems unlikely that its absence in Warrwa can be attributed to lexical or grammatical attrition accompanying language moribundity.

[20] It is not known in what respect the alternative forms for 'north' and 'west' differ; indeed, they appear to be in free variation.

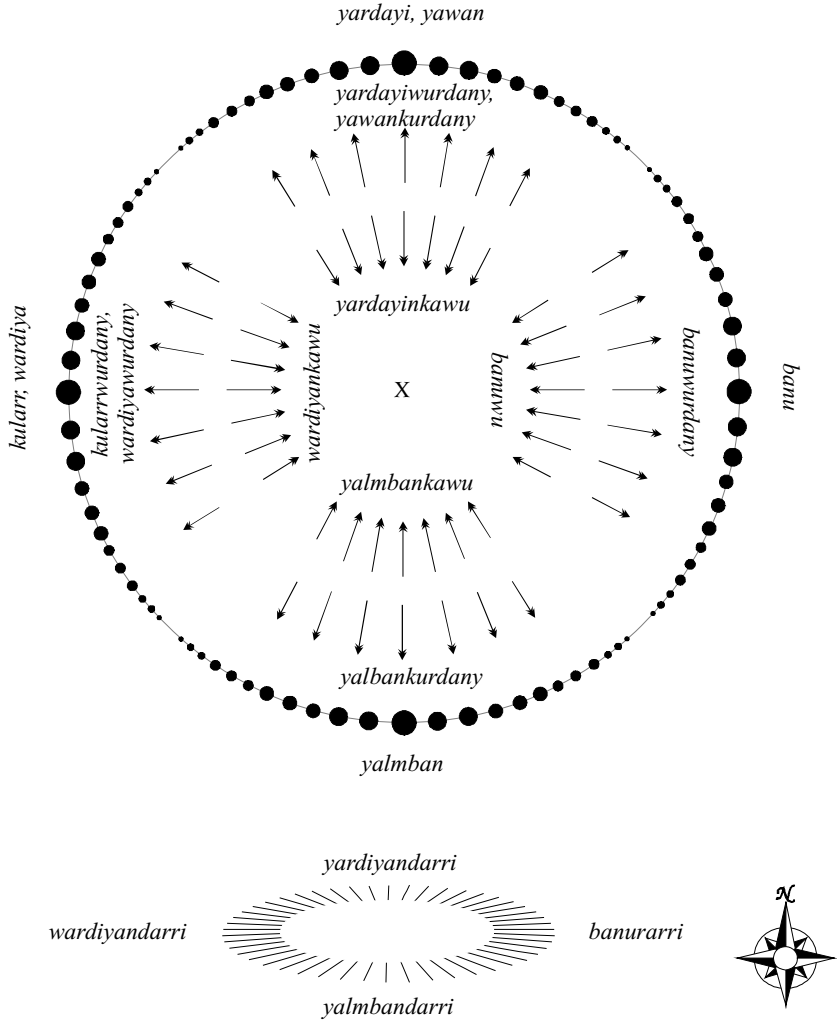


Figure 4.2 The Warrwa system of cardinal directions

becoming successively less 'good' instances of the cardinal direction. Small gaps have been left between the quadrants on the hunch that these might either not be labelled by a cardinal at all, or might be alternatively designated by two. I hasten to add that these observations are impressionistic, based on limited observation of use, rather than on systematic checking with speakers. Thus it is possible that there are differences in the size of the domains covered by each term, and quite likely the focal direction for each does not coincide with the

focal cardinals in English (which also, of course, differ according to whether the magnetic or grid system is employed), as seems to be the case in Arrernte (David Wilkins, p.c.). Figure 4.2 also displays three forms for each cardinal, direction towards, direction away from, and side or aspect of a physical entity. The arrows in the upper figure represent the direction towards and direction from forms; their length is intended to suggest the goodness of fit to the prototypical cardinal direction. These can be used in specifying direction of motion, as in examples (52) and (53), or the direction in which an event was oriented, for instance, the direction someone or something looked, as in (54), used in a description of the 'cat underneath table' scene (TRPS 31).

(52) *banu-kurdany inyja nga-rnda-ny nguy*
east-COMIT travel 1:MIN:NOM-go-PER return
nga-ndi-ny yarday-kurdany
1:MIN:NOM-PER north-COMIT
'I went east and then turned north'

(53) *wardiya-nkaw ø-bula-ny*
west-ABL 3:MIN:NOM-emerge-PER
'He came from the west'

(54) *minyaw mijala i-nga-n kanyjirr-ngkaya*,
cat sit 3:MIN:NOM-be-PRES look:at-CONT
banu-kudany, *bawunaarra*, *mayi-ina kab*,
east-COMIT this:way food-AG eat
'The cat is sitting looking eastwards, this way, (being located) at the table'

Interestingly, when objects are located with respect to a different centre from the speaker, the directional forms are used, thus invoking as it were figurative or metaphorical motion from that centre towards the figure. Both the 'direction towards' and the 'direction from' forms are used in this way, as illustrated by the following two examples. In (55), the addressee is located with respect to an entity in the physical environment – actually the Men and Tree photographs (see Chapter 1, §1.4.2) arrayed in front of the speaker and hearer – both by cardinal direction, and in terms of his orientation with respect to that table, from the speaker's point of view. In (56), a third person is chosen as the reference point, this being the person who is cross-referenced by the oblique pronoun to the IV. Notice that in both cases there is no free expression designating the centre, which is not specified in a syntactic construction involving the adverbial, as is the case in Arrernte (Wilkins this volume).

(55) *juwa yarday-wurdany mi-nga-n ngulumba*,
you north-COMIT 2:MIN:NOM-be-PRES ahead
'You are to the north, in front (of it)'

(56) *bur -an i-nga-n -jina yarday-ankaw*,
place -LOC 3:MIN:NOM-be-PRES -3:MIN:OBL north-ABL
'It is in the region to the north of him'

The lower drawing in Figure 4.2 shows the 'side' forms: these are used in reference to aspects or faces of a physical entity such as a house, hill, waterhole, etc., that are oriented towards the cardinal direction – e.g. 'the north side of the house'. Explicit mention of this entity is not normally made in the expression containing the cardinal adverbial.

Notice that the 'direction towards' forms use the comitative derivational suffix *-kurdany* ∼ *-wurdany* rather than the allative postposition. With one exception, the 'direction from' forms involve one of the two ablative postpositions; the exception, 'from the east', involves a quite irregular ending, in which the first syllable of the ablative is truncated. Finally, the 'side' forms involve the suffix *-ndarri* ∼ *-rarri*, which is not found elsewhere.

Compared with many Pama-Nyungan languages including northern Western Desert varieties such as Kukatja and Wangkajunga, the cardinal adverbials in Warrwa seem more restricted in distribution and less frequent in use. They are not attested in distinguishing parts of the body, as in, e.g., 'my north hand', as is possible in Kukatja and Wangkajunga (see McGregor 1999a: 227 for a Kukatja example from Peile n.d.). They are used in reference to location and motion in geographical space (e.g. (52) and (53)), as well as in tabletop space and in descriptions of drawings (as in (54)). But in neither context are they particularly frequent, and my impression is that they are far less often employed than cardinal adverbials in Gooniyandi. A corpus of about fifty narrative texts, amounting to about 1,200 sentences, showed only about sixteen instances of cardinals – roughly one per seventy-five sentences. Other types of adverbial specifying topological relations and intrinsic frames of reference, along with PPs, shoulder the main burden of orientation specification.

In the narrative corpus the bulk (90 per cent) of cardinals were used in the specification of direction of motion; in only a single instance was a cardinal used in location. The one instance of a cardinal in the descriptions of the TRPS pictures involved direction of gaze (example (54) above).

The Men and Tree stimuli proved difficult to use in the Warrwa field context. It was not possible to administer it in the prescribed manner, due to problems in setting up an interaction between the then two remaining speakers. Hence I gave it to each separately, saying that I wanted them to describe the photographs in such a way that their sibling would be able to identify the one they were speaking about when arrayed in the same pattern. It proved difficult to explain this, and neither speaker showed much motivation to perform the task as described. Not only did the problem of distinguishing between the various minimal pairs appear to be of little interest to them, but in a number of cases one or the other maintained that photographs were identical when they depicted the same

individual facing in the same direction with respect to the tree or the speaker, but standing on the opposite side of the tree, as in the case of Men and Tree photographs 2.7 and 2.8. In the Men and Tree corpus just a small number of cardinals were used – see also Wilkins this volume, who remarks that use of cardinals by Arrernte speakers diminishes significantly when both participants are sitting together viewing the same set of photographs, which was the actual situation in which the Warrwa data was gathered (the linguist being the other physically present interactant).

In all utterances elicited from the Men and Tree stimuli, cardinals were used for specifying location; they were never used in this task to indicate direction of gaze or orientation of a person's body, as was sometimes done in Arrernte (see Wilkins this volume, example (20)). Thus the use of cardinals in this circumstance proved rather different from their use in narratives. In all cases some entity in the photograph was chosen as ground, and a figure located in a cardinal direction with respect to that as centre. Thus, direction forms of the cardinal adverbials were used, rather than the root forms. Illustrative examples are:

(57) *yalmban-kudan yaalu i-nga-n wardiya-wurdany yaalu*
south-COMIT stand 3:MIN:NOM-be-PRES west-COMIT stand
i-nga-n, *wardiya*,
3:MIN:NOM-be-PRES west
'It is standing to the south; it (the other) is standing to the west'

(58) *rirrban i-nga-n baalu*, *baanu-wudany*,
sideways 3:MIN:NOM-be-PRES tree east-COMIT
'The tree is beside (it), to the east'

In fact, it was only the younger speaker who used the cardinal system at all in describing the Men and Tree stimuli. The older speaker never employed it; indeed, he never employed cardinals describing any depictions on paper. On one occasion when I attempted to test the acceptability of a description using a cardinal adverbial his response was that he could not tell, since he did not know what the directions were in the depiction: he was unwilling, that is, to employ the real-world absolute frame of reference in the description of a depicted scene. This might well be a consequence of his high level of familiarity with the printed medium.

As mentioned above, the main way of specifying the location of one entity with respect to another in Warrwa is by one of the adverbials of topological relations. Use of these adverbials was one of the main ways of describing the relative orientations and locations in the Men and Tree photographs.

Other methods were, of course, employed to distinguish amongst the photographs, perhaps the most common one being to specify the direction of gaze of a person relative to a tree. One way in which Photos 2.3 and 2.4 were distinguished was, respectively, by:

(59) *nyinka baawa yaalu i-nga-n*, *baalu kanyjirr*
this child stand 3:MIN:NOM-be-PRES tree look
ø-ngira-n *-jina*, *nyin*, *baawa*,
3:MIN:NOM-become-PRES -3:MIN:OBL this child
'This child is standing here looking at the tree'

(60) *nyinka marlu kanyjirr wi-l-ngira-n* *-jina*
this not look 3:MIN:NOM-IRR-become-PRES -3:MIN:OBL
baalu,
tree
'The (other man) is not looking at the tree'

Very occasionally an intrinsic frame of reference was used in which the tree was located with respect to a part of the body of the person; but notice that the intrinsic frame of reference was that of the most featured entity, thus invoking a figure–ground reversal. One of the few instances of this occurred in the description of Photo 2.4, specifying the tree as being to the back of the man:

(61) *nyin baawa*, *ninji yina -n* *baalu*, *kanyjirr*
this child back his -LOC tree look
ø-ngira-n *-jina* *buru*,
3:MIN:NOM-become-PRES -3:MIN:OBL place
'This child has his back to the tree; he's looking at the ground'

In conclusion, it seems that Warrwa speakers tend to avoid employing any frame of reference, absolute or relative, for the specification of location and motion. Warrwa seems to lie towards the lower end for Australian languages both in the grammatical elaboration of the absolute frames of reference and in their frequency of use. Whether this is a consequence of the highly endangered situation of the language cannot be known for certain; further investigation of its more viable neighbours Nyikina and Yawuru may shed light on the situation. If these languages also show a tendency to use topological relations over frames of reference, this would suggest that the current situation for Warrwa is not much different to the pre-contact traditional situation. Like Arrernte – but unlike geographically proximal Gooniyandi – the adverbials specifying horizontal and vertical angles appear not to belong to the same lexical-grammatical system. However, in contrast to Arrernte, the Warrwa terms are all adverbials, but differences exist in terms of the specification of the directional forms, and in the usage of the two systems.

4.6 Conclusion

In this paper I have described some of the lexical and grammatical resources available to Warrwa speakers for spatial descriptions and attempted to give some

inkling into how they are deployed in practice. Perhaps the biggest challenge to the investigation has been the moribund state of the language. Throughout the duration of my field investigations there was no viable speech community: speakership was represented by two aged persons who did not interact on a daily basis, who, as different-sex siblings did not enjoy free and easy social intercourse. As pointed out, this hampered the effective use of some stimuli developed specifically for the space project, in particular preventing anything of an interactive dialogic nature.

Both speakers were born and raised on Meda cattle station, where they lived most of their adult lives in employment as station workers; for the past twenty or so years they have lived in retirement in Derby. Thus they have had significant contact throughout their lives with Europeans and the English language – as well as other Aboriginal languages, notably closely related Nyikina. Neither speaker was brought up in a Warrwa cultural milieu; their knowledge of the culture is by report, rather than by lived experience. Nor was either speaker versed in traditional lore, and narratives tracking movement of protagonists from named place to named place – so characteristic of more viable cultures in the Kimberley region – are noteworthy for their absence. Nevertheless, it would seem that the spatial resources were sufficiently robust to remain intact; when speaking Warrwa, there is little evidence of significant influence from the English system of spatial grammar, although it is clear that both speakers had control of the English system. On the other hand, these considerations argue for caution in accepting any conclusions; the limitations of the investigation must be borne in mind – our degree of confidence in statements about Warrwa spatial grammar cannot be as high as for other languages discussed in this book, including the two other Australian languages, which enjoy more viable speech communities.

Three important aspects of spatial grammar have been dealt with: topological relations, motion and frames of reference. Like many languages of the Kimberley region, Warrwa has a single generic locative postposition with a highly abstract meaning, and covering a wide range of spatial configurations, expressed by various prepositions in English, including ‘at’, ‘in’, ‘on’, ‘by’, etc.; greater precision can be achieved by use of an accompanying adverbial. These adverbials show not just static relation senses, but also orientational (‘-wards’) and regional senses; however, unlike their counterparts in Arrernte (which are nominals, not adverbials), they are not used in reference to parts of wholes. A construction involving the inflecting verb -NGA ∼ -NA ‘sit, be’, perhaps acting as a copula, was identified as the basic locative construction; verbless expression of location is possible, though uncommon. The BLC can be used in describing most of the TRPS pictures, with the exception of the most marked arrangements such as ‘apple on skewer’ (Picture 70), for which more contentful verbs were invariably used.

In the description of motion, Warrwa uses both simple verb constructions (consisting of just an inflecting verb) and compound verb constructions

(consisting of a preverb and an inflecting verb). About a fifth of the sixty-odd IVs are verbs of motion, and these cover mainly generic motion and oriented motion; there is, however, at least one manner of motion IV. Compound manner-of-motion verbs cover oriented motion and manner of motion; a number also express both path and manner. Motion deixis is encoded in Warrwa by adverbials, not by IVs or PVs.

Significantly, we do not find in Warrwa a clear compartmentalization in the expression of manner and orientation into different parts of speech: both have their most significant loci in the class of PVs, and to a lesser extent in IVs. Partly because of this, and partly due to problems in characterizing the notion of satellite, it was argued that Warrwa falls outside of Talmy's verb-framed vs. satellite-framed typology of motion expressions.

As in Australian languages generally, Warrwa employs an absolute frame of reference based on cardinal directions, compass points, rather than a relative one as employed in English. This coordinate system, however, appears not to be as extensively used as in some other Aboriginal languages, including Arrernte; there is no evidence that it was or is used in reference to small-scale configurations, where other resources are deployed. In describing Men and Tree stimuli, speakers quite frequently provided only topological information and showed little interest in distinguishing between minimal pairs of photographs that were mirror images down a vertical axis through the middle of the photograph. This may, of course, be a result of the way the test was administered; but it may also be significant that speakers sometimes stated that such minimal pairs were the same, suggesting that they were more sensitive to intrinsic features of figures and grounds than to values of angles subtended.

5 The language of space in Yélî Dnye

Stephen C. Levinson

5.1 The language and culture of Rossel Island

Rossel Island lies at the eastern end of the Louisiade Archipelago, the last landfall in Milne Bay Province, Papua New Guinea. Its remote location in difficult seas has limited outside influence, nevertheless Rossel has always been part of a wider island network, for example feeding shell necklaces into the Kula ring.[1] Before the Second World War, one Australian family ran a coconut plantation there for forty years. Since the war, Rossel labour has been used on the mainland, and the United and Catholic churches have run effective mission stations, bringing primary education in English to most children. Trade stores are badly supplied, and Rossel belongs only marginally to the cash economy, producing small amounts of copra and sea produce. Subsistence agriculture is based especially on sago, taro and yams, with protein from the sea. The population stands at about 4,000.

Both the language and the culture of Rossel are distinct from the Austronesian cultures on surrounding islands. Rossel canoes, houses, song styles, traditional dress and ornament are all distinctively alien to the surrounding peoples, and the language is regarded as unlearnable by outsiders. Rossel culture is built on a matrilineal clan system with theoretical ownership of land and sacred places running in the matriline, but with practical inheritance of land based on patrilocal residence in small hamlets. It has a renowned system of shell money, the focus of anthropological investigations by Armstrong (1928) and Liep (1981, 1983, 1989a, b).

Yélî Dnye, 'Rossel language', is the primary language of day-to-day communication (in the literature it is variously known as Yele, Yela, Yeletnye or Rossel). Melanesian pidgin English (Tok Pisin) is not spoken much, although the pidgin based on Motu used to have some limited currency. Many people

My thanks are due to Isidore Yidika, my principal assistant, and to Jim Henderson for detailed comments on this paper.

[1] The symbolic exchange system linking many islands in Milne Bay Province (Leach and Leach 1983). Rossel always lay outside this system but participated by providing valuable shells to neighbouring Sudest, and gaining in return pottery and stone axe valuables.

have some knowledge of the languages on surrounding islands, especially Misima and Sudest, but English is the main secondary language in the Province as a whole. Yélî Dnye is a language isolate, whose relations to any other languages are completely obscure. It is clearly not Austronesian, with very few discernable loans or influences, and has many features associated with the mainland 'Papuan' (i.e. non-Austronesian) languages (e.g. free phrase order with verb-final tendencies). Wurm (1982) set up an East Papuan phylum, to which the Rossel language is supposed to belong, but the reasoning is not explicit and no evidence is provided. On the other hand, parallels in the pronouns and the semantic basis for many grammatical categories suggest links to the mainland, especially perhaps to the Gorokan languages. The Rossel phoneme inventory is peculiarly large, but some of the same distinctions (e.g. prenasalization, labio-velar segments, etc.) can be found in mainland languages. Whether the Rossel language is a relict of a much larger island population now submerged under a sea of Austronesian (as Capell 1969 and others have suggested), or whether its speakers were successively pushed down from the Highlands and out to sea by the Austronesians (as Wurm 1982 seems to suggest) is an issue that may perhaps be resolved by the study of human genetics in the future.

5.2 Some salient features of the grammar

Yélî Dnye has distinct western and eastern dialects, and the following description is based on the eastern dialect which is the basis for a bible translation, a short grammar and dictionary by the SIL linguists James and Anne Henderson (Henderson 1995, Henderson and Henderson 1999). I have adopted Henderson's (1995) practical orthography together with his analysis of the complex tense/aspect system in what follows.

Phonology

The language has a large and complex phoneme inventory (ninety segments by traditional criteria), with a number of sounds apparently unique in the languages of the world (e.g. a full series of stops with simultaneous bilabial closure; see Ladefoged and Maddieson 1996: 334), and in this respect is unlike any other Papuan language (cf. Foley 1986). Consonants have four places of articulation (p, t, ṭ, k), and five 'manners' of co-articulation (simultaneous bilabial closure, prenasalization, nasal plosion, palatalization, labialization or labialization plus palatalization), yielding fifty-six segments (since not all possibilities are realized). There are no consonant clusters, and this allows us to write single consonants with up to four characters in a normal orthography that truncates

many IPA multigraphs. The vowel system has five front vowels, four back ones and two mid vowels, multiplied by phonemic length and nasalization, yielding thirty-four distinctive segments (Henderson 1995: 3, Levinson in preparation; the maximum attested in any other Papuan language seems to be eight vowels, see Foley 1986: 54). The whole phonemic system is one of the most unusual to be found, and almost certainly the most complex in the Pacific. For the interpretation of the practical orthography see Henderson (1995), and for the phonetic details see Maddieson and Levinson (in preparation).

Morphology and syntax

Parts of speech include nouns, verbs (morphosyntactically distinguished as transitive, intransitive), adjectives, adverbs, pronouns and demonstratives, quantifiers, postpositions, pre- and postverbal particles indicating tense/aspect/person, etc., and minor form classes such as sentential connectives, quotatives, etc.

The morphology is very reduced by virtue of the fact that most inflectional functions are indicated by particles or free morphemes, which subsume multiple grammatical categories (like person/number/aspect/tense) in single portmanteau morphs. There are a few bound morphemes, such as *-ni* (a nominal specifier), a nasal feature N- (2nd person possessive prefix, which fuses with the first segment of the head), *a-* future tense. Inflectional functions are also frequently, but irregularly, indicated by root suppletion, so that verbs may have distinct roots for proximate past tense, remote past tense, punctual vs. continuative aspect, non-singular non-third person object, and so on. Derivational morphology is highly restricted to a few lexically restricted functions, e.g. deriving 'continuous aspect' verb stems and nominalizations from some verb roots by reduplication (but for many verbs this is marked by suppletive roots). Free morphemes perform many of the functions of derivation, e.g. postpositional *mbiy:e* acts like a general adverbializer. Thus, the pattern is to indicate case, agreement, plurality of nominals, etc., in such (usually) postpositional particles and clitics.

In general, the genius of the language may be summed up by the injunction 'Lexicalize!' It is thus paradigmatic that 'the verb' for giving should have eight roots (see (1) below), splitting even on person of recipient. Consequently, in all sorts of areas of the grammar where one might expect systematic inflection, derivation or alternation, one finds instead suppletion or the handling of functional shifts through multiple lexemes.

The language has an SOV word-order tendency, although phrase order is in fact very free (all major phrases can occur in any order in the clause). In line with that SOV tendency, the language has postpositions marking grammatical functions like ergative and oblique NPs, and postpositions constructing adjunct

phrases (e.g. adverbial temporal and locative phrases). It is not, however, left-branching: most modifiers and relative clauses are on the right of the head. The language marks 'cases' (with postpositional clitics) as follows:

zero	Absolutive, Locative
ngê	Ergative, Instrumental, Experiencer, Factitive and other functions[2]
ka	Dative (restricted locative uses as human Source *or* Goal of movement)[3]
k:ii	Comitative

I recognize the zero postposition as a locative because a phrase without a postposition is either interpreted as the absolutive NP, or has a locative interpretation. (Many nominals describing spatial parts have thus become reinterpreted as postpositions.) In addition to the zero locative (for named places, institutional locations, home, etc.), there are many detailed spatial postpositions described below.

As these facts indicate, as far as NPs go, the language is ergative/absolutive in type. Ergative NPs are obligatorily case-marked, and indefinite absolutive NPs are also distinguished by having the indefinite quantifier extracted from the NP and placed in a preverbal position (Henderson 1995: 40–1).[4] The free pronouns are in most circumstances nominative/accusative in type, but can receive ergative marking. Verbal cross-referencing also does not directly align with ergative/absolutive distinctions, marking transitive and intransitive subjects in the same way in the preverbal cross-referencing, although in distinct ways in the postverbal cross-referencing. Yélî Dnye could thus be said to be of split ergative type – with ergative-absolute marking of lexical NPs and nominative-accusative marking of most pronouns and cross-referencing (but see Levinson in press).

The verb phrase is the locus of considerable grammatical complexity (well described in Henderson 1995). As mentioned, the verb itself very generally has suppletive roots to indicate tense, aspect and mood, and occasionally other properties (like person). But whether a particular verb will supplete on these dimensions is unpredictable, as illustrated in (1) below. Sometimes a special form is used when the verb is followed by a non-zero inflectional particle (marked 'followed' below).

[2] Postposition *ngê* has a wide range of topicalizing adverbializing functions (for, e.g., time and manner expressions) and is the general way to incorporate extra oblique NPs.

[3] I do have a few more general uses of *ka*, e.g.

kî	*yini*	*ka*	*ka*		*lêpî*
This	tree	to	Deictic+TAM	going	'He is going towards the tree'

[4] This is part of a larger pattern of quantifier floating, in which numerals on objects also occur in the same position (Henderson 1995: 59).

(1) Suppletive roots (all forms Punctual Aspect[5] except last)

	'stand up'	'go and get'	'wash self'	'kill by sorcery'
Imperative	*ghé*	*ng:uu*	*kwidi*	*mgaa*
Prox. Past	*ghê*	*ngmêê*	*kudu*	*mgaa*
Remote Past	*ghê*	*ngwódu*	*kpêê*	*mgop*
Followed	*ghêêdî*	—	*kpêê*	*mgaa*
Contin. Aspect	*wowo*	*nmy:uu/ng:uu*	*kuku*	*mgapî*

	'give to 3rd person'	'give to 1st/2nd person'	'put'
Imperative	*yéni*	*ki*	*téni*
Prox. Past	*y:oo*	*kê*	*t:oo*
Remote Past	*y:ângo*	*kpo*	*t:ângo*
Followed	*y:ee*	*kê*	*t:ee*
Contin. Aspect	*yémî*	*kuwo*	*t:emî*

	'go'	'descend'	'enter'	'arrive by boat'
Imperative	*lili*	*ghidi*	*kee*	—
Prox. Past	*lê*	*ghîî*	*kee*	*têêdi*
Remote Past	*loo*	*gho/ghigho*	*kee*	*têêdi*
Followed	*lee*	*ghêpê*	*kee*	*tee*
Contin. Aspect	*lêpî*	*ghêpêghêpê*	*koko*	*todotodo*

The verb is flanked by largely unanalysable clitics (or portmanteau morphemes) which together succinctly indicate tense, aspect, mood, transitivity and person/number of subject and object, often together with other optional grammatical categories. The preverbal particle marks the six tenses, two aspects, three moods, three persons, three numbers (singular, dual, plural) – hence there are theoretically over 500 possible combinations to be represented in unique portmanteau morphs (not counting additional grammatical categories like evidentiality, associated motion, diexis, repetition, which also get fused into these morphs – for some details see Henderson 1995). In practice the number is reduced by conflations, e.g. in the punctiliar aspect the tenses 'near past' and 'remote past' are conflated, while in the continuous aspect 'near past' and 'immediate past' are conflated in the first and second persons. The postverbal particle marks transitivity, aspect, mood and person, and number of both object and subject. Here again there are mercifully conflations, some following distinctively Papuan patterns like 'monofocal' grouping of first person (singular, dual and plural) with second and third person singular, with the remainder marked 'polyfocal'. Where the postverbal particle has zero realization (e.g. with transitive verbs in proximal tenses with third person singular objects), the

[5] The two aspects, Continuous vs. Punctual, are signalled by different paradigms of pre- and postverbal particles, but they are also reflected in suppletive verb stems.

verb root often switches into a suppletive form. Despite the conflations there are hundreds of particles.

A few examples of the verb phrase, presented in (2), will help to prepare for the glossed examples illustrating other matters below. Note how the verb root changes its shape according, especially, to tense and aspect, and according to whether there is or is not a postverbal clitic. Note too that the pre- and postverbal clitics encode information redundantly, but not transparently. These particles often allow multiple conflicting interpretations, e.g. *dî vyee nê* could mean either 'he was NOT hitting me continuously today' or 'he was (positive) hitting me yesterday', although usually the intersection of pre- and postverbal clitics together with the shape of the verb root serve to disambiguate matters effectively (negation is incidentally particularly complex).

(2) Pre- and postverbal inflectional particles[6]

a. *nî* *loo*
1.s+Rempast+Punct.Aspect went_Rempast
ø
Punct.Aspect.RemoteTense.singSubject
'I went (long ago)'

b. *nyi* *lee*
1.dual+past went_Rempast_followed
knapwo
1.dual+Indic+Remote+Intrans
'We two went (long ago)'

c. *a-nî* *lêpî*
Pres+Cont.-1s+Pres+Cont. go-Contin.Aspect
'I am going'

d. *a-nyi* *lêpî* *mo*
Pres+Cont.1dual go-Contin.Aspect Indic.Prox.dual+Intrans
'We two are going'

In the glossed examples that follow, not all of the content of the inflectional particles is always provided, as it makes the glosses unreadable; sometimes

[6] Main abbreviations are as follows: Rempast = remote past, Immpast = immediate past, Pres = present, Prox = proximal tenses, Fut = Future; PunctAspect or PI = punctiliar aspect, indicative mood; Cont or Contin. Aspect or CI = continuous aspect, indicative; Hab = habitual mood, Indic = indicative mood, Imp = imperative mood; 1s, 2d, 3pl = 1st person singular, 2nd person dual, 3rd person plural, etc. (Subject unless otherwise stated); Indef = indefinite; S = subject, O = object (also Subj, Obj); Intrans = intransitive verb, Trans = transitive verb; tv = transitive verb clitic, iv = intransitive verb clitic; Poss = possessive; PostN = post-verbal nucleus portmanteau clitic; EPIST = epistemic status marker; ERG = ergative marker; CERT = epistemic marker of certainly; Close = proximal deictic in preverbal nucleus; MOTION = associated motion in preverbal nucleus; TAM = Tense-Aspect-mood marker.

I will resort simply to 'TAMP', i.e. 'tense/aspect/mood/person+number' marker (and I will ignore 'zero-particles', as at the end of the first example).[7]

An important feature of the grammar is that argument-changing operations on verb stems hardly seem to exist – there are no passive, antipassive or transitivizing derivations (apart from the use of a causative verb).[8] The main exception is intransitivization by object incorporation. The strategy of the language is rather to have a different verb root for each subcategorization frame. Thus there are distinct intransitive vs. transitive verbs for, e.g., *tpyipê* 'sail-by-canoe' and *kédi* 'sail the canoe', or *yé* 'go-around (circumambulate)' vs. *y:ââ* 'go around a place'.

Equational sentences or nominal or adjectival predications are expressed without a verb, but existential and locative statements require one of three verbs, 'sit', 'stand', 'hang', determined partly by conventional collocation with the subject, partly by positional information, as described in 5.3 below.

The NP is also complex. The nominal head often has suppletive forms, depending, for example, on whether or not there is a deictic determiner preceding the noun, or a quantifier following it. Thus we have regular *pi* 'a man', *yi pi-ni* 'that man', but irregular *pyââ* 'a woman', *yi pyópu* 'that woman', and so on. Plural markers also sometimes fuse with the head on an irregular basis (e.g. *lémi* 'big man', *léma* 'big men'). There are classifiers, probably remnants of a more extensive system. The canonical structure of the adjectivally modified noun phrase is thus:

(3) [[Determiners] [Head N] [Classifier Nominal] [Adjectival Phrase]][9]

as for example in:

[7] The zero-particle has a wide range of meanings, as do many of the non-zero forms:

(a) before the verb, for indicative moods:
Punct.Aspect+Rem/Medial.Past3s/d/pl
OR Contin.Aspect+Immpast3s/d/pl
or for imperatives:
Imp.PunctImmed3s/d/pl OR Imp.Cont.1s/d/pl

(b) after intransitive verbs: for indicative moods:
Punct.Aspect+prox/remote.tenses+singSubject
Cont.Aspect+prox.tenses+singSubject
for Imperative mood: 2s+Imp, 1s+Imp

(c) after transitive verbs:
3sObject+Contin.Aspect (for imperatives only if subject is 2nd or 3rd person)
3sObject+Punct.Aspect+MonofocalSubject (Monofocal subjects are singular OR 1st person)

[8] There are perhaps traces of an earlier causative alternation, by, e.g., nasalization of vowels (as in *pwii* 'exit', *pw:ii* 'put outside'), but if so this is no longer productive.

[9] It is possible that the classifier nominal is in fact the head noun, thus aligning with the normal order of the head in compound nominals. If so, the example that follows would gloss more like 'this bookish bundle is red' than 'this bundled book is red'.

(4) [DET *yi*] [NOUN *puku*] [CLASS-N *dmi*] [ADJ *mtyemtye*]
this book bundle red

This string is structurally ambiguous between a reading as a complex NP vs. a simple clause (i.e. between 'this red book' and 'this book is red'). Many such expressions have both a compound nominal (or a double compound as illustrated here) and a following adjectival phrase ('Mod' here picks out the modifying norminal):

(5) {[Mod-N[Mod-N *nkéli*] [Head-N *pi*]] [Head-N[N*too*] [Class-N*pee*]]}
Boat man skin piece
[ADJ *kpaapîkpaapî*]
white
'Europeans have white skin'

Other grammatical points will be clarified in passing. In the rest of the paper, we sketch the 'grammar of space' under four main rubrics: topological relations (§5.3), frames of reference (§5.4), deixis (§5.5) and motion description (§5.6).

5.3 Topological relations

5.3.1 Introduction

Let us take the central, spatial uses of the English prepositions *at*, *in*, *on* to constitute the 'cognitively basic, essentially topological, relations' (Herskovits 1986: 127), as in *The cat is on the mat*. The core notion is contiguity, further specified as coincidence of location, containment or support. As Wilkins (this volume) points out, even the notion of coincidence of location may be broken down in particular languages into subcases (static location, resulting location, motion in a location). Often additional, broadly spatial, features are relevant to lexical distinctions, as witness the fine shape and dispositional distinctions in Tzeltal positional verbs (Brown this volume). Rossel language is also interesting for the large number of distinctions in locative descriptions, as forced by a large set of thirty-odd topological postpositions and a small set of three contrasting positional verbs.

As in many languages, location is not overtly expressed where the ground is a place name,[10] or one of a number of special location expressions like *p:o* 'at home', *al:ii* 'here' (Henderson 1995: 69). When the figure is in a stereotypical (characteristic, or normal and expected) relation to the ground, as in part-whole

[10] A curious exception is the name for Rossel island itself, which usually takes the postposition *p:uu* ('on, attached to'), as in *Yélî p:uu* 'on Rossel island'. There is perhaps a universal hierarchy underlying the tendency to drop overt marking of locative relations: Deictic-Adverbial > Home-Base > Place Name > Descriptive-Phrase Denoting Place > Object-as-Location. But I know of no discussion.

relations, or (traditional) clothing-body relations, or objects in characteristic locations (e.g. cigarette in mouth), the marking of the topological relation on the ground nominal may also be omitted. Otherwise, a postposition follows the ground nominal, and in all cases a locative predicate is employed, which is nearly always one of a fixed set in the case of static locations. The basic locative construction in Rossel may be illustrated from descriptions of the 'Topological Relations Picture Series' (Chapter 1, Figure 1.2). Here is the description of Picture 2, depicting a single fruit in a bowl, annotated with the terminology we will use:

(6) **Picture 2: fruit in bowl**

Figure	***Ground***		***postposition***		***positional verb***
kémi	*kîgha*	*kapî*	*k:oo*	*ka*	*tóó*
mango	fruit	cup	in	deictic+TAMP	sits

'The ripe mango is in the cup' (or 'There is a mango in the cup')

The following is a description of Picture 1 depicting a cup and saucer in the middle of a table:

(7) **Picture 1: cup on table**

Figure	***Ground***		***postposition***		***positional verb***
kapî	*tepîlî*	*u*	*mbêmê*	*ka*	*kwo*
cup	table	its	on-top	Def+3SPresCont	stand(s/dual)

'The cup is standing on the table'

The postposition *mbêmê* may be described as having a strict ON meaning: it can be used only where the figure is located above the ground (in the gravitational vertical dimension), and is in physical contact with it – even then, under certain conditions (like the figure covers the ground, or the ground is a body part) other postpositions or constructions will pre-empt *mbêmê*.

There is a minor constructional difference between the sentences in (6) and (7). In the former, the postposition *k:oo* belongs clearly to the postpositional word class and functions as a fully non-nominal head of a postpositional phrase or PP. The construction in (7), however, is of the form: *[cup]**[[table]*** ***[[3s.possessive] [top]]*** *[[is] [standing]]* where the phrase in bold is a constituent which can be moved around (all orders of subject, PP and verb phrase are possible). Although *u mbêmê* functions just like a monolexemic postposition, heading a PP, the possessive indicates a grammaticalization path whereby the phrase in bold type is a complex NP with zero-locative marking indicating '(at) the table's top'. Those postpositions which take a possessive are often

transparently related to existing spatial nominals, e.g. *u chedê* 'by the side of' from *chedê* 'side'. However, most postpositions do not take the possessive *u*, as in (6). Similarly, consider (8):

(8) Picture 10: ring on finger[11]
ring kêêpyââ p:uu ka kwo
ring finger attached Def+3SPresCont stand
'The ring is standing attached-to the finger'

Here the postposition *p:uu* forms a simple PP constituent with the ground NP. *P:uu* can be glossed 'attached to', so that an object tied to, clipped on, stuck on, or naturally attached to a ground object can be so designated. However, again other postpositions may pre-empt *p:uu* – for example where the attachment is by 'spiking' by a ground which is a sharp or thin projection.

The range of spatial, topological postpositions in Rossel is very extensive, making many fine distinctions; this is the subject of the section below. But there is another crucial part of the construction, the locative verb. Rossel has three main locative verbs, which we may gloss 'sit', 'stand' and 'hang', on the basis of their meanings when applied to prototype figures (e.g. humans in the case of 'sit' and 'stand', bags in the case of 'hang'). When we vary the scene, we may get the same postposition *p:uu*, but a different locative predicate, as in this description of a stamp stuck on an envelope:

(9) Picture 3: stamp on envelope
stamp envelope p:uu ka t:a
stamp envelope attached Def+3SPresCont hanging
'The stamp is hanging attached-to the envelope.'

The factors dictating a choice of locative verb are complex and depend on the interaction between arbitrary conventions and the shape and position of the figure object. The details are dealt with in Section 5.3.3.

5.3.2 The system of topological postpositions

Many grammatical functions are served by postpositions. A large set of them are used to build oblique or adverbial postpositional phrases or PPs. Amongst these are many spatial postpositions, and a (semantically defined) subset of these are specialized to topological notions, essentially kinds of propinquity, or

[11] A number of these examples include English words for unfamiliar Western objects for which there is no Yélî Dnye equivalent. English is the lingua franca of the province and the language of education, but by no means universally spoken on Rossel. Normal elicitation based on picture stimuli was done by substituting local analogue scenes for the pictured scenarios – I give the closer equivalents here from educated consultants for comparative purposes.

overlaps between the spatial regions of figures and grounds. In descriptions of the seventy-one pictures in the 'Topological Relations Picture Series' (TRPS), twenty-five distinct postpositions were employed by four consultants. Table 5.1 below gives thirteen of the more frequent forms which might be considered translational counterparts to English 'in' and 'on', with approximate glosses and a sketch of the criterial semantic conditions that have to be met for each form.

Inspection will show that there are two forms dedicated to **containment** ('in' concepts), three forms that cover **attachment** notions, and no less than six forms that cover the semantic space subsumed by English *on* or *above*, i.e. the concepts of **surface support** or **vertical superposition** (the intersection of which arguably gives us prototype ON relations). One thing that rapidly emerges is that adequate description of these postpositions requires taking pragmatic factors into account. Let me illustrate this with regards to the attachment postpositions. Note that not all attachment scenes will be described in attachment terms – e.g. for fruits on a tree, or leaves on a branch, the preference is for use of *nkwodo*, which emphasizes distribution of multiple figures all over ground. Leaving this kind of case aside, we have the following attachment postpositions (repeated in simplified form from Table 5.1):

(10) Attachment postpositions

Postposition	***Gloss***	***Hypothesized semantic conditions***
paa	'on a vertical surface'	Figure is attached to (nearly) vertical surface
'nedê	'stuck on hook/spike'	Figure is attached by projecting, piercing part of ground (hook, spike, etc.)
p:uu	'stuck on'	Figure is attached strongly to ground, regardless of type of fixing

Let us now concentrate on the pair of alternatives *'nedê* vs. *p:uu* (analogous remarks hold for the other pairs of terms). The glosses, derived from inspection of the pictures to which each postposition applies, suggest that *'nedê* and *p:uu* are in privative opposition – that is, that *'nedê* is a more specific subcase of *p:uu*. If so, pragmatic theory suggests that, although in every case where *'nedê* is applicable *p:uu* should be applicable too, still speakers should hesitate to label a scene with a less informative description (*p:uu*) where a more informative one (*'nedê*) is equally available. This follows from Grice's first Maxim of Quantity (see Levinson 1983 for exposition), which enjoins a co-operative speaker to provide as much information as is pertinent – thus, for example, if I saw a rat in the larder, it would be misleading to say 'I saw an animal in the larder', for

Table 5.1 *Some postpositions related to 'in' and 'on' notions*

Form	Gloss, Picture nos.	Semantic conditions (with numbered use types)
k:oo	'in' 2, 32, 14, 15, 47, 19, 54, 71	(i) 3D Ground: convex closure of Ground includes substantial portion of Figure (ii) 2D Ground: Ground includes whole of Figure
u mênê	'inside', 'enclosed in' 30, 67, 18, 32, 54	(i) Convex closure of Ground must fully include Figure (ii) Figure must have central portion *enclosed* in Ground
yedê	'on a surface' 19, 40, 47, 68	Figure is in contact with a Ground that can be treated as 2D (e.g. cloth, plate); Ground need not be horizontal (e.g. letters on T-shirt)
(u) mbêmê	'on top of' 1, 5, 8, 17, 23, 29, 34, 36, 40, 43, 46, 59, 62, 65	Figure is over and directly supported by Ground
nkwodo	'on all over, covering' 27, 29, 41, 45 'on the middle of' 8, 59	(i) Figure is single and substantially covers Ground, or is plural and is distributed all over Ground (ii) Figure is on top of (and in middle of) Ground
'nedê	'stuck on spike/hook/clip' 9, 20, 22, 30, 33, 37, 56, 57, 63, 70	Figure is attached to projecting Ground (hook, spike, etc.)
paa	'on a vertical surface' 17, 25, 26, 42, 44, 50, 52, 55	Figure is attached to vertical (or near vertical) surface
p:uu	'attached on' 3, 4, 7, 9, 10, 12, 18, 20, 21, 25, 27, 28, 30, 33, 35, 37, 41, 44, 48, 50, 52, 55, 56, 57, 61, 62, 66, 68, 69 'leaning against' 58	(i) Figure is fixed strongly to Ground, regardless of orientation or method of fixture (ii) e.g. of sticks or ladders*
pwono	'on top of' 34, 40	Figure is animal/human standing/sitting on Ground
'nuknî (p:uu)	'on the middle of' 59	Figure is in middle of surface of supporting horizontal surface of Ground, or in middle of line or volume
mbêdê-ma	'on summit of' 5, 36	Figure is on apex of vertically extended Ground
u pwo, pyipwo	'on top of, above' 13, 36	Figure is vertically above, but not supported by Ground
u mêknapwo	'under' 16, 24, 31, 53, 63	(i) Figure is vertically beneath (part of) Ground (within its convex closure?) (ii) Figure cannot be (fully) seen without removing Ground

* Ladders on Rossel are in fact normally firmly attached to raised houses, to which they give access, and thus there is a clear link or 'bridging context' between senses (i) and (ii).

that would implicate (pragmatically suggest) that I did not know which kind of animal it was. This inferential tendency is observable in the well-known 'Horn scales', ordered pairs (or n-tuples) of strong vs. weak descriptions like *<all, some>*, where saying *Some of them came* implicates rather than entails 'Not all of them came' (Levinson 2000b: 75ff.). Thus we may suspect that our postpositions form a similar Horn scale:

(11)

<'nedê	***p:uu >***
< STRONG,	WEAK >
Attachment by	Attachment
spike or hook	by any means

There are a number of usage patterns that support this analysis. Inspection of Table 5.1 will show that *p:uu* and *'nedê* have mostly distinct but still overlapping application to the picture stimuli, and that *p:uu* has a larger distribution, as expected. The kind of separate, but overlapping, distribution we get can be illustrated as follows, where for four consultants we indicate how many thought each of the two postpositions appropriate for the scene to be described:

(12) Distribution of first choices by four informants for attachment postpositions

Scene	*Picture No*	***'nedê***	***p:uu***
papers on spike	(22)	4	0
apple on skewer	(70)	4	0
coat on hook	(9)	3	1
clothes pegged on line	**(37)**	**2**	**2**
pendant on chain	(57)	1	3
mud on knife	(12)	0	4
band-aid on leg	(35)	0	4

What the distribution shows is that there is clear consensus that 'spiking' scenes require *'nedê*, and hooking scenes are also good candidates; while at the other extreme, 'sticking' scenes require *p:uu*, with attachment by loop of chain also being a good candidate. But we have a tie for the scene where clothes are attached to a line by grip-action pegs. So far, this distribution of responses is compatible with, say, a prototype analysis with fuzzy boundaries that overlap in the middle range. However, the pragmatic analysis makes a further prediction: in the marginal cases, like clothes-on-line, anyone who offers *'nedê* will readily accept *p:uu*, because the stronger, more specific conditions will entail the weaker conditions, while the choice of the stronger form is merely a pragmatic preference. That is, we can expect a consultant to back off from a stronger statement and accept a weaker one, but not to first announce a preference for the weaker statement, then accept the stronger: in the former case a speaker

would be overriding a pragmatic strategy, in the latter case he should have said the strongest statement he thinks applies, and so not be willing to upgrade the statement, and override a semantic condition. Here is the actual distribution of choices by the four consultants:

(13) Clothes-on-line scene: preferred postpositions

Consultant	**First choice**	**Second choice**
Y	*'nedê*	*p:uu*
A	*'nedê*	*p:uu*
B	*p:uu*	—
E	*p:uu*	—

We therefore conclude that a pragmatic analysis is correct: the two postpositions overlap in extensions, but a pragmatic principle (Grice's first Maxim of Quantity, or the I-principle of Levinson 2000b) induces a division of labour. This analysis shifts a large part of the burden of Saussurean oppositions out of the semantics into the pragmatics and has general application to other material in this volume.

Such an analysis also seems correct for other postpositions in the set. For example, the IN postpositions *u mênê* and *k:oo* seem to have similar sense relations: *k:oo* implies partial inclusion (like English *in*), while *u mênê* has the stronger implication of complete containment under convex closure (think of this as a Christo wrapping of the ground), and moreover the container should have a narrow opening, thus:

(14) 'in' adpositions

<u mênê,	***k:oo >***
< STRONG,	WEAK >
G fully contains F	G at least partly contains F
G has narrow opening	

Again, we get a similar distribution of responses: a certain degree of overlap in extension (i.e. pictures where both can be applied), but in these overlap cases a distinctive pattern: any consultant who offers *u mênê* will accept *k:oo*, but not vice versa. The upshot is just the flexibility of use combined with preferences that we expect on a Gricean account: choose the strongest, most specific assertion in line with your understanding of the scene, and assume that if your interlocutor has used the postposition of general inclusion, full enclosure does not, *ceteris paribus*, obtain.

Another pair of postpositions in such scalar contrast are ⟨*mbêmê*, *u pwo*⟩: both specify vertical relations between figure and ground, but only *mbêmê* also requires contact; thus *u pwo* implicates lack of contact. On the other hand, *mêknapwo*, 'under' is the semantic counterpart or antonym of *u pwo*, with exactly similar semantic generality over +/− contact. However, unlike *u pwo* it lacks a more specific '+contact' alternate. Thus *mêknapwo*, unlike *u pwo*, does

Table 5.2 *Postpositions implying proximity*

Form	Gloss, Picture Nos. (No. of uses)	Semantic conditions
u chêdê	'beside' 16, 24, 31, 53, 63	Figure is located at 'side' or 'edge' of Ground
u nkîgh:ê	'near' 16, 24, 31, 53, 63	Figure is located within a few diameters of Ground object
kuwa	'outside' 15	Figure is not in convex closure of hollow Ground, implied near to Ground

Table 5.3 *Use of zero-postposition construction*

Form	Gloss, Picture Nos. (No. of uses)	Semantic conditions
ø (Zero-postposition)	'Stereotypical extension' 7(1), 11(2), 18(2), 21(1), 27(1), 39(4), 42(4), 46(2+), 51(1), 62(1), 63(1)	Part-whole relations (apple-branch, strap-bag, hole-sheet); characteristic motion (boats, spiders); traditional adornments (headband, armband, belt); thing in 'body part' (cigarette, cork)

not implicate 'not contacting', and can be used equally for a ball beneath a chair, or a spoon under a cloth. The analysis allows us to see that *mêknapwo* does have an exact semantic antonym, namely *u pwo*, even though pragmatically it is opposed to both *u pwo* and *mbêmê*.

We may add that the topological notion of proximity is covered by a range of postpositions such as those in Table 5.2. In addition to these, postpositions with projective properties (involving notions like 'in front', 'behind') are much employed and will be discussed in Section 5.4 under the rubric of 'frames of reference' below.

Now, for attachment scenes especially, a different construction is also available. The construction is just the same, with a special locative verb, except that the postposition is dropped altogether. Note that in the case of place names, deictic adverbs ('here', 'there') and home-base locutions (*p:o* 'home') this zero-postposition construction is the normal construction. However it does not occur only with such intrinsically spatial nominals; it may also occur where the ground denotes a physical object. This zero-postposition construction has a limited, but systematic, distribution in our picture-book scenes, as shown in Table 5.3.

The generalization for the zero-postposition construction is that it cannot be used for unexpected, non-stereotypical relations. Characteristic motion and

dispositions (whether ships on the sea, or fruit on a branch) invite the dropping of the postposition. Non-traditional adornments (rings, hats) require postpositions, traditional adornments (armbands, belts) do not. All this is in line with cross-linguistic tendencies. Many languages with systematic case marking may oppose a general locative case to a series of adpositions, e.g. in Tamil one can use the locative case for nearly any stereotypical extension, without specifying IN/ON or other relations in the rich postpositional system; to use those postpositions then implicates some kind of special situation. (Similarly, many languages, e.g. Guugu Yimithirr, drop the locative verb in these kinds of situations, where Rossel drops the postposition.) What these reduced constructions signal is: 'business as usual'.

Again, a perfectly general pragmatic principle is responsible for this pattern, Grice's Second Maxim of Quantity, or my I-principle (Levinson 2000b). The reduced construction induces implicatures to the stereotype, and such reduced constructions can then subtly contrast with the full postpositional construction, which can then suggest an unusual, non-stereotypical extension by M-implicature. This explains why our Rossel informants are happy to use the zero-postpositional construction with traditional bodily adornments, like armbands, but resistant to using it with western adornments like watches, rings or metal necklaces.

Let us illustrate this pattern with one of the competing ON-postpositions which were mentioned earlier. The ON-related postpositions include a central, horizontal-support relation, *mbêmê*, and then branch into many different more specific types, according to, e.g., kinds of attachment. *Mbêmê* makes no claims about whether the object is attached or free-standing, but given the alternative attachment-specifying forms, tends to implicate that the figure is unattached (except where common sense indicates otherwise, as with trees on hillsides). It contrasts, too, with the more specific *nkwodo*, specifying overall coverage or central placement (also indicated unambiguously by '*nuknî p:uu*), and with *pwono,* a form that seems to be restricted to animate figures, and also with *yede*, which requires a flat ground object. But *mbêmê* is the 'on' postposition with the widest extension, implying vertical super-adjacency and support. Now, take the following contrasting sentences describing a headband around a man's head:

(15) Picture 46: headband

a. *kpîdî pee pi kêpa mbêmê ka t:a*
cloth piece person forehead on TAMP hanging
'The piece of cloth is hanging on the person's forehead'

b. *kpîdî pee pi kêpa* _____ *ka t:a*
cloth piece person forehead (Postposition slot) vis hanging
'The piece of cloth is hanging (around) the person's forehead'

c. *kpîdî pee* _____ *mbêmê ka t:a*
cloth piece (Ground slot) on TAMP hanging
'The piece of cloth is hanging on (his head)'

d. *kpîdî pee pi kêpa mbêmê ka tóó*
cloth piece person forehead on TAMP sitting
'The piece of cloth is sitting on the person's forehead'

Sentence (b) was the preferred form: it says just what needs to be said for an accurate description, and thus I-implicates stereotypical extensions. The first sentence (a) is prolix compared to (b): the postposition *mbêmê* therefore M-implicates that the headband isn't around the hat-line but is perched on top of the head. That implicature is avoided by an alternative reduction as in (c), where the ground object (the head) is omitted but the ON postposition maintained, as in English 'He's got a hat on.'[12] Finally, one can switch the locative verb to another of the three central alternates as in (d): once again, the message now is 'non-stereotypical extensions', specifically here what is suggested is that the headband is not firmly tied on. This brings us to the next subject: locative verbs, but first let us sum up:

1. There are a plethora of local postpositions in the language;
2. Semantically compatible postpositions become contrastive pragmatically;
3. Pragmatic principles also play havoc with our basic locative construction, leading to systematic reductions just in case the most common, stereotypical extensions are intended, with the seemingly paradoxical result that our basic construction will fail to describe the situation just in the most stereotypical, basic usages!

5.3.3 The positional verbs

Yélî dnye belongs to a wide class of languages, like Dutch, Arrernte or Creek, which have a small set of locative verbs in systematic opposition. These verbs are often drawn from, or overlap with, human posture verbs glossing 'sit', 'stand', 'lie', but they also often involve a less anthropomorphic 'hang'. In the Rossel case, we have verbs that in their postural use would gloss 'sit/lie',[13]

[12] Henderson (1995: 75) seems to suggest that only *k:oo* can occur without explicit Ground, but there are plenty of textual examples of other postpositions occurring alone, including the antonym of *k:oo*, *kuwa* 'outside', as well as *mbêmê* 'on', and many others.

[13] The verb I will simply gloss 'sit' clearly covers both sitting and lying. Nevertheless, sitting is the prototype interpretation, and to indicate lying one has to say in effect 'sitting prone' (*pîpî a tóó*), or 'sleeping' (*dpî*). Incidentally, these verbs collocate only with continuous aspect, and *tóó* has punctual counterpart *yââ* 'sit down', while *kwo* has the punctual counterpart *ghê* 'stand up', with its own continuous form *wowo*. There are independent roots for the causative counterparts of the main positionals: *kââ* 'make stand'; *yé* 'make sit'; *t:oo*, 'cause to hang'.

Table 5.4 *Positional verbs*

		'sit/lie'	**'stand'**	**'hang'**
Indicative, proximal tense	Sing/Dual	*tóó*	*kwo*	*t:a*
	Plural	*pyede*[*]	*wee*	*t:a*
Non-indicative, or non-proximal tense	Sing/Dual/Pl	*ya*	*kwo*	*t:a*

[*] Increasingly, young people are regularizing this form, and replacing it with *tóó té* 'sit Intransitive+Contin.Aspect+Prox.tense Plural-Subject'; similarly, *wee* is sometimes replaced with *kwo té*.

'stand' and 'hang'. Henderson (1995: 32) gives the paradigm in Table 5.4 (where proximal tenses are the three of the six tenses nearest to coding time).

There is, however, one other locative verb, *m:ii* (with an invariant root like *t:a* above), used for animals or persons moving in their prototypical way in their normal medium (e.g. of fish in water, birds in the air, people walking), used to assert existence or location in a habitat. But it has less currency, and generally a locative verb must be selected from the above set of three.[14]

While suppletive roots are the norm in Rossel verbs, they do not normally split on properties like +/−plurality of subject, but rather on such dimensions as specific tenses and aspects, or are triggered by zero-postverbal particles. Thus *tóó* and *kwo* constitute a minor form class. (Invariant *t:a* and *m:ii* are also distinctive, belonging to a small set of invariant roots which take continuous aspect only).[15] We will call these **positional verbs** because canonical position and disposition of the figure constitute, in the prototypical case, the basis of the semantic distinctions. Let us be clear that languages with such positional verbs are fundamentally different from English in that:

(a) Whereas in languages like English the general copula or BE verb is the unmarked option in answer to a *Where*-question, there is no such general option in a positional verb language;

(b) In a language like Rossel, when you say 'The cup stands on the table' you are not asserting the standing, you are asserting the location, and presuming that cups are said to 'stand' – your statement will not necessarily be false if the cup is on its side.

[14] There is yet another candidate, Jim Henderson points out to me, namely *dpî* 'sleep', as in *k:ââ pââ k:ii ka dpî* 'The post is lying (lit. sleeping) there.' Although the verb belongs to the same class as *t:a*, in the sense that it is also an invariant inherently continuous root, it is vanishingly rare in this positional use with inanimate subjects, and I am inclined to treat it as here metaphorically applied.

[15] My database has twenty-seven other intransitive verbs with invariant roots. Some of these though do have probably related roots occurring with punctiliar aspect, unlike the positional verbs.

These verbs thus have a *sortal* nature – they constitute a kind of nominal classification, but a kind which is not strictly determined by either noun or referent, as will be explained below.

One other preamble. It is well known that there are very close relations between existential and locative constructions. Even though it is clear that the two constructions potentially answer very different kinds of question (*Are there any Xs*? vs. *Where are the Xs*?), it is easy to erode the underlying semantic distinctions that have been proposed.[16] For example, the presumption that locatives must have definite subjects while existentials have only indefinite ones is clearly only a tendency (consider: *There is only the one God*); and the idea that existentials have universal spatial application is only one end of a continuum of course (*There is butter on the table* is just as much of an existential as *There are unicorns*). So it is not surprising that perhaps 25 per cent of languages seem to make no distinction at all between the two constructions (Clark 1978a: 94–6). Rossel is of this type, with no obligatory definiteness marking, so that 'The pigs are in the forest' and 'There are pigs in the forest' are expressed with the same form:

(16)

nko	*u*	*mênê*	*mbwêmê*	*a*	*m:ii*
bush/inland area	its	inside	pig	3s/d/plHabCont	move/inhabit

té
S.pl.Prox(Intrans)

The relevance of this preamble is the following. First, locatives presuppose the corresponding existentials: existentials provide the ontological background for what is asserted in locatives. Hardly surprising then that abstract types or classes of locative relation may already be embedded in existential distinctions. Second, a language with obligatory positional verbs has to have default assignments of positional verb to nominal concepts. That's because, if I want to say 'The cup is on the table' and must choose between 'stand' and 'lie', I may not be able to check the scene. And any language that uses positional verbs in existential statements will be forced into such default assignments: I may have no particular pigs or cups in mind, but still want to assert their existence.

All locative and existential statements must thus use one of these three verbs (or four, if one counts *m:ii*). But how does one know which one to choose? There are a number of layers of specification. First, there is a layer of *conventional collocation*. In Rossel, one can explore this default allocation using the context of negative existentials: one asks, for example, 'How do we say "There are no islands sitting/standing/hanging in that direction"?' In such a context the actual

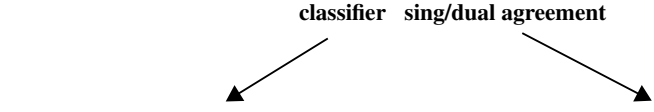
[16] Some authors presume that they are essentially the same construction – see, e.g., Hengeveld 1992: 97.

disposition of the referent is irrelevant (in this part of the world, for example, islands come in two distinctive types, high vs. low, but in a negative existential that is irrelevant). The default collocation is immediately apparent: what we find is that what we must say is in effect 'There are no islands *standing* there', just as we must say 'There is no shell money *sitting* here', 'There are no canoes *hanging* there', and so on. It will be clear that, in the case of physical objects, there is some semantic motivation for the choices here, in line with shape and orientation principles to be brought out below. But abstract nouns follow similar conventions: hunger and taste 'hang', but sleep 'sits', and light 'stands'. Some examples of the default assignments in existential sentences are given in Table 5.5. There is perhaps more cultural logic behind these collocations than is immediately self-evident. For example, the sun is a human-like being in mythology, and it 'sits' like humans, but the stars are not, and they 'stand' (Armstrong 1928: 127–8); similarly snakes play a special role as quasi-human mythological beings, and they 'sit' like humans. In addition there seem to be some very general associations: prestige items tend to 'sit', long-lasting or general states seem to be associated with 'hang', temporary states or phases with 'stand'. 'Hang' seems also associated with strip-like entities, such as paths and rivers, as well as directional forces like winds and currents. Nevertheless, the collocations are conventional, and as with most conventions there is an element of arbitrariness.

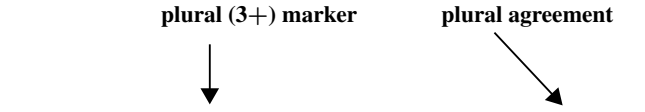
In addition, some important semantic work is accomplished by collocation with positionals: a number of Rossel nouns are semantically general, or more likely polysemous, over such distinctions as water/river, fruit/tree, food/species and so on. For this reason, general nominals indicating shape are sometimes combined with specific nominals in a loose kind of nominal classification (e.g. *mbwaa paa*, 'water-side, i.e. river' vs. *mbwaa lêê* 'water-pool, i.e. lake'), but another way of specifying the specific sense or referent intended is to use a positional which will make this clear. Thus *mbwaa* 'water, creek, river' in collocation with *t:a* 'hang' indicates river, whereas with *tóó* 'sit' indicates 'pool', and so on. These facts might be taken to indicate that there is no strict collocation between noun and verb. However, other facts suggest that there can be strict collocation. For example, in the Men and Tree task (see Chapter 1, §1.4.2) described in Section 5.4 below (example (20)), where a photo is described as 'A man is standing on something', the same man in the standing position is also described as 'Man his front (lit. mind) is sitting towards the hill'. The reason is that *nuw:o* 'mind' collocates with 'sit', and even though in this case what is intended is the man's frontal orientation, it would be incorrect to say 'his front was standing'. If strict collocation were to generally obtain, then this might suggest that we should recognize distinct senses or polysemes for, e.g., *mbwaa* 'river' vs. *mbwaa* 'water', but this is too hasty – as we will see, there is in fact considerable flexibility in use.

Collocational patterns indicate that the positional verbs are functioning as classifiers – but classifiers of what exactly? It is not the *nouns* that are being classified, otherwise there would be no flexibility of use, and of course it is in fact perfectly possible to say of that man (*yi pini*) that he is 'sitting', 'standing' or even 'hanging', as appropriate. Although the disposition of the referent plays a crucial role, that is not determinative either, since the same scene can be described in different ways – take, for example, the following contrastive descriptions of six tubers in a basket, some vertical, some horizontal:

(17) Picture 5 of positional picture-book (six cassavas in a basket, some upright some horizontal)



a. *kini* *dyuu* *kpéni* *k:oo* *ka* *kwo*
yam (thornless) small_pile basket in/inside Def+3SPresCont stand(s/dl)
'A small pile of yams is standing in the basket'



b. *kini* *dé kpéni* *k:oo* *ka* *pyede*
yam (thornless) pl basket in/inside Def+3SPresCont sitting(pl)
'Yams are sitting in the basket'

In the first description a nominal classifier 'small pile' is used in the noun phrase, and this triggers a singular verb of 'standing'. In the second, the same scene is described without a nominal classifier, and we have a plural verb of 'sitting'. So clearly the referents alone don't determine the positional – it depends how they are construed. But don't these examples show that strict noun collocation drives the system, now with or without a classifier as head of the noun phrase? It is true that *dyuu* 'small pile' normally collocates with 'stand', but co-occurrence with 'stand' is not automatic, and nor is the classifier necessarily the head of the noun phrase – the verb can agree with the multiple entities in the pile.[17]

[17] For example, the following is possible with singular classifier and plural agreement on 'stand':

pód:a dyuu têpê mbêmê ka wee
bottle small_pile soil/ground/dirt on/according Def+3SPresCont stand(pl)
'the pile of bottles are standing on the ground'

and the following is also possible, with plural agreement on 'sit':

polî dyuu mbwódo ka pyede
ball small_pile on_the_ground Def+3SPresCont sitting(pl)
'a pile of balls is sitting on the ground'

Table 5.5 *Some default assignments of different nominal concepts to positional predicate*[*]

SIT (tóó)	STAND (kwo)	HANG (t:a)	MOVE (m:ii)
shell money	trees, palms, houses, mountains, islands,	canoes, boats, roads, clouds,	
darkness, light			
tides		currents,	
rain, calm-weather, mist	(calm?)	winds, rivers rain	
sun	stars	moon, red-sky (dawn)	
people, friends, relatives, descendants, wife, etc.	chickens, dogs, birds (in tree), pigs, fish, grubs (inside fruit),		fish, birds, flying-fox, people,
	crocs (in river)	crocs (on bank)	crocs (in general)
water	fire, steam	smoke	
juice			
yams (in ground) fat	taro and tapioca (in ground)		
coconuts, betelnuts, fruits on ground	pineapples, fruits on trees	mangoes, nuts in trees	
meetings, feasts	beginning of meeting, feast		
sleep		taste, hunger, thirst	
story, news			
discipline, work		signs, tracks	
happiness	threat debt	flagrant fornication	
fornication			
debt, peace		sorcery/power	
medicine, mortuary payment			
clothes	smells, light	smoke (also 'stand')	
firewood			
skin disease	cancer	disease/epidemic	
books	cups, alarm clocks, candles	holes (negative spaces)	
	eyes, teeth, hair, grey hair		

[*] I have made a number of corrections here from an earlier publication (Levinson 2000a), prompted by comments from Jim Henderson. Among them: the moon normally 'hangs' (I had 'sit' which implies one is talking about the moonlight on the ground); the sun can 'sit' as shown here, or 'stand'. As mentioned above, water can 'sit' or 'hang' according to whether it is still or running. I had earlier listed 'knowledge' as 'sitting', but this was a misanalysis of the construction, which Henderson correctly points out is a covert locative:

ye pini a lama daa tóó
that man my knowledge not sitting
'that man is not sitting in my knowledge'

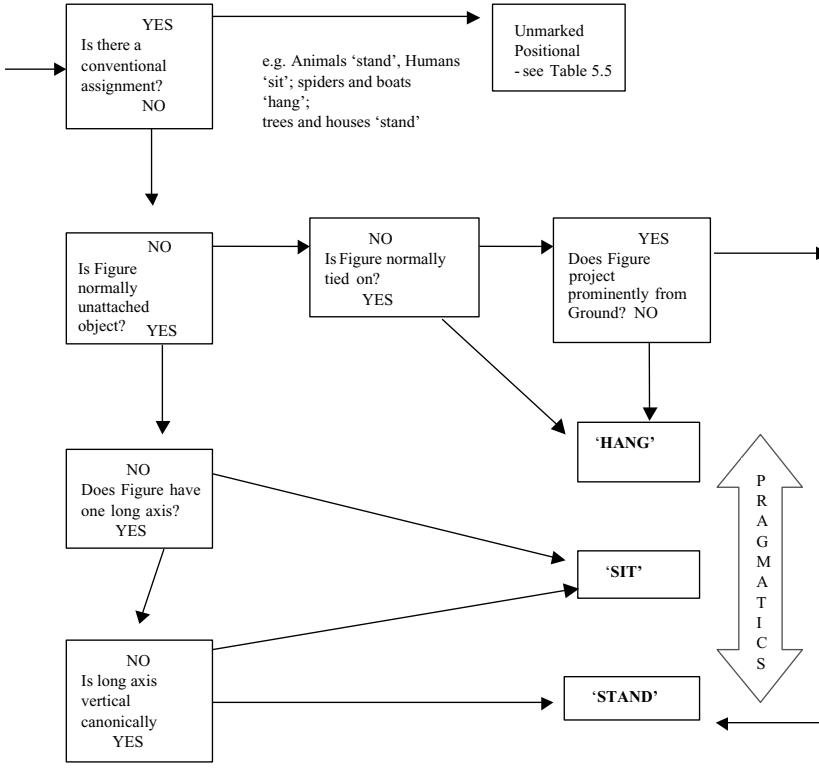


Figure 5.1 Choosing a positional verb: semantics of novel applications

The upshot is that clearly what is classified is the nominal concept, the way the referents are construed, and that is always a flexible matter. However, there are normal ways to construe things, and if you are going to speak colloquial Rossel you must know the kind of conventional, idiomatic collocation in Table 5.5.

For familiar objects, these conventional collocations assign a default positional to a nominal concept. But what about novel objects? Consultants can agree about how they should be described. And all sorts of now familiar imported objects with conventional assignments must once have been just as novel. So there must be an underlying system of semantical specification, which accounts not only for confident assignment of novel objects, but also for the (partial) semantic motivation behind the assignments in Table 5.5. Essentially, the underlying system seems to assign 'hang' to things fastened, 'stand' to things which have a long axis canonically vertical, and 'sit' to the residual category. There are additional wrinkles, for example, a fastened object does

not warrant 'hang' if it projects prominently – then it gets 'stand' (hence lightbulbs do not 'hang' but rather 'stand' even when hanging from the ceiling). Figure 5.1 above sketches a first approximation towards the underlying algorithm, based on elicitation with novel objects and shapes made from plasticine.[18]

We now have two layers of process for assigning default positional verbs: a conventional table, and a generative algorithm that will assign default expectations to random physical objects. We may assume that the latter has played a role in the now conventional assignments to many physical objects in the table (explaining, e.g., why candles and trees 'stand'). We may take these two layers to constitute the semantic background to positional use, assigning the expected, unmarked locative verb to the relevant nominal concept. However, actual usage displays a much greater flexibility than this would lead us to expect. To explain these other uses, we must invoke a level of pragmatic explanation along the following lines.

The semantical procedures give us, as just sketched, the unmarked, expected use of a positional verb for a nominal concept. Pragmatic factors load this unmarked usage with further assumptions: the unmarked positional carries the assumption that the scene described is exemplified in a stereotypical way. The underlying pragmatic principle here is Grice's second Maxim of Quantity, 'Don't say more than necessary', or my I-principle (Levinson 2000a). For example, a bowl is normally said to 'sit' on a table, but this implicates that it is in canonical position. If one wishes to indicate that this is not the case, because, for example, it is upside down, that can be signalled through a switch to 'stand'. In general, for every unmarked assignment, a different marked assignment is possible, carrying a range of possible implicatures (but now by a further principle, Grice's Manner maxim, or my pragmatic M-principle, 'marked message indicates marked extension').

Thus a switch from the expected unmarked positional will implicate a complementary interpretation to what would have been I-implicated by the unmarked form, namely a stereotypical exemplification. Still, if one is a speaker, how does one know which other positional to choose, and if one is a comprehender, how does one know exactly what is implicated? There seem to be some underlying principles that guide choice and interpretation of marked choices:

1. If the figure is a physical object, *actual* position can be indicated by an appropriate positional where this deviates from canonical position (which would determine the unmarked choice). The appropriate positional is then partly specified by re-using the algorithm above, but now to guide selection in accord with actual rather than stereotypical position.

[18] There are a number of known simplifications here. First, animals in their habitats (birds in the sky, or fish in a river) would be described with *m:ii* 'move, inhabit'.

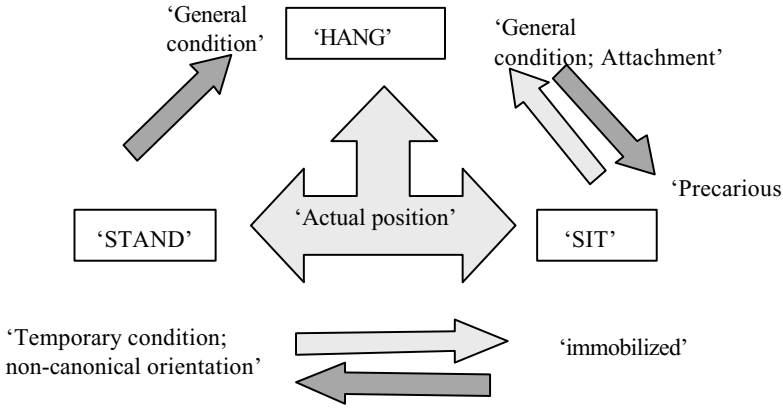


Figure 5.2 Marked usages of positionals: some meaning shifts

2. Given the associations noted above in respect of the conventional assignments in Table 5.5, one may indicate the following associations by switching to:

Form	*Association*
t:a 'hang'	'long-lasting or general state'
kwo 'stand'	'temporary or improper state'
tóó 'sit'	'precarious state' (if 'hang' is unmarked)

These switches may be thought about as guided by 'marking rules' (Geoghegan 1971), or as I would prefer M-implicatures, in any case as operations on the unmarked assignments, as indicated in Figure 5.2 (which is by no means exhaustive since these are implicatures, potentially open-ended inferences).

The pragmatic 'marking rules', operating over the unmarked output of the process of conventional assignment, together give a fairly good account of positional verb selection. Some typical shifts in interpretation are given in Table 5.6.

Here are some examples from the TRPS picture-book:

(18)

31A *kume table u mêknapwo a* **kwo** ⇒ **tóó**
cat table POSS under TAMP **stand** sit
'The cat is under the table' M-implicates 'Actual position'

32A *te glass u mênê a* **kwo** ⇒ **tóó**
fish bowl POSS inside TAMP **stand** sit
'The fish is in the bowl' M-implicates 'Dead'

46 *kpîdî pee pi kêpa mbêmê ka* **t:a** ⇒ **tóó**
cloth piece person forehead on TAMP **hanging** **sit**
'The piece of cloth is around the person's forehead' M-implicates 'falling off'

Table 5.6 *Shift of positionals and their interpretations*

conventional assignment		shift to other positional	
yams	'sit'	'hang'	implicates all the yams, yams in general, harvest
taro	'stand'	'hang'	as above
humans	'sit'	'stand'	implicates actually standing
animals	'stand'	'sit'	implicates lying down, sleeping
		'hang'	implicates perched, as of crocs on steep river bank
'hang'	'sit'	'sit'	implicates not tied on properly
bowls	'sit'	'stand'	implicates upside down
balls	'sit'	'hang'	implicates touching one another

In the following example, from the Men and Tree Game (Picture 2.10), two balls pictured in an 'away' direction, with one partially occluding the other, are first described as 'sitting' near to each other, then as 'hanging' against one another – the switch emphasizing the lack of a gap between them. The meaning of the marked choice in this case is probably derived by allusion to the rule (sketched in Figure 5.1) that things attached to one another are generally said to 'hang'.[19]

[19] The following example is also interesting. In the Men and Tree Game, in addition to the photo sets containing men and trees there were photos with different arrangements of red and yellow balls of equal size. One describer interpreted the yellow ball as an upside-down yellow bowl – the red ball is described as 'sitting', the yellow bowl would also be 'sitting' in canonical position, but is described as 'standing' to mark its upside-down position (Picture 2.11, balls side by side):

J: *ntii u kêténi yi tpile w:uu ló* pee
sea/salt his/her/its side/part anaphoric thing egg/round which side
'That round thing it's sitting on the sea-wards side, which side

u kêténi a tóó ntii u
his/her/its side/part DeicProxS sitting/being(s/d) sea/salt his/her/its
is it sitting on, the seawards

kêténi a tóó
side/part DeicProxS sitting/being(s/d)
side it's sitting on?'

I: nyââ
'yes'

J: mu tpile w:uu k:ii nkîgh:ê k:ii kem:e a kwo
Other thing round banana near there upside_down TAM standing
'That other round thing banana-coloured upside down there is standing?'

I: nyââ.
'yes'

(19) Director: *ball dê* *numo nkîgh:ê a*
*** 3dualOProx/Hab each near DeicProxS
tóó, mo
sitting(s/d), dualSProx
'Two balls sitting near each other,
mo *numo p:uu* *a* *t:a*
dualSProx each on/against/in DeicProxS hanging
two hanging against each other'

I have emphasized the role of pragmatic oppositions in this discussion of the role of positional verbs, as in the discussion of the postpositions, because they play a crucial role in amplifying the signalling resources of the language. From just these three verbs in alternation, fine-grained suggestions about orientation and placement can in fact be communicated.

5.4 Frames of reference

In order to describe the locations of similar objects separated from other objects in space, more is required than topological description in terms of spatial contiguity or coincidence – specifically, one needs to employ a coordinate system which will allow the specification of angles in a frame of reference. (I will presume the relevance of angles because all naïve human spatial systems seem to use polar rather than cartesian coordinate systems.)

Yélî Dnye lexicalizes all three frames of reference mentioned in the introduction to this volume: absolute, relative and intrinsic. The absolute frame of reference is expressed in terms of 'up' or 'down' for east and west respectively (and thus also in terms of 'ascend' and 'descend'), while the terms for 'hillwards', 'seawards' and their ilk often function as a loosely orthogonal axis.[20] The intrinsic frame of reference is involved in notions like 'facing', 'side' and so on (although there is no elaborate system of body-part locutions as in, e.g., Tzeltal, this volume). It is also involved in some interpretations of 'front', 'back', 'left', 'right' notions. The relative frame of reference is represented by the other interpretations of terms for 'left', 'right', 'front' and 'back', as three-place predicates (e.g. X is left of Y from viewpoint Z). However, on the whole the relative frame of reference is avoided, especially the projective interpretations of 'left' and 'right' (as in 'the ball is to the left of the tree'), in favour of the intrinsic and absolute frames.

[20] While the directions associated with 'up' and 'down' may be linked to sunrise and sunset, there is also a more immediate association: given the prevailing winds, east is upwind, and west downwind, which fundamentally effects the ease of travel by boat.

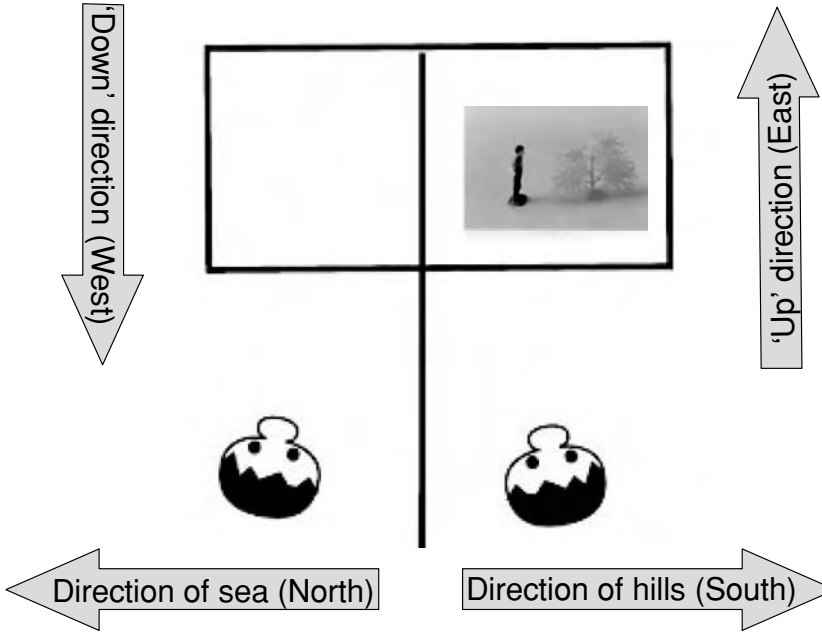


Figure 5.3 Situation described in matching task, Photo 2.3

Let us illustrate with the Men and Tree picture-matching task, where a director describes a photograph so that a screened-off matcher can find an identical one from a set of contrasting photos, as described in the introduction to this volume. Here a director describes Photo 2.3 to a matcher – it is essential to know their orientation with respect to mountains, sea and cardinal directions, as sketched in Figure 5.3 (the interchange has been slightly simplified for compression):

(20) Photo-matching task: Photo 2.3. Context: director and matcher face east, with the sea on their left, and the hills on their right
Director:
pi u nuw:o kpâpu u kêténi ngma a
man his/her/its facing hill his/her/its side/part indef DeicProxS
tóó
sitting.
'There's a man whose front is sitting in the hill direction,
yi mbwii kumu a tpé,
tree thin in_hand DeicProxS rush/grab
A stick in hand he is holding,

u nuw:o yi puu u kêténi
his/her/its facing tree shrub his/her/its side/part
His front in the shrub direction

a tóó, u nuw:o yi u kêténi
towards sitting/being(s/d) his/her/its facing tree his/her/its side/part
is sitting, his front in the tree direction

a tóó
deictic sitting
is sitting'

Matcher:
tpile mbêmê a kwo
thing on/according Deictic stand(s/d)
'He is standing on something?'

Director:
nyââ
'yes'

Matcher:
yi mbwii wéni pee kumu a tpé
tree tall/thin right side in_hand DeicProxS rush_grab
'He is holding the stick in the right hand?'

Director:
nyââ
'yes'

Matcher:
kpâpu u kêténi a vyuwo, yi-puu kpâpu u
hill his/her/its direction DeicProxS look shrub hill his/her/its
'He is looking in the hill direction? The shrub is already standing
kêténi wunê kwo?
direction already standing
in the hill direction?'

Director:
nyââ
'yes' ((correct photo selected))

The problem has been solved in the following way:

(1) *The direction in which the man is facing has been specified as towards the hills*. This locution 'towards the hills' is not the use of an ad hoc landmark, it is the conventionalized way of specifying 'inland', in opposition to 'towards the sea'. For this and other communities on the (most populous) northern

shore of the island, these two terms form an orthogonal fixed axis with the terms *mudu* 'up, east' vs. *p:ââ* 'down, west'. These four directions thus provide a systematic absolute frame of reference.

(2) *The man is facing the tree*. This locution tells us the orientation of the man with respect to the tree; on other occasions this may be given as 'at the man's front is the tree'. We now have information in an intrinsic frame of reference – we know (roughly) how the man is to the tree, whatever way that whole assemblage is oriented.

In the terminology employed in this volume, this strategy involves giving the 'facing' (orientational) information in absolute coordinates (man facing south), and then giving the 'standing' (placement) information in terms of intrinsic coordinates (man confronting tree). The latter gives us the description of a rotatable assemblage of man and tree, the former locks that assemblage in absolute directions.

These two propositions are sufficient to solve the problem – no other photo has a man facing a tree, such that the whole assemblage must be in that hillwards alignment. The matcher goes on to check his understanding: the director has used the positional verb 'sitting' in the locative construction – this is anyway the unmarked positional for people, but here it collocates specifically with the man's front – and the matcher notes that in fact the figure seems to be standing on something (the base of the model). He goes on to check that the figure is holding the stick in the right hand – this is the intrinsic sense of 'right', the figure's right hand. These were in fact non-essential questions, but then he checks not only that the man is looking hillwards, but that the tree is to the hillwards direction of the man. This effectively checks the inference, available from proposition (1) and (2) above, about the location of the tree with respect to the man in an absolute frame of reference. Thus the matcher is sure he has the right photo.

The same pair of players solved the mirror-image problem, i.e. Picture 2.5, by saying in effect 'The tree is standing seawards, a man is approaching it'. Here the 'standing information' is given in absolute terms, and the 'facing' information (indirectly) in intrinsic terms (a man approaching a tree would normally be facing it). Table 5.7 divides in summary form the solutions for the three Pictures 2.3–2.5 produced by three different pairs of players.

What is clear is that the main pattern is for (at least) one absolute statement (mostly for facing information) and one intrinsic statement (mostly for standing information), which are usually jointly sufficient to achieve correct identification. (There were two misidentifications in these nine matches: (1) the R-Y pair in 2.3 made a misidentification on the basis of the purely intrinsic descriptions, but then the absolute proposition was added and this led to correct matching; (2) the A-N pair in 2.5 where a wrong card was picked, the same description was repeated word for word, and the correct card was then chosen.) This

Table 5.7 *Men and Tree descriptions, with main frame of reference (A = Absolute, I = Intrinsic, R = Relative)*

Picture	Player-Pair	Standing information (Placement)	Facing information (Orientation)
2.3	Y-L	Man facing shrub (I)	Man facing hillwards (South) (A)
	A-N	Tree towards X village (West) (A)	Man holding stick seawards (North) (A)
	R-Y	Man approaching tree (I) Tree towards Y village (West) (A)	Tree tip bends away from man (I) Two branches towards man (I) Three branches towards Viewer (Deictic)
2.4	Y-L	Tree at man's back (I)	Man facing seawards (North) (A)
	A-N	Tree at man's back (I)	Man holding a stick Eastwards (A) Man looking to East Point (A)
	R-L	Tree at man's back (I) Man walking away (I)	Man turned his back on the tree (I) (Game cut short by guessing)
2.5	Y-L	Tree standing seawards (North) (A)	Man approaching tree (I)
	A-N	Tree standing front of him (I)	Man holds stick on hillwards side (South) (A) Man facing East Point (A)
	R-Y	Man heading towards tree (I) Man going in tree direction (I)	(Solution guessed early)

combination of absolute and intrinsic information seems to fit everyday language usage.

For absolute usage, as mentioned, the following linguistic resources are available:

(a) East–West axis:
  Adverbial modifiers
    mudu 'Up, East',
    p:ûâ, 'Down, West'
  Verbs
    koko (remote past *kee*) 'go up, go East'
    ghîî (remote past *ghêpê*) 'go down, go West'

(b) North–South axis:
    ntii u kêténi 'sea its direction' i.e. 'towards the sea' (North)
    kpâpu u kêténi 'hills/ridge its direction' i.e. 'inland' (South)

(c) For all directions: Landmarks
    PLACE NAME *u kêténi* 'in the direction of PLACE NAME'

(There is a very dense network of place names, even for uninhabited bush areas, and coral reefs.)

Intrinsic information can be specified by talking about body parts and intrinsic facets of ground objects. Some abstract nominals for 'fronts', 'backs', 'left/right

sides' of objects can be used to project search space for referents, using expressions such as in (a) below, while just a few body-part terms can be used to denote a spatial region as in (b) (the rest can only be used to describe parts of objects). In addition there are 'in between' expressions which can be used to indicate spatial regions as in (c).

(a) 'Side' expressions with intrinsic and relative interpretations[21]

u kuwó	'(at) its back'
u kada	'(at) its front'
u t:anê pee	'(on) its left side'
u wéni pee	'(on) its right side'

(b) Body-part expressions used intrinsically, to project directions

kpadama	'back'
knâpwo	'bottom of something'
kn:ââ ghi	'bottom of, back part, rump'
'nuwo	'nose, point'

(c) Expressions with only intrinsic (or topological) interpretations

X, Y yi kêlî	'in the middle of, between X and Y'
'nukni'nukni p:uu	'middle-middle-attached' i.e. 'in the middle, centre of'
u nuw:o	'(at) its facing-side' (literal meaning, 'mind', 'intention')
	(NB takes positional *tóó*, regardless of man or beast)

The use of these expressions can be illustrated by some descriptions from another communication task (picture-object matching), involving the placement of toy animals as directed by another speaker looking at a photo of the desired assemblage:

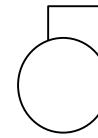
(21) S: *cow u kada horse wumê kwo*
cow its front horse TAM stands
'The horse is standing at the cow's front?'

J: *kêle, cow mbwêmê yi kêlî yi a kwo*
no, cow pig their middle tree TAM stands
'No, the tree is standing between the cow and the pig'

horse u kuwó yi a kwo, horse u mo a kwo
horse its back tree TAM stands horse its own TAM stands
'The tree is standing at the horse's rump, the horse is standing alone by itself'

[21] Superficial appearances notwithstanding, this system does not seem to be like the English six-sided 'box' or armature which can be used to assign 'top', 'bottom', 'front', 'back', 'sides' to objects: the relevant expressions do not form a single contrast set in Yélî Dnye.

Finally, we come to the relative frame of reference, that is the use of 'left', 'right', 'front', 'back' terms where the orientation is not derived from the intrinsic facets of the ground object (which may have no intrinsic sides, like a tree or ball) but is rather mapped from the viewer's bodily axes onto the ground object. As already mentioned, this frame of reference is marginal in language use. Even in specialized spatial description tasks, it rarely makes an appearance. Still, relative interpretations of *u kuwó* '(at) its back', *u kada* '(at) its front', *t:anê pee* '(on the) left side', *wéni pee* '(on the) right side' are possible, at least for some speakers. Taking the front/back terms first, these would seem to have only intrinsic readings with most featured objects (e.g. a truck, where one might equally use terms that can only be intrinsic, like *'nuwo* 'point, front'). With unfeatured objects, like a ball or a tree, the relative interpretation is forced. However, the favoured interpretation is the Hausa-style 'alignment' reading (Hill 1982), whereby 'X is in front of Y' means X is behind Y:



(22) *ball cup u kuwó ka tóó*
ball cup its behind TAMP sits
'The ball is sitting "behind" – i.e. in front of – the cup'

Similarly, in the Farm Animals task, descriptions occurred like 'The horse is running in front of the tree' meaning 'behind', but with ensuing puzzlement from matchers, suggesting that either the English or Hausa interpretation is in fact possible. These interpretative uncertainties further favour the preference for intrinsic expressions and interpretations, which are usually less ambiguous.

The terms for 'left' (*t:anê*) and 'right' (*wéni*) do not seem to be body parts in the first instance (e.g. terms for left and right hands), but name abstract sides as in English.[22] They always occur in collocation with an abstract noun indicating direction, e.g.

t:anê pee 'left side'
t:anê u kêténi 'left its direction'
t:anê u kê 'left its hand' i.e. 'on the left side'

The structure of these phrases indicates that *t:anê* is a nominal (e.g. nominal modifiers come before heads, adjectives after them). The bare phrases above would normally have a relative interpretation as in:

[22] Etymologically, *t:anê* also means 'rock', and *wéni* may be derived from *wo* (specific form *wéni*) 'life, breath', so in effect the dead vs. the forceful hand. Otherwise, there is no obvious association with the moral, social and religious oppositions of the kind predicted by the anthropologists Mauss, Herz and Needham.

(23) *pi yi puu nkîgh:ê wéni pee u kêténi wupe ka kwo*
man tree shrub near right side its direction this_side TAMP stands
'The man is standing near the tree (on) the right hand side'

When possessed, they have an intrinsic interpretation (as in English, 'on his/its left side'). So given the preposed/prefixed possessives *a* 'my' and N- (assimilating nasalization indicating 'your'), we have:

(24) *ball a nkigh:ê a t:anê pee u kêténi ka tóó*
ball my proximity my left side its direction TAM sits
'The ball is sitting near my left side'

vs. *ball Ngigh:ê N:anê pee u kêténi ka tóó*
ball your-proximity your-left side its direction TAM sits
'The ball is sitting near your left side'

There are more frequent expressions which are deictic in nature but which can convey information similar to that in the relative frame of reference, for example: *mwada pee* 'other side', *a kêténi* 'my direction', *mu pee* 'far side' (which answer questions of the form *ló pee?* 'which side?'). The phrase *mwada pee* can be interpreted in a relative or deictic way in the case of unfeatured grounds (like a tree), meaning 'the other side from the one we are on', but can be interpreted intrinsically, or just in some direction opposed to the one we mentioned earlier.

Nearly all these expressions have a syntactic structure *Figure/Ground* + *possessive* + *spatial-nominal* (e.g. *pi u nuw:o* 'man his front'). This structure has, as a consequence, that it is sometimes impossible to spell out reference points fully. For example, whereas you can say *ngomo u kada* 'house its front', i.e. 'in front of the house', thereby specifying the ground, absolute expressions like *ntii u kêténi* 'sea its direction' do not permit expression of the ground (as in 'north of the house'), since the possessor has been absorbed by the directional expression itself.

In summary, the language makes available all three frames of reference described in the introduction to this book. However, the relative frame of reference is marginal, as shown (a) by its relatively rare usage, (b) by its restriction to terms that also have Intrinsic interpretations, (c) by the confusions that are attendant on its use. Instead, primary reliance is on the absolute and intrinsic frames of reference, which together yield compact, unambiguous descriptions of spatial location. Finally, one should also note that Rossel islanders make use of an immensely detailed system of toponyms: every stream, hill, field and section of jungle has a name, as indeed does every section of reef, so that directional specifications are often given in terms of place names.

5.5 Deixis

As noted in the introduction, deictic specifications often serve in lieu of frame-of-reference specifications. Deictic specifications are closely allied of course to relative specifications but do not involve a coordinate system with specification of angle, instead typically giving some kind of radial specification of proximity. For example, in the spatial games like the Men and Tree task, the spatial opposition *a mê pee* 'my side', *mwada pee* 'other side (from me, or other reference point)' was used quite often.

Rossel has a system of demonstrative adjectives (rather than pronouns) so that one says, e.g., *ala tpile* 'this thing' or *ala n:ii* ('this one' where *n:ii* is a pronominal)[23] rather than just *ala* ('this'). The core system could be described, on the basis of functional use in placement tasks, as follows:

	Speaker-based	**Addressee-based**
Proximal	*ala*	*ye*
Unmarked (Medial)	*kî*	—
Distal	*mu*	

In this series, *kî* is clearly the unmarked term on a distance metric, used wherever there might be doubt about the application of the others, while *ala* and *ye* require close proximity or preferably even contact with speaker and addressee respectively, and *mu* indicates contrastive distance ('over there, yonder'). Since *kî* picks up the residue from the other three items, it typically has medial uses, but this is pragmatic obviation: *kî* is unmarked for distance, and thus less informative than any of the other three terms – by Gricean principles (more specifically my Q-principle, Levinson 2000b), if you don't use the more specific forms, you implicate that they are inapplicable. In this respect, *kî* is not unlike English 'that'. Additionally, some speakers use *mwada* – a term that basically means 'the other, the far' – as a 'far distal, yonder' term.

This spatial pattern can be repetitively elicited. But there is a lot more going on in the deictic system, which clearly involves two other dimensions, epistemic certainty and anaphoricity (see Levinson in preparation for the full system). The same items can therefore participate in other, non-spatial, oppositions:

(a) *mu* (as well as some of the other terms) participates also in the anaphoric system, where it contrasts with *yi* 'this one', meaning e.g. 'the other one'. Here *yi* is restricted to anaphoric (backwards) reference, but *mu* can be both cataphoric or anaphoric (further back in discourse) by contrast.

[23] *N:ii* is the main relative pronoun, as in *a mbwêmê n:ii ngê vy:a*, 'my pig the-one-who ERG killed', i.e. the one who killed my pig.

(b) *kî* also belongs to another contrast set, which Henderson (1995: 46) suggests is *kî* 'in sight', *wu* 'out of sight'. There is definitely something right about this (e.g. if you are shielding a book from my vision, I can't say *kî puku dmi* 'That-unmarked book'). However, *kî* can sometimes be used for things out of sight, e.g. right behind me, and an alternative analysis is that *kî* marks epistemic 'certainty' vs. *wu* 'uncertainty', where visibility is one criterion for certainty.

There are in addition demonstrative adverbs, according to the following paradigm:

	Demonstratives	**Adverbs**	
Proximal	*ala n:ii*	*al:ii*	'here'
Medial	*kî n:ii*	*k:ii*	'there'
Distal	*mu n:ii*	*mw:ii*	'yonder'
Anaphoric	*yi n:ii*	*y:i*	'there as mentioned'

These deictics play a role not only in locative description but also in motion description. The deictic adverbs function as source or goal arguments of motion verbs, while the deictic determiners get incorporated into preverbal inflectional particles, where they play 'hither'/'thither' and evidential functions. But this brings us to the nature of motion description in the language.

5.6 Motion description

We may take as a reference text an extract from a careful telling of the 'Frog Story', covering pages 17–22 of the picture-book (see Chapter 1, §1.4.3, for a description of this elicitation tool):

(25) Frog Story extract

Page 17

yi *tpémi* *chêêpî* *pââ* *ndîî* *mbêmê* *dê* *kee*
anaphoric that_boy stone body big on PIImmpast3S go-up/in
'The boy climbed up on the big rock'

Page 18

deer ngê *yi* *tpémi* *chêêpî* *nkwodo* *da*
deer ERG anaphoric that_boy stone top PIImmpast3S+Deic
ngî
take
'The deer came and took that boy from the top of the rock'

Page 19
deer mbêmê yi tpémi a
deer on/according anaphoric that_boy DeicProxS
tóó
sitting/being(s/d)
'That boy was sitting here on top of the deer'

Page 20
deer ngê yi tpémi mbwaa paa dê
deer ERG anaphoric that_boy water/creek/river side PIImmpast3S
kéé
throw
'The deer threw that boy (into) the river'

Page 21
u w:ââ mbwaa paa myaa n:aa dyimê
his dog water/creek/river side also MOTION throwing
'It went and threw his dog also (into) the river'

Page 22
mbwaa paa kwodo nkwodo d:uu
water/creek/river side together PIImmpast3S+Motion
dyimê knî
throwing dualSProx
'It went and threw both of them together (into) the river'

Page 23
u w:ââ yi tpémi u kîgha dî ghê
his dog anaphoric that_boy his shoulder PIImmpast3S walk/stand
'His dog got onto the shoulder of that boy'

This simple, short text packs a great deal of spatial information into a minimum of expression. However, a number of preliminaries are necessary before we can understand the text.

5.6.1 Deixis and motion verbs: no 'Come' and 'Go'

A number of the deictic determiners mentioned above can also be incorporated into the preverbal TAMP (tense-aspect-mood-person) marker in complex ways (Henderson 1995: 46–54). *Kî* and w*u* then come to have an evidential function ('certain' and 'uncertain, hypothetical, projected' respectively).[24] But *ala*

[24] Contrary to this, Henderson (1995: 49–51) suggests that *wu* (reduced to *w-*) has a 'definite' meaning, but this does not accord with the fact that it occurs especially in questions and in the future tenses; nor does it accord with its clear 'uncertainty' meaning as a nominal modifier.

(in the form *a* or *nê*) retains its deictic meaning, 'towards the speaker' or 'close to speaker' and is crucial to the kind of opposition lexicalized in English as *come* vs. *go, bring* vs. *take,* to which we turn shortly. Similarly, *mu*, the distal deictic, can retain a distal sense (although it may also be used here with a contrastive 'other' meaning, derived from its distal anaphoric uses, as Henderson (1995: 54) notes). Thus we have:

(26) *ka kwo* 'he is standing (close by)' (from unmarked *kî+TAMP*)
mu kwo 'he is standing (over there)' (from distal *mu+TAMP*)
muda kwo 'he is standing (yonder)' (from 'other, far' *mwada+TAMP*)

When, as with motion verbs, sources and goals are involved, these deictic oppositions can be of considerable complexity. Take *ndê* 'leave' when accompanied by a deictic adverb together with deictic incorporated into the TAMP markers:

(27) *mw:ii d:a ndê.*
there_distal 1sImmpastPI+Close left
'I left there hither, i.e. I came here from there'

Here the portmanteau TAMP morph *d:a* (*dî+* deictic *a*) incorporates motion towards the deictic centre, and gives us the 'coming' interpretation. If no such deictic is incorporated, as in the following utterance, an 'away from deictic centre' interpretation is by default assumed:

(28) *al:ii dê ndê, mw:ii dê lê*
here 1sgImmpast left, there_distal 1sgImmpast go/come
'I left from here, and I went over there'

The same sentence with the deictic adverb and the 'hither' element in the TAMP particles reverses the trajectory:

(29) *mw:ii d:a ndê. al:ii d:a*
there_distal 1sImmpastPI+Close left here 1sImmpastPI+Close
lê
go/come
'I left there hither. I went here hither (i.e. from there I left coming, and came over here)'

Rossel has no lexicalized oppositions of the kind expressed in English *come* vs. *go*, or *bring* vs. *take*. There are verbs that at first sight seem to carry these kinds of meaning, e.g. *pwiyé* at first looks like a 'come' verb (and Henderson (1995) so glosses it) – it is the verb normally used to summon someone hither:

(30) *a pwiyé!*
'hither be moving! i.e. come here'

But such uses require collocation with the 'hither' component in the TAMP. Other collocations are possible, e.g. with the associated motion marker to be described below, when a 'thither' interpretation is forced:

(31) *Norbert mênê pwiye knî,*
Norbert 3s/d/pl/PresCI+MOTION go/come 3sProx(ivPostN)
'Norbert is just going away – i.e. has just left here'

Note that the verb *lê* (irregular imperative *lili*), the canonical 'go' verb, can also be used in a summons:

(32) *al:ii a lili!*
here hither go!
'Come here! (or: Go just over there!)'

Thus despite its frequent occurrence in descriptions of movements towards the deictic centre, *pwiyé* cannot encode any such deictic directional trajectory alone.[25]

Instead of lexicalizing deictic oppositions, Rossel expresses these oppositions in the preverbal nucleus, as already described. The actual fusions here are complex and irregular, according to tense, aspect and person, yielding hundreds of unpredictable forms. As mentioned, *kî* and *wu* come to have evidential functions, and can then themselves fuse with other deictics like *a* derived from *ala*. Likewise, the distal deictic *mu* may also take on its anaphoric 'other one' interpretation. The preverbal nucleus fuses with these deictics and other modifiers in the following order[26] (with full unfused forms given, deictics or ex-deictics in bold):[27]

(33) Order of preverbal clitics

Epistemic-	(Fut)-	Addition –	**Distal –**	**Anaphoric –**	Repetition –
kî		*mye*	*mu*	*yi*	*mê*

Negation **–**	TAMP –	Motion –	**Proximal**	
daa	—	*mî/n:aa*	*a/nê*	*wu*

[25] *Pwiyé* is in fact a peculiar verb. It is inherently continuous (rather than punctiliar), but is defective in the past tenses and takes dual inflection with singular meaning.

[26] This slot-and-filler analysis is not in fact adequate, because of some reorderings of the morphemes. See Levinson in preparation.

[27] Because *mu* retains its contrastive anaphoric sense, meaning 'the other place', this now appears to be compatible with movement towards the deictic centre (Henderson 1995: 54). There are some other preverbal forms which I do not fully understand, which also carry deictic specification, for example *kî yedê* and *mênê* clearly seem to signal movement towards and away from the deictic centre, respectively, in the third person proximate past, continuous aspect, but whether the *ye* in *yedê* is related to the addressee-deictic and the *mê* in *mênê* to *mu* 'distal, other', I do not know.

The minimal element *a* fuses with the tense-aspect-mood-person-number marker as illustrated in the following kind of partially irregular pattern (see Henderson 1995: 51ff., 106–7 for more details):

(34) Fusion of deictic marker in preverbal clitic

Epistemic	Repetition	TAMP markers	+Deictic	Fused Form
		chi-(Punct2sImmpast)	*–a*	*cha*
		dpî (Punct2dualImmpast)	*–a*	*dpo*
		nî (Punct1sImmpast)	*–a*	*nî-nê*
		a (Contin+Fut/Pres/Hab)	*–a*	*wunê*
		a (Punct+RemFuture)	*–a*	*a-a*
w–		*a* (Contin+Fut/Pres/Hab)		*wa*
kî		*a* (Contin+Fut/Pres/Hab)		*ka*
	mê	*dê* (Punct3s+Immpast)	*–a*	*mêda*

Thus the main burden of deictic specification in the preverbal nucleus is carried by *a* (or its allomorphs) and its absence: *a* signals movement towards the speaker's present location, its absence conversationally implicates movement elsewhere (for justification of this Gricean analysis see Wilkins and Hill 1995).[28] In addition, the deictic adverbs mentioned above can be used to specify direction toward (*al:ii*) or away from deictic centre. Any motion verb can therefore be marked as indicating movement towards/away from the deictic centre, or in absence of that marking, can be presumed to be unspecified. This additional deictic marking normally fits the assigned argument structure of the verb (with regards to source and goal, e.g. *a* with *lê* will be interpreted as 'go to here', i.e. 'come' – issues to be discussed below), although it seems to have rather more freedom of interpretation than lexical arguments.

There are thus in Rossel no verbs incorporating 'come'/'go' distinctions, and only one-sided marking of a *hither/thither* system. The *hither* or *proximal* form is used for motion directly toward the deictic centre, regardless of whether the motion reaches that centre, or whether it originates or terminates in a specified location; motion that passes by the deictic centre relatively closely would also normally allow, but not require, the use of the 'hither' morpheme. All motion away from the deictic centre does not allow its use, and its absence therefore pragmatically implicates lack of motion towards the deictic centre. However, there is another element fused in the TAMP which can be used to imply a direct *thither* motion, specifically away from the deictic centre. This is the associated motion element (*mî/n:aa*) in the post-TAMP slot above, which in the absence of a proximal goal specification implicates motion away from the deictic centre – further discussed below. A system of this kind has not been reported before in the

[28] This deictic is not actually a *hither* marker, since it can occur happily with statements of location, in which case it indicates location close to deictic centre.

literature. Wilkins and Hill (1995) report a system in Longgu with a 'hither', 'thither' and unmarked set of contrasts, but in Yélî Dnye we have a 'hither' pragmatically contrasting with zero (implicating 'thither'), with that 'thither' interpretation being reinforceable through an associated motion marker and its further implicature.

The free occurrence of this 'hither' or 'proximal' element with any verb has some interesting consequences. In our simple Frog Story text above, the proximal deictic occurs first in the preverbal slot in the description of page 18 (see (25) above): here fused into the TAMP marker *da* (*dê+a*) associated with the verb 'take', it converts a simple proposition of the form 'the deer took the boy' into a scene-description with a perspective, glossing something more like 'the deer came and took the boy'. The deictic centre is, of course, the shifted deixis typical of narrative, here centred on the main protagonist, the boy, and the scene is now viewed from his perspective. In the next sentence, the proximal deictic recurs in the locative construction 'the boy was+Proximal sitting on top of the deer', reinforcing the 'camera angle' previously established.

5.6.2 'Associated motion'

As mentioned, there is another special marker that may occur in the pre-verbal slot: the 'associated motion' marker *-n:aa*, with gloss 'go and VERB', which is postfixed to the TAMP marker. It too has a range of forms, including substitution of the vowel with *-:uu*, and realization as *mî, -mo* or *wumî* when fused with TAMP in certain tense/aspect/person configurations (Henderson 1995: 44–5, from which the following contrasting examples are drawn):

(35) a. *Nkéli kamî dê m:uu*
boat new Immpast.Punct.3sSubj see
ngmê
Prox-Tense.3sObj.PolyfocalSubj
'They saw the new boat today'

b. *Nkéli kamî d:uu m:uu*
boat new Imm.Past.Punct.3sSubj+MOTION see
ngmê
Prox-Tense.3sObj.PolyfocalSubj
'They WENT AND saw the new boat today'

In our Frog Story extract above, the motion marker occurs in the descriptions of pages 21 and 22, in irregular, different fused forms (*n:aa* and *d:uu*), where it is employed to invoke the scene of the deer rushing forward to the brink of the cliff, then stopping, and thus 'going and throwing'. The same scene invokes

the same collocation in other tellings of the story. The prior picture in other tellings of the story also frequently invokes the motion marker, as in 'the deer went and stood at the top of the cliff'.

Interestingly (and unlike Arrernte) the motion marker can occur with the most basic (general) motion verbs, such as *pwiyé* 'coming'/'going', *lêpî* 'going', and also with slightly more specific verbs like *kee* 'ascend'/'enter', as in:

(36) (Picture 17, another telling: R96-V2)
yi tpémi chêêpî kpiyé ngmê mbêmê d:uu
that boy stone big indefinite on PIImmpast3s+Motion
kee
ascend
'That boy went and ascended on top of a big stone'

As mentioned above, some uses of the associated motion marker can implicate motion away from deictic centre, presumably because that is so often the unmarked reference point. Compare for example:

(37) a. *ngomo* ***d:uu*** *kee*
house 3s/d/plImmpast+**Motion** enter
'He went-and-entered the house'

b. *ngomo* ***da*** *kee*
house 3s/d/plImmpast+**Proximal** enter
'He came-and-entered the house'

c. ***ala*** *ngomo* ***d:uu*** *kee*
this house 3s/d/plImmpast+**Motion** enter
'He went-and-entered this house, i.e. he came'

d. *ngomo dê kee*
house 3s/d/plImmpast enter
'He entered the house'

In (a) the motion-away-from-deictic centre is the normal reading in the absence of other specifications. This contrasts with (b), with fused proximal deictic asserting motion towards the deictic centre. However, when we add a proximal deictic to (a), the 'away' interpretation is defeated, as in (c), showing that the associated motion marker carries no inbuilt deictic specifications. Note that (b) also contrasts with unmarked (d), where there is no deictic or associated motion marker: (d) thus suggests *not* motion towards the deictic centre. The implicated nature of the opposition between the Proximal marker and the Motion marker is further shown by the possibility of their co-occurrence. Thus, in summary, the three-way opposition should be understood as follows:

Proximal (here *da*): specifies motion towards deictic centre
Unmarked (here *dê*): implicates motion in any other direction
Associated motion (here *d:uu*): implicates motion away from deictic centre

5.6.3 Spatial distinctions in motion verbs

Yéli Dnye does not fall easily into Talmy's (1983) typology of 'verb-framed' languages (with path-encoding verbs) vs. 'satellite-framed' languages (with manner verbs and path encoded in, e.g., particles). Table 5.8 shows that although typically the path is partially encoded in the intransitive verb, suggesting a verb-framed strategy, there is also a rich set of manner verbs, including the locally important verbs glossing 'move by punting', vs. 'move by sail', etc. (A special curiosity is the verb *m:ii*, mentioned above, meaning 'move in the characteristic manner for the species', thus swim of fish, walk of mammals, fly of birds.) A further problem is that verbs that seem to encode the path, like *kee* 'enter', typically occur with a postpositional phrase too – thus as in Yucatec, one says in effect 'enter inside the house', the PP repeating some of the information in a way that suggests that the path is not in fact fully specified in the verb. Moreover, manner verbs ('run', 'walk', etc.) can be combined with such path-specifying PPs. Note, however, that place names do not carry a postposition, so that ambiguity can arise with regard to source or goal unless the verb-subcategorization encodes this.

The verbs of entering and exiting are worth a special note. First, there is a curious conflation of *kee* 'enter' with 'ascend', possibly explained by the fact that traditional Rossel houses were entered from below by ladder. Thus the verb has two antonyms, *ghîî* 'descend' and *pwii* 'exit'. In addition, *kee* can mean 'go east' (probably through association with the prevailing 'upwind' direction), and *ghîî* can mean 'go west' (through association with the 'downwind' direction; this seems to be an areal feature throughout the Louisiades). Second, as mentioned, both 'enter' and 'exit' verbs collocate with the 'inside' postposition:

(38) *ngomo k:oo da kee/pwii*
house inside 3Immpast+Deic enter/exit
'He entered/exited the house'

As a result, the following sentences could both have the same meaning:

(39) *tpile_pê mgî k:oo kêdê ghîî*
snake hole/(a) in/inside CERT+3s/plImmpast **descend**
'The snake just went (descended) into the hole'

Table 5.8 *Sample of intransitive motion verbs (transitive counterparts in brackets)*

Path-encoding verbs	Manner-encoding verbs
kee 'enter', 'ascend', 'go east'	*m:ii* 'move in characteristic manner of species'
pwii 'exit'	*mbêpê* 'run'
ghîî 'descend, go west'	*ghidi* 'run around'
lóó 'cross over'	*paa* 'walk'
lê 'go from'	*mgeme* 'walk around'
ndê 'leave from'	*paambwi* 'walk aimlessly', 'wander'
yêm 'start off from'	*chââ* 'swim'
diyé 'go and return from'	*pywálî* 'fly away'
pwiyé 'move off from'	*tpyipê* 'sail' (kédi, TV, 'sail a canoe')
	mbye 'punt' (mbimi, TV, 'punt a canoe')
	têêdi 'arrive by boat/canoe'

(40) *tpile_pê puu mênê kêdê kee*
snake hole in/inside CERT+3s/plImmpast enter/**ascend**
'The snake just went (entered/ascended) into the hole'

Such ambiguities can be resolved by use of the incorporated deictics. Thus the most prominent meaning of a sentence like the following is unexpected:

(41) *pyaa ntii u mênê dpo kee*
crocodile sea its inside Punct.3sHab.+**Close** enter/ascend
'The crocodile (habitually) comes hither out of the water'

The reading is forced by the incorporated deictic ('Close') in the preverbal particle *dpo*; with the +Motion marker incorporated instead, as the particle *dp:uu,* the reading 'the crocodile goes into the sea' is now forced instead.

There is one crucial feature of all the motion verbs in Rossel. As mentioned, locatives typically take zero-marking, and there is thus no way to distinguish source and goal (phrase order being free). Notice that even if they are marked with a postposition indicating, e.g., 'inside' as in the examples above, this does not disambiguate between source and goal interpretations. Consequently, the coding of source vs. goal has to be in the verb itself – verbs tend to subcategorize for (or at least collocate with) a single source or goal nominal (a strategy in line with the tendency, mentioned in the introduction, for this language to lexicalize rather than derive or syntactically mark distinctions). A further consequence of this is that full path-specifications with both source and goal typically require more than one clause. Thus in the following, *ghîî* in the sense of 'go west' (as opposed to 'go down') does not colloquially here take a goal specification, and so requires an additional 'go' verb to allow the goal to be specified.

Table 5.9 *Verb-subcategorization for source or goal*[a]

Form	Gloss	Goal-spec	Source-spec
lê/nî	'go'	+	
ndê	'leave'		+
yêm	'start off from'		+
kee	'head east'[b]	(+)	
	'ascend'	+	
	'enter'	+	
ghîî	'head west'	(+)	
	'descend'		+
pwii	'exit'		+
diyé	'go to and return from'	+	+
pwiyé	'move off (from)'	(+)	
mbêpê	'run'	+	+

[a] I have used the term 'subcategorize' for instant recognition of the idea that the verb is encoding the way in which the locative NP is to be understood as source or goal. However, there is reason to believe that what is coded is a *preferential* interpretation rather than a necessary one. For example, *kee* 'enter/ascend' normally requires a goal intepretation, but as we have just seen in the crocodile example, an 'ascend out of' interpretation can be forced by a deictic. Whether this flexibility of interpretation at the margins should be understood as 'coercion' during the unification of meaning, or as betraying an ultimately pragmatic source of the source/goal inference, is a matter unresolvable here. Plus-signs in brackets indicate what seem to be weaker preferences.
[b] The uses of these verbs in the absolute frame of reference, namely *ghîî* 'go down/west', and *kee* 'go up/east', normally collocate with neither goal nor source specification, but nevertheless can take goal specifications.

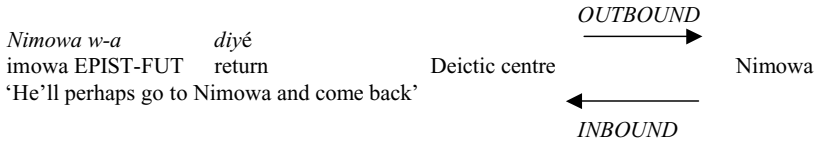
(42) *Mathew kêdê ghîî, Wulî*
Mathew CERT-Immpast3s descend+ProxPast+Punct Wulî-Island
dê lê
Immpast3s go(ProxPast+Punct)
'Mathew has just descended i.e. gone-West, he's gone to Wulî Island'

The motion verbs illustrated in the Table 5.8 above thus come with rather precise expectations of whether they take a goal or source or location NP, as illustrated in Table 5.9 (I provide only the punctiliar immediate past root, although many of them have a large number of distinct roots).

The 'return' verb *diyé* requires a special note, because there are two trajectories: (1) outbound, i.e. source → outbound goal, (2) inbound, i.e. source → inbound goal, where what is goal on the first trajectory becomes source on the next, and vice versa. The verb seems normally to take

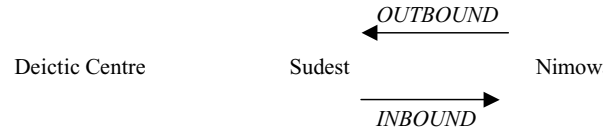
specification of the outbound goal, coincident with the inbound source, with the deictic centre as default inbound goal:

(43)



But the outbound path can be independently specified, in which case a locative NP will be understood as the inbound goal of *diyé*:

(44) *Sudest dê lê, Nimowa a mêdê diyé*
Sudest Immpast3s go, Nimowa Future Again+PunctProx3 return
'He went to Sudest, he will go back to Nimowa again'



Returning to our snippet of Frog Story, notice how goal and source of motion are largely determined by the argument structure of the verb. Thus, in the description of page 17, we have the verb *kee* 'ascend to', which expects a goal, here indicated by the PP 'on the big rock' – the sentence could not mean 'ascend from the big rock'. Similarly, the verbs of throwing expect a goal, and can thus in the description of page 20 take a plain NP 'water side, i.e. river', which will be interpreted as the place thrown to. Last, the description of page 23 has the verb *ghê*, which with the punctiliar aspect has the sense 'moved to', expecting a goal, here given by the NP 'the boy's shoulder'. Notice that in none of these is there any allative marker – such a marker occurs only where the goal is a person (when the 'dative' postposition *ka* is used). Thus in Yélî Dnye, not only do we have a 'verb-framing' pattern in Talmy's (1983) sense of directional marking being lexicalized inside the verb, but in a typologically unusual pattern even source/goal marking is absorbed largely within the verb.

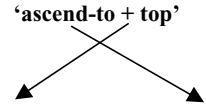
5.6.4 Overall observations on motion description

Focussing again on the brief extract from a telling of the Frog Story, we can now show how these various ingredients help us to understand the construction of narrative space – that is, a spatial model for events. Because motion verbs tend to build in both a path and an expectation of the specification of either source or goal, they severely restrict the interpretation of NPs co-occurring with them. Postpositions, which together with positional verbs are so important in static descriptions, here merely serve to indicate that goal and source are subparts of the locations given by the nouns. The rich set of postpositions

used in the description of static locations dwindles to a mere handful that co-occur with motion verbs. Particles and elements in the TAMP give small, but important, additional information. Thus the associated motion marker serves to indicate that motion precedes or co-occurs with an action, while specification for deictic centre helps to establish one protagonist as the person from whose perspective events are told. The text is repeated here, with a diagrammatic annotation that should help to make clear the contribution of specific formal elements to the construction of a coherent narrative space. Overall we infer the following trajectory information:

(45)

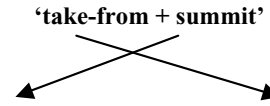
Page 17



yi	*tpémi*	*chêêpî*	*pââ*	*ndîî*	*mbêmê*	*dê*	*kee*
anaphoric	that_boy	stone	body	big	on	3sPIImmpast	go/up/in

'The boy climbed up on the big rock'

Page 18

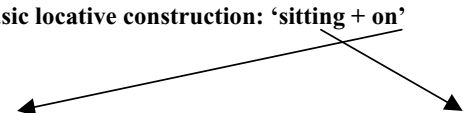


deer	*ngê*	*yi*	*tpémi*	*chêêpî*	*nkwodo*	*da*	*ngî*
deer	ERG	anaphoric	that_boy	stone	top	PIImmpast3s+Deic	take

"The deer came and took the boy from the top of the rock'

Deictic camera angle 'came and'

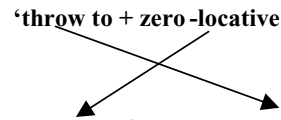
Page 19



deer	*mbêmê*	*yi*	*tpémi*	*a*	*tóó*
deer	on/according	anaphoric	that_boy	DeicProxS	sitting/being(s/d)

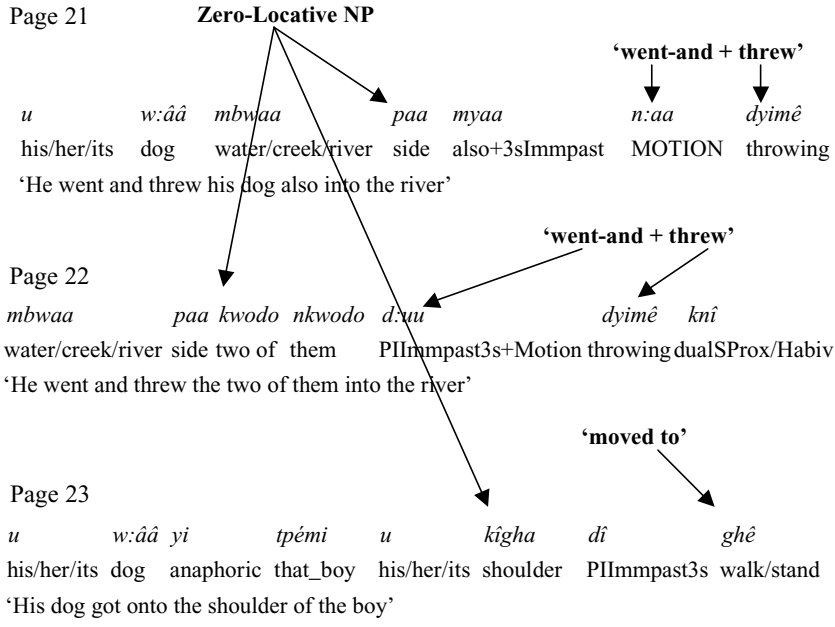
'The boy was sitting here on top of the deer'

Page 20



deer	*ngê*	*yi*	*tpémi*	*mbwaa*	*paa*	*dê*	*kéé*
deer	ERG	anaphoric	that_boy	water/creek/river	side	PIImmpast3s	throw

'The deer threw the boy into the river'



Four other variant tellings of the same Frog Story reveal more or less the same pattern. Complex paths (of the kind 'throw from back over cliff into water') are not expressed. For both simple motion and caused motion ('throw') only one reference location (source or goal) is overtly expressed. Fuller tellings of the story include additional landmarks, e.g. 'the deer went-and-stood (associated motion) on top of the cliff', or include the parallel trajectory of the dog ('the dog was in-shadow-of stone', 'the dog followed them', etc.). But much is left to pragmatic inference, so that, e.g., if motion to X is specified, the source Y must be presumed to be identical to the goal of prior motion event.

5.7 Conclusions

We have now sketched the main patterns of spatial description in Rossel. As mentioned at the outset, the tendency in this language is to lexicalize most of the distinctions that other languages make in morphosyntactic alternations, and with the lack of morphology, deictic specifications in the verb complex take portmanteau form, while adjuncts are strictly limited by verbal subcategorization. Despite the restrictions, spatial descriptions are not especially lengthy, as much can be pragmatically suggested or implicated by careful use of contrastive elements.

There are two areas of the 'grammar of space' which, in comparative perspective, seem especially highly elaborated. One is the area of locative, and

especially topological, descriptions, where there is a very rich set of postpositions, together with a small but precisely articulated set of positional verbs (see Levinson and Meira 2003). Thus it is not surprising that the related intrinsic frame of reference seems fundamental, supplemented by the absolute frame of reference (postpositions and positionals also being involved in frame-of-reference specifications). The second area of special complexity is the deictic system (explored in detail in Levinson in preparation), where it is especially clear that the deictic elements also participate in non-deictic oppositions, often with elements from other sets (requiring a three-dimensional model of the demonstratives, involving, as mentioned above, space, discourse and epistemic status). It is the incorporation of these elements into the preverbal tense-aspect-mood-person particles that enables extremely compact descriptions utilizing deictic axes.

It is notable that motion description does not build on the richness of topological spatial description. As with Tzeltal, stasis and motion invoke different grammatical resources, with richer resources for the description of stasis. This suggests that Talmy's (1983) proposition that motion is universally the primary source of spatial concepts, and stasis derivative, is fundamentally wrong. Motion description is notable for a feature shared by, e.g., Yukatek, namely the absence of complex trajectories within the clause due to a constraint against simultaneous source and goal specification. Although Yélî Dnye is a Papuan language it does not share the typical pattern of Papuan serial verb constructions, which has also fundamentally influenced the Austronesian languages of the area – here the language contrasts with Kilivila (this volume), requiring full intonational clauses for each verb. These two constraints – one source/goal specification, no verb chaining – ensure that motion descriptions require one full clause per motion arc.

6 Prolegomena to a Kilivila grammar of space

Gunter Senft

6.1 Introduction

This chapter presents preliminary remarks on some of the central linguistic means speakers of Kilivila use in expressing their conceptions of space, that is, for referring to objects, persons and events in space.[1] After a brief characterization of the language and its speakers, the chapter sketches how specific topological relations are encoded, how motion events are described and what frames of spatial reference are preferred in what contexts for what means and ends. The paper ends with a summary of the major patterns in topology, motion and frames of references, and with a programmatic outline of how to write a complete grammar of space.

This paper is based on more than thirty months of field research on the Trobriand Islands in 1982/83, 1989 and 1992–8. I want to thank the German Research Society and especially the Max Planck Society for their support in realizing my field research. I also want to thank all the (short-term, visiting and long-term) members of the 'space project' of the Max Planck Institute for Psycholinguistics for the enthusiasm with which we started the project and with which we have been conducting the research so far. Special thanks go to Steve Levinson for having created and for keeping up the stimulating intellectual atmosphere in our joint research. I thank the National and Provincial Governments in Papua New Guinea, the Institute for PNG Studies, and the National Research Institute for their assistance with, and permission for, my research projects. Last but not least I express my great gratitude to the people of the Trobriand Islands, especially to the inhabitants of Tauwema; I thank them for their hospitality, friendship and patient cooperation.

[1] As a member of the Cognitive Anthropology Research Group (now the Language and Cognition Group) and the 'space project' I have been intensively studying and researching the conceptualization of space, spatial reference and the lexicon of spatial expressions in Kilivila for the last nine years. I have been collecting a rich corpus of both elicited and naturally produced data on various kinds of spatial references, on space conceptions and on the actual use of spatial language in various situations in everyday life on the Trobriands. I have been immensely broadening my Kilivila spatial vocabulary and I have been finding many extremely interesting examples of how Kilivila lexicalizes certain spatial configurations of objects themselves, and with respect to their orientation and to their location in relation to each other. However, I want to emphasize that all the data I have been collecting so far are still vastly underanalysed and await further careful analyses. Thus, this contribution can have only the status that is indicated by its title.

6.2 Kilivila – the language of the Trobriand Islanders

Kilivila, the language of the Trobriand Islanders, is one of forty Austronesian languages spoken in the Milne Bay Province of Papua New Guinea.[2] It is an agglutinative language and its general word-order pattern is VOS (Senft 1986). The Austronesian languages spoken in Milne Bay Province[3] are grouped into twelve language families; one of them is labelled Kilivila. The Kilivila language family encompasses the languages Budibud (or Nada, with about 200 speakers), Muyuw (or Murua, with about 4,000 speakers) and Kilivila (or Kiriwina, Boyowa, with about 25,000 speakers); Kilivila is spoken on the islands Kiriwina, Vakuta, Kitava, Kaile'una, Kuiawa, Munuwata and Simsim. The languages Muyuw and Kilivila are each split into mutually understandable local dialects. Typologically, Kilivila is classified as a Western Melanesian Oceanic language belonging to the 'Papuan-Tip-Cluster' group (Capell 1976: 6 and 9, Ross 1988: 25, 190ff., Senft 1986: 6).

The Trobriand Islanders have become famous, even outside of anthropology, because of the ethnographic masterpieces on their culture published by the anthropologist Bronislaw Kaspar Malinowski, who did field research there between 1916 and 1920 (see Senft 1999a). The Trobrianders belong to the ethnic category called 'Northern Massim'. They are gardeners, doing slash and burn cultivation of the bush; their most important crop is yams. Moreover, they are also famous for being excellent canoe builders, carvers and navigators, especially in connection with the ritualized 'Kula' trade, an exchange of shell valuables that covers a wide area of the Melanesian part of the Pacific (see Malinowski 1922, Leach and Leach 1983, Persson 1999). The society is matrilineal but virilocal.

Kilivila is of special interest to linguists for various reasons:[4] It is a language with VOS word order as its unmarked word-order pattern, it is a language with

[2] Today 869 languages are still spoken in Papua New Guinea; however, most of these languages (but not Kilivila) are highly endangered.

[3] In Milne Bay we also find 'at least eight non-Austronesian languages' (Lithgow 1976: 446).

[4] Besides my own linguistic work on Kilivila (for a selection of my publications see Senft (1996a: 366–7, 359)) there is Fellows' (1901) early sketch of aspects of Kilivila grammar, an unpublished (and also undated) manuscript by Father B. Baldwin (M.S.C.) of the Catholic Mission in Gusaweta, who tried to describe Kilivila from a diachronically oriented point of view by comparing it with Indonesian. We have Malinowski's publications on 'classificatory particles' (Malinowski 1920), on 'the language of magic and gardening' (Malinowski 1935) and on 'the problem of meaning in primitive languages' (Malinowski 1936). There is a translation of parts of the Old and New Testament by McGhee and Dwyer (1949), a Catholic (kind of) catechism (Cunningham 1990), a translation of the Four Gospels and of the New Testament and a translation of 'The Shorter Old Testament and The New Testament' by the United Church missionary Lawton (1979, 1984, 1997), a compilation of Lawton's linguistic studies (Lawton 1993; see Senft 1996c) and an introduction to Kilivila in the *Comparative Austronesian dictionary* (Lawton: 1995, see Senft 1996b). Moreover, a few Kilivila texts are published, both with and without comments and accompanying analyses (Baldwin 1945, 1950, Kasaipwalova 1978, Kasaipwalova and Beier 1978a, b, Hutchins 1980, Leach 1981); and Scoditti has written on Kitava visual

rather complex serial verb constructions (see Senft 1986: 39–42), its marking of tense/aspect/mood is rather complex and difficult to describe without access to detailed contextual information (see Senft 1994a), and it seems that the terms 'transitive' and 'intransitive' are basically inadequate for describing the verbal expression and the argument structure of Kilivila (see Senft 2000a; see also Mosel and Hovdhaugen 1992: 720ff.).

Moreover, Kilivila has a fourfold series of possessive pronouns, partly realized as free possessive-pronominal-pronouns, partly realized as possessive-pronominal-affixes. One of these series is produced only in a specific semantic context, referring to food, the other three series are used to distinguish different degrees of possession; one series marks inalienable possession, two series mark alienable possession of inedible things (Senft 1986: 47–54). These possessive-pronominal forms classify the Kilivila noun. Finally, Kilivila is probably most interesting for linguists because it is a classifier language with a complex system of nominal classification that consists of quantifiers, repeaters and numeral classifiers proper. I refer to all these formatives within this sophisticated system with the general term Malinowski coined for them, Classificatory Particles (CP).

The Kilivila system of CPs encompasses at least 177 formatives. I assume that with all the subtle and very specific differentiations possible, there are probably more than 200 CPs in Kilivila. Moreover, if we keep in mind all the pragmatic functions CPs can serve, the Kilivila CP system can even be regarded as a basically open system. The system of noun classification is an important means of word formation with all but one of the demonstrative pronouns, with one form of (numerical) interrogative pronouns/adverbs, with two classes of adjectives and with numerals. These word classes require concord with the class of the noun they refer to. This concord is secured by the CPs that are infixed or prefixed to the respective word frame or word stem. I have described the morphology of this system of nominal classification, the functions of the classifier system, its acquisition, its inventory (produced in actual speech), the processes of language change that affect the system and the semantics of the Kilivila classifier system in detail elsewhere (Senft 1996a, 2000a); for the sake of illustration I will present just two sentences containing the four word classes – i.e. (numerical) interrogative, demonstrative, adjective and numeral – which are involved in the Kilivila system of noun classification (Senft 1996a: 17f.):

art and poetics (Scoditti 1990, 1996; see also Senft 1993a). For further references to publications on the language and culture of the Trobriand Islanders see Persson (1999) and Senft (1986: 155–7, 163–73; 1996a: 355–69). After Malinowski's pioneering research on the Trobriands the most important anthropological contributions are Powell (1957) and Weiner (1976, 1988).

(1) *Kevila waga lekotasi?*
ke-vila *waga* *le-kota-si*
CP.wooden-how many canoe 3.Past-arrive-Pl
'How many canoes arrived?'

(2) *Keyu waga makesina kemanabweta (lekotasi)*
ke-yu *waga* *ma-ke-si-na*
CP.wooden-two canoe Dem-CP.wooden-Pl-Dem
ke-manabweta *(le-kota-si)*
CP.wooden-beautiful (3.Past-arrive-Pl)[5]
'These two beautiful canoes (arrived)'

Here the speakers of these sentences refer to 'canoes'; they have to indicate the noun class of 'canoe' with the CP for 'wooden things' – '(-)*ke*(-)' – in the interrogative pronoun, in the numeral, in the demonstrative pronoun and in the adjective.

These few remarks suffice for this brief sketch of characteristic features of the Kilivila language. In one of the examples just presented we notice the use of demonstrative pronouns that refer to objects in space. This brings us back to the central topic of this paper, the description of some of the central linguistic means speakers of Kilivila use in expressing their conceptions of space and for referring to objects, persons and events in space. In the following I begin by sketching how specific topological relations are encoded.

6.3 Topological relations

In his examination of grammaticalization processes which led to the development of locative expressions (in, on, behind, etc.) in more than 100 Oceanic languages, Bowden (1992) shows that expressions which are used to describe spatial relationships derive almost exclusively from body-part nouns or from nouns referring to environmental landmarks such as 'earth' and 'sky'. He emphasizes at the very beginning of his study that 'locative concepts usually encoded formally by prepositions in English will not normally find their semantic counterparts in the languages of other parts of the world' (Bowden 1992: 2). However, as already noted elsewhere (Senft 1997: 18f.), this observation is nothing new: Wilhelm von Humboldt (1963 [1822]: 51–2) notes:

[5] The following abbreviations are used: CP – Classificatory Particle; Dem – Demonstrative; Dir – Directional; Emph – Emphasis; FoR – Frame of Reference; Fut – Future; incl – inclusive; INTR – Intrinsic FoR; Loc – Locative; Past – Past; Pl – Plural; PPII – Possessive pronoun series II (indicating a degree of possession intermediate between intimate and more distant possession); PPIII – Possessive pronoun series III (indicating a more distant degree of possession); PPIV – Possessive pronoun series IV (indicating intimate, inalienable degree of possession); Prep – Preposition; REL – Relative FoR; SVC – serial verb construction.

Man kann daher mit Recht bezweifeln, . . . dass es ursprünglich Praepositionen . . . im wahren Sinne des Wortes gegeben habe. Alle haben vermuthlich, nach Horne Took's richtiger Theorie, ihren Ursprung in wirklichen, Gegenständen bezeichnenden Wörtern.[6]

Moreover, Ray notes in his description of the Baki language published in 1926 that 'some words used as prepositions and adverbs are probably nouns' (Ray 1926: 255); and with respect to compound prepositions in To'aba'ita, Ray (1926: 511) observes that they 'consist of local nouns preceded by the locative prepositions'. A number of grammars of Oceanic languages indeed tend to avoid the term 'preposition', and 'there is no real consensus on which labels should be applied' (Bowden 1992: 3). However, as a general finding we may note that in Oceanic languages many locatives – to use what is probably the most neutral term to describe the functional category[7] – share some characteristics with nouns – especially with nouns that refer to the human body or to body parts. Thus, we find, for example, the adoption of a concept like 'face' to express the locative concept 'front'. These concepts undergo a process of 'grammaticalization'[8] that changes their status from initially being members of open grammatical categories – with less grammatical status – into members of closed-class categories with more grammatical status. With the systems of locatives in Oceanic languages we do not only find that it is the body, but also, e.g., the (parts of the) house, that functions as a source domain (see Bowden 1992: 54–7). Moreover, we also find culturally and geographically determined, and thus non-universal, locative adpositions that express concepts like 'sea', land' and so on (see Senft 1997: 18–22, 24–32).

The general observations with respect to the grammaticalization processes of locatives in Oceanic languages also hold for Kilivila. In Kilivila we find utterances like the following ones (see Senft 1994b, c):

[6] 'It is highly doubtful . . . that prepositions in the strict sense of the term existed initially. It is quite probable – according to Horne Took's convincing theory – that they have their origin in words that refer to real objects' (my translation (G.S.)).

[7] Bowden (1992: 4) defines the term 'locative' as follows: 'I use "locative" as a functional category. Anything that is used to mark a locative relation, whether it is a noun, adverb, preposition, affix or anything else is called a "locative".' See also Senft (1997: 19).

[8] With the beginning of the 1990s we observe the revival of the classic concept of 'grammaticalization' in linguistics (see, e.g., Heine, Claudi and Hünnemeyer 1991, Traugott and Heine 1991, Hopper and Traugott 1993, Lehmann 1995). The basic idea for this concept came from the British scientist Horne Took. Wilhelm von Humboldt refers to him in his discussion of what we now would call 'grammaticalization' processes of words referring to 'real objects' into prepositions (Humboldt 1963 [1822] 51f.). The term 'grammaticalization' was first coined by Meillet (1912), but – as John Bowden (1992: 6ff.) rightly emphasizes – it is with Kuryłowicz (1965) that modern interest in the subject began. Meillet (1912) already claimed that grammatical forms could be traced back either to processes of analogy (e.g. irregular verbs become regular) or to the development of lexical morphemes into grammatical morphemes. In 1965 Kuryłowicz defined the concept of 'grammaticalization' as follows: '[Grammaticalization] . . . consists in the increase of the range of a morpheme advancing from a lexical to a grammatical or from a less grammatical to a more grammatical status' (Kuryłowicz 1965: 52). See also Senft (1993b).

(3) a. *Gidageda o lopola sena gaga.*
gidageda o lopo-la sena gaga
pain in stomach-3.PPIV very bad
'The pain in her/his stomach is very bad.' (Pain in one's stomach is very bad)

b. *Gidageda olopola lopola sena gaga.*
gidageda olopola lopo-la sena gaga
pain in(side) stomach-3.PPIV very bad
'Pain in one's stomach is very bad.' (Stomach ache is very bad)

c. *Minana dikwakwekula olopola boteli esisu.*
Mi-na-na dikwakwekula olopola boteli e-sisu
Dem-CP.animal-Dem frog in(side) bottle 3.-be
'This frog is inside the bottle.'

In these examples we find the locatives *o* (in) and *olopola* ('in', 'inside'), and with this latter locative we observe the interesting phenomenon of grammaticalization mentioned above. This process affects the locative *o*[9] and the body-part term *lopo-la* ('stomach') that obligatorily needs a possessive pronominal suffix indicating an intimate degree of possession. As mentioned in Section 6.2 above, there is a fourfold series of possessive pronouns in Kilivila. I refer to the series of pronouns that are suffixed to most of the body-part terms (see Senft 1998a) as 'possessive pronouns IV' and abbreviate this expression as 'PPIV'. Thus, the locative *olopola* diachronically comes from 'Loc-stomach'. Like many other Oceanic languages, Kilivila grammaticalizes body-part terms (see Senft 1986: 88–91) into locatives:

odabala 'on, on top (of)'
(<Loc->**daba-PPIV** – *head, forehead, brain*)
okopo'ula 'behind, back, behind him/her'
(<Loc->**kapo'u-PPIV** – *back*)
olopola 'in, inside (of), in the middle (of)'
(<Loc->**lopo-PPIV** – *belly, windpipe, innards*)
omatala 'in front (of), before, before him/her'
(<Loc->**mata-PPIV** – *eye*)
ovadola 'on, on top (of), on the surface (of), at the mouth/opening (of)'
(<Loc->**vado-PPIV** – *mouth*)
okanivala 'at the side (of) (a person only)'
(<Loc->**kaniva-PPIV** – *hip*)
okepapala 'near, close by, beside, at the side (of)'
(<Loc->**kepapa-PPIV** – *side, flank*)

[9] This locative can also be classified as a preposition (see Senft 1986: 93, 1994b, c).

We also find the following grammaticalized forms to express the concepts 'left' and 'right':

okakata	'on the left-hand side, on the left' (<Prep->**kakata** – *left, left-hand side*),
okikivama	'on the right-hand side, on the right' (<Prep->**kikivama** – *right, right-hand side*).

With these expressions (as well as with some other locatives that grammaticalize terms other than body-part terms into locatives) we are confronted with a quite complex problem of syntactic classification (see Senft 1986: 90ff.).

The expressions classified as 'locatives' can also function (and be classified) as both 'prepositions' and 'adverbs of place'. On the other hand, many Kilivila adverbs of place, like, e.g., *olakeva* ('on top of, above, up, in the sky, over'), also serve the function of prepositions or locatives, according to their specific function in the sentence.

Moreover, expressions like *omatala* – ('in front of (his/her eyes)'), *ovadola* ('on, on top of, on the surface of, at the mouth (opening) of (her/him)') and so on can also be classified syntactically as local adverbials consisting of a prepositional phrase with the preposition/locative *o* ('in, into, to') and the noun *mata-la* ('eye, her/his eye') and *vado-la* ('mouth, her/his mouth').

With all these constructions, the form with the suffix '*-la*' always has a neutral meaning, besides the expression of third person singular as its referential function. Thus, we have, e.g.,

omatala 'in front (of), before' (neutral meaning),
and
omata-la 'in front of her/him' (referential function)
– (compare here: *omata-gu* 'in front of me'
omata-m 'in front of you', etc) –

besides the prepositional phrase

omatala 'in front of her/his eyes'
(the forms *omatala/o matala* must be parsed as *o(-)mata-la* in(-) eye-3.PPIV).

These variants shed some light on the stages of the grammaticalization processes: it may well be that the prepositional phrase

o *mata-la*
Loc eye-3.PPIV
'in front of her/his eyes'

was first grammaticalized into the expression

omata-la
in front of-3.PPIV
'in front of her/him' (referential function),

which was then grammaticalized into the locative/preposition/local adverb

omatala
'in front (of), before' (neutral meaning).

To finish this brief discussion of grammaticalization processes that affect the locative and nouns like body-part terms '*o*', it should be noted that body-part terms like *mata-PPIV* can also be used metaphorically, as illustrated in the following question:

(4) *Matala makena kai ambeya*
mata-la *ma-ke-na* *kai* *ambeya*
eye-his/her Dem-CP.wood/rigid-Dem stick where
'The tip of this stick where (is it)'
emwa yokwa?
e-mwa *yokwa*
3.-come to you?
'does it come to you?'

In this sentence the consultant asked for some information about a certain direction. To indicate directions and/or locations, Trobriand Islanders have to decide whether (i) they want to specify the goal or location with a personal or place name, or whether (ii) they want to specify the goal or location as a specific place, but without a place name or proper name, or whether (iii) they want to refer to the goal or location (or to the general direction where this goal or location is) with a general term. If they can, and want to, refer to the goal or location with a place or a proper name, they do not use any locative whatsoever:

(5) *Bala Losuia*
Ba-la *Losuia*
1.Fut-go Losuia
'I will go to Losuia (name of a village).'

If they want to refer to the goal or location with a more specific term or if they want to refer to a specified place at the destination of a motion event, they use the locative *o* – which functions comparably to a definite article, i.e. the locative incorporates a feature of definiteness for the governed noun phrase.

(6) *Bala o buyagu*
Ba-la o buyagu
1.Fut-go Loc garden
'I will go to the garden.' (i.e. my personal, specific garden plot)

If they want to refer to the goal or location with its most general term, or if they want to refer to the general direction in which this goal or location is, or if they want to refer to an unspecified place at the destination of a motion event, they use the directional *va*:

(7) *Bala va bagula*
ba-la va bagula
1.Fut-go Dir garden
'I will go to the garden.' (general, unspecified expression for 'garden')

However, these rules do not hold for goals or locations that are body parts. If the goal or location is a body part, the speakers seem to take it as something more specified and thus use the locative *o* again (as illustrated in (3a) above).

The Kilivila system of locatives[10] allows its speakers to clearly distinguish, and refer to, topological relations. However, to make such a reference as idiomatic and unequivocal as possible, positional and sometimes also motion verbs are used together with the respective locatives. In what follows a few examples for such spatial references are presented. They were elicited with the 'Topological Relations Picture Series' (TRPS; see Chapter 1, §1.4.1). The first of the following examples (9a–g) illustrates the variety of responses elicited from my consultants. With the question:

(8) *Ambe panikeni?*
where cup
'Where's the cup?'

which I asked presenting Picture 1 (cup on table), I elicited responses such as the following:

(9) a. *Odabala*
'On top'

b. *Odabala tebeli*
on top (of) table
'On top of the table'

c. *O tebeli*
Loc table
'On the table'

[10] For the full list of (grammaticalized) locatives see Senft (1986: 88–91, 93).

d. *Odabala tebeli ekanukwenu*
odabalatebeli e-kanukwenu
on top (of) table 3.-rest
'It rests on top of the table'

e. *Panikeni o tebeli o dabala etota*
panikeni o tebeli o daba-la e-tota
cup Loc table Loc head-3.PPIV 3.-stand
'The cup is standing on the table, on its top'

f. *Makwelana panikeni o tebeli etota*
ma-kwela-na panikeni o tebeli e-tota
Dem-CP.potlike-Dem cup Loc table 3.-stand
'This cup is standing on the table'

The following examples present just one typical response of the consultants to pictures from the TRPS. Picture 2 (apple in bowl) elicited responses such as

(10) *Bovada olopola kwena ekanukwenu*
bovada olopola kwena e-kanukwenu
pumpkin inside pot 3.-rest
'The pumpkin (there are no apples on the Trobriands) rests (lies) inside the pot'

Picture 3 (stamp on letter) elicited responses such as

(11) *Miyana leta ekausi stampa epakisi otapwala*
mi-ya-na leta e-kau-si stampa e-paki-si otapwala
Dem-CP.flexible-Dem letter 3.-take-Pl stamp 3.-glue-Pl at the side
'They take this letter and glue a stamp on its side'[11]

Picture 10 (ring on finger) elicited responses such as

(12) *Bida esela o imitabola*
bida e-sela o imitabo-la
bead 3.-put Loc finger-3.PPIV
'The bead (ring) is put on her finger'

Picture 13 (lamp over a table) elicited responses such as

(13) *Lampa olakeva tebeli esoya*
lampa olakeva tebeli e-soya
lamp over table 3.-hang
'The lamp is hanging over the table'

[11] It seems that the locative *otapwala* is not the result of a grammaticalization process that affected a body-part term; but again I cannot present sound information with respect to its derivational morphology.

Picture 16 elicited responses such as

(14) *Manakwa boli osukwavela sea ekanukwenu*
ma-na-kwa *boli* *osukwavela* *sea* *e-kanukwenu*
Dem-Dem-CP.thing ball under(neath) chair 3.-rest
'This ball rests (lies) under a chair'

The locative *osukwavela* seems to be the result of a grammaticalization process that affected the (general) locative *o* and the expression *sukwava* which refers to the space between the floor of a Trobriand house and the ground; most houses on the Trobriands are built on stilts.

The pictures 30 (arrow in/through apple) and 70 (apple on a skewer) elicited very similar responses, like, for example:

(15) a. *Ebabisi o keyala*
e-babi-si *o* *keyala*
3.-spear-Pl Loc spear
'They spear it (it is) on the spear'

However, here consultants also responded with answers that avoid locatives by expressing the spatial relation just with a series of verbs, as in

(15) b. *Ekausi keyala esuvisi miyana bovada ebasisi*
e-kau-si *keyala* *e-suvi-si* *mi-ya-na*
3.-take-Pl spear 3.-enter-Pl Dem-CP.flexible-Dem
bovada *e-basi -si*
pumpkin 3.-stab -Pl
'They take a spear, they enter this pumpkin (with it) they spear (it)'

Both these reactions to the pictures presented in this elicitation test are perfect answers in Kilivila. Example (15b) documents rather strikingly the important role of verbs in spatial reference. In many of the responses elicited with the TRPS, the consultants produced locatives together with positionals (see, e.g., (9d–f)) and motion and action verbs, which specify the manner and other characteristic features of the topological relation depicted in the pictures. However, the most natural reaction to the simple elicitation question 'Where is X?' (see (8) above) were elliptic utterances (as illustrated in (9a–c) above). The positionals most often elicited are **-***sisu***-** ('to be, to exist, to live'), **-***kanukwenu***-** ('to rest, to lie down'), **-***tota***-** ('to stand') and **-***soya***-** ('to hang'). The first three of these positionals were produced interchangeably (see (9d–f) above) for referring to a great variety of scenes,[12] but the verbal expression **-***soya***-** was produced to refer

[12] I presented eighty stimuli to my informants (stimuli like the picture showing 'mustard on sausage' could not be used, because the depicted concept is unknown to the Trobrianders). In what follows I present the three positionals *-sisu-*, *-kanukwenu-* and *-tota-* and the number

to 'hanging' scenes only. These positionals seem to represent core members of the class of Kilivila positionals, though we also find more specific positionals produced here (as well as in other elicitation tasks (Senft 1994b: 62)), like, for example, **-***kokeva***-** ('to be at sea'). In twenty-two cases the consultants produced positionals together with action verbs like **-***sipu***-** ('to tie'), **-***sagi***-** ('to stick'), **-***sela***-** ('to put') and **-***karopusagi***-** ('to spear'), and in a few cases the consultants also produced the motion verbs **-***sakaula-* ('to run'), **-***suvi***-** ('to enter'), **-***mwena***-** ('to climb'), **-***rekukwa***-** ('to swing') and **-***you***-** ('to fly'). As illustrated above ((11), (15b)) there are a few cases where some of the consultants did not produce positionals at all but action verbs. In most of these cases the scenes used for elicitation depicted spearing actions and adornments. However, here the informants' reactions are not systematic, either. To summarize, positionals – sometimes produced in combination with action and motion verbs – seem to play a crucial role for topological reference in Kilivila. The next section presents and describes some of the basic motion verbs and their function in Kilivila motion descriptions.

6.4 Motion

As pointed out elsewhere (Senft 1999b, 2000b) there are a number of proposals in the linguistic literature for defining motion verbs and, more generally, for defining how motion events are linguistically coded. However, so far we do not have a general – notional – definition of motion verbs in linguistics. Lucy (1994) points out that it is far from clear whether what we notionally call 'motion verbs' correspond to a formally defined verb class in any given language.[13] For the purposes pursued here it should suffice to state that – despite this linguistic problem – speakers of any language talk about motion events and that their languages offer them the verbal means to do so. Although Miller and Johnson-Laird (1976: 529) point out that we have (at least) to differentiate between 'verbs of motion-in-place' and 'verbs of locomotion', I assume the commonsense argument that all the verbal expressions or verbs speakers use in their languages to refer to motion and locomotion events can – at least pretheoretically and, of course, notionally – be regarded as being motion verbs. Thus, by 'motion verb', all that is meant here is verbs that refer to what we would commonsensically call motion – as far as I know these verbs do not form a coherent minor form class by any morphosyntactic criteria (see Senft 1999b).

of stimuli for which they were produced alone and interchangeably: *-sisu-* (2), *-tota-* (6), *-kanukwenu-* (16), *-sisu-* / *-kanukwenu-* / *-tota-* (14), *-sisu-* / *-kanukwenu-* (18), *-sisu* - / *-tota-* (9), *-kanukwenu-* / *-tota* - (9).

[13] I have discussed this problem in detail elsewhere (Senft 2000). See also Wilkins and Hill (1995).

To introduce the description of motion it will be best to begin with a text fragment that I elicited from my consultants using four pictures from the picture storybook *Frog, where are you?* by Mercer Mayer (1969: Pictures 15–18). In what follows, Ilakelava, a middle-aged woman, tells the young girl Ilaketukwa the 'Frog Story'.[14]

(16) Picture 15
Eweki dia o . . . odabala koya
e-weki dia o odabala koya
3.-go.and.rush.to deer Loc on top of mountain
'She goes and rushes to the deer on . . . on top of the mountain'

Isila o kayola isakauvali
i-sila o kayo-la i-sakauvali
3.-sit Loc neck-3.PPIV 3.-run.with
'She sits on its neck, it runs with (her)'

(17) Picture 16
Isakauvali itobusiya imweya
i-sakauvali i-tobusiya i-mweya
3.-run.with 3.-climb.down 3.-take.away
'It runs with (her) it climbs down it takes (her) away',

itobusiya imweya va keda
i-tobusiya i-mweya va keda
3.-climb.down 3.-take.away Loc street
'it climbs down it brings (her) to the street',

esakauvali bilau
e-sakauvali bi-lau
3.-run.with 3.Fut-take.away
'it runs with (her) it will take (her) away (without consent)'

(18) Picture 17
Isakauvaliwa ivilobusiya, ikapusi, m,
i-sakauvali-wa i-vilobusiya i-kapusi m
3.-run.with-only 3.-come.out 3.-fall hm
'It runs with (her) it comes out, it falls, hm',

mtona gwadi, ikanava va vaya kena
m-to-na gwadi i-kanava va vaya kena
Dem-CP.human-Dem child 3.-lie.down Loc river or
'this child, it lies down in the river or'

[14] Like many other consultants, Ilakelava substitutes the little boy presented in the pictures with her listener, a girl. Thus, she refers to the (male) protagonist of the story with Ilaketukwa's name – just to make the story more interesting for the little girl and to capture her attention.

ilala o bwalita
i-la-la o bwalita
3.-go-Emph Loc sea
'it goes indeed (in)to the sea'

(19) Picture 18
Ikapusi ila o bwalita e ikokuva,
i-kapusi i-la o bwalita e i-kokuva
3.-fall 3.-go Loc sea and 3.-dive
'She falls she goes to the sea and she dives',

minana ivekeyawa. Ikapusi
mi-na-na i-vekeya-wa i-kapusi
Dem-CP.animal-Dem 3.-go.and.follow-only 3.-fall
'this animal it goes and follows (her). She falls'

mtona Ilaketukwa e ilawa olopola
m-to-na Ilaketukwa e i-la-wa olopola
Dem-CP.human-Dem Ilaketukwa and 3.-go-only inside
'this Ilaketukwa, and she goes inside'

bwalita ikapusi. Dia leva, isila o kayola.
bwalita i-kapusi dia le-va i-sila o kayo-la
sea 3.-fall deer 3.Past-go to 3.-sit Loc neck-3.PPIV
'the sea, she falls. The deer came to (this place), she sat on its neck'

This relatively brief excerpt from my corpus of 'Frog Stories' illustrates that Kilivila does not only have a large number of motion verbs but that it also uses these verbal expressions in more or less complex serial verb constructions (see Senft 1986: 39–42, 1999b). I do not have any formal evidence for subdividing the Kilivila motion verbs into subclasses; however, a closer look at these verbs shows that answers to the following questions are basic for the differentiation of motion verbs and thus are central for an adequate lexical semantic description of these expressions:[15]

- Is the source and/or the path and/or the destination of the motion known or not?
- Is the motion oriented towards, or away from, the speaker?
- Is the motion the speaker refers to deictically anchored in the speaker?
- Is the place of the speaker at the destination of the motion or not?
- Is the destination of the motion another place or another person than the speaker and her or his place?
- Does the motion start or is it completed?

[15] Most of these questions are also relevant for Talmy's (1975) definition of the 'motion situation' with its central subconcepts of 'figure, ground, path', and 'motion'. See also Talmy (1991) and Aske (1989).

- Is the motion on the horizontal or on the vertical plane?
- Is the manner of the motion encoded in the verbal expression?

On the basis of such considerations I have described a subset of motion verbs in Kilivila that express the concepts 'come', 'go', 'enter' and 'exit' in detail elsewhere (Senft 1999b, 2000b). Here I want to give just two of these descriptions, the description of the motion verb **-*la*-** (see example (18) above), and the description of the motion verb **-*ma*-** (see examples (26) and (27) below).

The verbal expression **-*la*-** is used to refer to all kinds of motion events that are directed away from the speaker; this implies, of course, that the place of the speaker is not at the destination of the motion. The motion event itself can, but need not, be deictically anchored in the speaker. Source, path and destination of the motion may or may not be known. We can gloss this motion verb as 'to go'.[16] For all motion verbs expressing 'motion away from the speaker' it is crucial whether and how information with respect to source, path and destination of the motion is encoded.

The verbal expression **-*ma*-** is used by speakers to refer to motion towards the speaker. Source, path and destination of the motion may or may not be known to the speaker. The speaker's place may or may not be at the destination of the motion referred to. The expression can be glossed as 'to come'. For all motion verbs expressing 'motion towards the speaker' it is crucial whether and how information with respect to source, path, destination and speaker's place at the destination is encoded (for detailed analyses see Senft 1999b, 2000b).

As the examples presented in (16)–(19) above show, there are also verbal expressions that indicate the manner of the motion, such as, e.g., the verb **-*weki*-** ('to go and rush to' (this verb also expresses reference to a specified destination)); we observe verbs that lexicalize the fact that the motion of an actor also involves someone (or something) else, such as, e.g., the expressions -*sakauvali*- ('to run with') and -*vekeya*- ('to go and follow'), and verbs that mark motion in the horizontal and the vertical plane, such as, e.g., the expressions -*vilobusi*- ('to come out (of something on the horizontal plane)'), -*tobusiya*- ('to climb down'), and -kapusi- ('to fall'). We also find a number of verbs in Kilivila (which are not represented in the examples given above) that express complex notions such as, e.g., -*vabusi*- ('to go down to the beach'), -*valagua*- ('to go up to the village'), etc.

Moreover, as already mentioned above, Kilivila uses (rather complex) serial verb constructions (from here onwards abbreviated as SVC) for reporting

[16] Compare Deborah Hill's description of *la* ('go, travel') and *la hou* ('go away from deictic centre') for the Austronesian language Longgu that is spoken on Guadalcanal, Solomon Islands, in Wilkins and Hill (1995: 231ff.).

complex motion events. In (17) above Ilakelava uses three SVCs to describe the motion of the deer with the child on its back in her interpretation of Picture 16: *isakauvali itobusiya imweya* . . . ('It runs with (her) it climbs down it takes (her) away'), *itobusiya imweya* . . . ('it climbs down it takes her away'), . . . *esakauvali bilau* ('it runs with (her) it will take (her) away without consent'). In (18) she starts her description of Picture 17 with the SVC *Isakauvaliwa ivilobusiya* . . . ('It runs with (her) it comes out . . .') that refers to the motion of the deer,[17] and in (19) Ilakelava describes the protagonist's falling depicted in Picture 18 with the SVC *Ikapusi ila*. . . . ('She falls she goes. . . .') with the specification of the location *o bwalita* ('to the sea'). These SVCs are frequently used in descriptions of motion events. Similarly, referring very idiomatically to the fact that a man is entering a house, one of my consultants produced the following sentence (see Senft 1999b):

(20) *Etota va doa e bisuvi bila va bwala e biloki tebeli manakwa etota*
e-tota va doa e bi-suvi bi-la va bwala
3.-stand Loc door and 3.Fut-enter 3.Fut-go Loc house
'He stands in the direction of the door and he will enter he will go into the house'
e bi-loki tebeli ma-na-kwa e-tota
and 3.Fut-walk.arrive table Dem-Dem-CP.general 3.-stand
'and he will walk and arrive[18] at this table and he stands (there)'

In this utterance the speaker refers with the SVC *bisuvi bila* ('he will enter he will go)' and the specification of the location *va bwala* ('into the house') to the act of entering a house. Note that he also starts and finishes his utterance with the positional *etota* ('he stands'); in Kilivila motion event reports are often accompanied by positionals that express the initial and/or final state of the action.[19] The manner of the movement 'entering going' is encoded in the SVC.

[17] Note that the verb that follows this serial construction – namely *ikapusi* refers to the child that is falling; the fact that the SVC consists of only the first two verbs (that refer to the motion of the deer) in this utterance is also marked by the speaker with a brief pause after the second verb of the serial construction. For an excellent survey on the state of the art in the description and analysis of SVCs see Durie (1997); for the role of pauses in SVCs see Givón (1990).

[18] The verbal expression **-***loki-* used in this sentence can be defined as follows: **-***loki***-** refers to motion away from the speaker. The focus of this expression is on the completion of the motion, or the arrival of the object or person moving away from the speaker. It implies that the action of the motion away from the speaker is completed and that the destination of the motion is known. The motion event the speaker refers to can, but need not, be deictically anchored in the speaker. Information about the source and the path of the motion may or may not be known to the speaker. The expression can be glossed as 'to go/walk and arrive (at a known destination)' (see Senft 2000).

[19] I have already emphasized the important role of verbal expressions in all kinds of spatial reference at the end of Section 6.3 where I discussed the expression of topological relations in Kilivila.

To describe different ways of entering a house, a Trobriand Islander would produce utterances like, for example, the following ones:

(21) a. *Esuvi esakaula olopola bwala*
e-suvi e-sakaula o la bwala
3.-enter 3.-run Loc 3.PPIII house
'He enters he runs into his house.' (He is entering running into his house)

b. *Esuvi ekavagina o la bwala*
e-suvi e-kavagina o la bwala
3.-enter 3.-crawl Loc 3.PPIII house
'He enters he crawls into his house.' (He is entering crawling into his house)

c. *Esuvi epela o la bwala*
e-suvi e-pela o la bwala
3.-enter 3.-jump Loc 3.PPIII house
'He enters he jumps into his house.' (He is entering jumping into his house)[20]

These examples illustrate that, besides the two lexicalization patterns for manner-of-motion events that Talmy (1985, 1991) classifies and defines as 'satellite-framed constructions' and 'verb-framed constructions', there is also a third type of lexicalization pattern that is represented by SVC languages like Kilivila (see Crowley 1987, Pawley 1987, 1993, Durie 1997; also Slobin and Hoiting 1994, Slobin 1998: 3). With this observation I conclude this brief discussion of some basic motion verbs and their function in Kilivila motion descriptions. I will finish my prolegomena to a Kilivila grammar of space with a discussion of what frames of spatial reference are preferred by speakers of Kilivila.

6.5 Frames of reference

Our results in researching the interrelationship between language, cognition and the conceptualization of space in various languages have shown that we find three frames of spatial reference, the 'relative', 'absolute' and the 'intrinsic' frame of reference (from here onwards abbreviated as 'FoR' (see Senft 1994d, Levinson 1996a: 359, 365–73, 1996b, Pederson et al. 1998; see also

[20] Crowley (1987: 42) points out that 'the verbs that are most frequently encountered in serial constructions in languages of the world are the basic motion verbs (e.g. 'come, go'), which are followed by other active intransitive verbs (e.g. wander, disappear, crawl) and intransitive posture verbs (e.g. 'stand, lie'), followed by any other active intransitive verbs (e.g. 'go hunting', 'speak', 'jump', etc.), and finally followed by the class of transitive verbs, which are therefore the verbs that are least liable to enter into serial constructions with other verbs.

Bühler 1934)). These FoR differ with respect to how angles are projected from the 'ground' in order to situate the location of the 'figure' that is referred to (Talmy 1978: 627; see also Senft 1997: 10). Speakers of Kilivila can utilize all these three FoR for verbal spatial references. However, they show rather clear preferences for certain FoR in certain contexts for certain functions, for certain means and ends. Thus, Trobriand Islanders prefer the intrinsic FoR for referring to the *location* of objects with respect to each other in a given spatial configuration – especially if these objects themselves have inherent intrinsic features. The use of the relative FoR is also possible here, but only rarely observed. However, in referring to the spatial *orientation* of objects in a given spatial configuration, Kilivila speakers clearly prefer an absolute ad hoc landmark FoR. Moreover, speakers also use the deictic system for referring both to the location and to the orientation of objects in space. Finally, the Kilivila expressions for 'left/right/front/back' have both intrinsic and relative interpretations; the respective reading is usually grammatically marked by possession. In what follows I will try to illustrate this finding with some typical examples from my corpus of spatial reference in Kilivila.[21]

With the Men and Tree Game[22] I obtained the following descriptions of Photo 2.3, Photo 2.4 and Photo 2.5 from my consultants:

(22) Photo 2.3
E labani mtona tau kaitukwa o kakata eyosi kai omatala e yamala gala kweyata bagisi
e la-bani m-to-na tau kaitukwa o
and 1.Past-find Dem-CP.man-Dem man walking-stick Loc
'And I found this man, (a) walking-stick in'

kakata e-yosi kai omata-la e yama-la
right 3.-hold tree in.front.of-3.PPIV and hand-3.PPIV
'(his) right (hand) he is holding (it), (the) tree (is) in front of him and his hand'

yama-lagala kweya-ta ba-gisi
hand-3.PPIV not CP.limb-one 1.Fut-see
'one of his hands I cannot see'

[21] Only the first four of the following examples are taken from the Men and Tree photo-matching task. This task was certainly not ideal for the Trobriand Islanders (see Wilkins and Senft 1994, Senft 1998b) because of various methodological and cultural reasons (see also Nüse 1996: 91f.). Moreover, it goes without saying that if we want to come up with generalizations about the use of FoRs in a certain language we have to zoom in from the abstract, general macro-perspective on to the micro-perspective and look as carefully as possible at the whole range of rich empirical data we have gathered so far (see Senft 1998b).

[22] This game was developed to elicit verbal spatial reference to relationships in the horizontal plane between two unfeatured objects (balls) and between a featured object (a man) and a non-featured object (a tree). See Pederson et al. (1998).

(23) Photo 2.4
E tetala tau kai otubulola e kaitukwa eyosi o kakata
e te-tala tau kai otubulo-la e kaitukwa
and CP.man-one man tree at.back-3.PPIV and walking-stick
e-yosi o kakata
3.-hold Loc right
'And one man, (a) tree at his back, and he is holding (a) walking stick in (his) right hand)'

(24) Photo 2.5
E teyuvela kaitukwa o kakata kai omatala
e te-yuvela kaitukwa o kakata
and CP.man-again walking-stick Loc right
kai omata-la
tree in.front.of-3.PPIV
'And (a) man again, (a) walking stick in (his) right, (a) tree in front of him'

In these three descriptions the consultants use only the intrinsic FoR to refer to the location of the two objects with respect to each other in the spatial configuration depicted in these photos. Photo 2.3 is differentiated from Photo 2.5 by mentioning that one of the man's hands cannot be seen. What is odd here is that the consultants use neither the left/right distinction in the relative FoR nor any other means to present information with respect to the spatial orientation of the two objects depicted in the photographs. Thus, an analysis of just these three descriptions would be based on what are most probably elicitation artefacts and thus would lead to a completely wrong picture with respect to what frames of reference the Trobriand Islanders use and how they use them. Therefore the following examples are presented to document that speakers can give much more sophisticated spatial descriptions than those used in referring to Photos 2.3, 2.4 and 2.5. To describe Photo 2.8 in the very same elicitation tool, the consultants produced utterances like the following:

(25) Photo 2.8
Kweyuvela teta tomwota labani, kai o
kwe-yuvela te-ta tomwota la-bani kai o
CP.thing-again CP.man-one person 1.Past-find tree Loc
'A thing again, one person I found, (a) tree at'
kakata, kaitukwa o kakata kai, o la
kakata kaitukwa o kakata kai o la
right walking.stick Loc right tree Loc 3.PPIV
'(the) right, (a) walking stick at (the) right, (a) tree at his'

kakata wa, e matala esema
kakata wa e mata-la e-sema
right only and eye-3.PPIV 3.-come.towards.speaker
'right only, and his eyes look at me'

In this example the speaker again uses the intrinsic FoR to describe the location of the two objects with respect to each other in the spatial configuration depicted in the photo. He first uses the expression for 'right', *kakata*, without any further specification; however, the speaker then clearly marks the chosen (intrinsic) FoR with the possessive pronoun (here: *la*). Moreover, he also uses the deictic system to refer to the orientation of the little man in this configuration in the utterance . . . *e matala esema* ('. . . and his eyes look at me'). In general, speakers of Kilivila use an absolute ad hoc landmark system to describe the orientation of objects in spatial configurations. I will illustrate this with an excerpt from the description of a body pose which was elicited with another game (the 'wooden man game'):[23]

(26) *Mtona . . . esakaula . . . Ekatupi kikivama*
m-to-na e-sakaula e-katupi kikivama
Dem-CP.man-Dem 3.-run . . . 3.fold left
'This man is running, . . . He is folding the left (leg)' ('his leg' was mentioned before)

evayumali ekatupwi edodoga, eva olakeva
e-vayumali e-katupwi e-dodoga e-va olakeva
3.-be.behind 3.-fold 3.-be crooked 3.-go.to up
'it is behind, he is folding it, it is crooked, it goes up'

pikekita wa. E vovola edodoga, ema o
pikekita wa e vovo-la e-dodoga e-ma o
little only and body-3.PPIV 3.-be.crooked 3.-come Loc
'only somewhat. And his body is crooked, it comes to'

valu, yamala kikivama ekatupiwa eyosali emwa
valu yama-la kikivama e-katupiwa e-yosali e-mwa
village hand-3.PPIV left 3.-fold 3.-raise 3.-come to
'the village, his left hand he is folding he is raising (it) it comes'

[23] In this game the 'director' had to describe body poses which he got either in photos or with a wooden artist's statuette with flexible joints. On the basis of these descriptions the 'matcher' had to adjust his or her statuette in such a way that the resulting body poses matched the director's description.

o valu, kakata ebiyumali . . .
o valu kakata e-biyumali
Loc village right 3.-pull.back
'to the village, (the) right (hand) he is pulling it back . . .'

In this description we find an ad hoc landmark in the reference *o valu* ('to the village'); moreover, the possessive pronouns clearly mark the use of 'left' and 'right' as being part of the intrinsic system. On the basis of the possessive pronouns the hearer can decide whether 'left/right' references are made within the relative or within the intrinsic frame of reference. The following example illustrates how the pronouns distinguish intrinsic from relative left and right. This example is taken from one of our route description games:[24]

(27) *E elola ema esuvila*
E e-lola e-ma e-suvi-la
And 3.-walk 3.-come 3.-enter-Emph
'And he is walking, he is coming, he is entering indeed (the path)'

o la kakata o dakikivamasi . . .
o la kakata o da-kikivama-si . . .
Loc 3.PPIV right Loc 1.incl.PPIV-left-Pl
'at his right (INTR), at our left (REL)'

Finally, I want to briefly comment on the Kilivila absolute ad hoc landmark system. My corpus of spatial references documents the consultants' use of ad hoc landmarks like *laodila* ('bush'), *kwadeva* ('beach'), *bwalita* ('sea'), *valu* ('village'), *Tuyabwau* (name of a freshwater well), *pilakeva* ('topside, landside'), *pilitinava* ('lowland, seaside, beachside'), etc. – generally in connection with the locative *o*. Among these ad hoc landmarks we do not only find names of wells, beaches, reefs, rocks, or trees,[25] but also – depending on the context and situation, of course – references to houses and their respective owners and even to people that are sitting in the respective direction. These axes of orientation are indeed created on the spot in a very ad hoc manner, and they may refer to landmarks both within a large- and a small-scale environment, like, for example, the general environment or marks on the set of the space games. The variability with respect to the choice, and in the creation of, such axes is rather high; the only constraint seems to be that the addressee either can see

[24] In these interactional games, directors had to describe certain routes in a miniature landscape in such a way that the matchers could have a small figure walk along the described paths.

[25] For many of these named wells, beaches, reefs and rocks the Trobriand Islanders have mythical stories. Malinowski (1922: 298) has already noted that for them 'the landscape represent(s) a continuous story'. On the Trobriands, as in many other cultures, environment and mythology are intertwined and form specific means for spatial reference (see Downs and Stea 1977: 138; see also Malinowski 1922: 330). For such a myth on the Trobriands that deals with petrified canoes, see Senft 1995.

or knows of the landmarks chosen. All these axes are used as frequently as the bush–sea or bush–shore axis and therefore I would rather not assign a special status to the latter axis – although this land–sea axis features rather prominently in many other (and not only Austronesian) languages (see Senft 1997). The following two examples illustrate this use of ad hoc landmarks for describing the orientation of objects in space. They were elicited in the Tinkertoy matching game (Senft 1994b)[26] and in one of the Route Direction games (Senft 2000b).

(28) *Ka, manakwa vavagi mna kwegulini*
ka ma-na-kwa vavagi mna kwe-gulini
look Dem-Dem-CP.inanimate thing well CPinanimate-green
'Look, this thing, well, the green'

kwekekita eselisi, matala
kwe-kekita e-seli-si mata-la
CP.inanimate-small 3.-put-Pl eye-3.PPIV
'small thing they put there, its tip (eye)'

ela o bwalita kabulatala, kabulatala ela o laodila
e-la o bwalita kabula-tala kabula-tala e-la o laodila
3.-go Loc sea CP.half-one CPhalf-one 3.-go Loc bush
'it goes to the sea, one half, the other half goes to the bush'

Here the land–sea axis functions as an ad hoc landmark. In the next example, the name of a freshwater well and the location of a house (which is referred to only by the name of its owner) serve the same function:

(29) *E makadana keda o la o la kakata . . .*
E ma-kada-na keda o la o la
Yes Dem-CP.path-Dem path Loc 3.PPIV Loc 3.PPIV
'Yes, this path at his at his'

kakata . . . E va kona wa eva'ila makala
kakata . . . e va kona wa e-va'ila makala
right . . . and Loc corner only 3.- turn like
'right . . . (INTR) And at the corner only he is turning as if'

bila Tuyabwau, eva gala ila va kona
bi-la Tuyabwau e-va gala i-la va kona
3.Fut-go Tuyabwau.well 3.-go to not 3.-go Loc corner
'he will go to the Tuyabwau freshwater well, he does not go there, he goes to the (next) corner,'

[26] Tinkertoy is an American construction toy system with which one can build representational and non-representational constructions in three-dimensional space. This system was used to elicit caused motion. See Senft (1994b).

eva'ila bila beya Kalavatu
e-va'ila bila beya Kalavatu
3.-turn 3.Fut-go there Kalavatu
'he turns and he will go to there (where) Kalavatu (i.e. Kalavatu's house) (is)'

In summary, speakers of Kilivila prefer the intrinsic FoR for describing the location of objects with respect to each other in spatial configurations, and they prefer an absolute ad hoc landmark FoR system for referring to the spatial orientation of objects in space, and for motion paths. Moreover, they may also use the relative system for spatial reference, but this is rather rare.

6.6 Summary and concluding remarks

This chapter has described how speakers of Kilivila encode specific topological relations, how they refer to motion events and what frames of spatial reference (FoR) they prefer in what contexts and for what purposes.

We saw that the Kilivila system of locatives allows its speakers to clearly distinguish, and refer to, topological relations. Most of these locatives can also function as prepositions and as adverbs of place, and they have grammaticalized not only from body-part terms but also from other terms. To refer to topological relations as idiomatically and unequivocally as possible, positionals and sometimes also motion verbs are used together with the respective locatives. The positionals that were most often elicited with the 'Topological Relations Picture Series' are *-sisu-* ('to be, to exist, to live'), *-kanukwenu-* ('to rest, to lie down'), *-tota-* ('to stand') and *-soya-* ('to hang'). The first three of these positionals were produced interchangeably for referring to a great variety of scenes, but the verbal expression ***-soya-*** was produced to refer to 'hanging'-scenes only. These positionals seem to be core members of the class of Kilivila positionals, though we also find other more specific positionals produced in other elicitation tasks.

To refer to motion events, speakers of Kilivila use a large number of motion verbs, generally in more, or less, complex serial verb constructions. For the analysis of these motion verbs it is crucial to describe how they encode the place and the role of the speaker and the source, path and destination of the motion event.

Speakers of Kilivila can utilize the intrinsic, the relative and the absolute FoR for verbal spatial references. However, they show rather clear preferences for certain FoR in certain contexts for certain functions. Thus, Trobriand Islanders prefer the intrinsic FoR for referring to the *location* of objects with respect to each other in a given spatial configuration – especially if these objects themselves have inherent intrinsic features. The use of the relative FoR is also

possible here, but only rarely observed. However, in referring to the spatial *orientation* of objects in a given spatial configuration, Kilivila speakers clearly prefer an absolute ad hoc landmark FoR. Finally, the Kilivila expressions for 'left/right/front/back' have both intrinsic and relative interpretations: the respective reading is usually grammatically marked by possession.

The three topics discussed here would be crucial chapters of a Kilivila grammar of space. To write such a grammar of space would in fact be a demanding enterprise. Such a 'space grammar' would have to not only elaborate on the topics presented here in much more detail, but also to discuss many other different linguistic means Kilivila offers its speakers for spatial reference and for the conceptualization of space. Moreover, besides purely linguistically oriented chapters – such as, for example, chapters on deixis, on the lexicalization of certain complex spatial concepts, on the interaction of different grammatical categories in spatial reference, on the role of space in and for time reference, and so on – a really comprehensive Kilivila grammar of space would also have to incorporate more anthropologically oriented chapters. These chapters would have to discuss topics such as the relationship between environment, religion and mythology, the role of space for personal relationships (involving, for example, residence rules for married couples), and issues of land rights and other claims with respect to personal or communal possession of space. The chapters in the anthropological section would certainly equal the number of chapters in the linguistic section. And an ideal grammar of space should also incorporate chapters on spatial behaviour such as gesturing and pointing which accompanies or adds further information to verbal spatial references, on ethological concepts of space (e.g. 'personal space'), and last, but certainly not least, on spatial cognition as it is externalized, for example, in everyday routines like orientation, route knowledge, (mental and/or concrete) maps and navigation. 'Space' is indeed, and has always been, a broad domain and wide field for scientific enquiry. It is hoped that these initial observations will at least give some idea of how speakers of a different language conceptualize this universal but varied domain of human experience.

7 A sketch of the grammar of space in Tzeltal

Penelope Brown

7.1 Introduction

7.1.1 Space in Mayan languages

Mayan languages and cultures have a reputation for having highly elaborated conceptions of space and time. Two largely independent streams of research converge on this point: on the one hand, there are several articles and monographs exploring modern-day versions of ancient Mayan calendrical, divination, ritual and cosmological systems in their spatial and temporal dimensions (Villa Rojas 1973, Gossen 1974, 1986, Tedlock 1982, Vogt 1976). On the other hand, a number of scholars have argued that Mayan languages have highly developed – indeed, hypertrophic – linguistic resources for handling spatial concepts, which are particularly evident in the positional roots, directionals and numeral classifiers that most Mayan languages display in some form (Berlin 1968, Norman 1973, Martin 1977, 1979, England 1978). It has been argued that space is a 'grammatical theme' in Mayan languages, that is, an 'underlying organizational principle' that pervades the grammar (England 1978: 226); it is also a cultural theme pervading Mayan ethnographies. And, England argues, where such correspondences between linguistic and cultural themes are found, we are justified in expecting to find 'a substantial and powerful aspect of the world view of a particular group' (Ibid.).

Some recent work attempts more systematically to link these two streams, the linguistic and the ethnographic. A good example is Hanks's (1990) analysis of the deictic system of a group of Yucatec Mayan speakers, embedded in the ethnography of how these Yucatec Mayans conceptualize domestic and local spaces and how they operate in their physical and social world. And, over the past sixteen years, a systematic exploration of spatial concepts in several Mayan languages and cultures (Yucatec, Mopan, Tzotzil and Tzeltal) has been undertaken within the Space Project of the Max Planck Institute for Psycholinguistics. The present paper summarizes the results of this research for Tzeltal. How do Tzeltal speakers talk about the location, position, disposition and movement of things around them? How do they discriminate between two similar objects in

space, and uniquely refer to one, so that another person can identify the referent (other than by pointing, etc.)? This paper reports the results of field research focussed on these questions, carried out in collaboration with Stephen Levinson in the Tzeltal-speaking Mayan community of Tenejapa, in Chiapas, Mexico. The paper is largely descriptive; some of the broader theoretical implications are developed in other papers.[1]

A number of startling discoveries emerged during this field research, suggesting to us that Tzeltal speakers do indeed conceptualize spatial categories and relations in ways which contrast radically with those familiar to us through Indo-European languages and cultures. The most important features we have discovered are summarized here:

1. Many Tzeltal verbal roots have 'portmanteau' meanings which include a spatial element, that is features of space/shape/configuration/position are compounded with other semantic features in one root. This is true not only of 'positional' roots, as has often been described for Mayan languages, but also for many transitive verb roots. Stative forms of such 'dispositional' predicates[2] are among the chief resources for describing the location of objects in the interactors' immediately visible surroundings. That is, the unmarked reply to a question of the form: 'Where is the X?' (where X is a potentially movable entity, i.e. it could in principle be in different places) uses a dispositional predicate to describe how the object is standing, lying, sitting, resting, leaning, or in what size or shape container it is, or in what particular configuration it appears. Spatial relational information specifying where an object is located is often provided largely by the predicate.
2. Adopting the terminology suggested by Talmy (1983) for analysing spatial descriptions, we also observe the following apparent consequence of relying on dispositional roots with such 'portmanteau' semantics: in Tzeltal locative descriptions there is a strong emphasis on describing the figure (the object being located), and a relative de-emphasis on the ground (the thing with respect to which the object is being located). That is, the preferred description of the location of a moveable entity emphasizes the disposition of the figure in space, e.g. how it is upside down, folded, crumpled, etc.

[1] This paper has a long history. The first descriptions of the Tzeltal spatial resources discussed here were presented by P. Brown and by S. C. Levinson at a Workshop on Spatial Conceptualization in Mayan Languages and Action, sponsored by the Max Planck Projektgroppe für Kognitive Anthropologie, Berlin, in September 1990, which appeared as working papers (Levinson and Brown 1990, Brown 1991). Later elaborations reporting on the results of jointly developed stimuli are to be found in Brown 1993, 1994, 2000, 2002; Brown and Levinson 1992, 1993a,b,c, 2000, in preparation; Levinson 1994, 1996a,b, 2003, Levinson and Brown 1994, Bohnemeyer and Brown forthcoming.

[2] I have labelled the stative forms of these verbs 'dispositional' predicates (Brown 1994, Bohnemeyer and Brown, forthcoming) in order to cover both those derived from positional roots and those from transitive and T/P (intermediate) roots which have a stative (adjectival) *-Vl* form with a special plural form with *-ajtik*; this is the primary diagnostic for dispositionals.

3. When an object's location is related explicitly to some ground, there is a dispreference for using participants in the speech event for this purpose – that is, there is an avoidance of deictic centring. The deictic system is underdeveloped and underused for this purpose (although it is used extensively for others, for example in reference tracking, or for describing the locations of unmoveable objects and places). Rather, the tendency is to locate objects by reference to the nearest other object – i.e. to use the ground object most proximal to the figure. For precision, use can be made of the extension of body-part imagery to all objects; the ground object is given a 'body', and the figure is related to one of its parts (e.g. 'The gourd is sitting at the lips of the fire').
4. By contrast, when Tzeltal speakers talk about things in motion, deictic centring plays a key role: motion verbs – whether or not they are inherently deictic – are very often accompanied by a 'directional', a deverbal modifier specifying the direction of action towards or away from (or across) some origo, normally given by the participants' current location.
5. Tzeltal speakers display an absolute orientation using the 'geocentric' system described by the words for 'uphill' (*ajk'ol*) and 'downhill' (*alan*), and given by the slope of the terrain which – in the region where we worked – corresponds roughly to south and north, respectively. Things can be located on this dimension relative to any origo; it is thus possible to specify locations in relation to any ground object without deictic anchoring ('it's downhill from the schoolhouse', 'it's uphill from the tree', for example). However, the crossways dimension (perpendicular to the uphill–downhill one, i.e. 'across the valley/ridge') does not discriminate between the two sides: *ta jejch* means acrossways either eastwards or westwards. Similarly, no distinction is made between left and right; an object on either side of a ground object is either identically described (*ta xujk*, 'at its side'), or related to a landmark outside the local interactional scene ('it's towards the sunset/the red cliff/the big tree', for example).

In this report I present the data and analysis which supports these points. Section 7.2 sketches the grammatical structure of the language insofar as it is relevant to spatial description. Section 7.3 focusses on how Tenejapan Tzeltal speakers make static locative descriptions. It also explores in a preliminary fashion the role of predicates, especially 'dispositionals', in specifying topological relations, and the role of body-part and other relational nouns in narrowing down the search space for locating objects. Section 7.4 looks at how motion is expressed in Tzeltal, contrasting the semantics of motion verbs and directionals with the semantics of words for describing static location. In Section 7.5 the 'uphill/ downhill' absolute frame of reference is described. The conclusion summarizes the facts as we understand them, discusses the surprises in this area and considers their implications.

7.1.2 Ethnographic context

Tzeltal is a Mayan language spoken in the eastern highlands of Chiapas, Mexico, by around 200,000 speakers. The precipitous mountain terrain in this area slopes overall downwards towards the north or west, providing the basis for the uphill/downhill absolute system (see Figure 7.1). The Tzeltal region is contiguous with the other Mayan languages of this area: Tzotzil just to the west, Chol to the north and Tojolabal to the south-east. The region is populated largely by illiterate Mayan peasants living in their own indigenous communities; there are also several Ladino (predominantly Spanish-speaking) towns. Some Tzeltal speakers are partially bilingual in Spanish, and some in Tzotzil, but many (including most women) over the age of thirty are effectively monolingual. The language is still very viable; most children grow up in a monolingual environment until they go to school, the first two years of which are in Tzeltal (at least in schools in the indigenous communities). After children leave school (usually after the sixth grade) most of them rarely use Spanish except on visits to the local Ladino town. There are a few Tzeltal and other Mayan-language radio programmes (but no television in indigenous languages, to date), and there is an active programme sponsoring literacy and literature in the native languages.[3]

The data on which this paper is based was collected over a period of fourteen years in the Tzeltal community of Tenejapa, mainly in the northwestern hamlet of Majosik'. The data consists of naturally occurring Tzeltal spatial descriptions in everyday contexts, in the household, on the trails, in the fields, as well as examples systematically elicited in response to our group elicitation tools and 'space games'.

7.2 Grammatical resources for spatial description

7.2.1 Basic grammar

Tzeltal is a VOS language, mildly polysynthetic, with both prefixes and suffixes. Consistent (non-split) ergative/absolutive cross-referencing of core arguments is obligatory on the verb, and the set of ergative prefixes does double-duty as markers of possession on nouns. There is no case marking to distinguish the various roles of NPs as arguments of the verb; since ellipsis of nominal arguments is extensive, one relies largely on phrase order and context to distinguish whether an NP following the verb is object, subject or other. There is only one preposition, the omni-purpose *ta*, which introduces instrumental, purpose, manner, time and place adverbials after the verb. Place adverbials with *ta* occur

[3] This is based in Sna Jtz'ibajom, 'The House of the Writer', in the local town of San Cristóbal de las Casas. It does not (yet) affect most members of the Mayan communities, many of whom do not know of its existence.

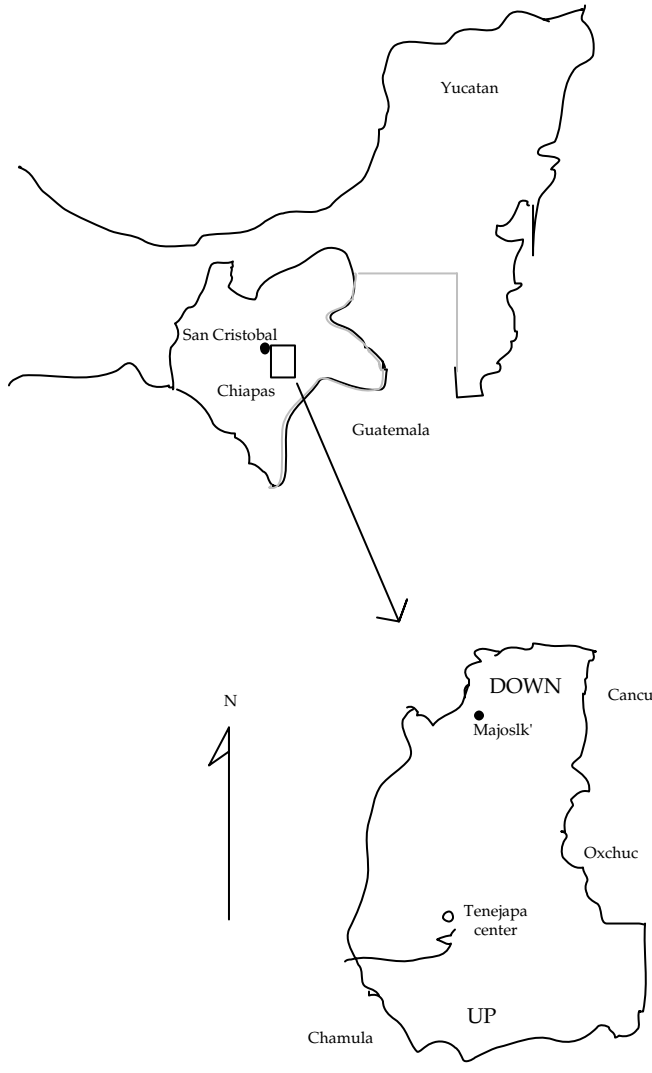


Figure 7.1 The geographical setting of Tenejapan Tzeltal

both after verbs of motion for expressing movement into or out of places, and after stative predicates for expressing static locations. The preposition *ta* is thus semantically general over spatial concepts such as AT, IN, ON, TO, FROM, ABOVE, BELOW, etc. The semantic load for indicating a particular spatial relation is therefore carried in nouns and verbs, for each of which there is a relatively small set of roots in Tzeltal (in the order of 3,000 for both), with a highly productive morphology for deriving noun and verb stems from them.

The basic structure of the maximal noun phrase is given in (1) (word order in the phrase is fixed):[4]

(1) (determiner) + (quant.) + (adj.) + $\text{Noun}_{\text{head}}$ + (plural) + (clitic)

te	*cheb*	*pukuj*	*ach'ix*	*-etik*	*-e*
ART	two	wicked	girl	PL	CL

'the two wicked girls'

A prepositional phrase with a possessed noun – an important resource for locative descriptions – has the structure in (2) (again with word order fixed):

(2) TA + Erg- + $\text{Noun}_{\text{head}}$ + (determiner) + (Possessor) + clitic

ta	*s-*	*na*	*te*	*winik*	*-e*
PREP	3E	house	ART	man	CL

'at the man's house'

Minimally an NP can consist of just a noun, or just a quantifier, or just an adjective. This minimal NP can be turned into a predicate expressing a full proposition by suffixing an absolutive suffix, as in: *antz-on* 'I am a woman', *luben-at* 'you are tired', *cheb-otik* 'we are two (i.e. there are two of us)'. A stative form of a verb (consisting of a root plus an adjectival or a stative aspect suffix) with an absolutive suffix is a predicate of the same kind (e.g. *tek'el-on*, 'I am standing', *chuk-bil-on* 'I have been tied up').

Verbs as a class are distinguished by taking aspect marking. Finite verbs are either transitive (taking ergative prefixes and absolutive suffixes), ditransitive (taking ergative prefixes and the ditransitive suffix *-be* plus absolutive suffixes), or intransitive (all others, taking only absolutive suffixes).[5] The basic structure

[4] Tzeltal transcription conventions are based on a practical orthography; symbols correspond roughly to their English equivalents except that j = h, x = sh, and ' indicates a glottal stop or glottalization of the preceding consonant. Abbreviations for glosses are as follows: 1,2,3 E – 1st, 2nd, 3rd person ergative prefixes (which mark both subjects of transitive verbs and noun possession), 1,2,3 A – the corresponding absolutive suffixes, 1PLE – lst person plural exclusive, 1PLI – lst person plural inclusive, PL – 2nd or 3rd person plural, DIST – distributive/plural, ASP – neutral aspect, CMP – completive aspect prefix, CMPL – completed change of state suffix, ICP – incompletive aspect prefix, ART – article, AUX – auxiliary verb, CJ – conjunction, CL – clitic, DEIC – deictic element, DEM – demonstrative, DIM – diminutive, DIR – directional, DIT – ditransitive, EXIST – existential predicate, IMP – imperative, NAME – personal or place name, NC – numeral classifier, NEG – negative particle, PASS – passive, PPrt – passive participle, PREP – preposition, PT – particle, QUOT – quotative particle, REL – relational noun, STAT – stative (perfect) aspect, SUBJ – subjunctive. A text identification preceding the Tzeltal examples indicates their source in naturally occurring events or interactional 'space games'; if unmarked they are from my field notes.

[5] Verb roots belong to formal classes (Transitive, Intransitive, Positional, or Transitive/Positional (T/P)) on the grounds of how they inflect without being further derived, but most verb roots can be derived to form a verb stem of changed valence. T/P is the biggest root class, and these fall on a cline (as shown by Haviland (1994a) for Tzotzil) depending on whether they take more transitive-type morphology or more positional-type morphology.

of the transitive verb phrase is given in (3); the only obligatory elements are aspect marking, verb root and pronominal (ergative/absolutive) affixes.

(3)

(neg) +	aspect (completive/ incompletive)	+ Erg- +	root + (deriv.suff.) +	(Status)[6] (stative/ imperative/ subjunctive)	+ infl.suff. absolutive	+ (Dir.)
	la	***y-***	***ik'***		***-on***	***bel***
	CMP	3E	lead/take		1A	awayward
	'He took me away'					

There is very little published material on Tzeltal grammar, unlike the situation for Tzeltal's closely related neighbour Tzotzil. A basic description of Tzeltal phonology and morphology is Kaufman 1971; for readers of French there is a introduction to the language which includes historical and sociolinguistic information as well as a grammatical sketch (Monod-Becquelin 1997; see also Polian 2004). The best (however, unpublished) dictionary is Berlin, Kaufman and Maffi 1990. Linguists working on Tzeltal grammar have to begin by extrapolating from the excellent descriptions of Tzotzil (e.g. Laughlin 1975, Haviland 1981, 1988, Aissen 1987), and then work out the specific grammatical details of Tzeltal for themselves. In partial compensation for this lack, there are some good semantic descriptions (Berlin 1968, Stross 1976). There are also some published Tzeltal texts (e.g. Stross 1977, 1978, 1979), as well as a huge corpus of published Tzotzil texts (e.g. Laughlin 1977, 1980, 1988).[7]

7.2.2 Spatial language

In Tzeltal, the generic way to ask where things are located is with the question-word *banti,* 'where', and the existential predicate *ay,* 'exist/be located':

(4) *banti ay-ø te y-ach'il bojch-e?*
where exist-3A ART 3E-new gourd-CL
'Where is the new gourd bowl?'

To ask where things are moving, the same *banti* plus a motion verb is employed:

[6] 'Status' is a Mayan category, a slot in the verbal core where – in Tzeltal – perfective aspect and mood (imperative, subjunctive) are expressed.

[7] A recent innovation in Mexico is the publication of texts in indigenous languages, for example in the series Cuentos y Relatos Indígenas published by the Universidad Nacional Autónoma de México, which includes some Tzeltal texts. Another series, published by the Sna Tz'ibojom, 'House of the Writer' includes the first native-speaker novel written in Tzeltal (Méndez Guzmán 1998). These texts are (to date) only available in Mexico, however.

(5) *banti ya x-ba-at?*
where ICP ASP-go-2A
'Where are you going?'

The linguistic resources Tzeltal offers for answering such questions with a spatial description are elaborate. Chief among them are the following:

i. existential locative expressions with *ay*
ii. deictics: demonstratives, adverbs, presentationals
iii. dispositional adjectives, often in combination with (iv) and (v)
iv. body-part relational noun locatives
v. absolute ('cardinal') directions
vi. motion verbs, directionals and auxiliaries

The first two are used in minimal locative descriptions, while the others constitute the core resources for specifying in detail the location, disposition, orientation or motion of a figure in relation to a ground.

7.2.2.1 Location and existence

The simplest locative description utilizes the existential predicate *ay*[8] with a prepositional phrase referring to a place:

(6) *ay-ø ta be te tz'i'-e*
EXIST-3A PREP path ART dog-CL
'The dog is on the path'

(7) *ay-ø ta tuxtla ya'tik jtatik kunerol*
EXIST-3A PREP Tuxtla today Mr. President
'The President is in Tuxtla today'

The *ay* in these examples indicates that the figure is 'coincident with' the ground, that their spatial regions overlap or coincide, but it provides no further information about the properties (either topological or path) of this relation. This *ay* construction is not, however, the canonical way to specify the location of previously mentioned things in the visible environs of speakers. One of its core uses is to introduce a new topic, as in the story-opener in (8):

(8) *ay-ø laj pulemal ta namej*
EXIST-3A QUOT flood PREP long_ago
'There was, it is said, a flood long ago'

It can also be used to describe an achieved change of location.

[8] Technically, *ay* is not a verb, as it does not take aspect.

(9) *ay-ø-ix* *ta* *s-na*
EXIST-3A-CMPL PREP 3E-house
'She is now at her house'

Beyond the range of visibility, however, it is used in a general locative sense, as in example (10) (from Smith n.d.: 18):

(10) A: *banti* *ay-ø* *te* *jnik-e?*
where EXIST-3A ART NAME-CL
'Where is Nik?'
B: *ay-ø* *ta* *k'altik*
EXIST-3A PREP cornfield
'He's in (the) cornfield'

Ay is also used to specify location on the uphill/downhill coordinate; as we shall see, *ajk'ol* 'uphill' and *alan* 'downhill' are nouns specifying an abstract axis along which objects can be located:

(11) A: *banti* *ay-ø* *te* *limete-e?*
where EXIST-3A ART bottle-CL
'Where is the bottle?'
B: *ay-ø* *ta* *ajk'ol*
EXIST-3A PREP uphill
'It's (towards) uphill'

And this is the way to describe the location of things at named places:

(12) Q: 'Where is the doctor's office?'
A: *ay-ø ta Jobel*
'It is in San Cristóbal'

Thus, although *ay* can operate as a general-purpose locative, in practice it tends to be restricted to these particular kinds of contexts. In specifying the location of small movable objects, Tzeltal speakers generally prefer a different strategy – a 'multiverb' strategy in the terminology of Ameka and Levinson (forthcoming). In the topological book descriptions, the location of the figure in any of the seventy-one pictures could be grammatically described with *ay*. But *ay* was proffered as a possibility by one or more of three consultants in less than half of the cases. While it is possible to be unspecific about spatial relational information by using the existential *ay*, for most of these pictured spatial relations the preference is to be specific with a dispositional specification.

7.2.2.2 Deictics and locative descriptions

Deictic adverbials and demonstratives are another resource that can be used for locative descriptions when only a minimal specification is necessary. There

Table 7.1 *Deictics in Tzeltal*

	PROXIMAL (near speaker)	DISTAL (farther from speaker)	ANAPHORIC
ADVERBS			
small-scale	*li'* + *-i* 'here'	*li'* + *-e* 'there'	*tey* + *a*
large-scale	*li'* + *-i* 'here'	*lum* + *in-e* 'over there'	
DEMONSTRATIVES			
	in- + *-i* 'this'	*men-* +*-e* 'that'	*men-* + *-e*

are two sets of paired oppositions, one used in nearby (tabletop or in-reach space) and one for the larger scale. Both are binary oppositions (semantically 'proximal' and 'distal'), made up of two morphemes: an adverbial 'here'/'there' or a demonstrative 'this'/'that' term together with a terminal deictic clitic. A third adverbial term, *tey*, 'there', is primarily anaphoric; a locative question such as *li'i bal?* '(Is it) here?' is almost invariably replied to (if it's affirmative) with *tey*, '(It's) there'.[9] It is perfectly possible in Tzeltal to answer a Where-question simply by pointing, gesturing with hands or head,[10] or using deictic adverbials or demonstratives, as in:

(13) *lum ay-ø ine*
there EXIST-3A there
'It's over there'

(14) *li' nax ay-ø*
here just EXIST-3A
'It's just here'

These strategies alone, however, are not the preferred way to describe spatial locations and relations even within the interactants' visible local space (e.g. within a visible radius of, say, ten metres, or whatever the sociocentrically relevant space is in a given situation). One of the deictic adverbs (*li'i*, 'here', *tey*, 'there (anaphoric)', *lum*, 'over there') may accompany a dispositional locative phrase describing the location of something, but it relatively rarely stands alone to specify location.[11] Paradoxically, it is in pointing out the locations of

[9] See Brown 1991, Brown and Levinson in preparation, for more details on Tzeltal deictics.

[10] Pointing is with index finger, thumb, or whole hand held flat, or with the whole head; I have not observed lip-pointing in this community.

[11] This is not true for young children, who rely much more on deixis. One salient difference between the responses of five-year-old children and adults to our topological elicitation book is that the children respond to nearly every picture with *ja' ini* 'it's this one' (pointing to the yellow figure), whereas adults produce a fully specified proposition like: 'It (the dog) is sitting next to its house.' (The same has been observed for young English children, M. Bowerman, p.c.)

distant objects and places that 'proximal' deictics and pointing often appear (suggesting that immediacy rather than proximity might be the appropriate semantic distinction). The natural response to a Where-question in these circumstances is to point in the direction of the queried place and say things like:

(15) (In answer to 'Where is the schoolhouse?', which lies about 1/2 mile away)
li' *nax* *ini*
here just here
'It's just here'

(16) (In answer to 'Where is Tenejapa Centre?' at some 8 miles distant)
li' *ay-ø-i*
here EXIST-3A-here
'Here it is'

(17) (In answer to 'Where is Mexico City?' at about 1,000 miles distant)
li' *niwan* *ay-ø-i*
here perhaps EXIST-3A-here
'It's perhaps here'

A 'proximal' deictic expression (*li'-i*, 'here', or *ja' in-i* 'it's this') used to indicate distant objects seems to have a virtually obligatory accompaniment in the act of pointing, as if to indicate, 'Here, at the end of a line coming off the end of my finger, is the place you want to know about.' In no instances in our elicitation sessions did consultants use the distal/anaphoric deictic (*tey* 'there') in such contexts. If the place or object being pointed out is visible (as opposed to being projected into non-visible realms from a visible point on the horizon), a presentational expression often accompanies pointing:

(18) *in* *ta* *ba'ay-ø*
this at where-EXIST-3A
'There it is' (lit. 'this is where it-exists at')

These deictic strategies, along with *ay* and the use of a simple 'at [place name]' strategy, provide minimal spatial descriptions, giving no information about the nature of the figure and ground objects.

7.3 Static location

Static 'topological' relations of containment, contiguity and immediate adjacency, which in English are expressed by the prepositions *in* and *on*, (e.g. 'the apple is in the bowl', 'the picture is on the wall') are conveyed differently in

Tzeltal.[12] Crucially, there is only one preposition, the semantically neutral *ta*, which in its spatial uses could be glossed 'at'. Consequently, the precise spatial relation must be conveyed either by a nominal expression or by the predicate, or by a combination of these. The most idiomatic full locative description in Tzeltal is a locative clause combining a dispositional predicate with a prepositional phrase containing a noun with certain understood spatial properties:

(19) DISPOSITIONAL ta Ground NP Figure NP
waxal-ø *ta* *lum* *p'in*
vertically_standing-3A AT ground pot
'(The) pot (is) vertically-standing on the ground'

This is how the topological relations pictures were most frequently described, using one or both of these two sets (dispositional predicates, spatial nouns) of resources. An example from the 'Topological Relations Picture Series' book (TRPS; see Chapter 1, §1.4.1) illustrates how containment is expressed without an 'in' preposition:

(20) *tik'il-ø* *ta* *bojch* *(mantzana).*
inserted_in-3A PREP gourd-bowl (apple)
'It (the apple) is inserted-into the gourdbowl' (TRPS 2)

Let us look at the nominal and verbal parts of this construction in turn.

7.3.1 Body parts and relational nouns

The ground NP may simply be named, as in (19) and (20). But a common way of specifying more precisely the location of the figure is to assign body parts to the ground and specify in (or near) what part of the ground the figure is to be found. The construction is as follows:

(21) 'at' SUBREGION GROUND
ta possessed body part noun phrase

For example:

(22) *ta* *s-jol* *witz*
AT 3E-head mountain
'on the top of the mountain' (tree) (TRPS 65)

(23) *ta* *s-xujk* *s-na*
AT 3E-side 3E-house
'by the side of its-house' (dog) [TRPS 6]

[12] This section provides a summary of the resources for describing static spatial arrays in Tzeltal. For more details see Brown 1991, 1994, Levinson 1994, and Bohnemeyer and Brown forthcoming.

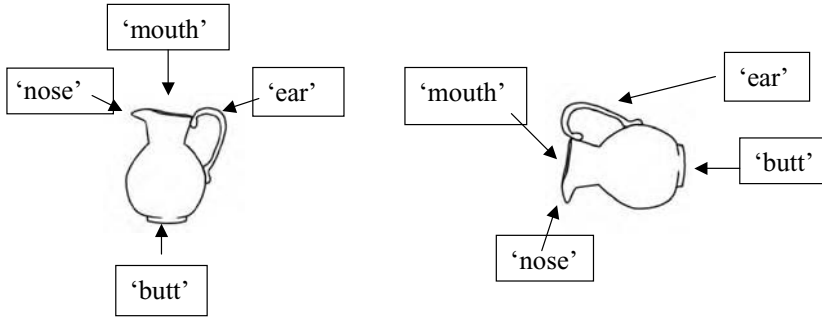


Figure 7.2 Object-centred geometry of Tzeltal body-part terms

(24) *pak'al-ϕ* *ta* *s-xujk* *s-ti'il* *(timbre)*
stuck_onto-3A PREP 3E-side 3E-edge (stamp) (TRPS 3)
'It (the stamp) is stuck onto its (the envelope's) edge'

In terms of figure and ground relations, the job of these body-part expressions is to further specify the ground (by imposing a 'body' structure on it) and to claim that the figure is 'coincident with' – at or immediately adjacent to – this named part of it. This topological or intrinsic system relies on object-internal axes to assign body parts; it is therefore sensitive to the orientation of the Ground object (although the whole array of figure/ground is orientation free, in the sense that it is not dependent on a larger spatial framework). Thus, unlike English *on top of* or *underneath*, a Tzeltal expression of relational position changes when the ground object rotates – consider a fly hovering above the jug in Figure 7.2, which would be described as now 'at it's mouth' (left panel) and now 'at it's ear' (right panel). The body parts exploited for this purpose in our corpus of locative descriptions are set out in Table 7.2. These are probably not a completely closed set; it would be possible to use other body-part terms in creatively locative phrases. These, however, are the ones routinely extended to inanimate objects on the basis of their spatial (mainly shape) properties.[13] Of these only the last three, *ne* 'tail', *ok* 'base, trunk' and *xujk* 'side' have their primary reference to non-human body parts; the rest (and indeed, those most frequently used) refer equally to human or animal parts.[14]

All of these body parts (with the partial exception of *pat* and *xujk*; see below) are used to designate subparts of an object or of a person or animal's body

[13] See Levinson 1994 for an analysis of the spatial algorithms underlying the allocation of body parts to inanimate ground objects in Tzeltal. See de León 1992, 1993 for the corresponding terms in Tzotzil.

[14] This list compares with a potential list of some seventy-eight Tzeltal human body-part lexemes (Stross 1976). Thus only a small subset of the potential repertoire of body-part terms is routinely exploited for locative specifications.

Table 7.2 *Body-part locatives*

Root		Possessed form	
jol	'head'	*ta s-jol*	'at its head'
pat	'back'	*ta s-pat*	'at its back'
ch'ujt	'stomach, belly'	*ta x-ch'ujt*	'at its belly'
akan	'foot'	*ta y-akan*	'at its foot'
k'ab	'arm, hand, branch'	*ta s-k'ab*	'at its hand/branch'
it	'butt, rump'	*ta y-it*	'at its rump'
ni'	'nose'	*ta s-ni'*	'at its nose'
elaw	'face'	*ta y-elaw*	'at its face'
sit	'eyes, face'	*ta s-sit*	'at its eyes/face'
ti'	'mouth, lips'	*ta s-ti'(il)*	'at its mouth/edge'
chikin	'ear'	*ta x-chikin*	'at its ear/corner'
nuk'	'neck'	*ta s-nuk'*	'at its neck'
xujk	'side, corner'	*ta (s)-xujk*	'at its side'
ok	'lower extremities, base, trunk'	*ta y-ok*	'at its base'
ne	'tail'	*ta s-ne*	'at its tail'

and cannot be extended to indicate a region beyond the borders of the body. This is especially notable with respect to *k'ab*, 'arm/hand', for as we shall see below, although a Tzeltal speaker can specify a body part more precisely as 'left arm/hand' (*-xin k'ab*) or 'right arm/hand' (*-wa'el k'ab*) (and similarly for left/right leg/foot), these terms do not extend to the regions left and right, respectively, of the reference person. In this respect, the body-part terms contrast with the small closed set of relational nouns, which are also used, in their possessed forms, in a precisely analogous fashion to body parts, to designate subregions of a ground.

(25) *p'ekel-ø ta y-anil xila te ala pelota-e*
low_down-3A PREP 3E-underneath chair ART DIM ball-CL
'The little ball is low down underneath the chair' (TRPS 16)

(26) *tik'il-ø ta y-util bojch (mantzana)*
inserted_in-3A PREP 3E-inside gourd (apple)
'It (apple) is inserted into the inside of the gourd bowl' (TRPS 2)

The complete Tzeltal set of relational nouns (as used in locative descriptions with preposition *ta*) is presented in Table 7.3. The set of relational nouns is both morphologically and semantically much more heterogeneous than the set of body-part nouns used in locatives. Three of the relational nouns in Table 7.3, *-ba*, *-e'tal* and *-tz'eel*, can designate actual parts of inanimate objects,[15] while

[15] For example, *-ba* and *-e'tal* can refer, respectively, to the uphill and downhill edges of a cornfield or patio; they can also refer to the vertically above-region and below-region of a stack of tortillas.

Table 7.3 *Relational noun locatives*

ta y-util	'at its inside; inside it'
ta y-anil	'underneath it; in its enclosed underneath area; also "downhillwards" of it'
ta s-ba	'at its top side or edge (vertically, e.g. of a table; or "uphillwards", e.g. of a cornfield)'
ta y-e'tal	'at its bottom edge (vertically, e.g. bottom of a stack of tortillas, or downhillwards edge of a field or patio)'
ta y-ajk'ol	'at its uphill side; above it'
ta y-alan	'at its downhill side, i.e. below it' (more colloquially, *y-anil* is used for this)
ta s-tojol	'straight ahead of it'
ta y-olil	'at its half (= middle)'; i.e. 'between'
ta s-tz'eel	'at its side' (of a road, school, doorway, etc.)

the others designate regions defined in relation to objects (*-util*, *-anil*, *-olil*), in relation to cardinal directions (*ajk'ol* and *alan*), or in relation to an animate observer's direction of gaze (*-tojol*). The last, *-tz'eel*, 'on its side/edge' (from the P root *tz'e,* 'be on (its) side'), is interesting because it does double-duty in locative expressions. As mentioned above, in its dispositional (adjectival) form *tz'eel* expresses the position of a figure object 'lying on its side':

(27) *tz'eel-ø ta lum te mexa-e*
on_its_side-3A PREP ground ART table-CL
'The table is lying on its side on the ground'

But *tz'eel* can also be a relational noun designating 'to the side of', i.e. a region of the ground:

(28) *tekel-ø ta s-tz'eel eskwela te'*
standing-3A at 3E-side school tree
'The tree is standing at the side of the school'

In this respect it is like the positionals *kajal* and *k'atal* (discussed below), which can also function both as dispositionals ('positioned-on-top-of' and 'acrossways-positioned', respectively) and as nouns (meaning 'the top or uphill side' and 'the crossways direction', respectively).

Although very similar in both syntax and function to the body parts, relational nouns are distinguishable from them by both semantic and formal criteria. Body parts form a clear formal class (though not all body-part terms in this class are exploited for spatial description). In contrast, relational nouns are not (at least synchronically) body-part terms. Instead, they come from nouns designating directions (*alan*, *ajk'ol*), regions (*e'tal*, *ba*, *olil*, *util*, *anil*), or from verb roots (*tz'eel*) or adjective roots (*tojol* from the root *toj*, 'straight'). Despite these heterogeneous sources, they have all become partly grammaticalized, to different degrees, as relational nouns which enter into locative constructions

analogously to body-part terms, presumably because some aspect of their original meaning was relevant for describing spatial regions. For a few of these relational nouns grammaticalization has proceeded far enough to make the possessive prefix optional, as in example (29) where *ba* 'top' is not possessed.[16]

(29) *pachal-ϕ* *ta* *ba* *mexa* *te* *ala* *baso-e*
bowl_shaped_sitting-3A PREP top table ART DIM cup-CL
'The little cup is sitting on the top of the table' (TRPS 1)

Semantically, unlike the body-part terms, the relational nouns designate subregions which are generally around or adjacent to the ground in question, designating a search space for the object within a few inches, or perhaps a few feet, of the ground. (The non-possessed use of *ajk'ol* and *alan*, by contrast, does designate indeterminately extending regions in the uphill and downhill directions, respectively, as we shall see.) The body-part terms *pat* and *xujk*, in so far as they can be used to designate regions rather than parts of a body, are perhaps intermediate between body-part terms and relational nouns.[17]

Body-part terms and relational nouns are a core resource for the Tzeltal intrinsic system, a system which is 'orientation free' and indifferent to the point of view of speakers. There are, however, some marginal deictic uses of body-part and relational noun locatives. One is in the trivial sense that, as in any intrinsic system, the ground may be deictic – the body part may be that of the speaker and/or addressee (it's 'at my face'/ 'at your back'/'at our-inclusive middle' (i.e. between us)'). A second entry point for an egocentric viewpoint is found in certain cases where a body part is used, not – as it normally is in locative expressions – as an intrinsic part of the relatum immediately adjacent to which the figure is located, but with the speaker as deictic origo, analogous to English *in back of* in the relative frame of reference. This relative anchoring is largely restricted to describing things in relation to ground objects which are symmetrical in the horizontal dimension (having no obvious front/back orientation) – 'non-featured objects' as they are labelled in the psychological literature. So, for example, instead of *ta s-pat* meaning 'at its intrinsic backside' (its normal usage in Tzeltal), it can be used to mean 'behind it, from my viewpoint'. Two body-part terms, *pat* and *xujk*, lend themselves to this kind of usage; for example, *ta s-pat na* can mean either at the house's intrinsic front (as defined by the

[16] See de León 1992 on grammaticalization of the corresponding relational terms in Tzotzil.

[17] There is one further possessed noun with a spatial meaning, indeed perhaps the quintessential spatial meaning: *y-awil*, meaning 'its-allocated place or space', as in *y-awil na* 'the place planned for a house to be built', *y-awil k'altik* 'the area set aside for planting a new cornfield'. It can also be used in the general sense of 'room, space', as in: *ma'yuk y-awil* 'There's no room' (for objects or persons to fit into a relevant area). In its unpossessed form (*awilal*), it can mean 'property', 'fireplace' or 'dishes'! (Berlin, Kaufman and Maffi 1990). The possessed form, *y-awil*, however, is not used as a possessed part term (to mean something like 'its space, as part of a larger whole'), and it does not enter into locative descriptions like the ones described here.

doorway) or at its relative back, on the side away from where the speaker is. Similarly, *ta s-xujk pojp* 'at the bag's side' is defined in relation to the speaker's location: as a *pojp* bag (a straw matting bag sewn into a large cylinder shape) has no intrinsic front, back or sides, *ta s-xujk* can be defined as 'to the side of it' from the point of view of the speaker, i.e. not in front or behind. (See de León 1992, 1993 for comparable data from Tzotzil.)

The relational noun *-tojol* 'straight ahead of' has the same kind of relative uses. A possessed form of *-tojol* is generally used to describe a figure object located in the direct unobstructed line of gaze of the possessor, which may be a deictic ground (when first or second person possessed), or a third party (when third person possessed). There is a relative usage of *s-tojol*, however, with inanimate grounds, a usage which is precisely comparable with the deictic use of 'in front of' in English: just when the relatum is an object without a face (e.g. a tree or post), so that one could not construe *ta s-tojol* as meaning 'straight ahead of its face', *ta s-tojol* can specify a deictically assigned angle from the *speaker's* point of view (e.g. *ta stojol te'* can mean 'in front of the tree' in the sense of 'in the speaker's direct line of gaze, between speaker and tree, but closer to the tree').

These relative usages of body-part terms and the relational noun *-tojol* exist at the margins of what is essentially an intrinsic system of spatial reckoning. There is no systematic set of oppositions – no relative 'front' to oppose to 'back' and no relative 'left'/'right' usage, and hence no full-blown front/back/left/right relative system.

The prepositional phrase with a body-part or relational noun is one element in a fully specified Tzeltal locative expression. A second crucial element is the predicate, characteristically constituted by a dispositional adjective.

7.3.2 Dispositionals

Tzeltal, like other Mayan languages, has several hundred dispositional roots with highly specific meanings conveying shape, configuration, orientation, size, angle and other spatial properties.[18] These (and to a lesser extent) other stative predicates carry an important functional load in locative descriptions. Unlike the *sit/stand/lie/hang* positionals in some languages,[19] Tzeltal dispositionals are not used in existential propositions; nor are they grammatically obligatory in locatives. However, with only one semantically vacuous preposition, some relational information – about exactly how the figure is configured in relation to the ground – is usually carried in the predicate, which in a static location

[18] There is a root class of positionals, but stative adjectives in *-Vl* are formed not just from positional (P) roots, but from some transitive (T) and transitive/positional (T/P) roots as well. See Brown 1994, Bohnemeyer and Brown forthcoming; see also Haviland 1994 for Tzotzil.

[19] See the descriptions of Dutch, Rossel and Arrernte, this volume.

description is usually a stative adjective. For this, the class of dispositionals provides a large and ready source.

Some examples from our topological elicitation include:

(30) *kajal-ø ta s-ba na (te winik-e)*
mounted_on-3A PREP 3E-top house (ART-man-CL)
'He is on top of the house' (the man) (TRPS 34)

(31) *k'atal-ø jelawel ta mantzana (te te'-e)*
across-3A crossDIR PREP apple (ART stick-CL)
'It is crossways acrosswards through the apple' (the arrow) (TRPS 30)

(32) *tik'il-ø ta y-util bojch (mantzana)*
inserted-3A PREP 3E-inside gourd_bowl (apple)
'It is inserted in the inside of the bowl' (apple)' (TRPS 2)

(33) *jok'ol-ø ta x-ch'ujt pajk' te s-lok'omba antz*
hanging-3A PREP 3E-belly wall ART 3E-picture woman
'The picture of the woman is hanging on the wall's belly' (TRPS 44)

In other cases the position/shape/orientation of the figure is exactly conveyed by the dispositional predicate, while the precise spatial relation (whether IN or ON, for example) is left to pragmatic interpretation.

(34) *pachal-ø ta setz' (baso)*
bowl_sitting-3A PREP plate cup
'It (the cup) is sitting at (i.e. on) the plate' (TRPS 1)

For many dispositionals the shape/configuration information in the predicate can apply to either the figure or the ground; compare (34) above with (35):

(35) *pachal-ø ta bojch te mantzana-e*
bowl_sitting-3A PREP gourd ART apple
'The apple is bowl-sitting at gourd_bowl' (i.e. 'the apple is in the bowl') (TRPS 2)

Such examples show that often it is the *combination* of predicate plus NP that conveys the spatial relation, not one or the other alone (see Brown 1994). Yet in other cases (e.g., (32) above) the same spatial relation is redundantly conveyed by each of these parts.

The hypertrophy of spatial meanings in dispositionals is amply illustrated by derived stative adjectives describing different body positions. These tend to have prototypical uses for specific classes of objects, humans or animals; some can, however, be extended to other categories if the people/animals/objects are appropriately positioned, and this is largely a matter of having the relevant body part or parts which can be taken as having been placed in the appropriate position/orientation. Table 7.4 lists some of the core dispositionals for taking

various body positions. Any one of these, used in a locative expression, would indicate the figure as being body-positioned or oriented in the way stated AT a ground; depending on the ground object this would then be interpreted as the figure being ON, or IN, UNDER, or BESIDE the ground object.[20] Dispositional and other adjectival predicates are not the only forms used to describe some of the topological pictures. In many cases a more active form is used, for example the passive participle form (PPrt) of a transitive verb indicating a stative situation resulting from an action:

(36) *tz'ap-bil-ø ta y-olil te ala mantzana*
pierce-PPrt-3A PREP 3E-middle ART DIM apple
'it (stick) having been pierced through the middle of the apple'
(TRPS 70)

Often it is possible to choose freely between a static and more active perspective on the scene by using either a stative adjective (with *-Vl*) or a passive participle (with *-bil*), as in:

(37) *chuk-ul-ø / chuk-bil-ø ta x-ch'ujt kantela (ala xela)*
tie-Vl-3A / tie-PPrt-3A PREP 3E-belly candle (DIM ribbon)
'It (ribbon) tied/having been tied around candle' (TRPS 4)

In fact, descriptions of topological spatial relations seem to fall onto an active/stative continuum, depending on (1) the kind of scene and (2) the perspective the speaker chooses to take on the scene. At the stative end of the continuum (and most locative-like) are construals of a configuration as a state, with the *-Vl* (vowel + /l/) adjectival suffix. Somewhat more active, though still towards the stative end, are construals of a configuration resulting from someone's action (as in (36) and (37), with the passive participle suffix *-bil*). At the active end are construals in terms of an actor acting (e.g. in response to 'Where's the hat?', *xpixjolinej ta sjol* 'he has made it a hat on his head') or of stative (perfect) verbal forms (with *-em* or *-oj*, e.g. *och-em,* 'it has entered').[21] Indeed, many pictures can be naturally described with more than one of these possibilities, which are diagrammed in Figure 7.3. Together, the predicate (usually a dispositional adjective) and the prepositional phrase (formed with a body-part or relational noun) achieve the specification of where a figure object is and how it is positioned or configured in relation to a ground. Such a specification is often very detailed about the spatial properties of the figure and/or ground; given this specificity, the spatial relation between them is often left to inference.

[20] See Haviland 1992 for the Tzotzil equivalents of these.

[21] Although not strictly speaking locatives, from a Tzeltal point of view these descriptions carry explicit locational information – you know, for example, if someone has 'be-hatted himself' (*s-pixjol-in-ej*) by making a hat of something, that it is on his head. Similarly, something which is *och-em* 'having-entered' is now inside of the object it entered.

Table 7.4 *Dispositionals of body position*

Forms of 'standing', canonically upright:	
tek'el	'standing', of human or animal standing on its hind legs; also of any long, thin inanimate object vertically erect supported underneath
tekel	'standing' of trees on their own roots
kotol	'standing' of 4-legged animals or 2-legged birds, or human on hands and knees; also chillies and harps*
chotol	'standing' of furniture with 4 or 3 legs, or stationary wheeled vehicle
luchul	'standing' on legs, perched up high
tz'apal	'standing' of stick-shaped object vertically erect with base buried in support
xik'il	'leaning vertically', i.e. standing but leaning slightly against vertical support, of either humans or inanimate objects
ta'al	'leaning at a strong angle', i.e. at approximately 45-degree angle against a vertical support, of either humans or long thin objects
t'uchul	'vertically standing' of inanimate object taller than wide, providing its own support on its base
telel	'vertically erect' of solid oblong object
waxal	'standing' of inanimate container or solid object, taller than wide
pachal	'standing' (right side up) of bowl-shaped container
etc.	
Forms of 'lying down', body stretched out horizontally:	
chawal	'lying face up'
echel	'lying on back, face up'
jawal	'lying face up, arms outspread'
pakal	'lying face down', of animate or inanimate object with 'face' downwards
metzel	'lying down on body-part side'
mochol	'lying down, curled up on side'
tz'eel	'lying on its side', of human, animal, or inanimate
lechel	'lying flat', of inanimate 2D flat thing
etc.	
Forms of 'sitting' (at rest, top half of body in semi-vertical position):	
nakal	'sitting' on butt (bottom), of humans, animals
jukul	'squatting, resting on haunches' (of human or animal, or inanimate blob resting on base which is wider than its top)
jot'ol	'squatting' on haunches
xok'ol	'sitting with knees drawn up to body'
tinil	'crouching, with head hanging'
kujul	'kneeling'
wutzul	'sitting' of objects or people
chepel	'sitting' of things in a bag supported underneath
etc.	

* Chillies 'stand' like animals despite not having any 'legs'; they are also 'eaten' with the verb for eating meat (*ti'*). This illustrates the cultural embeddedness of the shape and position assessments underlying the use of these spatial terms.

Active ←---------- > **Stative**

Inflected transitive	**Inflected intransitive**	**Stative form transitive** *-oj/-ej* **he-has-Ved it**	**Stative form intransitive** *-em* **it has Ved**	**Resultative** *-bil* **having been V-ed**	**Dispositional adjectives with** *–Vl/-ajtik*; *ay* **'exist/be located'**
'he-made-it-into-a-hat' (hat)	'it-is-moving' (boat)	'he has inserted-it-(in-mouth)' (cigarette)	'it-has-entered' (arrow)	'wound-around' (hose around) stone)	'be standing'
					'be sitting'
					'be lying-flat'
'he-is-hiding' (boy)	'it-has-dropletted' (rain)		'it-has-ripped' (cloth)		'be hanging'
		'she-has-put-it-on' (shoe)		'hung-up' (coat)	'be squatting'
					'be kneeling'
'he-has-made-it enter' (arrow)				'tied' (ribbon around candle)	'be stuck-onto'
					'be inserted-into'
					'be tightly-inserted-in'
					'be mounted-onto'
					'be tightly-encircling'
					'be drooping-across'
					'be low-down'
					'be pierced-through'
					etc.

Figure 7.3 Active-stative continuum in topological descriptions (examples taken from responses to TRPS book)

7.4 Motion

As we have seen, the Tzeltal positional roots, whether derived as adjectives or in their verb forms, are fundamentally about stasis, about location, position, configuration at a moment frozen in time. When it comes to describing movement, another set of verbs – motion verbs and their derived directionals – are brought into play. Typologically, Tzeltal has features of both verb-framed and satellite-framed languages (Talmy 1983). The basic motion verbs encode pure Motion+Path analogously to verb-framed languages. But the directionals provide adverbial modifications which are satellite-like in contributing separate path information which can be added to the meaning of a predicate of any form. There are relatively few manner-of-motion roots (although manners of motion can be indicated by derivational machinery, e.g. reduplication), and in this respect Tzeltal is like most verb-framed languages.

Haviland (1991, 1993b) has produced a very thorough description of the corresponding motion verbs in the closely related Mayan language Tzotzil; analysis of Tzeltal suggests that motion description in these two languages is very similar indeed.

7.4.1 Motion verbs, directionals and auxiliaries

Motion verbs are prominent among the words derived from the very few intransitive roots (around 40) in Tzeltal (and in Tzotzil; see Laughlin 1975). There is a closed-class set of roots for describing motion path and incipience/termination; most of them can combine with a causative suffix to describe the corresponding caused motion.[22] These intransitive verbs in Table 7.5 and their derived directionals are among the most frequent words in Tzeltal. These same motion roots are also the ones which can be used as auxiliaries before an inflected verb:

(38) *ya x-ba k-il-ø k-ala wakax*
ICP ASP-AUX(go) 1E-see-3A 1E-DIM bull
'I'm going to see my bull'

(39) *ya x-jul y-al-be-t pajel*
ICP ASP-AUX(arrive.here) 3E-tell-DIT-2A tomorrow
'He'll arrive to tell you tomorrow'

As in Tzotzil (Haviland 1991: 6), the auxiliary plus main verb form a tightly bound constituent with the aspect marked on the auxiliary and not on the main verb, and with the person-marking only on the main verb. Also, as in Tzotzil, the primary reading of a Tzeltal motion auxiliary is 'move for the purpose of

[22] The exceptions are *tal* 'come', *xk'otok* 'go and return' and *laj* 'finish', which cannot causativize, probably because other verbs pre-empt the causative meaning (e.g. *jitzes tal* 'make it come closer', *ju'tes* 'finish it').

Table 7.5 *Tzeltal motion roots*

ba	'to go'
tal	'to come, to arrive here'
k'ot	'to arrive there'
jul	'to arrive here, return here'
och	'to enter'
lok'	'to exit'
mo	'to ascend'
ko	'to descend'
jil	'to remain'
sujt	'to return'
k'ax	'to pass by somewhere and leave'
jelaw	'to cross over'
sol	'to pass by, go from A to B'
lijk	'to begin'
jajch	'to begin, to arise (e.g. get up in the morning)'
laj	'to finish'

doing V'. However, unlike in Tzotzil, no elements except person inflection – not even aspectual clitics or particles – seem to be able to separate the two verbal elements (AUX + VERB) in Tzeltal.

Directionals are formed from the same set of roots, with a *-Vl* (vowel followed by */l/*) suffix that transforms them into deverbal directional particles; these immediately follow the inflected verb and indicate the direction or trajectory of the action specified in the verb. Directionals are the forms of the motion verbs that are the most multifunctional from the point of view of spatial description, being usable in both motion and static descriptions. By far the most frequent are *tal* 'coming' and *bel* 'going', but (with one exception) all of the motion verbs in this set have corresponding directionals.

(40) *lok'-an* *tal*
exit-IMP comeDIR
'Come out (of the house, to here where I am)'

(41) *lok'-an* *bel*
exit-IMP goDIR
'Go out (of the house, where I am)'

(42) *ya* *x-toy-ø* *moel* *likawal*
ICP ASP-rise-3A ascendDIR sparrow_hawk
'The sparrow hawk flies far upwards'

(43) *ya* *s-bik'-ø* *koel* *chan* *te* *mut-e*
ICP 3E-swallow-3A descendDIR bug ART chicken-CL
'The chicken swallows down a bug'

(44) *ya j-tij-ø lok'el te mut ta y-ut na*
ICP 1E-send-3A exitDIR ART chicken PREP 3E-inside house
'I chase out the chicken from inside the house'

(45) *ya j-tij-ø ochel xawin ta y-ut na*
ICP 1E-send-3A enterDIR cat PREP 3E-inside house
'I chase (the) cat into the house'

(46) *ya x-tal k-ik'-at sujtel pajel*
ICP ASP-come 1E-fetch-2A returnDIR tomorrow
'I'll come fetch you back (i.e., returning) tomorrow'

(47) *ya x-ben-ø jelawel mut ta ch'ajan tak'in*
ICP ASP-walk-3A crossDIR bird PREP cord metal
'The bird walks across (the patio, along) the electricity wire'

Alone among the directionals, *moel* and *koel* can also be placed before the verb, or after the preposition *ta*, as in *moel a bajt* ('up he went'); *bajt ta moel* ('He went up'), *koel ya xbenotik* ('We're walking down').

The set of motion verbs in Table 7.5, with their associated auxiliaries and directionals, forms a closed subclass of intransitive verbs in Tzeltal. There are a few other intransitive roots for specific kinds (or Manners) of motion, for example, *been* 'to walk/move along', *animaj* 'to run', *an* 'to flee', *wil* 'to jump, to fly', *nux* 'to swim', *t'uxaj* 'to fall'. These, however, do not form adverbial directionals or auxiliaries.[23] There is also the possibility of deriving verbs of motion from positional or other spatially rich roots, for example *joy-in-ta* 'move in a circle around (it)', or *toj-liy* 'move straight towards (it)'. These and the manner-of-motion verbs are often followed by a directional – derived from the above-listed core motion verbs – indicating the direction of movement.

Haviland (1991) distinguishes five notional subclasses of Tzotzil motion roots on the basis of the kinds of paths they describe. The Tzeltal motion roots, although not always cognate, are very similar in their basic semantics as well as in the way they extend to temporal and aspectual meanings (for diagrams of the relevant paths see Figure 7.4). Slotting the Tzeltal forms into Haviland's five categories, we come up with the following classification. (Examples are drawn from a conversation where a woman is explaining her chronic sickness in terms of her husband's chronic infidelities. The motion verbs, auxiliaries and directionals under discussion are underlined.)

1 Deictically anchored motion: *ba, tal, k'o(t), jul* Here, as in Tzotzil (Haviland 1991: 7), there are two contrasts: motion towards a deictic centre

[23] The one apparent exception, *animaj* 'run', is morphologically derived into an adverb before it can be used adverbially: *ya xba animal kil, xon tz'in*, 'I'll just go run and see, I said then.'

'here' vs. motion away from 'here',[24] and motion emphasizing arrival at a goal vs. setting out towards a goal. For example:

(48) *ya x-bajt-ø ta Yochib, ya x-yakub-ø tal*
ICP ASP-go-3A PREP PLACE, ICP ASP-get_drunk-3A comeDIR
'He goes to Yochib, he comes back drunk'

(49) *ø bajt-ik s-tukel-ik. ma'yuk x-tal-uk*
CMP go-3A_PL 3E-self-PL NEG ASP-come-SUBJ
ik'-ot-ok lejrol
fetch-PASS-SUBJ messenger
'They went (to town) by themselves. The messenger didn't come (here) to fetch them'

(50) *ya x-jul j-we'-ø waj, k-uch'-ø matz'*
ICP ASP-arrive 1E-eat-3A tortillas, 1E-drink-3A corngruel
'I'd arrive (here) and eat tortillas, drink corngruel'

(51) *ay-ø laj x-k'o s-le'-ø ta Ch'ajkomaj,*
EXIST-3A QUOT ASP-arrive 3E-search_for-3A PREP PLACE
'He would arrive (there) at Ch'ajkomaj looking for her,
ay-ø laj x-k'o s-le'-ø lum
EXIST-3A QUOT ASP-arrive 3E-search_for-3A far_away
ta Kulak'tik
PREP PLACE
he would arrive (there) looking way over in Kulak'tik
te y-inam-e, k'o-ø tey ta s-le'-el
ART 3E-wife-CL, arrive-3A there PREP 3E-search-DN
te y-inam
ART 3E-wife
for his (other) wife, he'd arrive there in the search for his wife'

(52) *ø ba-on tz'in, ø k'o-on tey a,*
CMP go-1A PT, CMP arrive-1A there DEIC,
ø k'o j-k'opon-ø te j-mamal alib-e
CMP arrive 3E-talk_with-3A ART father_in_law-CL
'So I'd go, I'd arrive there, arrive to talk with my father-in-law'

[24] For *ba/tal* 'go'/'come' it is possible that 'go' is not deictic, but simply unspecified and acquires a deictic interpretation in contrast to 'come' (Wilkins and Hill 1995); I do not, however, think that this is the case for the corresponding directionals. This issue requires further research to establish whether the semantics of the directional 'go' has possibly diverged from that of the motion verb 'go' in this instance. There may well be differences in the semantics of *go/come* across speakers, as Danziger (1998) found for the Mopan Maya.

2 Point-oriented motion: *k'ax, sujt, jil, xk'otok, xtaluk, jelaw, sol* Here the distinctions have to do with different sorts of trajectories in relation to an established reference point (which does not have to be the deictic origo), as in:

(53) *ø k'ax-ø laj y-ik'-ø te antz-e*
CMP pass_by-3A QUOT 3E-fetch-3A ART woman-CL
'He passed by, he said, to fetch the woman'

(54) *ya laj x-k'ax y-il-ø te alal-e,*
ICP QUOT ASP-pass_by 3E-see-3A ART child-CL,
'He'd come by he said to see the children,
ya laj x-k'ax y-il-ø y-ala na
ICP QUOT ASP-pass_by 3E-see-3A 3E-DIM house
he'd come by to see his house'

(i.e. referring to her husband who had taken another wife and moved away, but returned (here) to see his children by the speaker).

(55) *ø bajt-ø tz'in te yan antz-e, ø sujt-ø*
CMP go-3A PT ART other woman-CL, CMP return-3A
xan y-u'un tz'i,
again 3E-REL PT
'The other woman went away, she returned (to her natal home) then'
la s-tikun-ø sujtel
CMP 3E-send-3A returnDIR
'He sent her back (to her parents, where she came from)'

(56) *melel la y-al-ø tal tz'in te kunerol*
truly CMP 3E-tell-3A comeDIR PT ART president
'"Really," the President told me (lit. said towards me)
k'alal x-k'otok j-chuk-ø j-ba jo'tik-e,
when ASP-go_return 1E-tie-3A 1E-REFL 1PlEx-CL
when we had gone and returned from our court case,
s-pisil te bi laj ay-ø a'w-u'un-e,
3E-everything ART what QUOT EXIST-3A 2E-REL-CL,
"everything that is said to be yours,
ja' me ya a'w-ich'-ø jilel sok te
it_is DUB ICP 2E-receive-3A remainDIR with ART
alal-etik xi
child-PL 3E-said
you should keep it (lit. receive it remaining) along with the children," he said.'

Haviland's (1991: 9) description of the distinctions among these point-oriented motion verbs in Tzotzil is apt for the Tzeltal ones as well. Adapting his description to the Tzeltal facts: *sujt* adopts the reference point as a goal and presupposes that the trajectory left the same point earlier (so that the current goal represents a 'return'), as in (55). *Jil* suggests staying on at the reference point, presupposing that one is already there, as in (56). *K'ax* suggests a trajectory through the reference point, but with motion that starts and finishes somewhere else ((53)–(54)). *X-k'ot-ok* means 'to have been in a place [from the perspective of no longer being there]' as in (56); with this verb the place where the protagonist is now, having once been somewhere else, is not limited to a deictic 'here' nor to a 'home base' (see also Dürr 1991).[25] Tzeltal also has a morphologically analogous form meaning the opposite of *xk'otok: x-tal-uk* 'to have come and gone away again'. The three roots *k'ax*, *jelaw* and *sol*, have in common that they indicate motion through a reference point with beginning and end points unspecified. They contrast in that *jelaw* requires crossing a boundary, but what the precise semantic difference is between *k'ax* and *sol* is at present unclear (incidentally, *k'ax* can only be used as an auxiliary or main verb; the corresponding directional form is *jelawel*).[26]

3 Region- or enclosure-oriented motion: *och, lok'* Here what is at issue is the notion of a bounded region into which or out of which motion occurs. The region may be physically bounded (like a house or corral) or abstract (like a cooperative organization or political party). For example:

(57) *bi laj y-u'un ma a lok'-on bel, . . .*
Q QUOT 3E-REL NEG CMP exit-1A goDIR
'"why," he said, "didn't I leave (home) (lit. exit awaywards)

ja' nax a lok'-ø bel s-tukel te antz-e
it_is just CMP exit-3A goDIR 3E-self ART woman-CL
it was just the (other) woman alone who left (home)"'

(58) *ja' jich a och-ø tal te j-chamel-e*
it_is thus CMP enter-3A comeDIR ART 1E-sickness-CL
'That's how my sickness entered into me'

[25] Tzeltal lacks a unique root analogous to Tzotzil *'ay*, 'go and return'; instead it borrows the root *k'ot* from the deictically anchored set, which with an aspectual *x-* and subjunctive *-ok*, means just what Tzotzil '*ay* means: 'having gone and returned from somewhere'. In Tzeltal, *xk'otok* can be used as an auxiliary and as a main verb, but there is no corresponding directional.

[26] *K'ax* means to go past some reference point and keep going (e.g. you may *'k'ax'* by particular places while shopping); *sol* is much more restricted, used, for example, for crossing from one place to another place, both unspecified (*solan ta wayel* 'cross over to sleep', e.g. across the open space between kitchen and sleeping house), or for passing someone on the trail (*solokon ta 'xujk a* 'I'm passing you', e.g. from a place behind to a place in front of the other person on the trail).

In fact Tzeltal *och* can also be used aspectually in the sense of entering into or beginning an action:

(59) *jich ø och-on ta poxta-el*
thus CMP enter-1A PREP medicate-DN
'Thus I began to be medicated'

Both *och* and *lok'* very often co-occur with the deictic directionals *tal* and *bel* (as in (57) and (58)), which add a deictic direction to their motion into or out of a region or enclosure.

4 Vertical axis motion: *mo, ko* Tzeltal *mo* and *ko* indicate motion up and down (respectively) along a vertical axis; they can apply equally felicitously to the axis defined by *ajk'ol* 'uphill' and *alan* 'downhill', which, as we shall see in Section 7.5 , is prototypically not vertical but slanting at a (roughly) 45-degree angle to the horizontal. They can also be used on the horizontal with an absolute orientation (roughly, south and north respectively).

(60) *ya x-mo-ø ta lum*
ICP ASP-ascend-3A PREP Tenejapa_Center
'He's going up to Tenejapa Centre' (i.e., ta *ajk'ol*)

(61) *melel la nax laj s-le'-on tal,*
truly CMP just QUOT 3E-search_for-1A comeDIR
' "Really, he said he just brought me here (as his wife),
jich laj ko-em-ø s-kera-on nax laj xi
thus QUOT descend-PPrt-3A 3E-servant-1A just QUOT 3E-said
thus I just came down (here, from an 'uphill' paraje) as his maidservant," he said'

The distinction between an uphill/downhill reading and a vertical reading is given contextually, as is (in the absence of a deictic directional) whether the prepositional phrase should be read as referring to goal or source.

5 Aspectual 'motion': *laj, lijk, jajch* Finally we come to three Tzeltal verbs which, rather than denoting motion proper, indicate aspectual characteristics of actions: *lijk* 'begin', *jajch* 'begin, arise' and *laj* 'finish; die'. (These are in addition to *och*, which, as we have seen, can be used to mean 'begin' or 'enter into' an action or state.)

(62) *w-a'y lijk-ø xan te j-chamel ya j-we'-ø ala waj*
2E-see begin-3A again ART 1E-sickness ICP 1E-eat-3A DIM tortillas
'You see, my sickness began again, (when) I ate some tortillas'

(63) *ya x-laj-ϕ a'yej*
ICP ASP-finish-3A speech
'The gossip will finish'

(64) *ya x-jajch-on ta a'tel ta bwen sab*
ICP ASP-arise-1A PREP work PREP really morning
'I get up/begin working very early'

These three verbs fall into the closed class with the motion verbs described above because together they exhaust the class of roots that can form auxiliaries and directionals. Semantically they also share features with the motion verbs, since their semantics can be described in terms of a trajectory and other reference points. The path distinctions encoded in this closed-class set of verbs are graphically illustrated in Figure 7.4. The three kinds of forms that these roots can take – as motion verbs, auxiliaries and directionals – either alone or in combination with other verbs (including other motion verbs) provide a system for specifying in detail the path and direction of movements through space, not only of animate things moving themselves by their own volition but also of inanimate things being moved (by the volition of animates, or by natural forces such as gravity or wind).[27] As in verb-framed languages, spatial description is normally restricted to one prepositional phrase per clause, but the verb itself may express a complex path by virtue of combinations of verbs, auxiliary and directionals (see example (77) below).

Motion vs. stasis As we have seen, the system of motion verbs, directionals and auxiliaries is well designed for describing nuances of movement in relation to a locational point of reference which may be, in the case of deictic verbs and directionals, deictically anchored to the location of speaker/hearer in the speech situation. This motion system appears to have little in common semantically with the system for static descriptions, in which, as we saw, deictic descriptions are dispreferred, and the dispositionals carry elaborate features of the shape, configuration, animacy, consistency, texture, etc., of the figure object. In contrast, the shape and configuration of objects is not attended to at all in these basic motion verbs. Apparently, anything in the Tzeltal world which can be appropriately described in stasis by any one of the several hundred dispositional adjectives is, the moment it moves, appropriately described by one or more of this handful of motion verbs and directionals.

However, motion and spatial configuration may be combined in several ways. First of all, it is perfectly grammatical to use a dispositional adjective to

[27] For example, the verb *ich'* 'to receive or obtain (it)', with the addition of a directional *tal* or *bel* becomes attuned to the direction in which the receiving occurs: *ich' tal* means 'to bring it', but *ich' bel* 'to take it'.

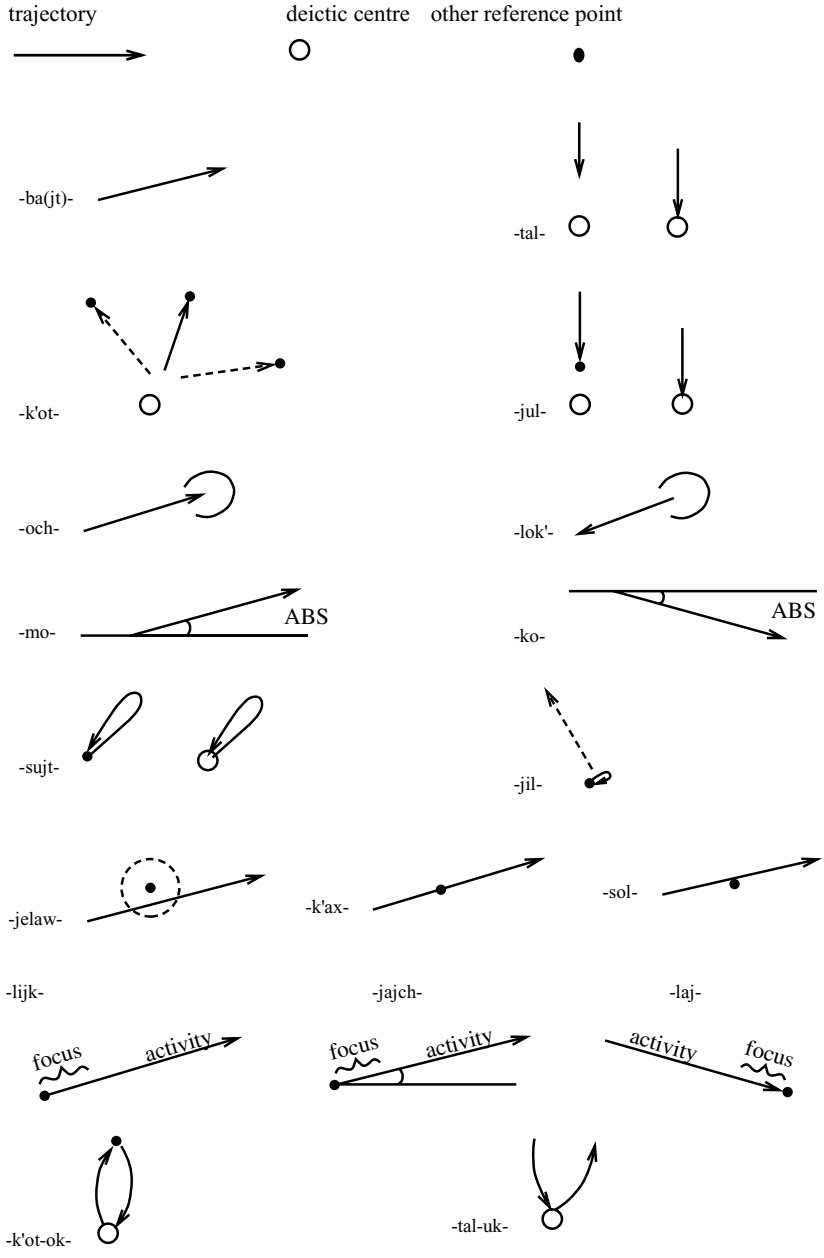


Figure 7.4 Path semantics in Tzeltal motion verbs

indicate the figure's position in a description of its movement, as, for example, in describing a human crawling as 'move four-leggedly':

(65) *kotol-ø* *ya* *x-mo-ø*
standing_on_all_fours-3A ICP ASP-ascend-3A
'He's going uphillwards four-leggedly' (i.e. on hands and knees)

It is also possible to include a directional to provide orientation in describing a static configuration:

(66) *jip-ajtik* *tal* *koel* *ta* *xujk-xujk (mexa)*
hang-DIST comeDIR descendDIR PREP side-side (table)
(te pak'-e)
(ART cloth-CL)
'It (the cloth) is hanging downwards on all sides (of the table)'
(TRPS 29)

Secondly, positional roots can be derived into transitive and intransitive stems, with the general meaning 'to put something into that position' (for transitives), or 'to be in that position' (for intransitives), e.g., *bal-ch'oj* 'to roll' (as in (67) below), *joy-p'ej*, 'to twirl', *jaw-tz'oj*, 'to fall face up', etc. The positional verb in these cases retains the semantic specificity of the root.[28] It is remarkable that, as a result, Tzeltal does not seem to exhibit the relation proposed as universal by Talmy (1983) – that a point figure in motion is treated as semantically parallel to a static linear figure. In Talmy's English example, he notes that *The ball rolled across the path* uses the same preposition *across* as *The snake lay across the path*. These two propositions would be expressed in Tzeltal by two quite different constructions – a finite verb construction designed for motion description, a dispositional adjective one for static configuration (of course, all spatial descriptions in Tzeltal use the same preposition, since there is only one!):

(67) *ya* *x-balch'oj-ø* *jelawel* *ta* *be* *te* *pelota-e*
ICP ASP-roll-3A crossDIR PREP trail ART ball-CL
'The ball rolls across the path'

in contrast with:

[28] Transitivized positional roots are a major resource for caused motion verbs – verbs of placement. There is no dedicated 'put' verb (although the verb *ak*' is general across 'put' and 'give' situations), but more usually a transitivized positional is used, indicating how the object will end up positioned once it has been placed. Many of these were used in our space games, for example in instructing a matcher how to place pieces of tinker-toy in a photo-matching task: e.g. *sejpana* 'place it flat-disk-shaped', *lujchanbe ta sjol* 'perch it on top of it', *tejk'ana* 'stand it up vertically', *k'ajtanbe jelawel* 'place it on it crossing acrossways'.

(68) *k'atal-ø ta be te chan-e*
crosswise-3A PREP path ART snake
'The snake is positioned across the path'

There is, however, one way in which Tzeltal can treat a static linear extension equivalently to a motion path – by reduplication of a body-part term that can be construed as extending linearly (namely, *xujk* 'side, corner', *ti'* 'mouth/lip/edge' and *pat* 'back'). Reduplication conveys 'along' the body part, as in example (66) above, and in:

(69) *chojt-ajtik-ø ta ti'-ti' soral te karo-etik-e*
4_legged_standing-3A PREP lip-lip street ART car-PL-CL
'The cars are standing (i.e. parked) along the edge (lit. 'at edge-edge') of the street'

(70) *ya x-ben-ø bel y-u'un ala pat-pat koral bel*
ICP ASP-walk-3A goDIR 3E-REL DIM back-back fence goDIR
'He walks away along the back (lit. 'in relation to back-back') of the fence' (route2.)

Dispositionals can also convey associated configuration during or as a result of motion. Tellings of the 'Frog Story' (see Chapter 1, §1.4.3) illustrate this well; while the overall movement from house through field and woods is generally expressed with a motion verb (e.g. *ba* 'go', *animaj* 'run', *been* walk', *an* 'flee'), when a scene is considered statically, dispositionals abound:

(71) Extract from Frog Story told by AO, age 41 (dispositionals underlined)
in te ala kerem-e, <u>kajal-ø</u> ta
DEIC ART DIM boy -CL mounted_on-3A PREP
j-jejt te'
one-NCforked_branch tree
'As for the little boy, he's mounted onto a forked branch of a tree'
<u>lutul-ø</u> ta j-jejt te'
wedged_between-3A PREP one-NCforked_branch tree
'He's wedged between the forks of the branch'
ajj:: te'tikil chij! <u>lutul-ø</u> ta xulub
oh woodland sheep wedged_between-3A PREP horn
'Oh, it's a deer! He's wedged between its horns'
in te kerem, jip -ot te te'tikil chij
DEIC ART boy throw_underhand-PASS ART woodland sheep
'As for the boy, he's been thrown by the deer'

jip *-ot* *jawal-ø*
throw_underhand -PASS lying_face_up_arms_outstretched-3A
ta *lum,*
PREP ground
'He's been thrown spread-eagled face-up to the ground,'

x-bech-lay-ej *y –ok* *s -k'ab*
ASP-bend-DIST-STAT 3E-lower_limb 3E-arm
'he has out-stretched his arms and legs'

jm, in *te* *tz'i'* *kojkoltza'-ø* *butul-ø*
hm DEIC ART dog turned_upside_down-3A tipped_over-3A,
'Hm. As for the dog, he's upside-down tipped over'

jm, metzel-ø-ix *ta* *lum*
hm lying_down-3A-CMPL PREP earth
'Hm. He is now lying on his side on the ground'

aj, 0 *ch'ay-ø* *koel* *jawal-ø*
ah, CMP fall_down-3A descendDIR lying_face_up_arms_out-3A

niwan *ek*
perhaps also
'Ah, he's fallen down face-up-spread-eagled perhaps'

Further, even during motion description, attention is often drawn to dispositional configurations if the position is non-canonical (e.g. 'fallen down', or 'tipped over').[29]

Thirdly, motion semantics can enter into static descriptions when a static configuration is described from the perspective of how things got into that particular position. For example, many responses to our Where-questions and photograph description tasks included a directional element, implying that the state being described results from a directional action or has a visibly directional aspect:

(72) *kojkoltza'* *ay-ø* *tal* *(te')*
upsidedown EXIST-3A comeDIR (tree)
'(The tree) is upside down coming' (i.e. fallen downwards towards where we are on a steep hillside)

(73) *ch'ikbil-ø* *moel* *jo'joch* *ta* *oy*
having_been_stuck_in-3A upwards cornhusk PREP housepost.
'The cornhusks are stuck in, upwards, at the housepost' (i.e. they have been inserted/jammed behind the post, and vertically stacked)

[29] See Brown 2000, 2003, for additional examples.

(74) *cholol-ø moel sok ta k'atal*
positioned_in_row-3A upwards plus PREP acrossways
'they are positioned in a row upwards and acrossways' (description of almonds placed in rows in an L-shaped configuration)

(75) *jok'ol-ø tal koel laso.*
hanging-3A coming downwards rope
'The rope is hanging down towards us'

Indeed, it may be that the main motivation for using directionals in these contexts is to import a deictic reference point, which is otherwise scarcely used in static location description in Tzeltal. Finally, descriptions of motion are sometimes analogized to stasis, as in the uses of dispositionals in:

(76) *pek'el-ø ya x-ko-ø tal sik'*
low_down-3A ICP ASP-descending-3A comeDIR bird_sp.
'The birds are descending low downwards towards here'

(77) *k'atal-ø ya x-mo-ø bel ch'ail*
crossways-3A ICP ASP-ascend-3A goDIR smoke
'Crossways the smoke rises awaywards' (i.e. the kitchen smoke appears to rise diagonally, due to light filtering through boards)

7.5 Frames of reference

Section 7.3.2 above provided a sketch of the core resources for describing static scenes, including the use of body-part expressions in prepositional phrases. These expressions have two uses: as topological relators (when figure and ground are in contact), and as means of expressing the intrinsic frame of reference (when figure and ground are separated). The intrinsic uses are very constrained, as Tzeltal speakers prefer to use body-part expressions when figure and ground are in contact or at least in close proximity. In the case where figure and ground are more widely separated in space, Tzeltal speakers use an absolute frame of reference to describe the angle at which the figure lies from the ground. Here I will sketch the linguistic resources for the Tzeltal absolute system.

7.5.1 The 'uphill'/'downhill' absolute system

In Section 7.3 we focussed on the Tzeltal system of locative expressions in which a dispositional predicate and a prepositional phrase, amplified optionally with a possessed body-part expression, is used to specify the location of objects in space. We noted in passing that the terms *ajk'ol* ('uphill') and *alan* ('downhill') can be used in their possessed form analogously to body parts and other relational nouns to indicate a location 'above' or 'below' a particular relatum. This, however, is not the central usage of these terms, for *ajk'ol* and

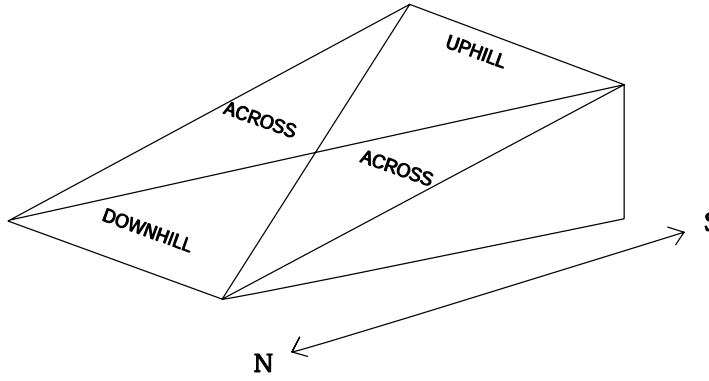
alan provide the basis for another system for locating both objects and actions (including motions) in space, namely an absolute coordinate system. In its core usage *ajk'ol* indicates the general lie of the land upwards, which in Majosik' is approximately towards the south, and *alan* indicates the direction in which the land falls away towards the river Tanate' which bounds Tenejapa to the north. The orthogonal direction across the overall lie of the land is designated as *ta jejch*, i.e. crossways across the valley/ridge, either in the east or west direction – which direction only being specifiable gesturally or in terms of a salient landmark (a mountain, school, or the direction of sunrise vs. sunset, for example). This coordinate system, although based on the local geography (roughly a series of north/south running valleys), is now abstracted from it and therefore applicable even on the horizontal; it applies at all scales from the far distant to very local, even reachable, space. (See Figure 7.5.) It does not, however, usually extend down to body space (i.e. one does not normally in Tzeltal distinguish a person's left and right eyes, cheeks, arms or legs, as 'the one uphill' vs. 'the one downhill').

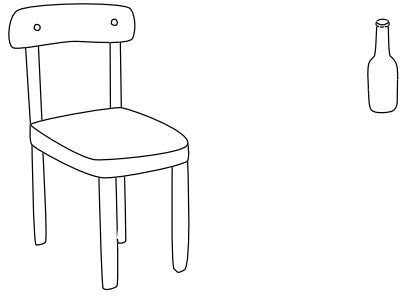
The details of this system are explored in Brown and Levinson 1993a, Levinson 2003; here it will suffice to indicate the essential nature of the system and how it differs from the others we have been describing. As we noted:

> [T]he terms label angles, fixed without reference to the orientation of ego or another human body, with which one can describe relative positions. They are used in this way routinely to describe the locations of things, either with respect to each other or with respect to protagonists or speakers, on both a large scale (locations in the landscape), and on a small scale (locations within, say, arm's reach). (Brown and Levinson 1993a: 7)

The *ajk'ol/alan* axis, running south/north, along with the orthogonal *jejch* axis further specified by geographical landmarks (e.g. well-known mountains or cliffs) or by reference to the passage of the sun, provide a set of coordinates which speakers can use to specify the location of objects or the direction of motion of people and things around them. This is an absolute system of spatial reckoning which contrasts with the intrinsic system described above, where objects are located by means of their position or their configuration vis-à-vis the parts of a ground object. Tzeltal speakers readily employ both systems in everyday usage.

Such an absolute system also contrasts significantly with a relative coordinate system based on body-projection, and requires speakers to be absolutely oriented at all times, for it is used not only in the local territory (where overall 'uphill' and 'downhill' are obvious directions) but also on the flat and in unfamiliar territory. In San Cristóbal, the market town some twenty miles from Majosik', even not widely travelled Tzeltal speakers flawlessly indicate the direction of (absolute) *ajk'ol* and *alan* without a moment's hesitation.





'The bottle is uphill of the chair'

Figure 7.5 The Tzeltal uphill/downhill system

The lexemes *alan* and *ajk'ol* are nouns; they therefore can appear in locative expressions with the existential predicate *ay*, with or without the preposition *ta*; for example:

(78) *ay-ø ta ajk'ol te limete*
EXIST-3A PREP uphill ART bottle
'The bottle is to the uphill' (i.e. of another one, on a table)

(79) l; *ta olil lek ay-ø?*
PREP middle good EXIST-3A
'Is it right in the middle?'
a; *ju'uk tey ay-ø ala ajk'ol tebuk. ma ba olil*
no there EXIST-3A DIM uphill a_bit. NEG middle
'No, it's a little bit uphillwards. Not in the middle'

In these examples, what is indicated is that the figure is located more uphill than its reference point, which, if unstated, may be the speaker or some contextually given other object. The reference point can be explicitly stated, as in:

(80) *ay-ø ta ajk'ol a'w-u'un/k-u'un te limete*
EXIST-3A PREP UPHILL 2E-REL/1E-REL ART bottle
'The bottle is uphill in relation to you/me'

(81) *ay-ø ta y-ajk'ol te' te limete*
EXIST-3A PREP 3E-uphill tree ART bottle
'The bottle is uphill from the tree'

A special derived form of *ajk'ol* – possessed and with a *-Vl* suffix added – means 'vertically above', and the reference point is the possessor:

(82) (vid8)
ay-ø kajal ala j-ch'ix te' ta y-ajk'ol-al
EXIST-3A on_top_of DIM one-NC stick PREP 3E-uphill-Vl
'There is a little stick on top of it' (i.e. on its *-ajk'olal* or topmost surface or region)

The *ajk'ol/alan* axis, and its orthogonal *ta jejch*, are used for spatial reference regardless of the distance from speaker/hearer. Hence we find tabletop uses, this being, for example, a natural way to distinguish Photos 2.3–2.5 in our Men and Tree picture-description tasks. The following descriptions are by a speaker facing west, with north (downhill) to her right, south (uphill) to her left (see Chapter 1, Figure 1.3).

(83) (pppetmar)
Photo 2.3:
sok xan jtul winik, jich tek'el ta ajk'ol ine. jich ay jtejk te' jich ta alan ine. te winike, jich ya xk'aboj koelix ta alan ine.

'And again one man, he's standing uphillwards here. There's a tree thus it's downhillwards here. The man is looking downhillwards towards downhill here.'

Photo 2.4:
sok xan winik, tek'el. jich ya xk'aboj moel ta ajk'ol ine, sok jtejk te' jich ta spat ine.

'And again a man, standing. He's looking uphillwards towards uphill here, and a tree is thus here at his back.'

Photo 2.5:
sok xan jtejk te' jich tek'el ta ajk'ol ini. te kereme, jich ay ta alan ini. jich ya xk'aboj moel ta ajk'ol ine.
'And again one tree standing uphillwards here. The boy, thus he's downhillwards here. Thus he is looking uphillwards towards uphill here.'

The use of 'uphill/downhill' for this distinction depends of course on the absolute orientation of the players; another pair oriented differently (facing downhill, with the undifferentiated 'across' axis to be distinguished in the description) described Photo 2.4 thus:

(84) (ppxunpet)
Photo 2.4:
p: *ja' nanix te winike. tek'el xan. sok nanix te ste'e. sok xan te jtejk te ala te'e, tek'elix ta spat. swalak'patiyej. jm. jich ya xbajt ta mali k'al yilel te winike. jich ya xk'abu bel ini, li' ta banti ya xch'ay k'al yileli.*
'It's the man again, standing again, with his stick. And the little tree again, standing at his back. He has turned his back to it. Hm. Thus the man is going towards where the sun sets, it appears. Thus he's looking awaywards here, here to where the sun falls, it appears.'
x: *jm, li' ay ta ba'ay ya xlok' tal k'al eki te'i?*
'Hm, here where the sun rises is the tree?'
p: *tey.*
'There.'

Naturally occurring examples of the absolute system used for small-scale spatial description are not hard to find, as when a mother told her three-year-old, struggling to put a puzzle-piece into its correct hole:

(85) *ta alan otzes-a*
PREP downhill enter-IMP
'Put it (puzzle piece) in downhillwards (in the downhillwards hole)'

Indeed, we find 'uphill'/'downhill' descriptions at all scales from the tabletop and beyond:

(86) a. *banti ay-ø te machit?*
where EXIST-3A ART machete
'Where is the machete?'

b. *li' ay-ø ta y-ajk'ol ti'nail.*
here EXIST-3A PREP 3E-uphill door
'Here it is at the uphill side of the doorway' (about 6 feet away from speaker)

(87) a. *banti ay-ø te kosina-e?*
where EXIST-3A ART kitchen-CL
'Where is the kitchen?'

b. *li' ay-ø ta alan*
here EXIST-3A PREP downhill
'Here it is, downhill' (i.e. 10 metres away, downhill)

(88) a. *banti ay-ø te s-na xi'lel Antun?*
where EXIST-3A ART 3E-house ElBr Antun
'Where is brother Antun's house?'

b. *li' ay-ø s-na li' ta alan*
here EXIST-3A 3E-house here PREP downhill
'Here is his house here downhill' (+ pointing in the northerly direction; the house is about a half a mile away, and out of sight)

These examples give an indication of how *ajk'ol/alan* terms are used, and over how broad a terrain they may extend, from the very local to the very far away. They don't, however, reveal one serious complexity, namely that given instances of usage do not in themselves reveal exactly what the *alan/ajk'ol* axis is taken to be. Aside from its probably derivative use to supply a vector on the vertical dimension, where *ajk'ol* means vertically upwards or above and *alan* means vertically downwards or below, the *alan/ajk'ol* system can be used in three distinct ways to specify a vector on the sloping or inclined-plane dimension: (1) The angle specified by these terms may be the absolute, fixed angle (corresponding roughly to north/south); this is the basic usage. (2) It may be given by the local inclination of the terrain which, because of local hills, cliffs, etc., does not necessarily coincide with the overall drop from south to north. (3) The uphill/downhill absolute system can occasionally be detached from its geographical coordinates and employed relatively, although we found evidence of this only in certain very constrained elicitation contexts (e.g. placement tasks or matching games) not in naturally occurring situations.[30]

[30] For example, when describing the relative locations of two bottles arrayed on the sagittal (front/back) axis, one speaker used *ajk'ol* to mean 'farther away from me (or you), along my (or your) sightline' and *alan* to mean 'closer to me/you, along my/your sightline'. (See Brown and Levinson 1993a for details.) (This is analogous to the use of *up/down* on the sagittal axis for English speakers.) A few other speakers adopted the same strategy in other elicitation tasks and space games, although it was always a minority, last-ditch strategy; this minority deictic 'uphill'/'downhill' strategy was not associated with deictic uses of 'left-hand' and 'right-hand' terms.

In this marginal usage, it may be the deictic angle defined by the orientation of the speaker's (or addressee's) body, indicating something like 'nearer or farther in front of me/you'. These different usages are generally appropriate to different scopes of spatial description. Thus, in descriptions of things more than a few metres away, the cardinal-absolute usage predominates. When a local activity (e.g. chicken-feeding, planting, house-building, tree-felling) is at issue one may get a local-inclination system predominating (since it specifies the inclination relevant to the activity at hand). Finally, the relative usage appears to be a derivative use of *ajk'ol* and *alan*, limited to the rather peculiar context of differentiating identical objects placed very close to each other on a table in front of the speaker with the constraint that simple pointing was disallowed (i.e. the usage may have been forced on consultants by our elicitation procedures). The unmarked usage of *ta y-ajk'ol* and *ta y-alan* is to indicate the location of objects (relative to some reference object) absolutely oriented in relation to the overall lie of the land.

We have already seen that the *alan/ajk'ol* system interacts with the dispositional system in so far as certain relational nouns (namely, *ta y-anil* 'at its underneath' or 'below') or dispositionals (*ta kajal* 'at its above' or 'abovewards') have taken on uphill/downhill meanings and can now be used interchangeably with *alan* and *ajk'ol* in some contexts. But, unlike the dispositionals, which are specialized for static descriptions of location, the *ajk'ol/alan* axis may equally be used to describe direction of movement.

(89) *ya x-ba-on li' nax ta ajk'ol-i*
ICP ASP-go-1A DEIC just PREP uphill-DEIC
'I'm just going towards uphill a bit'

Instead of (or in addition to) *ajk'ol,* however, one may use the directional *moel*, even for static descriptions. For example, the following was used to describe the static configuration of a pot with a feather south of it and a stick balanced on top of it:

(90) (sg:vid8)
moel ay-ø te j-chix-e,
ascendDIR EXIST ART one-NC-CL
k'atal-ø ta y-ajk'ol-al te ala te'-e
crossways-3A PREP 3E-uphill-Vl ART DIM stick-CL
'One long thin thing is uphillwards (of the pot), crossways on its top (is) the little stick'

By the same token, the directional *koel* may likewise be used instead of *alan*:

(91) (sg:vid8)
ta koel ay-ø te ma'yuk
PREP descendDIR EXIST-3A ART NEG
s-ta-oj-ø semento-e
3E-encounter-STAT-3A cement-CL
'The one that doesn't touch the cement is downwards, (i.e. north of it)'

There is, however, a contrast between *koel* and *ta alan* when motion rather than stasis is involved: either *koel* or *ta alan* may be used for the downhillwards direction, but *koel* rather than *ta alan* is used for 'down' in the vertical dimension. For example, in the process of building a chicken house one man instructed another to pull the chicken wire vertically downwards, with *koel*:

(92) *nit-a tal koel tebuk yu' ma ba*
pull-IMP comeDIR descendDIR a_bit because NEG
s-ta-ø lum
3E-meet -3A earth
'Pull it downwards (vertically) a bit, because it doesn't touch the earth' (referring to chicken wire, being attached to a pole)

When instructing another to pull it sideways from another position towards the downhill direction, however, he said:

(93) *nit-a koel tey ta alan*
pull-IMP descendDIR there PREP downhill
'Pull it downwards there towards downhill' (i.e. northwards)

7.5.2 Absence of a relative (front/back/left/right) system

There is no relative system available in Tenejapan Tzeltal, based on oppositions for which the projections from the body provide a coordinate system.[31] Marginal deictic or relative uses of certain terms in the intrinsic and absolute systems, as described above, do not constitute a full-blown relative system. There is no systematic use of a deictically based front/back projection, although there are marginal deictic uses of certain terms (*pat* 'back', *stojol* 'its-front' of a non-featured object, as described above). Two objects arrayed on the front/back axis can be, however, readily distinguished by the directionals *bel/tal* 'going'/'coming', the object closer to the speaker being described as 'coming', that farther away as 'going'. They can also be distinguished by deictic demonstratives or adverbs. There is no corresponding deictic or relative

[31] Casual observation of a few bilingual Tenejapans suggests that they do not use a relative system even when speaking Spanish, although further research would be required to establish this conclusively.

possibility in Tenejapan Tzeltal for the axis orthogonal to front/back. There is no propensity at all to use the terms for 'left hand' (*xin k'ab*) and 'right hand' (*wa'el k'ab*) to indicate the corresponding relative projected regions of a ground object. We did find just once the use of the Tzeltal body-part terms for left and right hands used to ascribe the angle at which an object or person was to be located, but this was *not* allocated deictically. This occurred during one session in our photograph-matching games. The perspective adopted was that of the person in the photograph, not the viewer (i.e. the animal being described was just next to the person in the photograph's left/right hand, so both the relatum and the origo of the coordinate system was the photographic person, not the speaker). We have never heard Tzeltal 'left'/'right' being used with the speaker as origo for a left/right ascription in relation to some other (non-speaker) relatum, nor was it ever used to describe a figure related to an inanimate ground, and in no cases was left–right used to describe a region as opposed to immediate adjacency. (See Brown and Levinson 1992, Levinson and Brown 1994.)

7.6 Conclusion

We have described the resources available in Tzeltal for spatial description. We have seen that, with only one preposition, spatial description of static scenes relies heavily on 'dispositional' predicates incorporating features of shape/configuration/position, etc., to indicate properties of the figure and/or the precise spatial relation to some ground object. This specificity vanishes in the motion roots, which encode pure Motion + Path with no information provided about the figure (unless via incorporation of a positional root into a larger construction). This suggests (contrary to Landau and Jackendoff 1993) that the 'what' and the 'where' systems are not linguistically allocated to two distinct linguistic systems in Tzeltal (e.g. nouns vs. prepositions) but merge for descriptions of location, although apparently not for motion. And then, even motion scenes may be described from the point of view of resultant position.

We have also seen that only two frames of reference are routinely used in Tzeltal: the intrinsic for situations where figure and ground are immediately adjacent; the absolute in most other cases. There are only marginal uses of deictic or relative projections from these two systems for the front/back axis (but never for the left/right one); the fact that these deictic projections do sometimes occur, however, makes it clear that Tenejapans retain this as a cognitive possibility along with the other two frames of reference. Despite the heavy reliance on the intrinsic and absolute frames of reference, and the relative neglect of deixis as the basis for elaborated spatial descriptions, we do find deixis creeping into Tzeltal spatial descriptions, in several ways: (a) with demonstratives, deictic adverbials and gestural deixis; (b) with deictic relata for uphill/downhill descriptions

(e.g. 'uphill of me/you'); (c) with deictic possessors of body-part terms and relational nouns (e.g. 'at your/my belly'); (d) with deictic uses of 'up'/'down' (e.g. 'it is above' – meaning 'farther from me'), and, especially, (e) with the directionals *tal* 'coming' and *bel* 'going'.

These Tzeltal findings, especially those of a relative de-emphasis on deixis and left/right asymmetry, are consonant with other characteristics of Tenejapan life and ethnography. These include an aesthetic which favours symmetry and a lack of left/right distinctions permeating Tenejapan life, showing up in interactional space (e.g. in gesture), in weaving patterns, in architecture, in ritual practices, as well as in psychological tasks which reveal a tendency to 'mirror-image blindness' (that is, to treat left/right mirror-image reversed images as identical) (Brown 1991, 2002, Brown and Levinson 1992, 1993a, Levinson and Brown 1994).

We have also found that the use of the absolute system correlates systematically with performance on non-linguistic tasks. Tenejapans tend to remember and reason about spatial relations in terms of their 'uphill'/'downhill' frame of reference (Brown and Levinson 1993a, Levinson 1996b, Levinson 2003), supporting the conclusion that there are important cognitive consequences of a frame of reference that is routinely employed (see also Pederson et al. 1998). A third finding is that Tenejapan children learn their absolute system relatively early, being able to understand absolute spatial descriptions by the age of four, and being able to competently produce them in novel situations in tabletop tasks by the age of six or seven.[32]

These results are at least suggestive of a quite different conceptualization of spatial relations in Tzeltal language and culture from that which has been posited as universal, and as based on an egocentrically defined abstract space constituted by three planes defined in relation to the human body (one vertical up/down, one horizontal front/back and one horizontal left/right). In Tzeltal language use, as we have seen, the human body does not appear to divide space up in this egocentric way; rather, spatial relations are described in large part very specifically, in terms of the gestalt presented by the configuration of a figure positioned in a ground, with further specification provided optionally by body-part terms. Further specification of vectors or direction of orientation can be done using the absolute system. This uphill/downhill system brings in a more abstract conceptualization of space than does the orientation-free Intrinsic system, one that can also be used for motion description.

[32] See Brown 2001, Brown and Levinson 2000, for the Tzeltal acquisition details. See de León 1994, 1997, 2001, for analogous findings for Tzotzil.

8 Spatial reference in Yukatek Maya: a survey

Jürgen Bohnemeyer and Christel Stolz

8.1 Introduction

It has been shown that spatial concepts are particularly richly lexicalized in some Mayan languages (see Brown this volume, on Tzeltal, and references there on Tzotzil, Mam and other members of the family). Together with the finding that spatial reference relies predominantly on an absolute frame of reference, driven by cognitive skills of spatial orientation unattested with Euro-Americans, this has led to the assumption that space plays a more prominent role in Mayan culture and cognition than it does in Western culture and cognition (cf. Brown this volume, England 1978: 226). The study of Yukatek Maya (YM) adds a new perspective to this line of research. YM shares most linguistic resources for spatial reference with the linguistically and culturally more conservative Mayan languages spoken in the highlands of Chiapas and Guatemala (the only notable exception is bound directional particles, which are absent in YM). However, the use of these resources is rather different in YM. Thus, even though there is a large form class of positional verb roots (a rather special typological feature of Mayan languages), these are not used in the 'basis locative construction' of YM. Furthermore, there is no evidence for a prominent role of the absolute frame of reference (FoR) in YM. The most widely used strategy of anchoring spatial reference among YM speakers is the intrinsic FoR. However, observer-based and absolutely grounded types of spatial reference coexist in particular in male adults with intrinsically anchored orientation.

A feature of spatial reference largely shared across YM and other Mayan languages that is prominently discussed in this chapter concerns the coding of motion events. The ground-denoting expressions in descriptions of spatial configurations and motion events are highly under-specified: they do not distinguish between location, source and goal roles, these distinctions being made exclusively in the predicate. Since relations of event order in time, which on a localist account are metaphorical extensions of such spatial relations, are also largely not expressed in YM, this may lead a localist to conclude that spatial

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concepts actually play a lesser role in the code of YM than they do in the code of Indo-European languages.

Finally, the lexicalization of 'path' roles such as source and goal (in the sense of Talmy 1985 and Jackendoff 1983) exclusively in verb roots has consequences for the coding of motion events that bear important theoretical and typological implications. At the level of lexical items and grammatical constructions, motion is represented in YM as change of location with respect to individual grounds, not as translational motion along an extended trajectory. This adds to the evidence presented throughout this volume that calls for a radical revision of the notions of 'motion' and 'path'.

8.2 The language and its speakers

The auto denomination of YM is *Maya t'àan* 'Maya speech', or simply *Maya*. YM forms the Yukatekan branch of the Mayan language family together with its sister languages Itzá, Lakandón and Mopán (Campbell and Kaufman 1990). YM is spoken all across the Yucatán peninsula, that is, in the Mexican states of Campeche, Quintana Roo and Yucatán, and in the Corozal and Orange Walk districts of Belize. With approximately 800,000 speakers, YM is one of the largest native languages of the Mesoamerican area. Based on lexical and morphophonological differences (Pfeiler 1995), two dialects may be distinguished: a variety spoken in the north-west of the peninsula, including the urban areas around Mérida, the capital of Yucatán, and the city of Campeche, and a variety spoken elsewhere, but in particular in Valladolid and its environs and in the rural areas to the east and south of Valladolid, down to and including those districts of Belize in which the language is spoken (cf. Smailus 1975).[1] These dialects are, however, mutually intelligible in their entirety. The present study is exclusively based on the southern variety. The data presented here has been collected by both authors in various field trips spent between 1989 and 2004 in two villages of the municipal district of Felipe Carrillo Puerto in Quintana Roo, México.

Speakers of YM have at present no regular contact, as a language community, with other indigenous languages. The dominant language of the Yucatán peninsula has been Spanish since the conquest which concluded in 1546 (in Belize, English plays the same role). Competence in Spanish varies across the YM territory. Although Suárez (1983: 171) estimates the total number of monolingual YM speakers at just 15 per cent in 1983, there are actually hardly any monolinguals at all in urban areas (Kummer 1982, Pfeiler 1985, 1988), whereas in the villages where the research reported here was carried out, most

[1] According to Edmonson (1986: 2–7), the differentiation of these dialects may date back to prehispanic times.

children grow up monolingually before they enter school, and most women as well as all people above the age of sixty have very little command of Spanish. In such rural communities, Spanish is acquired at school, diffused through mass media (radio, television) and used in church. In conversation, Spanish is used only when talking to non-Maya-speakers, except for secondary schoolers and slightly older youths, who occasionally use Spanish in conversations among each other, especially men. Literacy in Spanish is generally confined to people aged fifty or younger, and tends to be fairly limited. There is no regular literacy in Maya, although national institutions have made efforts since the 1980s to change this situation. There is some teaching in YM in the first grades now. Various writing systems are in use, mostly based on the conventions of the *Academia de las Lenguas Mayas de Guatemala*.[2]

The economic basis of the inhabitants of central Quintana Roo is cyclic slash-and-burn corn agriculture on a subsistence scale (*milpa* farming), as it is in most parts of the peninsula. Owing to ecological conditions which preempt more intensive forms of agriculture, the techniques of milpa agriculture deployed by present-day Maya peasants are by and large the same as those their ancestors applied for thousands of years. As the population size affordable by this form of agriculture is limited, but population has been increasing constantly since the 1930s, many younger people today have to seek temporary or constant employment in the towns of the Caribbean coast, where jobs are created directly and indirectly by the tourism industry.

YM has received one of the longest records of description among the languages of the New World. Yet there is no reference description of the language by contemporary linguistic standards. Classical YM, considered to have been in use between the middle of the fifteenth and the middle of the seventeenth century (McQuown 1967: 202), received several pedagogical grammars (Coronel 1620, San Buenaventura 1684, Beltrán de Santa Rosa 1746) and the quite extensive *Diccionario de Motul* written by an anonymous author as early as the last quarter of the sixteenth century (published by Martínez Hernández 1929). Descriptions of Classical YM include McQuown (1967) and Smailus (1989). The first descriptive sketches of Modern YM according to contemporary linguistic standards are Tozzer (1921) and Barrera-Vásquez (1946). There are two extensive structuralist treatments of YM, Andrade (1955) and Blair (1964). A concise sketch of YM morphosyntax is found in Bricker (1986, Chapter 2). Recently, Ayres and Pfeiler (1997) have submitted a manual of the fairly complex morphology of the YM verb, based in particular on the work by Blair (1964), Owen (1968) and Bricker (1981), but going beyond the scope of these

[2] In this paper we follow the orthographic standards of Lehmann (1996). These conventions are compatible with the orthography codified for Mayan studies by the *Academia de las Lenguas Mayas de Guatemala*, except mainly for the affricates /ts/ and /ts'/ which are spelled *tz* and *tz'* in the Guatemalan system.

studies, and using original field data for illustration. Barrera-Vásquez (1980) compiles a dozen older lexicographic sources, dating back as far as the *Diccionario de Motul*, and including most notably the dictionary of Pío Pérez (1866–77). Bricker, Po'ot Yah and Dzul de Po'ot (1998) provide a contemporary scientific record of the YM Lexicon.

8.3 Some elements of YM morphosyntax

8.3.1 Overview

In this section, we sketch some basic traits of YM clause and sentence grammar, as relevant to the treatment of spatial reference below. The discussion follows a broad-level subdivision of clause structure into predicates and clause-level dependents. Section 8.3.2 introduces the YM system of morphological predicate classes. Stative predicates that express locative relations, positional verb roots that lexicalize spatial configurations, and verb roots of 'inherently directed motion' (Levin 1993: 263) and 'manner of motion' (Talmy 1985) all fall in different morphological classes. Section 8.3.2 lays out the formal properties of these predicate classes. The treatment of clause-level dependents in Section 8.3.3 focusses on spatial obliques such as the ground-denoting phrases in expressions of location and motion.

8.3.2 Predicates

In YM, a stative predicate alone may constitute a minimal clause, and for that matter, a minimal sentence. The stative predicate is inflected for its theme argument (the 'notional subject') by a pronominal suffix, such as the second singular suffix *-ech* in (1).[3]

(1) *Uts-ech?*
good-B.2.SG
'Are you alright?', 'Do you feel well?'

[3] Abbreviations in interlinear morpheme glosses include the following: 1/2/3 – First/Second/Third Person; A – Cross-reference Set A (>ergative=, possessor); ACAUS – Anti-causative; ALT – Alternative; AN – Animate; APP – Applicative; ATP – Anti-passive; B – Cross-reference Set B (>absolutive=); CAUS – Causative; CL – Classifier; CMP – Completive; CON – Connective; D1 – Proximal; D2 – Distal; D3 – Textual deixis; D4 – Locative/Negative clause particle; DEF – Definite determiner; DEM – Demonstrative; DIM – diminutive; DUR – Durative; EXIST – Existential predicate; EF – Extra-focal; F – Feminine; GIV – Gerundive; HESIT – Hesitation; IMPF – Imperfective; IN – Inanimate; INC – Incompletive; IRR – Irrealis; ISO – Isotemporality marker; LOC – Locative; NEG – Negation; OBL – obligative; PASS – Passive; PERF – Perfect; PL – Plural; POS – Positional; PROG – Progressive; PRSV – Presentative; PRV – Perfective; REL – Relational; REP – Repetitive; RES – Resultative; SG – Singular; SR – Subordinator; SUBJ – Subjunctive; TERM – Terminative; TOP – Topic.

This paradigm of pronominal suffixes is commonly labelled 'Set B' among Mayanists. Stative predicates may be divided according to further morphosyntactic criteria into nouns, adjectives (such as *uts* 'good' in (1)) and stative predicates proper (see Bohnemeyer 2002: 81–90, 153–215). Stative predicates proper are those that appear exclusively as stative predicates; among these are deverbal stative forms such as the resultative and positional resultative forms mentioned below ((8), (9)).

Verbs are distinguished from stative predicates by the former being inflected obligatorily for the suffixal category we term 'status', following Kaufman (1990: 71). For the purposes of the present study, it suffices to say that the four status categories – incompletive, completive, subjunctive and extra-focal – are semantically motivated with respect to distinctions of aspectuality, modality and illocution. For details and for a semantic analysis see Lucy (1994) and Bohnemeyer (2002: 216–42). Stative predicates are incompatible with status inflection. In order to constitute (potentially) independent clauses, verbs have to be combined with exactly one member out of a paradigm of about fifteen preverbal aspect-mood (henceforth AM) markers. The structure of the verbal clause in YM is thus invariably [AM CORE]$_S$, where CORE represents the verbal core. The verbal core is headed by the unit we call a 'verbal complex', optionally extended by argument noun phrases and adjuncts. YM is a purely head-marking language in the sense of Nichols (1986). Arguments are cross-referenced on the verb (and likewise the possessor on the possessed noun and the complement of a preposition on the preposition) by the two paradigms of bound pronominal indices; there is no case marking on noun phrases, and noun phrases are syntactically optional. With the exception of attributive adjective constructions, all constructions of YM grammar are head-initial. Constituent order is relatively rigid; the basic order in transitive clauses is V-O-A:

(2) *Táan u ts'íib-t-ik (le kàarta)*
[PROG [[A.3 write-APP-INC(B.3.SG)]$_{complex}$ [DEF letter]$_{NP.O}$
(le x-ch'úupal)-o'
[DEF F-female:child]$_{NP.A}$]$_{core}$-D2]$_S$[4]
'She was writing it (the letter) (the girl)', i.e. 'The girl was writing the letter'

The verbal complex comprises the inflected verb form, including the bound pronominal indices cross-referencing the verbal arguments, and a number of clitic adverbs that may be inserted between the Set-A cross-reference marker

[4] Abbreviations used in syntactic tagging include *AM* for the preverbal aspect-mood markers, *COMPLEX* for the verbal complex, *CORE* for the verbal core, *NP$_{A/O/S}$* for a noun phrase referring to the transitive A or O or the intransitive S-argument, respectively, *S* for clause and *STAT* for stative predicates.

and the verb stem (CADV in the schemata below). The Set-A markers are clitics and may combine with a host preceding the verbal core, such as the AM marker. The structure of the transitive verbal core is schematically represented in (3) and exemplified in (4) ($CR_{A/B}$ represents the cross-reference markers of Set A/B, *CADV* stands for a clitic adverb).

(3) PERSON[CR_A] (CADV) STEM-STATUS-CR_B(-NUMBER[CR_A])

(4) *Ts'o'k*$_{AM}$ [*a*$_{PERSON[CRA]}$ *ka'*$_{CADV}$ *ah* *-s*$_{STEM}$
TERM A.2 REP wake.up-CAUS
-ik$_{STATUS}$*-en*$_{CRB}$ *-e'x*$_{NUMBER[CRA]}$*]*
-INC-B.1.SG -2.PL
'You all have woken me up again'

The structure of the intransitive verbal complex depends on the status category the verb is marked for. The single argument of the intransitive verb, henceforth the 'S-argument', following Dixon (1994), is marked by a Set-A clitic in incompletive status, but by a Set-B suffix in completive, subjunctive and extrafocal status. The alternative structures are schematically represented in (5a) for incompletive status and (5b) for other status categories:

(5) a. PERSON[CR_A] (CADV) STEM-STATUS(-NUMBER[CR_A])
b. (CADV) STEM-STATUS-CR_B

In other words, the S-argument patterns with the transitive 'A-argument' in incompletive status, but with the transitive 'O-argument' in the remaining status categories. This pattern of argument marking is referred to as 'mixed ergativity' in Kaufman (1990: 86–91). On Dixon's (1994) typology, the YM pattern of argument marking instantiates 'split-S' marking, and in the terms of Sapir (1917), YM shows 'active-inactive' marking. The latter term has been applied to YM by Dayley (1981, 1990) and Straight (1976). Notice, however, that the argument-marking split of YM is morphologically conditioned, unlike the lexically governed pattern Klimov (1974) has described as 'active-*stative*' marking (cf. Krämer and Wonderlich 1999, Bohnemeyer 2004). Example (6) illustrates the incompletive verbal complex; the incompletive is in this case governed by the terminative AM marker *ts'o'k*, just as in (4) (observe that the transitive stem *ahs* 'wake sb. up, in (4) is a causativization of the intransitive stem *ah* 'wake up' in (6)).

(6) *Ts'o'k*$_{AM}$ [*a*$_{PERSON[CRA]}$ *ka'*$_{CADV}$ *ah*$_{STEM}$ *-al*$_{STATUS}$ *-e'x*$_{NUMBER[CRA]}$*]*
TERM A.2 REP wake.up -INC -2.PL
'You all have woken up again'

Example (7) instantiates completive status with the same stem *ah* featured in (6). Completive status is zero-marked with this particular class of intransitive

Table 8.1 *YM status inflection according to verb classes*

Status category	Verb class	Incompletive	Completive	Subjunctive	Extra-focal
Intransitive	active	*-ø*	*-nah*	*-nak*	*-nah-ik*
	inactive	*-Vl*	*-ø*	*-Vk*	*-ik*
	inchoative	*-tal*	*-chah*	*-chahak*	*-chah-ik*
	positional	*-tal*	*-lah*	*-l(ah)ak*	*-lah-ik*
Transitive	active voice	*-ik*	*-ah*	*-ø / -eh*	*-ah-il*
	passive voice	*\ '/ . . . -Vl*	*\ '/ . . . -ab*	*\ '/ . . . -Vk*	*\ '/ . . . -ik*
		/ -a'l	*/ -a'b*	*/ -a'k*	*/ -a'b-ik*

The symbol \ '/ denotes an infixed glossal stop.

verbs; the allomorphic variation of the status suffixes will be at issue in a moment. Completive status is triggered in (7) by the perfective AM marker, whose allomorph is *h* with intransitive verbs.[5]

(7) H_{AM} *[ka'*$_{CADV}$ *ah*$_{STEM}$ *-ø*$_{STATUS}$ *-e'x*$_{CRB}$*]*
PRV REP wake.up -CMP -B.2.PL
'You all woke up again'

Status marking generally depends on the syntactic environment of the verb. In independent clauses, the status category the verb is inflected for is assigned by the preverbal AM marker. In verbal cores embedded as arguments of higher predicates, status selection is triggered by the matrix predicate. In other constructions, status marking depends on the construction itself. As is apparent from a comparison of the incompletive suffix *-ik* occurring with the transitive stem *ahs* in (4) and the incompletive suffix *-Vl* (the quality of the vowel equalling that of the preceding stem syllable) occurring with the intransitive stem *ah* in (6), the form of the status suffixes depends on the lexical class of the verb stem. By this pattern of status allomorphy, five inflectional verb classes are distinguished, as depicted in Table 8.1.

The same five classes are also differentiated by privileges of undergoing derivational operations. For example, the intransitive verb *ah* 'wake up' illustrated in (6) belongs to the 'inactive' class of intransitive verbs, which transitivizes by application of the causative derivation in *-s*, as in (4). Size, productivity and examples of each class are given in Table 8.2. In Bohnemeyer (2004), it is argued that the five verb classes are motivated primarily by event-structure properties.[6] Thus, intransitives of the active class typically lexicalize

[5] The suffixal parts of the Set-A pronouns marking plural number are homophonous with the corresponding plural suffixes of the Set-B series of person markers.

[6] The study of the YM verb classes includes contributions by Owen (1968), Straight (1976), Dayley (1981, 1990), Lehmann (1993), Lucy (1994) and Krämer and Wunderlich (1999). Dayley (1981, 1990) coined the labels 'active' and 'inactive (intransitive verbs)' as they are used here.

Table 8.2 *Lexical extension of the YM verb classes*

Properties verb class	Size and productivity: root members	Size and productivity: derived stems	Examples of root members
active	open (loans)	open (antipassives)	'walk', 'run', 'swim', 'fly', 'sing', 'groan', 'cry', 'eat', 'defecate', 'vomit'
inactive	≥100	100–200? (anti-causatives)	'be born', 'die', 'come', 'go', 'enter', 'exit', 'fall', 'begin', 'end', 'happen'
inchoative	—	open	—
positional	≥150	—	'sit', 'stand', 'hang', 'lie face up', 'lie face down', 'lie across', 'lean', 'bow', 'bulge', 'be between things'
transitive	≥500?	open (causatives, applicatives incl. loans)	'break', cut', 'shatter', 'tear', 'split', 'insert', 'push', 'pull', 'put/give/provide', 'make', 'do', 'say', 'think', 'ask'

events such as 'sing', 'dance', 'run' and 'jump', whose single argument is an 'agent', whereas inactive, inchoative and positional intransitives lexicalize events of state change, location change and the like, such as 'be born', 'die', 'explode', 'enter', 'ascend', 'grow old', 'become fat', 'sit down', 'stand up', etc., which involve a 'patient' or 'theme' argument. In other words, the active class embraces 'unergative' verbs, whereas the three other intransitive classes contain 'unaccusative' verbs (cf. Levin and Rappaport 1995).[7] As is shown in Section 8.5 below, only roots and derived stems of the inactive and transitive classes can be used to predicate change of location. Active intransitive verbs also occur in motion-event descriptions, but exclusively serve to express 'manner of motion'.

Of special interest for a discussion of the expression of spatial relations in YM will be the class of positional roots. Positionals as a distinct form class are found in many Mayan languages (Kaufman 1990: 68), as well as in other Mesoamerican languages. Positionals in YM may be identified according to a number of formal properties. Firstly, positionals form the only root class in YM whose members never surface anywhere in the clause without derivation.[8] As is

[7] It should be born in mind, though, that the unergative-unaccusative distinction is realized exclusively morphologically in YM. An exception to the semantic motivation of the verb classes in terms of event structure is represented by loan words borrowed from Spanish: all intransitive verbs borrowed from Spanish are incorporated into the active intransitive class, regardless of their semantics.

[8] By 'positional roots', we mean roots that are compatible with the positional resultative derivation in *-Vkbal*. About one-third of these roots produce exclusively overtly derived stems ('P' roots in Mayanist terminology), while the remaining two-thirds also produce transitive verb stems without overt derivation ('T/P' roots in Mayanist terminology). The formal properties ascribed in the following to the class of positional roots as a whole apply prototypically to P roots, and to T/P roots only to a degree (see also Haviland 1994 for Tzotzil).

apparent from Table 8.1, positionals share the suffix *-tal* with inchoative verbs[9] in incompletive status, but take the allomorph *-lah* in the completive, unlike inchoatives, which occur with *-chah*. And secondly, in addition to the regular resultative derivation of intransitive verbs in *-a'n*, positionals also allow for the formation of the positional resultative in *-Vkbal*. The examples in (8) and (9) are constructed:

(8) a. *Kul-a'n-ech?*
sit-RES-B.2.SG
'Are you at home (lit. seated)?'

b. *Ch'uy-a'n te che'-o'*
hang-RES (B.3.SG) LOC: DEF tree -D2
'It is hung from a tree'

(9) a. *Kul-ukbal-ech?*
sit-POS.RES-B.2.SG
'Are you sitting?'

b. *Ch'uy-ukbal te che'-o'*
hang-POS.RES(B.3.SG) LOC:DEF tree-D2
'It is hanging from a tree'

Whereas the resultative in *-a'n* is formed from positional, inchoative and inactive stems, and of transitive stems after passivization, the positional resultative in *-Vkbal* is exclusively formed from positional roots.[10]

Around 150 roots have been attested to occur in positional-verb forms (i.e. in positional resultative forms or in verbal predicates that inflect for completive status in *-lah*).[11] However, only a minority among these produce exclusively positional stems without overtly marked derivation. Most of the roots that appear in positional stems also produce either zero-derived transitive stems (e.g. *chin* 'bow, bend', *hup* 'sink, insert') or 'pseudo-anti-causative' stems (which inflect like inactive intransitives and show the tone-heightening pattern of anti-causatives formed from transitive roots, although the putative simple transitive stem underlying these anti-causatives does not occur; e.g. *kul* 'sit down', *kúul* 'settle'). Although the 150 roots attested in positional stems certainly do not exhaust the class of positionals in the language, it seems likely that this class is smaller than the positional class of some other Mayan languages, such as Tzeltal (with 'well over 250' items according to Brown 1994a: 752) and Tzotzil (273 in Haviland's 1994a sample). The subset of positionals one encounters in spontaneous discourse with saliently high frequency contains at least forty items

[9] All inchoative verbs are derived from stative predicates.

[10] Another diagnostic of positional roots is the distributive reduplication of the type *chúl-en-chúl* 'lying here and there', *ch'éeb-un-ch'éeb* 'tilted here and there'.

[11] Bricker, Po'ot Yah and Dzul de Po'ot (1998: xiv) count only thirty-nine positional roots in their dictionary. It appears that this figure only includes roots which do not occur in transitive stems without derivation. Yet the dictionary lists several roots as producing exclusively non-positional stems which do have attested positional stems in our database. This may reflect a dialect difference (Bricker, Po'ot Yah and Dzul de Po'ot 1998 is based on the northern variety of YM).

in Tzeltal (Brown p.c.). In contrast, the five YM consultants who produced descriptions of the 'Topological Relations Picture Series' (TRPS, to be discussed in the next section; see also Chapter 1, §1.4.1) used only a dozen positional root types in these, and only five of these occurred with more than one token per type. Research conducted with an additional picture series specifically geared to the elicitation of spatial-dispositional expressions yielded positional resultative forms of twenty-four root types among three YM consultants, as opposed to stative forms of thirty-three root types used by three Tzeltal consultants (Brown pc).[12]

The positional roots of YM lexicalize the spatial configuration of a *figure* with respect to a canonical *ground* (in the parlance of Talmy (1972, 1985, 1991)). The information these items convey about the figure and the configuration is much more specific than the information they convey about the ground. Thus, positional selection generally reveals whether the figure is animate or inanimate (posture roots mostly take only animate figures, e.g. *chil* 'lie down', *kul* 'sit down', *xol* 'kneel'), a single individual, a collective (e.g. *much'* 'pile up, gather', *ts'ap* 'pile up, be stacked'), or a mass (e.g. *búut'* 'fill, stuff', *háay* 'spread out, extend', *nik* 'scatter'), whether it is a two-dimensional object (or a saliently elongated three-dimensional one) or a three-dimensional non-elongated object, whether it is flexible or of permanent shape, etc. As for the configuration, the selection of a particular positional root reflects things like whether the pull of gravity is neutralized by support, suspension, or in some other way, whether the figure is facing up or facing down in the gravitational field, whether contact between figure and ground is loose or firm, and where the figure makes contact with the ground (e.g. support along long axis, as in *pek'* 'sit stretched out', vs. along short axis, as in *t'uch* 'perch, squat, rest', or suspension at terminal point, as in *ch'uy* 'hang (non-flexible object)' or *ts'op* 'punch, bore, puncture', vs. at a non-terminal point, as in *lech* 'hang (flexible object)'). As opposed to this relatively detailed information about the figure and the configuration, the information that positional root use entails about the ground is much less systematic, and generally less specific. For example, *háay* 'spread out' and *nik* 'scatter' require a horizontally oriented surface as ground; *pak'* 'plant' requires dirt (or sand, gravel, etc.) as ground; *ts'op* 'bore, puncture' requires a solid three-dimensional object as ground; *búut'* 'fill, stuff' requires a container as ground, etc.

Rich lexicalization of spatial configurations represents one of the most peculiar design features of Mayan languages – and a kind of linguistic knowledge in the speakers of Mayan languages that is largely absent in the speakers of other languages. However, predicating information about a figure's spatial configuration is not the same as asserting the figure's location and topological relation with respect to a ground. In some Mayan languages, such as in Tzeltal and

[12] See Ameka, de Witte and Wilkins (1999) for details concerning this stimulus.

Tzotzil, positional verb forms are exploited for the latter purpose. As is shown in Section 8.4 below, this is not the case in YM.

8.3.3 Clause-level dependants

Within the grammar of spatial orientation, clause-level dependants primarily serve to express ground objects. The expressions referring to spatial ground objects in YM have two properties, which are quite striking from a typological point of view. Firstly, ground-denoting expressions never surface as core-arguments cross-referenced on the predicate. Instead, they assume the position and structure of adjuncts, except when fronted as topics or foci (in clefts).[13] And secondly, ground-denoting expressions in YM are completely insensitive to *path* distinctions in the sense of Jackendoff (1983, Chapter 9 and Talmy 1972, 1985, 1991). That is, their form does not reflect whether the *figure* is *located* at the ground object, or moves towards or away from the ground object (*directional path*), or whether the ground object marks the *source* or *goal* of the figure's trajectory (i.e. the location the motion event starts from or ends at), or a *route* ground passed by on the figure's trajectory. Both the exclusion of ground-denoting phrases from argumenthood and their indiscriminateness with respect to path will be elaborated on in Section 8.5 below. Path neutrality is illustrated in (10) with the locative interrogative pro-form *tu'x*. In (10a), *tu'x* is used in a request for information about a stative location ('where'), in (10b), *tu'x* occurs in a question about the goal of a motion event ('where to'), and in (10c), *tu'x* is used to ask about the source of a motion event ('where from').

(10) a. *Tu'x yàan-ech, chan áak?*
where EXIST-B.2.SG DIM turtle
'Where are you, little turtle?' (Romero Castillo 1964: 308)

b. *Tu'x k-a bin?*
where IMPF-A.2 go
'Where are you going?' (Blair and Vermont-Salas, 1965–7, hereafter BVS 1.1.10)

c. *Tu'x a tàal-e'x?*
where A.2 come-2.PL
'Where are you coming from?' (BVS 2.1.9)

Exclusion from argumenthood and path-neutrality applies to ground-denoting expressions in YM independently of their internal construction. Ground-denoting expressions may be constituted by the interrogative pro-form *tu'x*

[13] Certain motion verbs such as *bin* 'go' and *tàal* 'come' take 'indexical' (i.e. deictic or anaphoric) ground objects which cannot be specified by phrases in the clause that contains the motion verbs; see Section 8.5.

illustrated in (10), by a deictic or anaphoric pro-form, by a bare place name (in exceptional cases also by a bare common noun), by a common noun constructed as the possessor of a relational noun referring to a spatial region, or by a prepositional phrase. The system of indexical (deictic or anaphoric) spatial reference will be taken up below. Example (11) illustrates a ground-denoting expression constituted by a bare place name, namely *Carrillo*:

(11) *Sáamal walakil-a' yan in bis-ik-ech Carrillo*
tomorrow ISO-D1 OBL A.1.SG go:CAUS-INC-B.2.SG Carrillo
'Tomorrow at this time, I will take you to (the town of) Carrillo'

Likewise, nouns denoting cardinal directions do not combine with determiners, and combine directly with a verbal core without the help of a preposition. However, as in (12), they frequently enter into an appositive relation of sorts with the deictic space adverb *te'l . . . -a'* 'there' (proximal to speaker, but not including the speaker's location):[14]

(12) *Hwèebes-e' yan k bin-o'n, estée,*
Thursday-TOP OBL A.1.PL go-1.PL HESIT
wàats' t-in chan kòol yàan
bend \ ATP LOC-A.1.SG DIM clear \ ATP EXIST(B.3.SG)
te'l nohol-a'
there south-D1
'Thursday we got to go bending (i.e. corn cobs) on my milpa (lit. clearing) there in the south'

There are a number of further 'generic' grounds, including those expressed by *ka'n* 'sky', *k'áax* 'jungle' and *lu'm* 'earth', which occur in both constructions. Example (13) shows *lu'm* 'earth' used as a bare oblique noun.

(13) *(. . .) u che'-il, mehen che'-il-o'b bèey-a',*
A.3 wood-REL small wood-REL-PL thus-D1
k-u lúub-ul lu'm
IMPF-A.3 fall-INC earth
'(. . .) the trees, like the small trees, they fall to the ground (in a hurricane)'

All regular common nouns referring to spatial ground objects are preceded by a determiner and governed by a preposition or by an *inalienable* (or *relational*) *noun*. Nouns in YM are divided into several subclasses according to their behaviour under possession. Thus, 'inalienable' noun stems either do not occur

[14] It appears that deictic reference to a direction, cardinal or otherwise, excludes selection of the distal space-deictic forms in YM.

Table 8.3 *YM relational nouns lexicalizing spatial regions (cf. Lehmann 1998: 84)*

(Preferred) oblique construction	Noun	Gloss
[CORE [CR_i-N_{rel} NP_i]]	*àanal*	bottom,
	iknal	underside
	óok'ol	proximity
		top, upper side
[CORE [ti' [CR_i-N_{rel} NP_i]]]	*chúumuk*	centre
(or [CORE [N_{rel}(-il) ti' NP]])	*háal*	edge
	nak'	mid-height
	(ba')pàach	back, outside
	(ak)táan	front
	tséel	side
	ts'u'	inside
	xno'h	right
	xts'i'k	left
	xùul	end

Key: CORE – Verbal core, CR – Cross-reference marker (Set A), Nrel – relational noun

unpossessed at all (e.g. *ich* 'face', *otoch* 'home'), or require the 'absolutivizing' suffix *-tsil* when unpossessed (the latter class includes most kinship terms).[15] In the expression of spatial ground objects, one subset of inalienable nouns features prominently, namely inalienable nouns lexicalizing *spatial regions* of the ground object. The most frequent members of this set are listed in Table 8.3.

As is apparent from Table 8.3, these relational nouns are subdivided into two sets according to the construction they require in ground-denoting phrases. *Àanal* 'underside', *iknal* 'proximity' and *óok'ol* 'top' may head a phrase without further modification (although they occasionally occur reinforced by the preposition *ti'*). The description of Picture 1 of the TRPS in example (14) illustrates this for *óok'ol* 'top'.[16]

(14) *Le lùuch-o' ti'=yàan y-óok'ol le mèesa-o'*
DEF cup-D2 LOC=EXIST(B.3.SG) A.3-top DEF table
'The cup, it's there on the table' (TRPS 1 JYU)

The remaining items listed in Table 8.3 generally require the preposition *ti'* in ground-denoting phrases. (15) illustrates this construction for *pàach* 'back, outside'.

[15] The grammar of possession in YM is described in great detail in Lehmann 1998.

[16] Possessors are cross-referenced on the possessed nominal by the Set-A pronominal clitics. In (14), the possessor of *óok'ol* 'top' is *le mèesa* 'the table', cross-referenced by the 3.SG clitic of Set A.

(15) *Te'l kul-ukbal u pèek'-il t-u pàach*
there sit-POS.RES(B.3.SG) A.3 dog-REL LOC-A.3 back
le nah-o'
DEF house-D2
'There the dog is sitting outside the house' (TRPS 6 ICM)

Occasionally, alternative constructions occur. Example (16) shows the unpossessed adverbial variant *aktáan* of *táan* 'front'; in this case, the ground object whose spatial region is to be specified is itself expressed by a prepositional phrase headed by *ti'*. A more regular way of deriving an adverb from *táan* and other relational nouns makes use of the relativizing suffix *-il*.

(16) *Ak+táan ti' hun-p'éel nah-e' yàan*
?+front LOC one-CL.IN house-TOP EXIST(B.3.SG)
hun-p'éel màata-il che' wa'l-akbal-i'
one-CL.IN plant-REL tree stand-POS.RES(B.3.SG)-D4
'In front of a house, there is a tree(, it's) standing' (TRPS 49 ICM)

The relational nouns listed in Table 8.3 fulfil the range of (pragmatic) functions that is fulfilled in English by spatial prepositions. Like other Mayan languages (cf. Kaufman 1990: 78, Brown this volume, on Tzeltal), YM has one semantically general preposition, namely *ti'*, somewhat elusively glossed 'LOC' in the examples. *Ti'* does not distinguish between a spatial point of reference, a recipient, beneficiary, or experiencer, a purpose and a number of other readings. Its function simply consists in relating any kind of peripheral participant to the event core expressed by the verbal complex. *Ti'* may generally be translated as 'with respect to'. There is, however, one further preposition whose function, unlike that of *ti'*, is mostly confined to spatial meanings, namely *ich(il)* 'in':

(17) *Táats' h úuch u lúub-ul-o'b ich*
straight PRV happen(B.3.SG) A.3 fall-INC-3.PL in
le ha'-o'
DEF water-D2
'Straight they fell into the water' (Frog 4, 43)[17]

(18) *Le chan pèek'-o' k-uy il-ik ti' hun-p'éel*
DEFDIM dog-D2 IMPF-A.3 see-INC(B.3.SG) LOC one-CL.IN
chan pòomo,
DIM jar

[17] We collected 'Frog Story' narratives (see Chapter 1, §1.4.3, for a description of this elicitation tool) from five speakers, referenced as Frog 1 to Frog 5. The numbers after the commas refer to the line numbers of the respective transcripts.

estèe, *yàan* *hun-túul* *chan* *mùuch* *ich-il*
HESIT EXIST(B.3.SG) one-CL.AN DIM frog in-REL(B.3.SG)
'The little dog, it looks into a little jar, uh, there's a little frog in there' (Frog 1, 2)

Ich is frequently combined with the relativizing suffix *-il*, as in (18). This construction is reminiscent of the use of the relational nouns listed in Table 8.3 as adverbs. This and other sources of evidence suggest that *ich(il)* is itself grammaticalized out of a relational noun, namely *ich* 'face', 'eye', 'fruit'. The structural properties of YM phrases denoting spatial regions of a ground object have been described exhaustively in Goldap (1992) and Lehmann (1992).

Let us now turn to indexical ground objects, i.e. ground objects referred to deictically or anaphorically. YM has an analytic system of expressing *spatial deixis* simultaneously in two different positions, combining a presentative or demonstrative stem which basically only identifies the syntactic function of the deictic expression (adnominal vs. adverbial vs. presentative) with a clause-final clitic particle which specifies the deictic access to the referent: *-a'* for deictic access to a referent given at the deictic centre (i.e. in the realm of the speaker), *-o'* for indexical (deictic or anaphoric) access to a referent not given at the deictic centre and *-e'*, whose functions are as yet not clearly understood. The adnominal or 'demonstrative' stem of spatial deixis is *le(l-)*; the presentative stem is *he'l*. Only the adverbial deictic stems are differentiated according to further semantic distinctions: *way* 'here', *te'l* 'there' (not at the speaker's location, but near it or distant from it) and *tol* 'yonder' (outside what is construed as the speaker's sphere; see below). The adnominal demonstrative *le . . . -a'/-o'* is illustrated in (2), (8), (9), (11), (14), (15), (17) and (18) above. *Lela'/llelo'* is the corresponding pro-form:

(19) *Ba'x* *k'ìin* *k-uy* *úuch-ul* *lel-o'?*
what sun IMPF-A.3 happen-INC DEM-D2
'What day does that usually happen?'

Example (20) shows the demonstrative adverb *te'l . . . -a'* 'here/there', and (21) illustrates the presentative *he'l . . . -o'* 'there's':

(20) *U* *hòol+nah* *ken* *u* *bin* *te'l* *t-u* *mòoy-a'*
A.3 hole+house SR.IRR A.3 go there LOC-A.3 apse-D1
'The door will end up there in the apse'

(21) *He'l* *k-u* *tàal* *don* *Alberto* *xan-o'!*
PRSV IMPF-A.3 come don Alberto also-D2
'Here comes don Alberto too!' (BVS 15.1.16)

The semantics and pragmatics of this system of spatial deixis have been described in painstaking detail in Hanks (1990). Hanks assumes that the

Table 8.4 *The semantics of the adverbial and nominal demonstratives, according to Hanks (1990)*

	Inclusive		
Meaning	Immediate	Non-immediate	Exclusive
Form class			
Demonstrative adverbs	*way . . . -e'* 'here'		*tol . . . -o'* 'there, yonder'
	te'l . . . -a' 'there'	*te'l . . . -o'* 'there'	
Nominal	*lel-a'* 'this one'	*lel-o'* 'that one'	
demonstratives	*le . . . -a'* 'this'	*le . . . -o'* 'that'	

semantic space in which the adnominal and adverbial demonstratives operate is organized according to two (non-intersecting!) oppositions: (i) an 'ego-centric' system that contrasts an 'inclusive' 'here' (expressed by the adverb *way . . . -e'* 'here'), i.e. any place that includes the speaker's location, with an 'exclusive' 'elsewhere', expressed by *tol . . . -o'* 'there, yonder', and (ii) a 'socio-centric' opposition that contrasts the speaker's location ('immediate', expressed by the adverb *te'l . . . -a'* and the adnominal demonstrative *lela'* / *le . . . -a'*) with the addressee's location ('non-immediate', expressed by the adverb *te'l . . . -o'* and the adnominal demonstrative *lelo'* / *le . . . -o'*).[18] This system may be schematically represented as in Table 8.4.

The semantics of the presentative forms follow a different rationale. The form *he'l . . . -a'* 'here's, *voilá*' is used when the denotatum is touchable by both speaker and addressee. *He'l . . . -o'* is used to point the addressee's gaze to the denotatum, which is usually visible to both speaker and addressee, as in (21) above.[19]

[18] Hanks (1990: 406–16) emphasizes that the egocentric 'here' presupposes the existence of some kind of boundary that delimits the inclusive 'here'. The egocentric 'here' may be the room in which the speaker is located, or the house, or the village, or the country, to the extent that it has a boundary. Hanks notes that the 'exclusive' egocentric deictic *tol . . . -o'* has most commonly a non-specific meaning 'out there' and refers to a specific location only in case there is a(n explicit or implicit) contrast between a location within the inclusive perimeter and one external to it. In contrast, the category 'immediate' applies to anything that is in the speaker's but not in the addressee's reach, whereas the category 'non-immediate' applies to locations in the addressee's reach (it is not implied that things in the speaker's immediacy are necessarily *closer* to the speaker than they are to the addressee). Notice, however, that Hanks's analysis is based on the northern variety of YM. Our field research on the southern dialect does not confirm an addressee-based use of the 'non-immediate' forms. Instead, these forms are used for referents not within the speaker's reach, regardless of the position of the addressee (see Bohnemeyer ms.).

[19] Hanks (1990: 275–6) discusses one further form *he'l . . . -be'* which is not attested in our databases (note that Hanks's study is based on the western dialect of YM). According to Hanks, *he'l . . . -be'* is used to point the addressee's attention to a denotatum that is audible but not visible.

The clause-final clitic particles cannot be stacked. Instead, maximally one such particle per clause is selected according to a hierarchy *-a'* > *-o'* > *-e'* (read 'triggers of *-a'* override triggers of *-o'*, and triggers of *-o'* override triggers of *-e'*'). The functions of these particles are not confined to spatial deixis; for example, the temporal adverb *be'òora* 'now' triggers *-a'*, and some AM markers trigger *-e'*, e.g. the immediate past AM marker *táant(ik)*. The set of clause-final clitic particles has at least one more member that has not been mentioned so far, namely *-i'*. This particle (whose position on the hierarchy is not entirely clear) has two rather distinct patterns of occurrence; we shall refrain here from speculating how these are related, but we posit that they *are* related, and that we are not dealing with homophony. On the one hand, *-i'* is triggered by negation of stative clauses and verbal clauses marked for certain AM categories. On the other hand, *-i'* occurs with clauses which anaphorically refer to a location mentioned earlier in discourse. Typically, though not necessarily (cf. (16) above), the anaphorically tracked location is marked by an adverbial variant of the preposition *ti'* which precedes the predicate, as in (22):

(22) *T-u pak'-il hun-p'éel nah yàan hun-p'éel*
LOC-A.3 plant-REL one-CL.IN house EXIST(B.3.SG) one-CL.IN
mèesa, ti' yàan hun-p'éel bùulto-i'
table LOC EXIST(B.3.SG) one-CL.IN bulky.thing-D4
'On the brickwork of a house there is a table, *there* (i.e. on the table) is a package' (TRPS 8 JBL)

Anaphoric tracking of locations is also afforded by *te'l . . . -o'*; the semantic and pragmatic differences between *te'l . . . -o'* and *ti' . . . -i'* remain to be investigated.[20]

8.4 Topological relations

A locative relation is expressed by combining any verbal or non-verbal predicate with any of the ground-denoting phrases discussed in the previous section.[21] If the predicate is stative, the locative relation will be understood to apply to the figure argument; if the predicate is dynamic, the locative relation will be understood to apply to the event. Only when combined with one out of a small number of inactive or transitive verbs of 'inherently directed motion' (Levin 1993: 263) or positional verbs (in their dynamic form) will the ground-denoting expression be understood to refer to the location of the figure at a particular

[20] Preposed adverbial *ti'* also occurs in the locative focus construction, but is in this case not accompanied by . . . *-i'*.

[21] The ground-denoting phrases do not express locative relations in isolation, and they do not occur as nominal modifiers (Goldap 1992). However, under certain circumstances, the existential predicate *yàan* is ellipsed in locative predications.

phase of the event, such that this location changes during the event. These motion-event descriptions will be discussed in the next section.

If stative location of the figure at the ground is to be expressed, YM speakers may choose among the following options: they may use the existential predicate *yàan*, as in (23), or a non-positional resultative form, such as *kruzàar-nah-a'n* 'be crossed' in (24) and *ts'a'-mah* 'have put' in (25), or the positional resultative form in *-Vkbal*, as in (26).[22]

(23) *Le lùuch-o', ti'=yàan y-óok'ol le mèesa-o'*
DEF cup-D2 LOC=EXIST(B.3.SG) A.3-on DEF table-D2
'The cup, it's there on the table' (TRPS 1 JYU)

(24) *(. . .) kruzàar-nah-a'n le flèecha ti' hun-p'éel màansana*
cross-CMP-RES(B.3.SG) DEF arrow LOC one-CL.IN apple
'(. . .) the arrow is crossed in/at/with an apple' (TRPS 30 JCM)

(25) *Le máak-o' chen u ts'a'-mah u anìiyo*
DEF man-D2 only A.3 give/put-PERF(B.3.SG) A.3 ring
t-uy a'l u k'ab bèey-a'
LOC-A.3 offspring A.3 arm/hand thus-D1
'The man, he's just put the ring on his finger' (TRPS 10 JCM)

(26) *Te'l kul-ukbal u pèek'-il t-u pàach*
there sit-POS.RES(B.3.SG) A.3 dog-REL LOC-A.3 back
le nah-o'
DEF house-D2
'There the dog is sitting outside the house' (TRPS 6 ICM)

The applicability of these different constructions is subject to an implicational relationship: wherever any of the resultative-verb-form constructions is possible, the existential-predicate construction is applicable as well, whereas the opposite does not hold. However, it should also be stressed that among the five YM consultants who responded to the TRPS task, only about half of the stimulus scenes triggered preferred descriptions using the existential predicate.[23] The type of scene that fits predictably best with an existential-predicate description is the 'easily moved inanimate figure located in non-attached fashion with respect to ground' (Wilkins 1998: 59). To this extent, it is fair to say that the *yàan*-construction is the 'basic locative construction' of YM. This is illustrated by (23), a description of Picture 1. Example (27) shows a description of Picture 2, instantiating the same type of scene (and Picture 16 is another case in point):

[22] As mentioned in 8.3.2, the majority of the roots that produce positional resultative forms in *-Vkbal* also produce non-positional resultative forms in *-a'n* or *-mah*. However, we exclusively consider forms in *-Vkbal* as instances of positional verb use in locative descriptions.

[23] We gratefully acknowledge that two of the five sets of TRPS descriptions were recorded and made available to us by Elisabeth Verhoeven.

(27) *Le máansana-a' ti'=yàan ichil <le> chan lùuch-a'*
DEF apple-D1 LOC=EXIST(B.3.SG) in DEF DIM cup-D1
'The apple, there it is in the little cup' (TRPS 2 JYU)

The only scene that does not fit the type 'easily moved inanimate figure located in non-attached fashion with respect to ground' and yet consistently triggers existential-predicate constructions is the scene in Picture 3:

(28) *Le sèeyo-o' ti'=yàan te chan kàarta-a'*
DEF seal-D2 LOC=EXIST(B.3.SG) LOC:DEF DIM letter-D1
'The stamp, there it is on the little letter' (TRPS 3 JYU)

In general, however, the more a scene deviates from the prototype of 'easily moved inanimate figure located in non-attached fashion with respect to ground', the less likely it will be described using a locative predication with the existential predicate. In this case, it is a common strategy to treat the figure–ground configuration as the result of a process. Examples (24) and (25) above show configurations that are construed as the result of caused-motion events (Pictures 10 and 30, respectively). Fifteen out of the seventy-one pictures are exclusively or predominantly described using such non-positional resultative constructions. In (26) above, the configuration is treated as the result of a change in the figure's disposition, as expressed by a positional resultative form. However, there is not a single picture in the series that all consultants prefer to describe using such a positional resultative form. In the TRPS responses, the use of positional resultative forms is mostly restricted to animate figures. This is the case with (26) above as well (a description of Picture 6).

The marginality of positional-verb-form responses to the TRPS task among YM speakers is in striking contrast with the Tzeltal data (Brown this volume). In Tzeltal, the locative predication with a stative positional form clearly represents the 'basic locative construction' of the language: it is not only the most frequent type of response to the picture series but is also used most unanimously by the consultants in precisely those cases of prototypical locative relations in which speakers of YM favour most strongly the locative predication with the existential predicate. This contrast is all the more significant since it is nearly always possible in Tzeltal, just as in Yukatek, to replace the positional verb form in the locative predication with the existential predicate. Furthermore, the expression of the ground in locative predications is rather similar across the two languages, irrespective of what type of predicate is chosen: the ground in descriptions of the TRPS pictures is always expressed by an oblique formed with a semantically nearly empty preposition, optionally reinforced by a relational noun specifying a spatial region.[24] Based on the Tzeltal data alone, one might be

[24] As mentioned in the previous section, YM does have one semantically more specific spatial preposition, namely *ich* 'in' for containment configurations.

led to assume that the rather specific configuration expressed by the positional root compensates for the lack of specificity in the expression of the topological relation between figure and ground, or that the positional root even expresses the topological relation itself (as argued by Lucy 1994). The comparison with the YM data shows that this cannot be the case: given that both languages express the ground object in rather comparable ways, and at about the same level of specificity,[25] and both have the option between the existential predicate and the positional verb form, YM speakers should use positional verb forms with about the same frequency as Tzeltal speakers in locative descriptions, if the positional roots were the main expression of topological information – but they do not. The reason why speakers of Tzeltal and Tzotzil exploit dispositional roots in locative descriptions, whereas YM speakers use them only when configuration, rather than mere location, really is at issue, therefore has to lie somewhere else. Future research will have to investigate whether the co-lexicalization of figure properties in the dispositional roots is a determining factor (see Bohnemeyer and Brown in press).

The constructions exemplified in (23)–(26) are considered locative predications because they assert a stative spatial relation to obtain between a thematic figure and a rhematic ground. It should be emphasized that several among the TRPS pictures cannot be described at all in this way in YM. For example, Picture 26, which may be described in English saying *The crack is in the cup*, or at least *There is a crack in the cup*, does not allow a locative response in YM, since there is no way of referring to the crack as an object. One can only describe the picture by saying something like 'The cup is broken'. Similarly, part-whole configurations are described by existential and/or possessive constructions:

(29) *Te hòol-o'*, *yàan hun-p'éel gàancho-i'*,
LOC:DEF aperture-D2 EXIST(B.3.SG) one-CL.IN hook-D4
tu'x k-u ma'ch-al le hòol-o'
where IMPF-A.3 seize \ PASS-INC DEF aperture-D2
'The door, there is / it has / a hook, where the door is gripped (handle)' (TRPS 61 FYK)

(30) *U táab-al le chan ba'l-a'*,
A.3 band-REL DEF DIM thing-D1
ti'=yàan, *de=k'àan*
LOC=EXIST(B.3.SG) of=yellow(B.3.SG).
'That little thing (handbag)'s strap, there it is, it's yellow' (TRPS 66 JYU)

[25] In fact, the frequency of combinations of the general preposition with a spatial nominal in the Tzeltal TRPS data is greater than the combined frequency of such combinations and the specific preposition *ich* in the YM data (see Bohnemeyer and Brown in press).

The existential or possessive predication (the readings are not structurally distinguished in YM) in (29) and (30) differs from the locative predication with the existential predicate in (23) and (27)–(28) above only in functional sentence perspective: if the figure is thematic (and typically definite), the construction functions as a locative predication, otherwise, it serves the purpose of predicating existence or possession.

8.5 Motion

8.5.1 Overview

Example (31) is a rendition of the cliff scene of *Frog, where are you* in YM (by a thirty-year-old female bilingual speaker exposed to a considerable amount of Spanish):

(31) a. *Káa h ho'p' u bin uy áalkab le kéeh-o'*,
CON PRV begin(B.3.SG) A.3 go A.3 run DEF deer-D2
'The deer went running (lit. began to go running),'

b. *ti' yàan le pàal t-u bàak-o'*
LOC EXIST(B.3.SG) DEF child LOC-A.3 bone-D2
'There the child was in its antlers'

c. *Le pèek'-o' káa h ho'p'*
DEF dog-D2 CON PRV begin(B.3.SG)
uy áalkab-ens-ik le kéeh-o'
A.3 run-CAUS-INC(B.3.SG) DEF deer-D2
'The dog, it started chasing the deer'

d. *Káa h ch'íik le kéeh ti'*
CON PRV stick \ ACAUS(B.3.SG) DEF deer LOC
hun-p'éel tùunich-o'
one-CL.IN stone-D2
'The deer stopped abruptly (lit. got stuck) at (the edge of) a cliff'

e. *Káa t-u pèek'-s-ah u báah-e'*,
CON PRV-A.3 move-CAUS-CMP(B.3.SG) A.3 self-TOP
'It shook itself'

f. *káa h lúub le pàal-o'*
CON PRV fall(B.3.SG) DEF child-D2
'(and) the child fell off'

g. *Káa h lúub le pàal y-éetel le pèek'*
CON PRV fall(B.3.SG) DEF child A.3-with DEF dog
'The boy fell (together) with the dog'

h. *k-u* *séegir-t-ik* *le* *kéeh-o'*
IMPF-A.3 continue-APP-INC(B.3.SG) DEF deer-D2
'which had been following (lit. followed) the deer'

i. *Káa* *h* *lúub-ih*,
CON PRV fall-B.3.SG
'He/they (?) fell,'

j. *káa* *h* *lúub-o'b* *ich-il* *hun-p'éel* *haltun*
CON PRV fall-B.3.PL in-REL one-CL.IN water.hole
'they fell in(to) a water hole' (Frog 5, 32–27)

The following properties of the expression of motion events in YM will be elaborated on in this section: firstly, 'manner of motion', in the sense of Talmy (1972, 1985, 1991), is primarily lexicalized in active intransitive verbs such as *áalkab* 'run' in (31a). These verbs do not express change of location by themselves, but only in combination with inactive motion verbs such as *bin* 'go' in (a) and *lúub* 'fall' in (f), (g), (i) and (j). Active motion verbs do not themselves express change of location, and when they are combined with a ground-denoting adverbial, this phrase will be interpreted to refer to the location of the entire event, not to the 'source' or 'goal' of a location change. Compare, for example, *ichil* in (j), referring to the goal of the event expressed by *lúub* 'fall', to *ichil* in (32) (from a description of the cliff scene by a different speaker), referring to the location of the boy kicking his feet about after having fallen into the water.[26]

(32) *Táats'* *h* *úuch* *u* *lúub-ul-o'b* *ich* *le*
straight PRV happen(B.3.SG) A.3 fall-INC-3.PL in DEF
ha'-o' *Ti'* *k-u* *ba'l-cheb-lankil* *ich-il* *ha'*
water-D2 LOC IMPF-A.3 round-foot-DUR in-REL water
y-éetel *u* *chan* *àalak'* *pèek'-o' (. . .)*
A.3-with A.3 DIM CL.domestic.animal dog-D2
'Straight he fell into the water. There he was *kicking his feet in the* water together with his little dog (. . .)' (Frog 4, 43–4)

Secondly, from the fact that the same prepositions (such as *ich(-il)* in (31j) vs. in (32)) and relational nouns are used in ground-denoting phrases expressing stative locations as well as source and goal arguments, it follows that these prepositions and relational nouns do not distinguish 'path' relations. As has been laid out in Section 8.3, this finding extends to all ground-denoting expressions in YM: there is no morphological reflex of path in YM. Thirdly, based on Talmy's (1972, 1985, 1991) lexicalization typology, one might expect

[26] Note that the goal of *lúub* 'fall' is referred to using *ich* 'in', rather than *ich-il*, in the first clause of (32). However, *ich* and *ichil* are, at least with respect to those spatial ground objects that we have studied, in free variation, and both occur with source and goal interpretations as well as with stative locative interpretations.

Table 8.5 *Motion verbs in the active and inactive verb classes*

Active		Inactive	
péek	'move'	*bin*	'go'
sùut	'turn'	*tàal*	'come'
xíimbal	'walk'	*máan*	'pass'
áalkab	'run'	*u'l*	'return'
sít'	'jump'	*lúuk'*	'leave'
balak'	'roll'	*k'uch*	'arrive'
xíiknal	'flutter, fly'	*na'k*	'ascend'
bàab	'swim'	*em*	'descend'
òokot	'dance'	*òok*	'enter'
...		*hóok'*	'exit'
		lúub	'fall'
		líik'	'rise'

'motion-cum-path' to be lexicalized in the inactive motion verbs translating 'go', 'come', 'enter', 'exit', 'descend', etc., or in transitive verbs expressing caused location change of various kinds, in analogy with the 'path-conflating' motion verbs of Romance languages. However, on closer inspection, it turns out that these verbs lexicalize merely change of location with respect to individual grounds. Thus, the deer's stopping at the edge of the cliff, the boy's falling off and his falling into the water are all referred to in separate clauses in (31d)–(j). This has to be interpreted to the effect that translational motion along an extended trajectory from source to goal is expressed neither by a morpheme nor by a construction in YM, but left to pragmatic inference. To the extent that Jackendoff's and Talmy's notion of 'path' presupposes translational motion, it is not clear that path, in this sense, is encoded at all in Yekatek.[27] These features of the expression of motion events in YM will be discussed in the following subsections. The expression of motion events in YM has been dealt with in detail in Bohnemeyer (1997, in press).

8.5.2 Morphosyntactic properties of motion verbs

As mentioned above, motion verbs in the active intransitive class primarily lexicalize 'manner of motion', whereas inactive intransitive motion verbs lexicalize location change. Table 8.5 lists the most frequent members of each of these two sets.

[27] Unlike in other Mayan languages (Kaufman (1990: 82–3) and Zavala (1993) for Mayan in general, and, once again, Brown (this volume) for Tzeltal), there are no 'directional' particles in YM that would mark the path of a motion event.

Since only inactive intransitives, but not active ones, yield source or goal interpretations of the ground-denoting phrases they are combined with,[28] the members of the motion verb subset of the inactive verb class are straightforwardly identifiable. Example (33a) shows a combination of a ground-denoting phrase with an active motion verb (*xíiknal* 'flutter', 'fly') – the interpretation yielded is not change of location with respect to the ground object, but location of the entire motion event. Examples (33b)–(d) illustrate two constructions available in YM in order to express manner and location change in one clause: in (33b) and (c), the active motion verb is adverbialized by the relational suffix *-il* and then fronted, yielding a special manner–focus construction, and in (33d), the active motion verb is subordinate to the inactive motion verb in a gerundial construction which expresses simultaneity of the two (sub)events (Bohnemeyer 2002: 100–1). It is also possible to refer to the manner component and to the location-change component in two independent sentences, leaving the integration of the two subevents as part of one macro-event to inference.

(33) a. *Le ch'íich'-o' túun xíiknal y-óok'ol le che'-o'*
DEF bird-D2 PROG:A.3 fly A.3-top DEF tree-D2
'The bird is flying (i.e. circling!) above the tree'

b. *Le ch'íich'-o' xíiknal-il*
DEF bird-D2 fly-REL
h úuch u na'k-al te che-'o'
PRV happen(B.3.SG) A.3 ascend-INC LOC:DEF tree-D2
'The bird flew on top of the tree' (lit. in a flying manner it ascended on the tree)

c. *Le ch'íich'-o' xíiknal-il h úuch uy*
DEF bird-D2 fly-REL PRV happen(B.3.SG) A.3
em-el te che'-o'
descend-INC LOC:DEF tree-D2
'The bird flew down from the tree' (lit. in a flying manner it descended from the tree)

d. *Le ch'íich'-o' h em u xíiknal*
DEF bird-D2 PRV descend(B.3.SG) A.3 fly
che'-o' te
LOC:DEF tree-D2
'The bird flew down from the tree' (lit. it descended flying from the tree)

[28] This holds with one exception: *sùut*, the antipassive of *sut* 'turn', when used with the reading 'return', may take a goal-denoting phrase.

The set of inactive motion verbs is probably almost completely covered in Table 8.5, whereas the set of active motion verbs seems more fuzzy. Apart from the active and inactive classes of intransitive verbs, it is mainly the transitive verb class that hosts verb stems expressing what from an Indo-European point of view appear to be motion meanings. Transitive stems express caused motion. This includes the basic transport and transfer verb *ts'a'* 'give/put' and the causativized counterparts of the inactive motion verbs (e.g. *bis* 'go:CAUS' i.e. 'take', *tàas* 'come:CAUS' 'bring', *òok-s* 'enter-CAUS' 'insert', *li's* 'rise:CAUS' 'lift'). There are also several transitive roots lexicalizing caused motion events of insertion and extraction and events which imply a particular manner of causation (e.g. pushing, hauling; 'ballistic' motion such as throwing, kicking, tossing, etc.). The ground of a motion event is never realized in YM as a syntactic core argument (as is the case with some of the verbs of 'inherently directed motion' in English, including *enter*, *exit*, *leave*, *ascend* and *descend*) cross-referenced on the predicate. Uncaused motion events are expressed by intransitive verbs whose sole formal argument corresponds to the 'figure' of the motion event (in Talmy's 1972, 1985 or 1991 terminology), and caused motion is expressed by transitive verbs which map the cause of the motion event onto their 'A-argument' and the figure onto the 'O-argument'.[29]

8.5.3 Ground-denoting phrases

As said above, ground objects of motion events are expressed by obliques in YM.[30] The morphosyntactic properties of ground-denoting phrases have been discussed in Section 8.3. One of the most surprising aspects of these ground-denoting expressions is that their form does not reflect the 'path' of the motion event. Consider the examples in (34). Both *òok* 'enter' (34b) and *hóok*' 'exit' (34c) are equally possible with both *ich* 'in' and the general preposition *ti'*.

[29] There is at least one transitivizing operation in YM that promotes non-agentive peripheral participants to core arguments, namely applicativization in *-t*. The additional argument of the applicativized verb is a transitive O-argument. However, the new O-argument is subject to the same set of semantic restrictions as the O-arguments of root-transitive verbs in YM; that is, essentially, its thematic role is that of a 'theme' or 'patient'. Thus, if *meyah* 'work' in *Kin meyah ich in kòol* 'I work <u>on my milpa</u>' is applicativized, the erstwhile ground object *in kòol* 'my milpa' may be cross-referenced on the verb as an O-argument, but the semantic construal of this participant will then no longer be that of a ground object, but rather that of a patient: *Kin meyah<u>tik in kòol</u>* 'I <u>work my milpa</u>.'

[30] There are two exceptions. One is represented by topicalized ground-denoting phrases that are focussed in cleft sentences. There is evidence suggesting that content questions are clefts as well in YM (see Bohnemeyer 2002: 116–29). In the following, ground-denoting expressions that are topicalized or isolated by clefting will be neglected; their internal structure does not differ from that of other ground-denoting expressions. The other exception to the generalization that ground objects are expressed by obliques are the 'indexical' (i.e. deictic or anaphoric) ground objects of some of the inactive motion verbs, as discussed below.

The same holds for the existential predicate *yàan* employed in (34a) to express stative location. The ground-denoting phrase is sensitive neither to the source–goal distinction nor even to the dynamicity of the event (cf. also Goldap 1992 and Lehmann 1992).

(34) a. *Le kàaro-o' ti' yàan ich / ti' le kàaha-o'*
DEF cart-D2 LOC EXIST(B.3.SG) in / LOC DEF box-D2
'The cart, it is in the box' (or rather: 'it exists with respect to the box's inside')

b. *Le kàaro-o' h òok ich / ti' le kàaha-o'*
DEF cart-D2 PRV enter(B.3.SG) in / LOC DEF box-D2
'The cart, it entered (lit. in) the box' (or rather: 'it entered with respect to the box's inside')

c. *Le kàaro-o' h hóok' ich / ti' le kàaha-o'*
DEF cart-D2 PRV exit(B.3.SG) in / LOC DEF box-D2
'The cart, it exited (lit. in) the box' (or rather: 'it exited with respect to the box's inside')

The preposition or relational noun used to combine a ground-denoting expression with a verbal core serves to specify a spatial region of the ground object, such as the inside of the cardboard box in the examples in (34) if *ich(il)* is chosen. If for whatever reason no particular region is selected (either because the ground object does not have any salient regions, or because the speaker considers this part of the information irrelevant or wants to conceal it), than *ti'* takes over, leaving the spatial properties of the ground object to inference.

As was already indicated in Section 8.3, the same ground-denoting expressions used in reference to 'bounded paths' (in the parlance of Jackendoff 1983, Chapter 9) are also used in reference to 'directional paths', i.e. locations towards which or away from which the figure is moving (Jackendoff 1983: 165), without any formal reflex of this distinction. These differ from 'bounded' paths mainly in that it is not entailed that the figure actually leaves or reaches the ground with respect to which direction is expressed. Consider (35), where it is asserted in the first clause that Juan left the deictic centre *headed for* the town of (Felipe) Carrillo (Puerto), and in the subsequent discourse, it is explicitly stated that Juan had not yet reached reached that town, as he was stalled in the village of Señor on his way to Carrillo.

(35) *Káa h ts'o'k u bin Carrillo Juan-e', káa h*
CON PRV end(B.3.SG) A.3 go Carrillo Juan-TOP CON PRV
k'uch Señor-e', káa t-uy il-ah
arrive(B.3.SG) Señor-TOP CON PRV-A.3 see-CMP(B.3.SG)

Pablo-i' *Káa* *t-y* *a'l-ah-o'* *ma'*
Pablo-D4 CON PRV-A.3 say-CMP(B.3.SG)-D2 NEG
k'uch-uk *Carrillo-i'*
arrive-SUBJ(B.3.SG) Carrillo-D4
'(When) Juan finished going to Carrillo, (then) he reached Señor, (then) he met Pablo. At that moment (lit. (when) it said that), (Juan) had not arrived (at) Carrillo (yet)'

8.5.4 The semantics of motion verbs

Since path is not coded outside the predicate in YM, and since it is the predicate that assigns to one and the same ground-denoting phrase the interpretation of source, goal or stative location (as in the examples in (34) above), it may be hypothesized along the lines of Talmy's (1972, 1985, 1991) lexicalization typology that path meanings are 'conflated' in the semantics of predicates in YM. More specifically, since it is exclusively inactive and transitive motion verbs that assign source or goal (or 'route') readings to the ground-denoting phrase, whereas active motion verbs appear to express 'manner of motion' only, it may be conjectured that specifically inactive and transitive motion verbs correspond to 'path-conflating' motion verbs in Romance languages, such as Spanish *ir* 'go', *venir* 'come', *entrar* 'enter', *salir* 'exit', *subir* 'ascend' and *bajar* 'descend'.[31] Indeed, in first approximation, this hypothesis seems to be correct. Thus, it is possible to ascribe to each of the inactive motion verbs listed in Table 8.5 above a co-lexicalized semantic ground argument which can be classified as source, goal or route, as in Table 8.6.

The referential ground is always referred to by an oblique, with the exception of *tàal* 'come' and *u'l* 'return', which both co-lexicalize the deictic centre as their goal, and of *bin* 'go' which co-lexicalizes an indexical source that may be either the deictic centre or a location anaphorically retrieved from context (see Wilkins and Hill 1995 for a typological investigation of this distinction). With these three change-of-location verbs, the ground cannot be specified within the same clause that contains the verb. For example, if the equivalent of *He went (from X) to Y* is expressed with *bin* 'go', it is done like this: '(He was at X.) He went [*bin*] away. He arrived at Y'. More frequently, however, utterances meaning literally 'He went towards Y' are encountered, where the source is not mentioned at all, and the goal is given only as a directional specification, without

[31] Note that on this account, YM would represent a much more radical case of 'verb-framed' lexicalization of path than does Spanish, as Spanish does in fact, in addition to path-conflating verbs, also have path-sensitive prepositions and adverbs (see Aske 1989). These are completely absent in YM.

Table 8.6 *Argument structure and argument realization with the inactive motion verbs*

Change-of-location verb	Ground argument	Realization of ground argument
bin 'go'	source	indexical (deictic or anaphoric)
tàal 'come'	goal	deictic only
u'l 'return'	goal	deictic only
sùut 'turn, return'	goal	lexical (weakly indexical)
máan 'pass'	route	lexical (weakly indexical)
k'uch 'arrive'	goal	lexical (weakly indexical)
lúuk' 'leave'	source	lexical (weakly indexical)
na'k 'ascend'	goal	lexical (weakly indexical)
em 'descend'	source	lexical (weakly indexical)
lúub 'fall'	goal	lexical (weakly indexical)
líik' 'rise'	source	lexical (weakly indexical)
òok 'enter'	goal	lexical (weakly indexical)
hóok' 'exit'	source	lexical (weakly indexical)

the entailment that it is reached. With the remaining six verb stems of Table 8.6, the ground may be 'lexically' specified, by a morpheme or construction.[32]

It should be noted, though, that the assignment of a particular path relation to each inactive motion verb is not always as evident as Table 8.6 might suggest. A particularly troublesome case is *lúub* 'fall', which seems to occur with both goals (as stated in Table 8.6 and exemplified in (31k) and (32) above) and sources, as apparently in (31g) above and in (36):

(36) *Tíin lúub-ul t-in k'àan!*
PROG:A.1.SG fall-INC LOC-A.1.SG rope
'I'm falling out of my hammock!' (BVS 4.1.30)

But the main argument against path conflation on Talmy's account with the inactive and transitive motion verbs is that these do not actually entail translational motion along an extended spatial trajectory, but only location change with respect to individual grounds. The verbs listed in Table 8.6 do not lexicalize motion along a trajectory oriented towards a source or goal location

[32] However, all verbs in question have a certain propensity for indexical use. In five Frog Story narratives, we counted a total of 158 inactive motion verbs. Of these, only one-third (52) are accompanied by ground-denoting expressions. In 25 cases (16 per cent), the verb appeared in a 'motion-cum-purpose' construction (i.e. a construction that expresses an event understood to be spatio-temporally contiguous with the motion event, as in *to go shopping*; see Bohnemeyer 2002: 98–9 for YM, Aissen 1987 for Tzotzil, and Zavala 1993 for an overview of the Mayan family), and in 51 per cent of all instances, a ground object was either retrieved from context by inference or simply left unspecified. The only member of the set of inactive motion verbs that rarely ever occurs without a ground-denoting phrase is *na'k* 'ascend'.

(which is the start or end point of the trajectory, or towards or away from which the trajectory is directed), but a state-change-type event with the entailment that the figure's location is defined with respect to the ground object either in the source state or in the target state of the event.[33] In Bohnemeyer (1997 in press), evidence from the event structure of inactive motion verbs provides support for this analysis. The only test of durativity applicable in YM is relatively intricate; the details will not be repeated here. This test reliably identifies all inactive motion verbs listed in Table 8.5 as punctual (unless the figure or the ground or both are construed as spatially extended), except for *na'k* 'ascend', *em* 'descend' and lùub 'fall', which express gradual location change when appearing without a ground-denoting phrase (but then do not encode 'bounded path' in the sense of Jackendoff 1983: 165).

In fact, it is shown in Bohnemeyer (1997, in press) that *òok* 'enter' and *hóok'* 'exit' display a similar indeterminacy with respect to whether it is the figure or the ground that moves, as do their equivalents in Japanese (Kita this volume), thus entailing merely change of locative relation, not change of location (see also Schultze-Berndt this volume). The same can be observed with respect to *na'k* 'ascend', *em* 'descend', *lùub* 'fall', and *máan* 'pass'.

One of the consequences of the framing of motion as location change in YM is that YM motion-event clauses never occur with more than one ground object at a time. This has already been illustrated above with an example from a Frog Story narrative. One reflex of the same phenomenon is found in folk tales. In YM folk narratives, travel serves as a regular motif in transitions between narrative episodes. Typically, the preceding episode would conclude with the protagonists leaving a location, the protagonist's arriving at the location of the subsequent episode being expressed in the following clause, as in (37).

(37) *Háalib-e'*, *káa h bin-ih.* *K-u* *k'uch-ul-e'*,
well.then-TOP CON PRV go-B.3.SG IMPF-A.3 arrive-INC-TOP
y-iknal rèey . . . Káa h ka' bin-o'b. *K-u*
A.3-at king CON PRV REP **go**-B.3.PL IMPF-A.3
k'uch-ul-o'b *te'l tu'x yàan* *uy íits'in-o'b-o'*, . . .
arrive-INC-3.PL there where EXIST(B.3.SG) A.3 younger.sibling-PL-D2
'Well, so he *left*. He *arrived* there, at the king's. . . . And they *left* again. They *arrived* where their younger brother was, . . .' (Muuch 142–65).

[33] In the case of *máan* 'pass', which selects for a 'route' ground, one may assume that the theme is located at some time T_S at a location L_S at the source state of the event and at some time $T_T > T_S$ at a location $L_T \neq L_S$ at the target state of the event, that $L_{Route} \neq L_S$ and $L_{Route} \neq L_T$, and that the theme is located at L_{Route} at a time T_{Route}, such that $T_S < T_{Route} < T_T$.

As pointed out in Bohnemeyer (1997), YM confirms localist hypotheses to the effect that relations of event order in the temporal domain should be expressed as metaphorical extensions of spatial relations in motion events, but it confirms such hypotheses in a rather surprising way: just as source and goal relations are not expressed in YM outside the predicate, so event-order relations are largely not expressed (with marginal exceptions, consisting mainly of a few deictic adverbs). From this localist perspective, then, spatial relations arguably play a less prominent part in the grammar and lexicon of YM than they do in Indo-European languages.

8.6 Frames of reference

8.6.1 The intrinsic frame of reference

In the intrinsic frame of reference (FoR), the coordinate system for location is projected from intrinsic features of the ground, as in 'The cup is at the nose of the jar' or 'You are walking behind (=in back of) me'. In YM, many relational nouns denoting spatial regions as described above occur in expressions of locations employing the intrinsic FoR, although they are by no means restricted to the intrinsic FoR. We will demonstrate properties of the intrinsic FoR with material elicited with the help of the Men and Tree elicitation pictures (see Chapter 1, §1.4.2). In the descriptions of the pictures, showing the Man and the Tree, information based on the intrinsic FoR occurs quite frequently. Intrinsic features of the man are utilized as the basis of the coordinate system. These are usually his front (often described as the direction of facing), his back and his sides. Some consultants are more specific about the man's sides and distinguish his left from his right side. Pictures 2.5 and 2.4 (see Figure 1.3 in Chapter 1) can be verbally differentiated by solely employing the intrinsic FoR ('man facing tree' vs. 'man's back towards tree').

(38) *Kax-t* *u* *láak' hun-p'éel-o'*,
search-APP(B.3.SG) A.3 other one-CL.IN-D2
u *sut-mah* *u* *pàach ti'*
A.3 turn-PERF(B.3.SG) A.3 back LOC(B.3.SG)
'Look for another one, he has turned his back on it (the tree)'
(tree 1, Picture 2.4.)

(39) *U* *láak' hun-p'éel-o'*, *frèenteh*, *táan-il* *yàan*
A.3 other one-CL.IN-D2 front front-REL EXIST(B.3.SG)
ti', *ak+táan-il* *yàan* *ti'*
LOC (B.3.SG) ?+front-REL EXIST(B.3.SG) LOC(B.3.SG)
'Another one, front, he is in front of it (the tree), he is opposite of it'
(tree 1, Picture 2.5)

Consultants occasionally distinguish the man's sides, using the YM expressions for left and right, *ts'íik* and *no'h*, intrinsically:

(40) *Pero t-u ts'íik-e' ti'=yàan, estée, le k'àax-o'*
but LOC-A.3 left-TOP LOC=EXIST(B.3.SG) HESIT DEF bush-D2
U x-no'h-e' ti' u mach-mah le che'-o'
A.3 F-right-TOP LOC A.3 grab-PERF(B.3.SG) DEF wood-D2
'But that bush is to his left. In his right hand, there he has that stick' (tree 3, Picture 2.7)

Pictures 2.3 and 2.5 are lateral mirror images and cannot be distinguished by a verbal description making use exclusively of the intrinsic FoR. The intrinsic spatial relation between Man and Tree ('man facing tree') is the same for both spatial situations. Additional, non-intrinsic information is needed to differentiate between those spatial relations depicted in Pictures 2.3 and 2.5. A purely intrinsic description which does not differentiate between Pictures 2.3 and 2.5 is the following:

(41) *Kax-t túun u láak' hun-túul le máak-o'*
search-APP(B.3.SG) then A.3 other one-CL.IN DEF person-D2
wa'l-akbal y-óok'ol hun-p'éel ba'l
stand-POS.RES(B.3.SG) A.3-top one-CL.IN thing
u mach-mah hun-p'éel che' ak+táan te
A.3 grab-PERF(B.3.SG) one-CL.IN wood ?+front LOC:DEF
k'àax-o' ti'. Túun pàakat-ik le k'àax-o'
bush-D2 LOC(B.3.SG) PROG:A.3 look-INC DEF bush-D2
'Now look for another man standing on a thing, he has a stick, he is there opposite of that bush. He is looking at that bush' (tree 2, Picture 2.5)

8.6.2 The absolute frame of reference

The absolute FoR establishes fixed bearings of a geographical, topographical or meteorological nature as the basis of the coordinate system. The use of one subtype of an absolute FoR in YM, namely cardinal directions, is particularly noteworthy because YM, in contrast to the genetically closely related Mopán Maya of Belize and Guatemala (Pederson et al. 1998), has an indigenous set of expressions for cardinal directions. It consists of four expressions, namely *lak'ìin* 'east', *chik'ìin* 'west', *nohol* 'south' and *xaman* 'north'. The expressions for north and south, *xaman* and *nohol*, are lexical stems and cannot be analysed any further. The expressions for east and west, *lak'ìin* and *chik'ìin*, however, are fossilized compounds. They contain an element *k'ìin* 'sun' plus some

preposed elements which are not synchronically transparent any more. Cardinal directions are predominantly employed in YM for geographical location (i.e. location in large-scale, geographical space):

(42) *Tóoh nohol h bin-o'b*
straight south PRV go-B.3.PL
'They went straight south'

Cardinal directions are, however, also employed in tabletop localizations, as instantiated by the situations depicted in the Men and Tree pictures. Here, YM speakers use cardinal directions to identify the Man's direction of gaze, thereby combining localization with orientation. This strategy requires the figure to be structured on the horizontal plane and to have an intrinsic front, like a human or a doll in human shape. Therefore, this strategy is restricted to figures which can also be ascribed a direction of motion, which is another way cardinal directions are put to use in tabletop space. This may be taken to indicate that the use of cardinal directions in tabletop localization is derived from their use in geographical localization, which would serve as a model.

(43) *U ts'o'k hun-p'éel túun-a', he'l-a'*
A.3 end one-CL.IN then-D1 PRSV-D1
hun-túul pàal túun pàakat toh xaman,
one-CL.AN child PROG:A.3 look straight north
nohol k-u p'áat-al le k'àax ti'-o'
south IMPF-A.3 leave \ ACAUS-INC DEF bush LOC(B.3.SG)-D2
'The last one, then, here it is, a child, it is looking straight north, the bush remains south of him' (tree 3, Picture 2.4)

However, there are also cases in which the figure is directly located with respect to a cardinal direction, without the figure's orientation being specified. In this case, no particular object properties are required of the figure: it can be unstructured on the horizontal plane, such as the Tree (44), but it can also be animate and have an intrinsic front, such as the Man (45). Obviously, where the man is facing does not play a role here.

(44) *Le k'àax-o' ti'=yàan te bàantah*
DEF bush-D2 LOC=EXIST(B.3.SG) LOC:DEF direction
tu'x k-u hóok'-ol k'ìin-e', te'l lak'ìin
where IMPF-A.3 exit-INC sun-D3 there east
bèey-a', pak-bil u mèet-ik
thus-D1 look-GIV(B.3.SG) A.3 do-INC(B.3.SG)
'That bush, it is towards where the sun comes out, there at the east like this, it is looked at' (tree 5, Picture 2.5)

(45) *Chik'ìin yàan-ik, mejor dicho,*
west EXIST-EF(B.3.SG) that.is
te k'àax-e', le chan máak-a'
LOC:DEF bush-D3 DEF DIM person-D1
'This little man is to the west of the bush, to say it better' (tree 5, Picture 2.5)

In experimental contexts, YM-speaking consultants readily make use of FoRs anchored in local or even ad hoc landmarks, exploiting these for pseudo-absolute reference. The landmarks in question may be topographical landmarks ('towards the square', 'towards the country road'), stable objects in the immediate vicinity of the situation ('towards the door', 'towards the window'), but also moveable objects which hold their position just for the time being ('towards the camera', 'towards where Christel is standing'). Because the landmark utilized as the basis of the coordinate system is independent of the scene and its viewer(s), this usage resembles absolute FoRs.

(46) *U mach-mah túun u xolte', te'l bàantah t-e*
A.3 grab-PERF(B.3.SG) then A.3 stick there direction LOC-DEF
móoy te'l t-u bàantah le k=sòolar te'l-a',
apse there LOC-A.3 direction DEF A.1.PL=yard there-D1
ti' bàantah u súut-ul u xolte'
there direction A.3 turn \ ACAUS-INC A.3 stick
'He has grabbed his stick, then, towards that apse that is towards our yard there, he has turned his stick towards there' (tree 5, Picture 2.5)

In combination with gaze-direction information, local or ad hoc landmarks serve to convey information about the orientation of the figure.

(47) *Kax-t u láak' ka'-túul máak*
search-APP(B.3.SG) A.3 other two-CL.AN person
Hun-túul-e' Jaime k-u pakt-ik,
one-CL.AN-TOP Jaime IMPF-A.3 look-INC(B.3.SG)
hun-túul-e' t-e kàaye k-u pàakat-o'
one-CL.AN LOC-DEF street IMPF-A.3 look-D2
'Look for another two men. One is looking at Jaime, one is looking towards the street' (tree 2, Picture 4.7)

In the same manner, speech-act participants may be exploited as ad hoc landmarks, by construing them (or their location) as the goal of the figure's gaze or motion. In the following exchange, the director (D) first provides 'viewing' information with respect to himself as ground: the Man is looking at him. In the second part, D switches to the intrinsic FoR, saying that the bush is to the

Man's (intrinsic) side. The matcher (M) is not entirely clear about the Man's orientation, so D chooses to repeat his statement.

(48) D: *U làak' hun-túul máak-e', tèen k-u*
A.3 other one-CL.IN person-TOP me IMPF-A.3
pakt-ik-en (. . .), t-u làadoh bèey-a' hun-p'éel matah
look-INC-B.1.SG LOC-A.3 side thus-D1 one-CL.IN plant
k'àax yàan-il
bush EXIST-REL(B.3.SG)
'Another man, he is looking at me, (. . .), at his side is a bush'

M: *T-e k'àax k-u pakt-ik-o'?*
LOC-DEF bush IMPF-A.3 look-INC(B.3.SG)-D2
'Does he look at the bush?'

D: *Ma', to'n - tèen k-u pakt-ik-en*
NEG us me IMPF-A.3 look-INC-B.1.SG
'No, he is looking at us – at me' (tree 4, Picture 2.7)

8.6.3 The relative frame of reference

Viewers of a spatial scene can project their own bodily orientation on that scene. The axes derived from their own bodily orientation then serve as a coordinate system in which locations can be determined. Some of the relational spatial nouns introduced in Section 8.3.3 can be used both in intrinsic and in relative FoRs, i.e. deictically. Those that occur most frequently in a relative FoR are *no'h* 'right' and *ts'íik* 'left'. These expressions are not restricted to hands and handedness but can refer to regions projected away from the body. Interestingly, *pàach* 'back' and *táan* 'front' are never used deictically, whereas deictic use of *tséel* 'side' occurs (Goldap 1991: 66–77). Pictures 2.3 and 2.5 can be differentiated by using those 'left/right' terms, as in (49). Bushes are non-featured on the horizontal plane and therefore do not have intrinsic sides, which rules out the use of the intrinsic FoR. The localization must therefore utilize projections of the speaker's body, i.e. the relative FoR.

(49) *No'h-a'n yan-ik te k'àax-o'?*
right-RES(B.3.SG) EXIST-EF(B.3.SG) LOC:DEF bush-D2
Wáah ts'íik-a'n?
ALT left-RES(B.3.SG)
'Is he to the right of the bush? Or to the left?' (tree 2, Picture 2.5)

The speaker may disambiguate the terms for 'left' and 'right' as regards to which FoR they are employed in by using the nominalized and possessed form,

for example *in xno'hil* 'my right side' (relative FoR) as opposed to *no'hil* '(on the) right side' (intrinsic FoR). In (50), the speaker makes his choice of FoR excessively clear by adding the emphatic free pronoun *tèen* 'I' and the speaker-centric deictic adverb *te'la'* 'here'.

(50) *Le chan k'àax ti' k-u p'áat-al bèey*
DEF DIM bush LOC IMPF-A.3 leave \ ACAUS-INC thus
te'l t-in x-no'h-il tèen te'l-a'
there LOC-A.1.SG F-right-REL me there-D1
'That little bush, it stays here on my right side' (tree 5, Picture 2.5)

In the Men and Tree pictures, the majority of spatial scenes show exactly two objects. Quite often, these are situated side by side. In the elicitation sessions, the consultants were also seated side by side, with a screen between them. They frequently exploited this similarity of spatial arrangements by locating the objects on the pictures on 'your side' or 'my side', i.e. the right half or the left half of the picture. This strategy constitutes another instantiation of the relative FoR because the spatial properties (not of a single speaker, but) of the speaker–hearer dyad are projected into the environment, thereby constituting a left quadrant and a right quadrant of the surrounding situation:

(51) *Le chan xib+pàal-o', asdekwentah*
DEF DIM male+child-D2 notice
t-in bàantah yàan-o', bèey
LOC-A.1.SG direction EXIST(B.3.SG)-D2 thus
t-in bàantah yàan-il-e', te chan
LOC-A.1.SG direction EXIST-REL(B.3.SG)-D3 LOC:DEF DIM
palmah-o'
palm.tree-D2
'That little boy, notice he is on my side, he is thus on my side, (with respect) to that little palm-tree' (tree 1, Picture 2.3)

8.6.4 Distribution of frames of reference over individuals and groups

Although the data presented above shows that all three types of FoRs are in use in the YM speech community we have studied, there are vast differences with respect to the command that individuals and identifiable groups of speakers have over different kinds of FoRs. Most widely distributed across consultants is the intrinsic FoR. All speakers of YM who acted as consultants in the research on spatial reference reported here used this FoR freely and frequently. Table 8.7 provides an analysis of four pairs of YM speakers playing game 2 of the Men and Tree series (which appears to be quite representative of the general usage):

Table 8.7 *FoRs and strategies employed during Men and Tree Game 2*

Frame of reference	Strategies		Total number of reference acts
absolute	cardinal directions		2
pseudo-absolute	speech-act participant as ad hoc landmark: 4	other ad hoc landmarks external to the picture: 3	7
relative	physio-morphic projections		2
intrinsic	intrinsic FoR anchored in the picture		12

The consultants used the absolute FoR by employing cardinal directions ('north–south', 'east–west') in two utterances. In three utterances, use was made of FoRs anchored in ad hoc landmarks external to the picture ('towards the road', 'towards the interviewer'), constituting what might be called 'pseudo-absolute' FoRs. In addition, the figure's orientation was anchored with respect to deictically expressed speech-act participants ('object facing us') in four utterances. The participants used physio-morphic projections ('to our left/right') in two utterances, instantiating relative FoRs. In contrast, intrinsic FoRs internal to the Men and Tree pictures were used in twelve utterances. This means that intrinsic FoRs were employed more often than the other FoRs together, and pseudo-absolute FoRs were used more often than real absolute FoRs and relative FoRs together.

This example confirms our general observations. Virtually every consultant we have ever interviewed uses the intrinsic FoR frequently. As for the use of local or ad hoc landmarks in pseudo-absolute fashion, this is at least not restricted to a particular *group* of consultants. Women use this strategy as freely as men, and adolescents as freely as adults. For the other two FoRs, however, some restrictions with respect to the command people have of them can be stated. Consultants who employed the absolute FoR by using cardinal directions were predominantly adult males. (Very few women employ the absolute FoR.) Male adult speakers use expressions for cardinal directions not only for large-scale geographical localization, but also for small-scale localization, which appears unusual from an English-speaking point of view. Many of the men who used cardinal directions in the linguistic elicitation sessions (though not all of them) proved to be employing an absolute FoR in cognitive tests of recollection and reasoning as well, i.e. they proved to be absolute thinkers.

The use of the relative FoR is not as restricted to a particular group as that of cardinal directions. It is our impression, however, that most men have command of the relative FoR (even if they prefer the absolute FoR) whereas only a smaller percentage of the women have it. All interviewed males and also many, though by no means all, females made use of this FoR regularly or occasionally. Many

of them proved to be relative thinkers in the accompanying cognitive tests. In other words, if there are speakers of YM who exclusively use the intrinsic FoR, these speakers are very likely female.

There is, thus, apparently a gender-specific distribution with respect to the command of FoRs, at least in the area where the pertinent field research was conducted: all speakers employ the intrinsic FoR and use local or ad hoc landmarks in pseudo-absolute reference, many men and some women use the relative FoR, and many men but almost no women use cardinal directions and the absolute FoR. Among those adult men who employed the absolute FoR, we found many who could switch to other FoRs, particularly the relative FoR, with ease, thus showing command of all three FoRs. We even experienced one astonishing case of spontaneous FoR-switching: a male consultant acting as director in the Men and Tree elicitation session started his explanations giving cardinal directions in the absolute FoR. When his spouse asked for an explanation of where 'north' is, he continued in the relative FoR. When his wife asked him where 'left' was, he switched unhesitatingly to ad hoc landmarks and the intrinsic FoR, which was clearly the least spontaneous choice for him.

We tentatively conclude that among YM speakers, control of the absolute FoR implies control of the relative FoR, which in turn implies control of the intrinsic FoR. The use of cardinal directions among male speakers might be grounded in traditional gender roles of Mayan society. In rural Quintana Roo, out-of-house activities such as milpa work, hunting and collection of wood and other forest products are still predominantly male occupations (Villa Rojas 1987: 207f.). These often take the men quite far away from their local village and into the rain forest. It seems a plausible assumption that this demands some amount of absolute orientation (although this rationale is not unproblematic). The acquisition of the relative FoR might be tied to school education, in particular, to the acquisition of Spanish and of writing, with its unidirectional left–right orientation.

8.7 Concluding remarks

The most striking feature of the expression of spatial reference in YM from an Indo-European perspective is perhaps the rather restricted lexicalization of 'path' notions. These are exclusively expressed in verbs of 'inherently directed motion' but are not at all reflected in the ground-denoting expressions. This has the consequence that the expression of deceptively simple source-to-goal locomotion events is obligatorily distributed across multiple mutually independent clauses in YM discourse.

Just as has been attested in other Mayan languages, YM has a rich set of spatial dispositional expressions in a special form class of positional verb roots. The majority of these spatial configurations are not lexicalized in Indo-European

languages. The YM set of positional verb roots is, however, smaller than those found in Highland Mayan languages such as Tzeltal and Tzotzil, and unlike what has been shown for these languages, positional verb forms are not readily exploited in expressions of locative relations in YM.

In terms of the frames of reference (FoRs) they deploy in spatial orientation, YM speakers on the whole present a surprisingly balanced picture, with all three principled types of FoRs being used in the same small-scale (tabletop) elicitation context (although not by all consultants). Just as has been shown for the closely related Mopán (Pederson et al. 1998), the predominant FoR among YM speakers is clearly the intrinsic FoR. However, unlike Mopán speakers, especially male adult speakers of YM also use relative and absolute FoRs. In their use of intrinsic and relative FoRs, YM speakers differ rather strongly from Tzeltal speakers and members of other Highland Mayan communities, and in their preference for the intrinsic FoR and their readiness to use absolute FoRs at all in tabletop space, they differ markedly from Euro-Americans. A further remarkable result produced by the Men and Tree task is the frequency and apparent accustomedness with which Yukatek speakers resort to using ad hoc landmarks as providing pseudo-absolute FoRs.

9 Approaching space in Tiriyó grammar

Sérgio Meira

9.1 Introduction: Tiriyó and its speakers

Tiriyó is a language of the Taranoan (Tiriyó) subbranch of the Cariban language family (Kaufman 1994, Gildea 1998, Derbyshire 1999, Meira 1999a). It has approximately 2,000 speakers living in several villages scattered on both sides of the Brazil–Surinam border in northern Amazonia (the dialect described in the present work is typical of the Missão Tiriós area in Brazil). Extensive descriptions of Tiriyó grammar are Meira 1999a (published as 2006) and Carlin 2004; earlier studies, dealing mostly with some aspects of the morphology, include an unpublished manuscript by Claude Leavitt, a missionary, and De Goeje's grammar sketch (1909). More specific aspects of the language are discussed in Carlin 1997, 1998, 1999, 2003, 2006, Meira 1997, 1998, 1999a, 1999b, 2000b, 2000c, 2001, 2003a, 2003b, 2004a, 2004b, and a historical perspective is given in Meira 2000a.[1]

The word *tarëno* [taɽəːno] (etymologically, 'someone from here, a local person') is normally used as an autodenomination, though it can, on occasion, be extended to other Amerindians (but not to Westerners, Mestizos, or Blacks). The word *tïrïjo* [tɨɽɨːjo] is used by people from neighbouring groups, and in its westernized versions *Tiriyó* in Brazil and *Trio* in Surinam, by non-Amerindians.

[1] The following abbreviations are used: 1, 2, 3 – 1st, 2nd and 3rd person, 3R – 3rd person reflexive (coreferential), 1 + 2 – 1st person dual inclusive, ALLAT – allative, ANA – anaphoric, ANIM – animate, AUGM – augmentative, COL – collective (number), CONT – continuous, COP – copula, CTY – certainty, DETR – detransitivizer, DIM – diminutive, DBT – doubt, DUR – durative, EMPH – emphatic, ERG – ergative, EXIST – existential, FIG – Figure, FRUST – frustrative, GR – Ground, HORT – hortative, IDEO – ideophone, IMPER – imperative, INAN – inanimate, INDEF – indefinite, LOC – locative, NEG – negative, NZR – nominalizer, POS – possessed form marker, POSTP – postposition, PRES – present, PTC – particle, RECP – reciprocal, REDUP – reduplication, REPT – repetition ('again, back'), S_A – conjugation class marker, SUP – supine ('purpose-of-motion'), VENIT – venitive, W – class-marking prefix, WH – interrogative. A dot is used to conjoin two words that form one gloss (e.g. ANA.ANIM – anaphoric animate), and a colon to unite two separate glosses that correspond to morphemes which 'fused' into one, but are still distinguishable in other environments (e.g. 3:COP 'third person copula', a form in which the stem of the copula is difficult to segment). Note that PAST is used here as a cover label for different kinds of past-related verb forms, the differences between which are not relevant for the purposes of this paper.

The Tiriyó recognize this word and use it to refer to themselves when dealing with other people, but they consider it a foreign word.

In all Tiriyó villages, the Tiriyó language is the normal means of everyday communication. Almost all the Tiriyó are monolingual. Only a few people know any of the neighbouring Amerindian languages (usually individuals who had long-term contact with the group whose language s/he learned, e.g. by marrying one of its members or having lived some time in one of its villages). The surrounding national languages, Portuguese (in Brazil) and Dutch (in Surinam), are spoken only by a handful of individuals, despite being taught in the village schools. Even Sranantongo, the main lingua franca of Surinam, does not enjoy wide currency. The few outsiders who have intensive contacts with the Tiriyó (missionaries, village teachers, nurses) have found it indispensable to learn at least some of the language.

Tiriyó economy is based on hunting and swidden agriculture (basically cassava). Traditionally, the Tiriyó lived in small villages which were occupied for a few years. A group of nearby villages formed a larger agglomeration in which economic and social exchanges were frequent; different agglomerations lived more or less in isolation. While contacts with Westerners were infrequent (mostly explorers in the nineteenth and early twentieth centuries), the traditional way of life was maintained. However, the arrival of Western missionaries (Franciscan Catholics in Brazil, American Protestants in Surinam) disrupted the traditional settlement pattern, leading to the concentration of the Tiriyó in larger agglomerations (Frikel 1961, Rivière 1969). Cultural influence has also led to the adoption of Western clothing, medicine, technology (firearms, vehicles, radios, VCRs) and, to some extent, food (in Brazil, the Tiriyó now raise buffaloes).

9.2 A brief overview of Tiriyó grammar

In Tiriyó, there are no 'space-related' inflections (like the Arrernte 'associated motion' or 'spatial case' categories), nor positional verbs (unlike Yélî Dnye or Tzeltal). Rather, the language deals with space on a lexical basis: by means of a rich system of locative and directional postpositions, and some nouns, adverbs and verbs. Before examining these resources in the following sections, it is worthwhile considering the most important aspects of Tiriyó grammar, in order to have a background against which space-related features can be more clearly situated.

Tiriyó segmental phonology is fairly simple, as is usual in the Cariban family, and typical of Amazonian languages in general. There are seven vowels (*a, e* [e] ~ [ɛ], *i, o* [o] ~ [ɔ], *u, ï* [ɨ] ~ [ɯ], *ë* [ə] ~ [ʌ]) and eleven consonants (*p, t, k, m, n* ([ŋ] word-finally and before *k*, [n] elsewhere), *r* [ɾ] ~ [ɹ], **s** [s̲] ~ [ʃ] ~ [s], *j* [j], and *w* [ʋ]). There are many possible vowel sequences

(*ae, ai, ao, au, ei*, *eo, eu, oi, ui, ëe, ëi, ëo, ëu, ïi, ïu*), including sequences of identical vowels, phonetically long (*aa*, *ee, ii, oo, uu, ëë, ïï*). All consonant clusters are heterosyllabic; the only attested ones are nasal (with place assimilation: *np* [mp], *nt* [nt], *nk* [ŋk]) or *h*-clusters (*hk* [hx]∼[hh]∼[:h], *hp* [hɸ]∼[:ɸ], *ht* [ht]). Syllable types are basically (C)V(X), in which X can be another vowel, a nasal or *h* (forming only the clusters and sequences listed above); (C)VVh and (C)VVN syllables are rare, but they can occur, provided that the two vowels are different (only *ai, ao, au, ëi, ëe, ëu* have been attested in (C)VVh / (C)VVN syllables). Onsetless syllables can occur only word-initially. Words generally end in vowels; *n* is the only possible word-final consonant (realized as [ŋ]). The most important suprasegmental characteristic of Tiriyó phonology is its iambic stress system (see Hayes 1995 for a typology of rhythmic stress systems, and Meira 1998, 1999a, 2006 for a detailed description of the Tiriyó case). In all -CV ('light') words, every second syllable from the beginning of the word is stressed (phonetically, its vowel becomes long, and often high-pitched), except for the last syllable, which remains always unstressed: *pakoro* [pa.kó:.ɽo] 'house', *mataware* [ma.tá:.ʊa.ɽe] 'fish sp.', *amatakana* [a.má:.ta.ká:.na] 'toucan (bird) sp.', *m-apoto-po-të-ne* [ma.pó:.to.pó:.tə.ne] 'you all helped (O)', *kït-apoto-ma-po-të-ne* [kɨ.tá:.po.tó:.ma.pó:.tə.ne] 'we all made (causee) help (O)'. If a non-CV ('heavy') syllable is present, it is stressed, and the stress alternation restarts then as if it were at the beginning of a new word: *m-enpaka* [mém.pa.ka] 'you woke (O) up' (not *[mem.pá:.ka]), *m-aitë-po-ne* [mái.tə.pó:.ne] 'you made (causee) push (O)' (not *[mai.tɔ́:.po.ne]).

The morphology of Tiriyó, typical of the Cariban family, is reasonably complex, comparable to that of Romance languages. There are five word classes: verbs, nouns (including pronouns), adverbs, postpositions and particles (including ideophones). In addition, a cross-cutting category of interrogatives, comprising nouns and adverbs, can also be established. Verbs, nouns and postpositions inflect for person and number. Four persons are inflectionally distinguished: first person (1), second person (2), first person dual inclusive (1 + 2) and third person (3); there is a first person exclusive (1 + 3) pronoun which is treated morphosyntactically as a third person form. Number inflections distinguish collective from non-collective, i.e. 'all' vs. 'less than all' (unlike European languages, which distinguish singular, i.e. 'one', from plural, i.e. 'more than one'). The person and number inflections are used to mark arguments (i.e. O, A, S for verbs, possessors for nouns and objects for postpositions). Verbs have a rich system of tense/aspect/mood inflections, and nouns have several meaning-altering inflectional possibilities (augmentative, diminutive, 'former' or 'past' (i.e. 'ex-N'), pejorative ('bad N'), predilective ('good/favourite N')). Class-changing morphology is very rich, often instantiating subtle syntactic and semantic distinctions (e.g. two independent verb nominalizations – 'potential' and 'actual' – for every participant: A, S and O)

and meaning (e.g. potential vs. actual A). Adverbs (including traditional 'adjectives', not distinct from other adverbs) form a class with relatively few monomorphemic, but many derived members, created by means of a number of productive adverbializing affixes (e.g. from nouns, proprietive ('having') and privative ('not having') adverbializations; from verbs, modal ('can', 'should') adverbializations). Postpositions form a 'bridge' class between nouns and suffixes/particles. There is a rich system of spatial postpositions (see §9.3.1), and, notably, also a number of 'experiencer' postpositions ('like', 'want', 'hate', 'fear', 'know', 'be superior to', etc.). There are many particles in various semantic areas (evidentiality, discourse cohesion, mood (irrealis), identification, etc.), and also a number of ideophones and interjections (also analysed as particles), often with very specific meanings (e.g. *tora(n)!* 'sound of someone arriving, or coming out' (of, e.g., house, hole, etc.; see (5b)); (t) *sapan!* 'sound of things sticking together'; *përërë* 'drizzle', *poke* 'sound of breath(ing)').

Tiriyó syntax is relatively free. There are relatively few solid constituents at the phrase level: a verb phrase (transitive verb + preceding patient), a genitive noun phrase (possessor + 3rd person possessed, 'John-his-house') and a postpositional phrase (noun (phrase) + postposition), the last nominalizable. Modifiers are usually nouns or nominalizations in apposition with the 'head noun', without strict ordering restrictions (though order probably has pragmatic implications). Within the clause, phrases can occur in any order (again, with pragmatic consequences). Subordination is normally done with deverbal forms (nominalizations for relative clauses, adverbializations or nominalizations plus postpositions for temporal, locative, purpose and manner clauses); there is also a supine ('purpose-of-motion') verb form, used together with verbs of motion when the subject of both verbs is the same ('I went there *to see you*'). The main simple clause types are equative (verbless), conjugated (i.e. with a conjugated verb form: copular, transitive or intransitive), *t*-V-*se* or 'remote past' clauses (which are ergative) and -*se* or 'habitual past' clauses (which are nominative). Negative clauses are usually copular conjugated clauses with a negative adverbial derived from the main verb (though a special negative verb form, less frequently used, also exists). Grammatical relations like 'subject' or 'object' are not very useful in dealing with participants in Tiriyó. The labels A (active participant with transitive verbs), O (affected participant with transitive verbs) and S (sole participant with intransitive verbs), from Dixon (1979), are more adequate.

Space in Tiriyó grammar is most visible, as was said above, in the large number of spatial postpositions, used to describe static location with respect to a 'ground' (§9.3), and also source and goal of motion (§9.4). Motion verbs can be identified only on semantic grounds; there are no morphosyntactic features that distinguish all of them (although many of these verbs can be identified as the only main verbs to which a 'supine' or 'purpose-of-motion' form of a dependent

verb stem can be subordinated). Motion verbs often contain information about path, but usually not about manner (§9.4). Frames of reference are indicated with the help of nominals, adverbials and certain postpositions which refer to the relevant directions or axes. All three types are attested (absolute, intrinsic and relative). The systems are not as grammaticalized as in languages like Tzeltal or Arrernte (§9.5).

9.3 Topology

The basic means of expressing static location are *postpositional phrases* which take the ground as their object. To exemplify the general pattern, some answers to 'Where'-questions like the one in (1a) are given in (1b–e) below. They were obtained through elicitation based on the 'Topological Relations Picture Series' (see Chapter 1, §1.4.1 for a description of this elicitation tool). For every picture, a 'Where'-question was asked, and the answers were recorded. The utterances in (1a–b) are an example of such a question–answer pair. (The numbers in square brackets identify the picture which the utterance describes.) The answers are typically copular sentences, i.e. sentences with an optional copular verb *ei* (third person present form *nai* 'is'). The copula is absent in (1b, d), and present in (1c, e) (picture numbers in parentheses).

(1) a. *anpo nai inasu kananama-n?*
where 3: COP toy yellow-NZR
'Where is the yellow toy?'
FIG (COP) [GR POSTP]

b. *inasu nai apëi epinë*
toy 3:COP chair under
'The toy (ball) is under the chair' (16)
[GR POSTP] (COP) FIG

c. *turi pë nai ewa-pisi*
candle on 3:COP rope-DIM
'The ribbon is around the candle' (4)

d. *rinka j-enja-h tae*
ring 1-hand-POS on
'The ring is on my hand/finger' (10)

e. *poo juuwë miki*
cloth on.top cat
'The cat is on (top of) the mat' (40)

Location is not the only function of the copular construction: it can also be used to express nominal (2a–b) and adjectival/adverbial (2c–d) predication. Negative

sentences are also copular: the main verb occurs as a negative adverbial form (2e–f). In these uses, as in the locative examples in (1), the occurrence of the copula verb is optional (which is indicated by the use of parentheses).

The elicited answers in (1), typical 'static location' utterances, are *copular sentences*. Such sentences, characterized by the optional presence of the copular verb *ei* (third person form present form *nai* 'is'), are not used only to express location; they occur also in nominal (2a–b) and adjectival/adverbial (2c–d) predication. Negative sentences are also copular: the main verb occurs in a negative adverbial form (2e–f).

(2)
a. *i-mama-a-kon (nai) manareta*
3-mother-POS-COL 3:COP Manareta
'Their mother is Manareta'

b. *enpa-ne me (nai) mëe*
teach-NZR as 3:COP this
'This (person) is a teacher'

c. *kure (nai) serë*
good 3:COP this
'This (thing) is good'

d. *menjaarë (nai) boora ema-to*
now/today 3:COP ball throw-NZR
'The soccer game is today/now'

e. *ji-jahpëntë-ewa manan*
1-help-NEG 2:COP
'You don't help me'

f. *këpëewa, ëëniï-sewa, pai*
but sleep-NEG tapir
'But the tapir didn't/couldn't sleep'

In many Cariban languages, deictic adverbs ('here', 'there') can also be used with a copular sentence to express location. In Tiriyó, however, the expressions equivalent to 'here' and 'there' are postpositional phrases with inanimate demonstratives as their objects ('in this' = 'here'): *sen*, *serë* 'proximal', *mërë* 'medial', and *ooni* 'distal' form *sen po, serë po* 'here', *mërë po* 'there', *ooni po* 'yonder' (and also the corresponding goal and source phrases; e.g. *sen pona* 'hither, to here', *sen pë* 'from here', *sen tae* 'by here, following this path', etc.). The only few remaining adverbs of this kind in Tiriyó are *mïjarë* '(a bit) further away', *senje* 'this side (of some obvious landmark)', *mënje* 'that side of, beyond (some obvious landmark)' and the directional *sarë* 'hither' (apparently a synonym of *sen pona*).

The class of postpositions is formally distinct from other Tiriyó word classes (see Meira 1999a: 372–85). On formal grounds, Tiriyó spatial postpositions can be further subdivided into different groups, as is listed in Table 9.1.[2]

9.3.1 Formal groups

A few comments on the formal similarities between postpositions in each group are in order. First, although the members of group I are the best candidates for simple, underived postpositions, meaningful elements can be seen in them: a 'static locative' *o* or *wë* (etymologically the same element; cf. Meira 2000a: 79–80), a 'directional' (*ka*) and, less clearly, a possible 'perlative' or 'ablative' *e* (comparing, e.g., *pëe* 'from', *tae* 'by', *ae* 'by'). In other Cariban languages, cognate postpositions form a more regular system. Derbyshire (1999: 42–3), comparing cognates from Hixkaryana, Waiwai, Apalaí and Makushi, analyses them as formed by the combination of a set of spatial suffixes indicating the actual spatial relation to a set of postpositional stems that provide ground information. For instance, in Hixkaryana (Derbyshire 1979: 107ff.), the spatial suffixes **-***wo* 'at', **-***ka*/**-***na* 'to', **-***ye* 'from' and **-***ha*/ **-***rye* 'past, through' can be added to (among others) the stems *kwa* 'liquid', *ya* 'enclosed space' and *ho* 'flat surface', to form the postpositions *kwawo*, *kwaka*, *kwaye*, *kwaha* 'in, to, from, through (liquid)', *yawo*, *yaka*, *yaye*, *yaha* 'in, to, from, through (an enclosed space)', *ho*, *hona*, *hoye*, *horye* 'at, to, from, through (a point or flat surface)'.[3]

In Tiriyó, however, regular perlative and ablative forms of every postposition no longer exist. 'From' is now indicated only by *pëe* and 'along' by *tae* (or, less frequently, *ae*), regardless of the nature of the ground. The locative (*o, wë*) and directional (*(ka), na*) series are still distinct, but they have fewer members (five, in Table 9.1; the locative series, for instance, has *po, a-wë*, *ta-o, hta-o* and *hka-o*; Hixkaryana, according to Derbyshire (1979: 107–9), can have seven members per series, each indicating a different type of ground). These postpositions seem to be less analysable, more lexicalized in Tiriyó than in other Cariban languages. This is most clear for the *e*-postpositions, in which the final *e*, though certainly cognate with the Hixkaryana perlative **-***ye*, occurs in non-perlative postpositions (e.g. *pë-e* 'from', *awë-e* 'straddling, astride of'). The connection between the

[2] Final syllables in parentheses are absent in certain environments, following a regular stem alternation pattern of syllable reduction (Meira 1999a:77–94, 1999b; cf. Gildea 1995 for a cross-Cariban diachrony-oriented overview).

[3] The origin of these 'postpositional stems' is an intriguing topic. A plausible hypothesis, suggested by the more transparently analysable postpositions from the other groups, is that the postpositional stems may have been old nouns (Meira 2000a: 79 suggests that the 'liquid' postpositions may come from an old word for 'water', possibly **ku*). If that is true, it would seem that the 'spatial suffixes' were the original locative elements (postpositions). This hypothesis needs further research.

Table 9.1 *Tiriyó spatial postpositions: formal grouping*

Formal group	Locative		Directional		*e*-Forms ablative/perlative		Probable sources	
I.	*po*	'at'	*pona*	'to','against'	*pëe*	'from'		
Loc. *o, wë*	*pë(kë)*	'on'						
Dir. *a(ka)*	*awë*	'in(side)'	*aka*[a]	'into'	*awëe*	'on/astride'		
					ae	'by, along'		
	tao	'in'	*ta(ka)*	'into'	*tae*	'by, along'; 'on'		
	htao	'in (surrounded)'	*hta(ka)*	'into (surrounded)'				
	hkao	'in (water)'	*hka(ka)*	'into (water)'				
	(*mao*	'in (time)')						
II.	*juuwë*	'on (top)'	*juhkïï*, *juuwëna(ka)*, *juuwëna(kïï)*	'onto (top)'			[b]	
Loc. *o, wë*, Dir. *hkïï*, or *na(ka)*, *na(kïï)*	:*roowë*	'in the middle of' (2–3D)	*:rohkïï*, *:roowëna(ka)*, *:roowëna(kïï)*	'into the middle'			*(pï)ro(pï)*	'chest'
III.	*pohtë*	'at the beak/ tip/front of'	*pohkïï*, *pohtëna(ka)*, *pohtëna(kïï)*	'to the tip/ beak/front of'			*potï*	'beak, tip'
Loc. *të*, Dir. *hkïï*, or *na(ka)*, *na(kïï)*	*rehtë*	'on the top/ summit of'	*rehkïï*, *rehtëna(ka)*, *rehtëna(kïï)*	'to the top/ summit of'			*retï*	'horn; top, head'
	amohtë	'upstream'	*amohkïï*[c]	'(to) up-stream'				
			aarena[d]	'(to) down-stream'				
	anmao	'under'	[e]					
	antïïnao	'deep in'	*antïïna(ka)*, *antïïna(kïï)*	'deep into'			*antïkï*	'bottom, depth'

	apëo	‘near’	*apëona(ka)*, *apëona(kïï)*	‘to near’			*apë*	‘arm’
	ekatao	‘near’	*ekataona(ka)* *ekataona(kïï)*,	‘to near’				
IV.	*enpatao*	‘in front of’	*enpataona(ka)*, *enpataona(kïï)*	‘to the front of’	*enpatae*	‘on the slope of’	*enpata*	‘face’
Loc. *o, wë*	*enao*	‘lying with’	*f*				*eena*	‘throat’
Dir. *na(ka)*, *na(kïï)*	*enjao*	‘in the hand(s) of’	*enjaona(ka)*, *enjaona(kïï)*	‘into the hand(s) of’			*enja*	‘hand’
	etao	‘on the margin/edge of’	*etaona(ka)*, *etaona(kïï)*	‘to the margin/edge of’	*etae*	‘along, by the edge’	*eta*	‘edge, rim’
	hpïẗïnao	‘at the back/ rear of’	*hpïẗïna(ka)*, *hpïẗïna(kïï)*	‘to the back/rear of’			*(h)pïẗïkï*	‘anus’
	npo	‘on the back of’	*npona(ka)*, *npona(kïï)*	‘onto the back of’				
	notonnao	‘behind, invisible’	*notonna(ka)*, *notonna(kïï)*	‘to behind’			*noto(mï)*	‘to block vision (verb)’
			rawëna(ka),	‘to the half of’			*ra*	‘middle of body’
	rawë	‘in the half of; halfway’	*rawëna(kïï)*					
	renao	‘near’	*rena(ka)*, *rena(kïï)*	‘to near’				
V.			*nkaena(ka)*, *nkaena(kïï)*	‘to behind’	*nkae*	‘behind’	*(mï)ka*	‘back’
Loc. *e*, *ë*			*epoena(ka)*, *epoena(kïï)*	‘to above, over’	*epoe*	‘above, over’		
Dir. *na(ka), na(kïï)*			*epinëna(ka)*, *epinëna(kïï)*	‘to below, under’	*epinë*	‘below, under’		

Table 9.1 (*cont.*)

Formal group	Locative	Directional	*e*-Forms ablative/perlative	Probable sources
VI.	*rato*	'parallel to'	*wenae*	'after, last'
	pato	'aligned with'	*pëkëërë*	'after, following'
Loc many	*ranme*	'close to'	*wapo*	'before, ahead of, first'
Dir. none	*wenje*	'close to'		

[a] In addition to *aka*, the (apparently synonymous) forms *awëna(ka)*, *awënakïi* 'into' were also attested; cf. other postpositions in group II.
[b] *Juuwë* may contain an old word for 'head', perhaps ***u(pu)* (Tiriyó *putupë* 'head, hair' probably has an extra lexicalized suffix *-tupë*). This, however, has not yet been demonstrated.
[c] The synonymous directionals *amohtëna(ka)*, *amohtëna(kïi)* were not reliably attested but are presumed to exist.
[d] *Aarena* is attested only as a directional ('to go downstream'). A locative equivalent presumably also exists.
[e] The forms *anmaona(ka)*, *anmaona(kïi)* 'to under', though unattested, are presumed to exist.
[f] The forms *enaona(ka)*, *enaona(kïi)* 'to lying with', though unattested, are presumed to exist.

e-postpositions (and also *pë(kë)*) and the other members of group I is probably better viewed as diachronic rather than synchronic (see also §9.4.4).

Groups II–IV show more transparent combinations. The static locative elements *o*, *wë* reappear, this time in combination with nouns, usually body parts. They are moderately productive: the list of *o* and *wë* forms in Table 9.1, which contains all currently attested cases, is probably not exhaustive.[4] An additional locative element *të* occurred in group III, as well as an allative element *hkïï* (in groups II–III) or *(kïï)* (in groups II–V). A possible static locative element *e* is found in groups IV and V (*enpatae* 'on the slope of', *nkae* 'behind', from *enpata* 'face', *(mï)ka* 'back'); it seems to be related to the *e* found in ablative or perlative postpositions in group I, but the relation is not yet entirely clear. The directional elements *na(ka)* and *na(kïï)*, which correspond to *nao* in some of the related locatives, may have been, at some point, independent postpositions (see Hixkaryana *nawo*, *naka*, *naye*, *naha* (Derbyshire 1979: 111), Wayana *nao*, *nak* (Jackson 1972: 66)). The postpositions in *na(ka)* and *na(kïï)* are apparently being lost: most examples are from older speakers, in which *na(ka)* and *na(kïï)* seem to be in free variation. The few examples from younger speakers suggest that the final reducing syllables *(ka)* and *(kïï)* may be disappearing completely.

Finally, group VI has locative postpositions without directional counterparts. In some cases, there are probable nominal sources (*wenae* 'after' is probably related to *wenahpë* 'trail, spoor', and *ranme* 'close to' to *ra* 'middle part of the body'). Many of these postpositions (and also *nkae* 'behind' from group V) locate the figure with information based on an intrinsic frame of reference; they are further discussed in Section 9.5.

9.3.2 Semantic groups: The 'Topological Relations Picture Series' (TRPS)

A semantic classification of Tiriyó spatial postpositions, including more detail than the approximative glosses in single quotes provided in Table 9.1, will, as might be expected, cross-cut the formal classification to a certain extent. As a first approach to the task of doing such a classification, let us consider the data obtained from elicitation with the TRPS. Ten speakers provided answers for all pictures in the TRPS (and one additional speaker provided answers for the first six pictures); the results are listed in Table 9.2. Note that only a small subset of the postpositions in Table 9.1 actually occurred in the TRPS data (as one might expect, since the TRPS was not designed to deal with all imaginable spatial configurations).

[4] The question of whether these endings should be treated as morphemes or not depends on how much weight is given to productivity. The more neutral term 'element' is used here for convenience.

The conventions in Table 9.2 are as follows:

1. Every sub-table refers to one postposition. In every sub-table, pictures are listed in order of decreasing adequacy ('best' pictures first, 'worst' pictures last).
2. For every picture, the T column lists the total number of speakers who gave answers to it; the Y column lists the total of speakers who said 'yes' (i.e. who considered the postposition in question adequate to that picture); and the S column lists those who answered spontaneously (i.e. they spontaneously used this postposition when reacting to the picture in question, rather than just accepting it when asked). Percentages are taken in relation to the preceding column: Y with respect to T, S with respect to Y (i.e. if the Y column has 80 per cent, this means 80 per cent of the total of answers (T); if the S column has 80 per cent, this means 80 per cent of the yes-answers (Y)). Since all speakers said 'yes' or 'no' in all cases, the difference T-Y yields exactly the number of people who gave negative answers (who considered the postposition at hand inadequate with respect to a given picture).
3. The '*Other alternatives*' column lists other postpositions that occurred as answers to a given picture (as can be checked by looking at the tables that refer to these other postpositions). Each alternative postposition is followed by three numbers, representing the T (total), Y (yes) and S (spontaneous) indices, so as to allow a quick comparison. Alternative postpositions that are actually better candidates for a given picture (i.e. with higher Y rates) are underlined. Postpositions in parentheses did occur, but too sporadically (reactions from fewer than five speakers, i.e. $T < 5$). The word *others* (in italics) is used to indicate cases in which alternatives occurred that did not contain postpositions (e.g. a verbal predicate, as in 'the trees surround the house' rather than 'the trees are around the house').
4. Sometimes Pictures were interpreted in a non-intended way. For instance, Picture 32 has a fish in a bowl; some speakers interpreted it as 'fish in water' (i.e. they saw the water, not the container, as the ground). Picture 44 has a picture hanging on a wall; it was sometimes interpreted as 'picture on nail' (i.e. the nail, not the wall, was seen as the ground). Such non-intended interpretations are marked with an apostrophe (32', 44').

To facilitate the visualization of the relations between the postpositions, Figures 9.1a–c present data from Table 9.2 in the form of Venn diagrams, in which every picture from the TRPS appears in a reduced form (together with its number). Figure 9.1a diagrams the 'total unanimity' case (i.e. pictures on which all speakers agreed – $Y = 100\%$ – for one postposition; note that this does *not* imply that other postpositions could not be used for the same picture, but simply that all speakers agreed on *at least* one postposition). Figure 9.1b depicts the cases for which agreement is higher than or equal to 90% ($Y \geq 90\%$), while Figure 9.1c presents the data for which

Table 9.2 *TRPS results (sorted by postpostion)*

Picture	T	Y		S		Other alternatives
			t a o 'less precise in'			
14. box in bag	10	10	100%	10	100%	*awë* 10-8-0
32. fish in bowl	10	10	100%	10	100%	*awë* 9-8-0
54. rabbit in cage	10	10	100%	10	100%	*awë* 10-10-10
67. owl in tree hole	10	10	100%	10	100%	*awë* 10-9-0
60. house in fence	10	10	100%	10	100%	*:roowë* 3-3-3, *awë* 9-7-0
39. cigarette in mouth	10	10	100%	10	100%	(*tae* 9-2-0), (*awë* 8-1-0)
2. apple in bowl	11	11	100%	9	82%	*awë* 11-10-2
19. apple in ring	10	10	100%	6	60%	*:roowë* 2–2-1,*awë* 10-8-3
47. dog in basket	10	9	90%	7	78%	*juuwë* 6-6-3, *po* 8-7-0, (*awë* 10-4-0)
30. arrow through apple	10	9	90%	5	56%	*awë* 9-6-0, *tae* 9-5-2
70. apple on skewer	10	9	90%	5	56%	*tae* 10-10-4, *awë* 8-6-1
62. cork in bottle	8	7	87%	4	57%	*rehtë* 3-4-4, *awë* 7-5-1, *tae* 8-4-0
57. pendant on chain	6	5	83%	0	0%	*tae* 10-9-4, *pë(kë)* 10-9-3, *awëe* 7-5-3
5. hat on head	8	6	75%	2	33%	*juuwë* 7-4-2, *tae* 8-4-1
33. clothespeg on line	9	6	67%	2	33%	*tae* 10-9-3, *pë(kë)* 10-8- 3, *awëe* 8-6-0
71. dog in kennel	6	4	67%	0	0%	*pohtë* 10-10-10
69. earring in ear	7	4	57%	0	0%	*tae* 10-10-4, *awëe* 6-6-0, *pë(kë)* 6-3-0
22. paper on spike	10	5	50%	3	60%	*tae* 10-9-7
28. picture on stamp	10	5	50%	2	40%	*pë(kë)* 10-10-8
10. ring on finger	8	4	50%	3	75%	*tae* 10-10-8
21. shoe on foot	8	4	50%	3	75%	*tae* 10-9-6, *pë(kë)* 5-3-1
			a w ë 'more precise in'			
54. rabbit in cage	10	10	100%	0	0%	*tao* 10-10-10
2. apple in bowl	11	10	91%	2	20%	*tao* 10-10-10
67. owl in tree hole	10	9	90%	0	0%	*tao* 10-10-10
32. fish in bowl	9	8	89%	0	0%	*tao* 10-10-10
19. apple in ring	10	8	80%	3	30%	*tao* 10-10-6, *:roowë* 2-2-1
14. box in bag	10	8	80%	0	0%	*tao* 10-10-10
60. house in fence	9	7	78%	0	0%	*tao* 10-10-10, *:roowë* 3-3-3
70. apple on skewer	8	6	75%	1	17%	*tae* 10-10-4, *tao* 10-9-5
62. cork in bottle	7	5	71%	1	20%	*rehtë* 4-4-3, *tao* 8-7-4, *tae* 8-4-0
30. arrow through apple	9	6	67%	0	0%	*tao* 10-9-5, *tae* 9-5-2
			h k a o 'in/on (water)'			
11. boat on water	8	8	100%	3	37%	*:roowë* 3-3-3, *juuwë* 6-5-2
32'. fish in water	8	7	87%	6	86%	(*antïïnao* 1-1-1)
			p o h t ë 'at (the tip of)'			
71. dog in kennel	10	10	100%	10	100%	*tao* 6-4-0
			p o 'less precise on ('at')'			
8. book on shelf	8	8	100%	1	12%	*juuwë* 10-10-8
59. pencil on desk	10	9	90%	1	11%	*juuwë* 10-10-9
47. dog in basket	8	7	87%	0	0%	*juuwë* 6-6-3, *tao* 10-9-7
65. tree on hilltop	8	7	87%	0	0%	*rehtë* 10-10-10, *juuwë* 10-10-0
40. cat on mat	10	8	80%	0	0%	*juuwë* 10-10-10

(*cont.*)

Table 9.2 (*cont.*)

Picture	T	Y		S		Other alternatives
p o 'less precise on ('at')'						
9. coat on hook	5	4	80%	1	25%	*tae* 10-10-7, *awëe* 6-6-3
46. bandana around head	5	4	80%	2	50%	*tae* 9-9-4, *pë(kë)* 9-5-4
35. plaster on skin	9	7	78%	4	58%	*pë(kë)* 10-10-6
1. cup on table	11	8	73%	0	0%	*juuwë* 11-11-11
29. tablecloth on table	9	6	67%	1	17%	*juuwë* 10-9-6
17. tree on hillside	5	3	60%	0	0%	*aohpo* 10-10-6, *enpatae* 9-6-0, *juuwë* 5-3-2
45. apple in tree	7	4	57%	1	25%	*pë(kë)* 9-9-7
43. hose on stump (draped)	7	4	57%	0	0%	*juuwë* 6-5-4, *awëe* 10-7-0, *rehtë* 5-4-3, *tae* 8-4-2
57. ladder against wall	7	4	57%	1	25%	*pona* 10-10-7
23. hose on stump (coiled)	9	5	56%	0	0%	*rehtë* 10-10-8, *juuwë* 10-9-2
34. man on roof	6	3	50%	0	0%	*juuwë* 8-6-4, *aohpo* 7-5-3
a o h p o 'on slope of'						
17. tree on hillside	10	10	100%	6	60%	*enpatae* 9-6-0, *juuwë* 5-3-2, *po* 5-3-0
34. man on roof	7	5	71%	3	60%	*juuwë* 8-6-4, *po* 6-3-0
j u u w ë 'on (vertical surface)'						
1. cup on table	11	11	100%	11	100%	*po* 11-8-0
40. cat on mat	10	10	100%	10	100%	*po* 10-8-0
59. pencil on desk	10	10	100%	9	90%	*po* 10-9-1
8. book on shelf	10	10	100%	8	80%	*po* 8-8-1
65. tree on hilltop	10	10	100%	0	0%	*rehtë* 10-10-10, *po* 8-7-0
47. dog in basket	6	6	100%	3	50%	*tao* 10-9-7, *po* 8-7-0
29. tablecloth on table	10	9	90%	6	67%	*po* 9-6-1
23. hose on stump (coiled)	10	9	90%	2	22%	*rehtë* 10-10-8, *po* 9-5-0
43. hose on stump (draped)	6	5	83%	4	80%	*awëe* 10-7-0, *rehtë* 5-4-3, *po* 7-4-0, *tae* 8-4-2
11. boat on water	6	5	83%	2	40%	*hkao* 8-8-3, *:roowë* 3-3-3
34. man on roof	8	6	75%	4	67%	*aohpo* 7-5-3, *po* 6-3-0
17. tree on hillside	5	3	60%	2	67%	*aohpo* 10-10-6, *enpatae* 9-6-0, *po* 5-3-0
5. hat on head	7	4	57%	2	50%	*tao* 8-6-2, *tae* 8-4-1
3. stamp on letter	8	4	50%	2	50%	*pë(kë)* 11-11-8
68. letters on shirt	4	2	50%	0	0%	*pë(kë)* 10-10-10
r e h t ë 'on top, summit of'						
65. tree on hilltop	10	10	100%	10	100%	**juuwë** 10-10-0, **po** 8-7-0
23. hose on stump (coiled)	10	10	100%	8	80%	**juuwë** 10-9-2, **po** 9-5-0
62. cork in bottle	4	4	100%	3	75%	*tao* 8-7-4, *awë* 7-5-1, *tae* 8-4-0
43. hose on stump (draped)	5	4	80%	3	75%	*juuwë* 6-5-4, *awëe* 10-7-0, *po* 7-4-0, *tae* 8-4-2
p ë (k ë) 'attached to'						
7. spider on ceiling	10	10	100%	10	100%	
48. rain on window	10	10	100%	10	100%	
68. letters on shirt	10	10	100%	10	100%	*juuwë* 4-2-0

Table 9.2 (*cont.*)

Picture	T	Y		S		Other alternatives
p ë (k ë) 'attached to'						
27. apple on twig	10	10	100%	9	90%	
56. flag on mast	10	10	100%	9	90%	
12. butter on knife	10	10	100%	9	90%	(*juuwë* 8-3-1)
61. handle on cupboard	10	10	100%	9	90%	(*:roowë*)
45. apple in tree	9	9	100%	7	89%	*po* 7-4-1
20. balloon on stick	10	10	100%	8	80%	*awëe* 5-4-0, *tae* 6-4-1
28. picture on stamp	10	10	100%	8	80%	*tao* 10-5-2
41. leaves on twigs	10	10	100%	8	80%	*po* 9-5-3
66. strap on purse	10	10	100%	8	80%	
63. lamp on ceiling	10	10	100%	8	80%	
3. stamp on letter	11	11	100%	8	73%	*juuwë* 8-4-2
25. telephone on wall	10	10	100%	7	70%	
50. hook on wall	10	10	100%	7	70%	
52. insects on wall	10	10	100%	7	70%	
35. plaster on skin	10	10	100%	6	60%	*po* 9-7-4
44. picture on wall	10	10	100%	6	60%	*awëe* 6-5-2
4. ribbon around candle	11	10	91%	5	50%	*:roowë* 5-5-5
55. hose around stump	10	9	90%	6	67%	*tae* 9-7-2, *awëe* 7-5-1
42. belt on woman	10	9	90%	5	56%	(*others* 3-3-3)
57. pendant on chain	10	9	90%	3	33%	*tae* 10-9-4, *tao* 6-5-0, *awëe* 7-5-3
53. gum under table	7	6	86%	2	33%	*epinë* 10-9-7
18. hole in towel	10	8	80%	3	38%	others 5-5-3, (*:roowë*)
33. clothespeg on line	10	8	80%	3	38%	*tae* 10-9-3,*awëe* 8-6-0, *tao* 9-6-2
51. necklace around neck	9	6	67%	2	33%	*awëe* 10-8-4, *tae* 10-5-3
37. clothes on line	8	5	62%	3	60%	*awëe* 10-8-4, *tae* 10-8-3
21. shoe on foot	5	3	60%	1	33%	*tae* 10-9-6, *tao* 8-4-3
46. bandana around head	9	5	56%	4	80%	*tae* 9-9-4, *po* 5-4-2
69. earring in ear	6	3	50%	0	0%	*tae* 10-10-10, *awëe* 6-6-0, *tao* 7-4-0
p o n a 'against'						
58. ladder against wall	10	10	100%	7	70%	*po* 7-4-1
t a e 'via/through'						
69. earring in ear	10	10	100%	10	100%	*awëe* 6-6-0, *tao* 7-4-0, *pë(kë)* 6-3-0
10. ring on finger	10	10	100%	8	80%	*tao* 8-4-3
9. coat on hook	10	10	100%	7	70%	*awëe* 6-6-3, *po* 5-4-1
44'. picture on nail	6	6	100%	4	67%	*awëe* 8-8-4
46. bandana around head	9	9	100%	4	56%	*po* 5-4-2, *pë(kë)* 9-5-4
70. apple on skewer	10	10	100%	4	40%	*tao* 10-9-5, *awë* 8-6-1
22. paper on spike	10	9	90%	7	78%	*tao* 10-5-3
21. shoe on foot	10	9	90%	6	67%	*pë(kë)* 5-3-1, *tao* 8-4-3
57. pendant on chain	10	9	90%	4	44%	*pë(kë)* 10-9-3, *tao* 6-5-0, *awëe* 7-5-3
33. clothespeg on line	10	9	90%	3	33%	*pë(kë)* 10-8-3, *awëe* 8-6-0, *tao* 9-6-2
37. clothes on line	10	8	80%	3	37%	*awëe* 10-8-4, *pë(kë)* 8-5-3
55. hose around stump	9	7	78%	2	29%	*pë(kë)* 10-9-6, *awëe* 7-5-1
20. balloon on stick	6	4	67%	1	25%	*pë(kë)* 10-10-8, *awëe* 5-4-0

(*cont.*)

Table 9.2 (*cont.*)

Picture	T	Y		S		Other alternatives
t a e 'via/through'						
30. arrow through apple	9	5	56%	2	40%	*tao* 10-9-5, *awë* 9-6-0
51. necklace around neck	10	5	50%	3	60%	*awëe* 10-8-4, *pë(kë)* 6-9-2
43. hose on stump (draped)	8	4	50%	2	50%	*awëe* 10-7-0, *juuwë* 6-5-4, *rehtë* 5-4-3, *po* 7-4-0
5. hat on head	8	4	50%	1	25%	*tao* 8-6-2, *juuwë* 7-4-2
62. cork in bottle	8	4	50%	0	0%	*rehtë* 4-4-3, *tao* 8-7-4 *awë* 7-5-1
a w ë e '(astraddle) on'						
44'. picture on nail	8	8	100%	4	50%	*tae* 6-6-4
9. coat on hook	6	6	100%	3	50%	*tae* 10-10-7, *po* 5-4-1
69. earring on ear	6	6	100%	0	0%	*tae* 10-10-10, *tao* 7-4-0,
44. picture on wall	6	5	83%	2	40%	*pë(kë)* 10-10-6
37. clothes on line	10	8	80%	4	50%	*tae* 10-8-3, *pë(kë)* 8-5-3
51. necklace around neck	10	8	80%	4	50%	*pë(kë)* 9-6-2, *tae* 10-5-3
20. balloon on stick	5	4	80%	0	0%	*pë(kë)* 10-10-8, *tae* 6-4-1
33. clothespeg on line	8	6	75%	0	0%	*tae* 10-9-3, *pë(kë)* 10-8-3, *tao* 9-6-2
57. pendant on chain	7	5	71%	3	60%	*tae* 10-9-4, *pë(kë)* 10-9-3, *tao* 6-5-0
55. hose around stump	7	5	71%	1	20%	*pë(kë)* 10-9-6, *tae* 9-7-2
43. hose on stump (draped)	10	7	70%	0	0%	*juuwë* 6-5-4, *rehtë* 5-4-3, *po* 7-4-0, *tae* 8-4-2
e p i n ë 'under, below'						
16. ball under chair	10	10	100%	10	100%	
31. cat under table	10	10	100%	10	100%	
24. spoon under cloth	10	10	100%	7	70%	(*anmao* 8-3-0)
53. gum under table	10	9	90%	7	70%	*pë(kë)* 7-6-2
n k a e 'behind'						
64. boy behind chair	10	10	100%	6	60%	*notonnao* 9-9-0, *ekatao* 9-8-2 *ekunnë* (*ranme*)
6. dog next to kennel	8	8	100%	5	62%	*ekunnë* 9-9-4, *ekatao* 9-9-2, *ranme* 9-8-0
15. fence around house	9	7	78%	3	43%	others 5-5-5, *ekunnë* 4-4-1 (*ekatao*)
49. tree in front of church	5	3	60%	2	67%	*ekatao*10-10-2, *ekunnë* 8-8-5, *ranme* 8-8-1, *renao* 9-6-0
e p o e 'over, above'						
13. lamp over table	10	10	100%	10	100%	
36. cloud over hill	10	10	100%	10	100%	
31'. table over cat	2	2	100%	2	100%	
n o t o n n a o 'behind; blocking'						
64. boy behind chair	9	9	100%	0	0%	*nkae* 10-10-6, *ekatao* 9–8-2, *ekunnë* (*ranme*)
r e n a o 'near, next to (fire)'						
38. boy next to fire	10	10	100%	7	70%	*ekatao* 9-7-1, *ekunnë* 8-6-2, *ranme* 8-4-0
e k u n n ë 'near, (right) next to'						
49. tree in front of church	8	8	100%	5	62%	*ekatao* 10-10-2, *ranme* 8-8-1, *renao* 9-6-0, *nkae* 5-3-2

Table 9.2 (*cont.*)

Picture	T	Y		S		Other alternatives
			e k u n n ë 'near, (right) next to'			
6. dog next to kennel	9	9	100%	4	44%	*ekatao* 9-9-2, *nkae* 8-8-5, *ranme* 9-8-0
15. fence around house	4	4	100%	1	25%	others 5-5-5, *nkae* 9-7-3 (*ekatao*)
64. boy behind chair	7	6	86%	2	33%	*nkae* 10-10-6, *notonnao* 9-9-0, *ekatao* (*ranme*)
38. boy next to fire	8	6	75%	2	33%	*renao* 10-10-7, *ekatao* 9-8-1, *ranme* 8-4-0
			e k a t a o 'near, next to'			
6. dog next to kennel	9	9	100%	2	22%	*ekunnë* 9-9-4, *nkae* 8-8-5, *ranme* 9-8-0
49. tree in front of church	10	10	100%	2	20%	*ekunnë* 8-8-5, *ranme* 8-8-1, *renao* 9-6-0, *nkae* 5-3-2
64. boy behind chair	9	8	89%	2	25%	*nkae* 10-10-6, *notonnao* 9-9-0, *ekunnë*, (*ranme*)
38. boy next to fire	9	7	78%	1	14%	*renao* 10-10-7, *ekunnë* 8-6-2, *ranme* 8-4-0
15. fence around house	8	3	37%	0	0%	*others* 5-5-5, *nkae* 9-7-3, *ekunnë* 4-4-1
			e k u n n ë 'near, (right) next to'			
49. tree in front of church	8	8	100%	1	12%	*ekatao* 10-10-2, *ekunnë* 8-8-5, *renao* 9-6-0, *nkae* 5-3-2
6. dog next to kennel	9	8	89%	0	0%	*ekunnë* 9-9-4, *ekatao* 9-9-2, *nkae* 8-8-5
64. boy behind chair	4	3	75%	0	0%	*nkae* 10-10-6, *notonnao* 9-9-0, *ekatao*, *ekunnë*
38. boy next to fire	8	4	50%	0	0%	*renao* 10-10-7, *ekatao* 9-8-1, *ekunnë* 8-6-2
			r a n m e '(very) near, next to'			
6. dog next to kennel	9	8	89%	0	0%	*ekunnë*9-9-4, *ekatao* 9-9-2, *nkae* 8-8-5
64. boy behind chair	4	3	75%	0	0%	*nkae* 10-10-6, *notonnao* 9-9-0, *ekatao*, *ekunnë*
38. boy next to fire	8	4	50%	0	0%	*renao* 10-10-7, *ekatao* 9-8-1, *ekunnë* 8-6-2
			: r o o w ë 'in the middle of (2-3D)'			
4. ribbon around candle	5	5	100%	5	100%	*pë(kë)* 11-10-5
26. crack on cup	4	4	100%	1	25%	
11. boat on water	3	3	100%	3	100%	*hkao* 8-8-3, *juuwë* 6-5-2
18. hole in towel	3	3	100%	3	100%	*pë(kë)* 10-8-3,
60. house in fence	3	3	100%	3	100%	*tao* 10-10-10, *awë* 9-7-0
19. apple in ring	2	2	100%	1	50%	*tao* 10-10-6, *awë* 10-8-3
			r a w ë 'in the middle of (1D)' (marginal)			
4. ribbon around candle	1	1	100%	1	100%	*:roowë* 5-5-5, *pë(kë)* 11-10-5
17. tree on hillside	1	1	100%	1	100%	*aohpo* 10-10-6, *enpatae* 9-6-0, *juuwë* 5-3-2, *po* 5-3-0
33. clothespeg on line	1	1	100%	1	100%	*tae* 10-9-3, *pë(kë)* 10-8-3, *awëe* 8-6-0, *tao* 9-6-2

Y $\geq$ 80%. To exclude potentially less reliable data, the cases for which the total number of answers T for a given picture with a given postposition was 5 or less (T $\leq$ 5) were ignored in Figures 9.1a–c (but they are still listed in Table 9.2).

By looking at the intersections in Figures 9.1a–c, identifiable subgroups can be suggested and associated with certain semantic features: a *containment* or *in*-group (*tao*, *awë*), a *vertical support* or *on*-group (*juuwë*, *po*, *rehtë*), a *piercing-hanging* or *through*-group (*tae*, *awëe*), and a *proximity*, *non-contiguity* or *near*-group (*notonnao*, *nkae*, *ekatao*, *ranme*, *ekunnë*). The postposition *më(kë)*, which has the widest range of application, can be seen as defining by itself a fourth, *attachment-adhesion* group. In what follows, the members of these groups will be considered in detail, so that their semantic relationship becomes clearer. After that, the remaining postpositions in Figures 9.1a–c, as well as the other postpositions from Tables 9.1 and 9.2, will be examined, in order to check how they relate to the features that emerge from the subgroups.

The *containment* postpositions *tao* and *awë* are clearly interconnected, in a way that is reminiscent of English 'in' and 'inside'. *Awë* (like 'inside') is most adequate for situations in which there is 'full containment', with the ground surrounding the figure from all sides. The best TRPS instance of this situation is Picture 54 'rabbit in cage'; frequent examples spontaneously given by speakers are e.g. a baby in a mother's womb, or medicine inside one's belly. *Awë* (unlike 'inside') can be extended to non-full-containment cases: in Table 9.2, one sees that a majority of speakers were willing to use or accept *awë* even for pictures like 19 'apple in ring', 60 'house in fence', or even 30 'arrow through apple'.[5] In all these cases, *tao* is comparatively better: it is accepted more consistently by more speakers, and more often used spontaneously. It can also be extended beyond the area of acceptability for *awë*: Picture 39 'cigarette in mouth', for instance, had full agreement and 100 per cent spontaneous answers with *tao* from ten speakers, but only one positive answer with *awë*; seven speakers considered *awë* inadequate for this picture (some of them claimed that it would imply that the cigarette was fully inside the person's mouth).

The *vertical support* postpositions are also connected: *po* is apparently a 'general on', *juuwë* a more precise 'on top of' and *rehtë* an even more precise 'on summit of'. All speakers agreed that *rehtë* implies a 'lump-' or 'hill-like' ground with a definable summit on top of which the figure is located; one of them asserted that it would not be possible to locate a pen or a cup on a table (as in TRPS pictures 1 and 59) with this postposition precisely because the top of a

[5] *Awë* is also used idiomatically as one of the ways to indicate that one has, or possesses, something: 'the money is in(side of) me' = 'I have (the) money.'

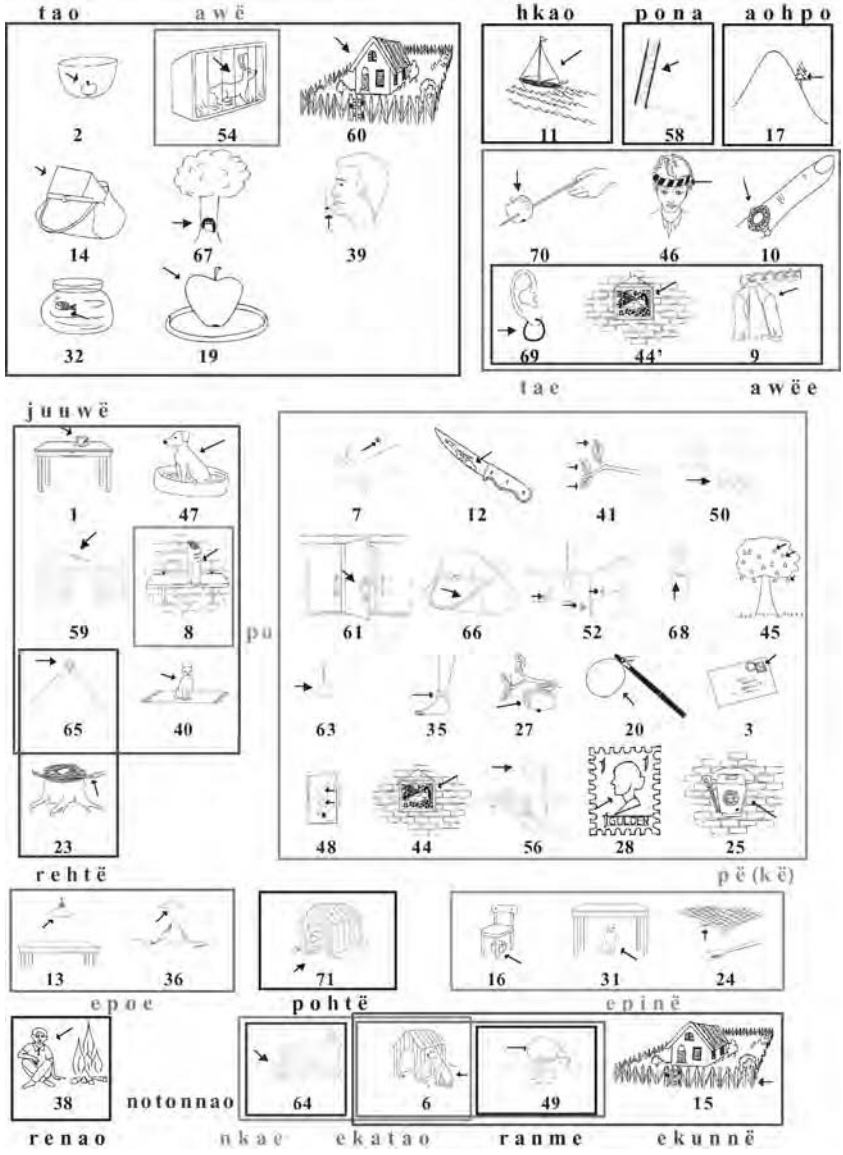


Figure 9.1a Venn diagrams with Y = 100% (unanimous agreement)

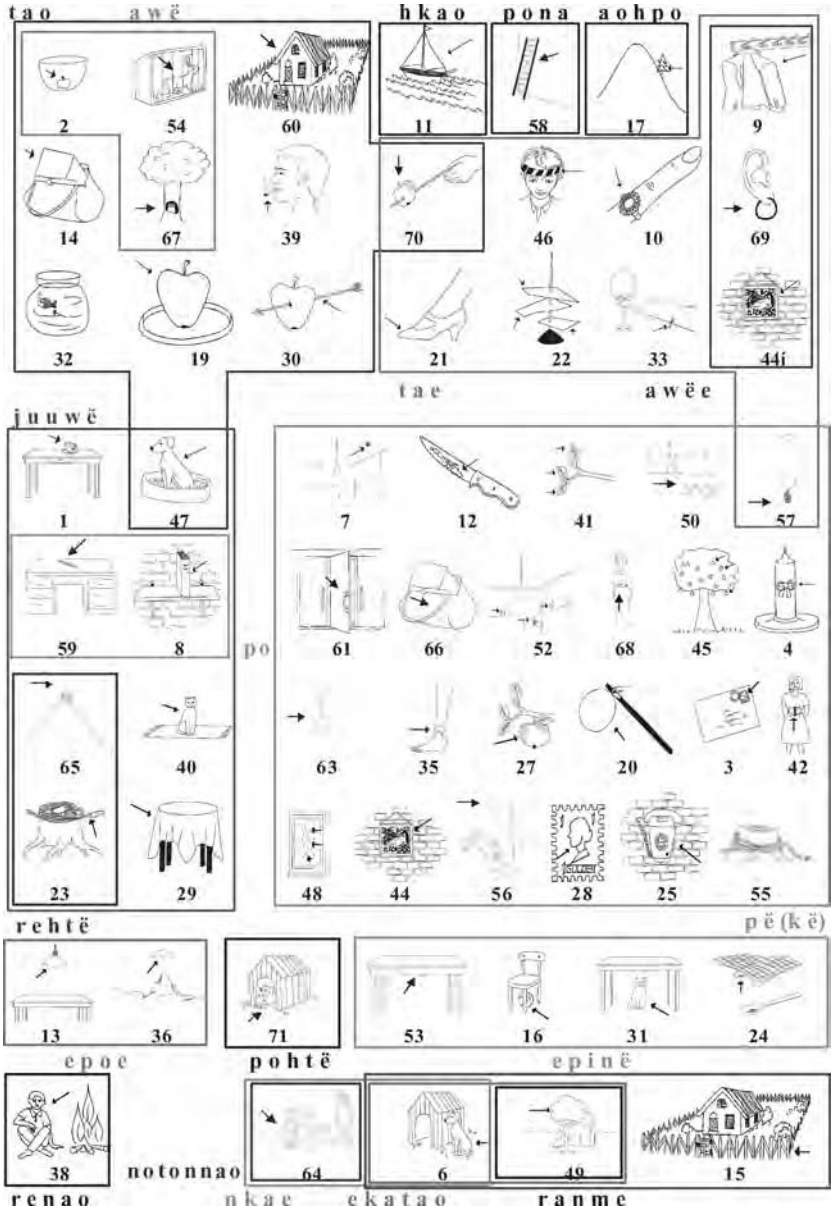


Figure 9.1b Venn diagrams with Y ≥ 90% (at least 90% agreement)

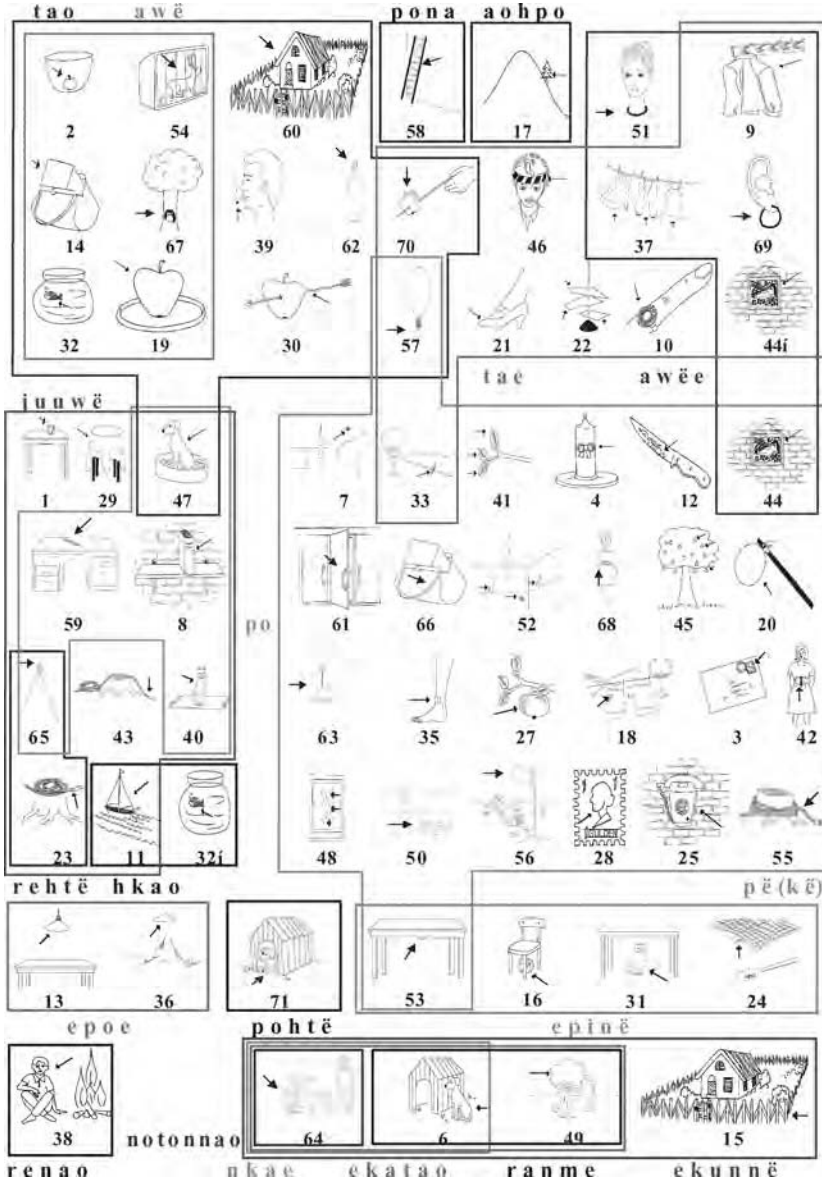


Figure 9.1c Venn diagrams with Y ≥ 80% (at least 80% agreement)

table is flat rather than hill-like.[6] As in the case of *awë* and *tao*, it is possible to see *rehtë* as a special, 'stronger' case of *juuwë*. In a certain sense, the same is true for *juuwë* with respect to *po*; however, judging by its usage in other circumstances, *po* is not essentially a 'vertical support' postposition, but rather a more generic, 'point-like' locative, the closest element to a 'general locative' marker that exists in Tiriyó. Typical uses include geographic terms (*Makapa po* 'in (the city of) Macapá', *pata po* 'in the village') and time nominals (usually borrowed: *januari po* 'in January'). English deictic adverbials like 'here' and 'there' are rendered by combinations of *po* with inanimate deictic pronouns (*sen* 'proximate', *mërë* 'medial', *ooni* 'distal' → *sen po* 'here', *mërë po* 'there', *ooni po* 'yonder') or indefinite nouns (*tïwërën* 'other' → *tïwërën po* 'elsewhere'). These uses suggest that *po* is the simplest of all Tiriyó postpositions semantically, as if it indicated only that the figure is located 'at' the ground, without further details. Compare also the results of using the noun *sikoro* 'school' with *po* and with *tao* 'in': *sikoro tao* means that the figure is necessarily 'in(side)' the school (thus not, e.g., in the open area in front of it), whereas *sikoro po* does not entail so much specificity and can be used to locate, for instance, a tree that stands right next to the school in question. Spontaneous comments from speakers tend to support the 'semantic simplicity' of *po*. For instance, three speakers were asked about *po* in TRPS picture 49 'tree next to church', and two speakers about *po* in Picture 6 'dog next to kennel'; all of them accepted it, and one of them explained (about Picture 49) that *po* should be used if the speaker is not sure about the precise position and distance of the tree with respect to the church (similar comments, stressing that *po* is preferable if the speaker is not sure about the precise relation between figure and ground, were heard from two other speakers, though not with respect to TRPS pictures). Thus, it seems that *po* does not entail 'vertical support' (as do *juuwë* and *rehtë*); rather, it is semantically less specific (notice, in Table 9.2, that four speakers accepted it for non-vertical-support pictures such as 46 'bandana around head' or 9 'coat on hook'), which explains its relative rarity in the TRPS data (most TRPS pictures are 'too clear', 'too semantically specific' for *po*). The 'vertical support' reading (for, e.g., 8 'book on shelf' or 59 'pencil on desk') is probably the result of pragmatic implicatures.

The 'piercing-hanging' postpositions *tae* and *awëe*, and the 'attachment-adhesion' postposition *pë(kë)*, can be seen as referring to 'non-vertical' support situations: the figure and ground are kept together by something other than normal gravitational interaction. For *pë(kë)*, adhesion-attachment clearly is the relevant feature: Table 9.2 and Figures 9.1a–c show pictures in which the figure is a smaller part attached to a larger whole (by tying, pasting, etc. but not by

[6] Notice that stereotypicality also plays a role: Picture 5 'hat on head', in which the person's head would seem to be an obvious 'summit', had a much lower acceptability level for *rehtë* than might be expected, since, as one speaker put it, that would suggest that the hat was 'lying upside down, on the crown of the person's head'.

piercing; e.g. 61, 66, 41, 45, 27), or an independent smaller object or substance which adheres to, or is tied to, a larger object (e.g. 20, 12, 25, 44, 48, 56), or which could be conceptualized as such (e.g. 28, 68). Several of the six (out of seven) speakers who accepted *pë(kë)* for Picture 53 'chewing gum under table' added that *pë(kë)* indicated the 'sticky' relationship between the chewing gum and the table; one of them further explained that *pë(kë)* would be correct even if the chewing gum were on top of the table, provided that it stuck to it and that the speaker wanted to call attention to this fact (if this were not the case, i.e. if the chewing gum were simply sitting on top of the table without adhering to it, then *juuwë* 'on (top of)' would have to be used instead).[7]

The case of the 'piercing-hanging' postpositions *tae* and *awëe* is more complex, because both their meanings and the relationship between them seem more intricate. *Awëe* has only locative meaning; spontaneous uses were observed with respect to, e.g., a headphone on a person's head, or a thread or string on a pen. It can also be used to refer to a person mounted on a horse or cow (like English 'astride of', 'straddling'). One could propose a configuration such as Figure 9.2a below to represent the meaning of *awëe*. Note that the TRPS data are relatable to this configuration, in that the figure can be seen as having two 'parts' which are (hanging) on both sides of, or astride of, the ground. For the best *awëe* picture, 44' (interpreted as 'painting on nail' rather than the intended 'painting on wall'), one speaker explained that *awëe* is appropriate if the painting is as in Figure 9.2b, which approaches the configuration of Figure 9.2a; if it were as in Figure 9.2c, then *pë(kë)* would be preferred. *Tae* is more rare as a static locative postposition than as a motion postposition: its most frequent use is as a perlative (as in 'going by the river', 'by the path'; see §9.4.4 below), also metaphorically, with, e.g., thoughts, opinions, and also with language ('in Tiriyó', 'in the Tiriyó language' is literally 'Tiriyó-language-by'; cf. (15d) below). Its static uses seem related to its motion uses: 'piercing' cases, such as Picture 69 'earring in ear', 70 'apple on skewer', 22 'paper on spike', can be seen as a 'path-creating' action; in these examples, *tae* is reminiscent of English 'through', though apparently with a reversed figure–ground orientation. This 'path-creating' viewpoint can be extended, perhaps as 'path-following', to, e.g., 10 'ring on finger', 33 'clothespeg on line' and 37 'clothes on line', or even to 21 'shoe on foot'. These cases suggest an analysis of *tae* as indicating a 'path', which either is, or goes through, the ground. This analysis is a little obscured, but not countered, by a certain tendency toward figure–ground confusion: several speakers were able to use *tae* to describe both the apple

[7] Interestingly, *pë(kë)* is more frequently found in the available corpus in non-locative uses: to indicate the 'topic of speech' (like English *about* in *he is talking about his mother*), or to mean 'busy with, working on': *sikoro pëë nai*, literally 's/he/it is school-*pë(kë)*', though interpretable as 's/he/it is attached to the school' (e.g. insects, etc.), means much more often 's/he is working on/at the school' (e.g. as a teacher, teaching children, or as a repairman, repairing the school building, repainting it, etc.). This 'busy with' meaning seems to be the most frequent.

(a) *awëe* (b) 44' 'painting on nail': *awëe* configuration (c) 44' 'painting on nail': *pë(kë)* configuration

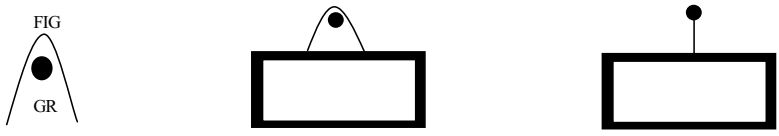


Figure 9.2 Some spatial configurations

(on the skewer) and the skewer (through the apple) in Picture 70 (cf. also, in Table 9.2, those who accepted or used *tae* for 30 'arrow through apple'). That would mean that, for *tae*, the 'path' element is the semantically important one; 'hanging' is apparently a derivative feature (cf. the use of *pë(kë)* with a hanging frame as in Figure 9.2c). In this context, Picture 46 'bandana around head' is a surprisingly good case of *tae*. A possible explanation is the fact that the Tiriyó word used for the ground, *putupë*, means not only 'head', but also 'hair'; speakers may have had in mind the idea of the bandana going 'through' the hair (one of them observed that a pen or a feather on a person's ear would be *putupë tae* because it would go through this person's hair, not his/her head).

The fact that *awëe* pictures form almost always a proper subset of the set of *tae* pictures in Figures 9.1a–c (except for 51 'necklace around neck' in Figure 9.1c – and even for that picture, five speakers out of ten (three spontaneously) accepted *tae*; see Table 9.2) suggests that they should be semantically related, like *awë/tao* or *rehtë/juuwë*. However, although it is possible to see *rehtë* 'on summit of' as a special case of *juuwë* 'on top of', or *awë* as a *tao* with 'fuller', 'more strict' containment, no obvious analogy can be drawn between *awëe* 'astride' and *tae* 'through, by, "path"'. Semantically, both seem as different from each other as from the attachment-adhesion *pë(kë)*; the large extensional overlap is apparently due to their meanings having sufficient complexity for elements of one to be interpretable as elements of the other. So, the ground element in *awëe* (see Figure 9.2a) is often long (a wall, a horse/cow, a pen) and could be interpreted as the 'path' element in *tae* (as in Picture 37 'clothes on line'). Also, the figure in the *awëe* configuration could also be going 'through' the ground, as in Picture 69 'earring on ear'. Such considerations lead to the conclusion that the meaning of *awëe* is not to be seen as especially linked to the meaning of *tae*; these two postpositions, together with *pë(kë)*, seem to divide the space of non-vertical support at the same level.

The above observations lead to the suggestion of the first tentative semantic map in Fig. 9.3a (not meant as a hierarchical taxonomy, but rather as a mapping on a 'similarity space').

Before proceeding, it is worthwhile asking what kind of relation Figure 9.3a is depicting. Is the relationship between *tao* and *awë*, for instance, similar to the

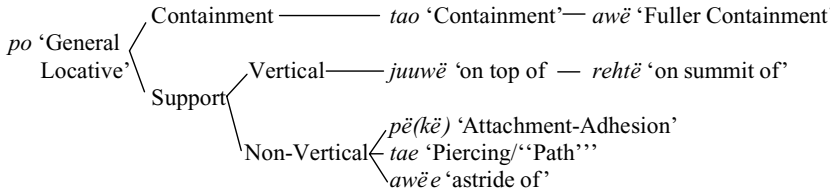


Figure 9.3a A first preliminary semantic map of some Tiriyó locative postpositions

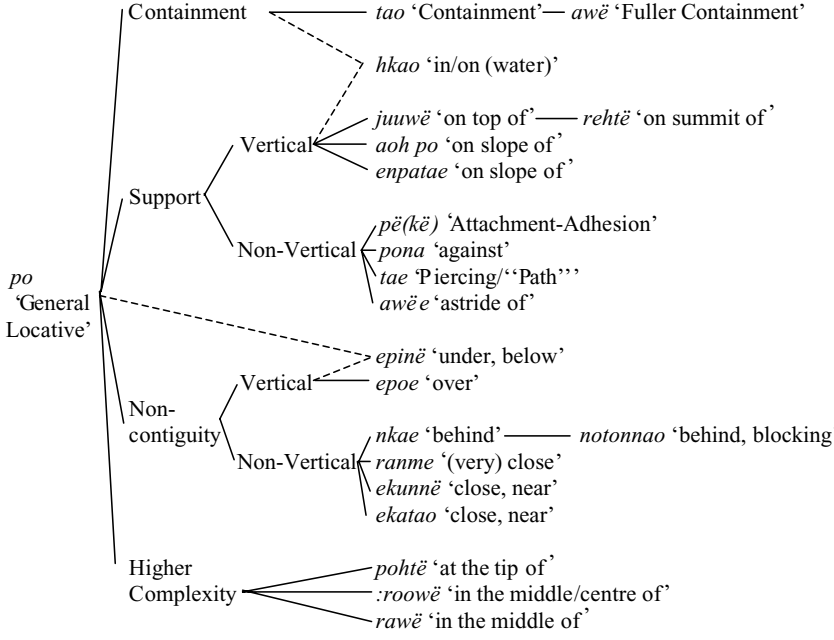


Figure 9.3b A second preliminary semantic map of Tiriyó locative postpositions

relationship between *juuwë* and *rehtë*? In both cases, Figure 9.1a–c shows that the extension of the 'first-order' element (*tao*, *juuwë*) contains the extension of the 'second-order' element (*awë*, *rehtë*). Levinson (this volume) proposes a pragmatic (Horn-scale) analysis for the Yélî Dnye postpositions *p:uu* 'general attachment' and *'nedê* 'attachment by spike', for which a similar state of affairs holds: the 'weaker' *p:uu* actually applies to all kinds of attachment situations, but the 'stronger' *'nedê* will be preferred whenever the situation warrants it, thus 'masking' the applicability of *p:uu*. This 'masked applicability' can still

be seen in the pattern of first and second choices: *p:uu* is often the second-best option for *'nedê* situations, but the opposite never obtains. Looking at Table 9.2, one can reconstruct a similar situation for *rehtë* and *juuwë*. In the best *rehtë* situations (Pictures 65 and 23), *juuwë* consistently occurs as an equally good choice (Y = 100%), but it is not spontaneously offered (S = 0%, 22%). In other words: for Pictures 65 and 23, speakers agree that *juuwë* is adequate when asked, but they offer *rehtë* spontaneously much more often. The same, incidentally, also holds for *po* and *juuwë*: the best *juuwë* pictures have *po* as an equally acceptable, but not spontaneously offered, alternative. This is very similar to the Yélî Dnye *p:uu* and *'nedê* case; a similar Horn-scale analysis is plausible (i.e. *awë* > *tao* and *rehtë* > *juuwë* > *po*).[8]

For *tao* and *awë*, however, the pattern looks different. Figures 9.1a–9.1c show *awë* as a probable 'stronger' term, since its extension is always contained in the extension of *tao*. Though Table 9.2 confirms that *awë* pictures are also always good *tao* pictures, the spontaneity ratio is not as one would expect: it is *tao*, the 'weaker' term, which is the most frequent spontaneous answer, while *awë*, the 'stronger' term, is usually accepted only after it is offered as an alternative. It may be that the relationship between these postpositions is simply of a different pragmatic type. Another possibility is that the best, spontaneous-answer-triggering cases of *awë* would have a non-visible figure (e.g. a baby in a mother's womb) or a ground which does not obviously have an inside (e.g. a wooden square, which might be a box or just a piece of wood), a situation not exactly depicted in any of the TRPS pictures. Locative occurrences of *awë* in the available Tiriyó texts tend to confirm the latter possibility: the scenes involve a figure that is 'hidden', 'not visible' (e.g. a ghost or spirit inside someone's body), or a ground that does not obviously have an inside (e.g. poison inside food). Thus, although more detailed data are necessary, a Horn-scale analysis is also assumed here for *awë* and *tao*, the absence of spontaneous-answer cases of *awë* being attributed to the lack of appropriate situations in the TRPS.

Let us now proceed to other postpositions. The 'non-contiguity' group is also visible in Figures 9.1a–c; it contains *nkae* 'behind', *notonnao* 'behind; blocking', *ekunnë* 'near, next to', *ekatao* 'near, next to' and *ranme* '(very) near, next to'. Figures 9.1a–c show that their extensions are entangled in complex ways; Table 9.2 shows that these postpositions (including also *renao* 'near') share

[8] *Po* as a general locative should would work as a 'weak' term in a Horn scale for all other locative postpositions. The cases mentioned above in which speakers accepted *po* as an alternative for 'proximity' postpositions, plus the fact that four speakers out of five (80%) accepted *po* for a *tae* picture like 8 'coat on hook', and seven out of nine (78%) for a *pë(kë)* picture like 35 'plaster on skin', support this idea (cf. *po* in Table 9.2). The absence of *po* scores for other pictures may simply result from the fact that *po* was not suggested to the speakers as a possible alternative in all pictures.

roughly the same set of pictures, though with different levels of adequacy. For some, certain features are clear: *renao* is best when the ground is fire, though other postpositions are not impossible; *notonnao* has an element of 'hiding' or 'blocking' the ground, making it invisible (two speakers independently and spontaneously elaborated on *notonnao* situations, claiming that something was 'blocking' the ground, that it was 'no longer visible'). Like *notonnao*, *nkae* is also often used to mean 'behind', but without the 'blocking from view' element (most of the consulted speakers made it obvious, with respect to the *nkae* pictures, that they would have to place themselves in such a way that the figure would be behind the ground in order for *nkae* to be adequate). Picture 15 'fence around house' is somewhat surprising; however, one should note that: (a) fences are a new item in Tiriyó society, which did not exist prior to the arrival of Westerners; (b) the best spontaneous solution for this picture is not *nkae*, but other non-BL (basic locative) constructions (e.g. sentences without locative postpositions, like, in this case, 'the house is surrounded by the fence'). It is thus still possible that *nkae* in Picture 64 has a 'behind' conceptualization (e.g. with only part of the fence seen as the ground). Considering that *nkae* is the best spontaneous answer for the only *notonnao* situation, 64 'boy behind chair', a Horn-scale analysis, with *notonnao* as the 'strong' and *nkae* as the 'weak' term, becomes plausible (though the scant data are less conclusive than for the other cases). Thus, in the non-contiguity group, there would be a 'behind' subgroup (*nkae*, *notonnao*). The remaining postpositions form a 'proper proximity' subgroup (*ekunnë*, *ekatao*, *ranme*, *renao*). *Renao*, as was said, is clearly better if the ground is fire. Considering that *ekatao* and *ekunnë* are often considered also adequate, but not offered spontaneously, suggests another Horn-scale analysis; note, however, that the adequacy of *ekatao* and *ekunnë* is less striking that that of *tao* (with respect to *awë*) or *juuwë* (with respect to *rehtë*). *Ranme* seems to suggest 'closer proximity', though not always consistently: while one speaker interpreted it as meaning 'almost touching', others did not consider it really different from *ekunnë* or *ekatao*. No consistent difference between *ekunnë* and *ekatao* has been found so far.

The 'isolated' postpositions in Figures 9.1a–c and Table 9.2 can now be tentatively linked to the others. The aquatic inessive *hkao* is used if the ground is a mass of water (its use with liquids other than water, though marginally possible, is quite rare). It apparently neutralizes the difference between containment and vertical support: cf. the *hkao* Pictures 11 'boat on water' (for which *juuwë* also had good acceptability) and 32' 'fish in water'. *Epoe* 'above' implies the existence of an empty space between figure and ground; it can be added to the 'non-contiguity' subgroup. *Epinë* 'under, below', usually a good opposite for *epoe* (i.e. *epoe* scenes become *epinë* scenes if the figure and the ground are reversed), does not seem to imply a necessary gap between figure and ground (cf. Picture 24 'spoon under cloth', 53 'chewing gum under table'), which

weakens its opposition to *epoe* (note that two speakers offered spontaneously *juuwë* 'on top of', not *epoe*, for 24 under figure–ground reversal) and makes it more like an intermediate element between subgroups than like a possible member of the non-contiguity subgroup. *Aoh po*[9] and *enpatae* were both used for pictures in which there was a 'hill-like' ground, like *rehtë* 'on summit of', with the figure on the slope of the ground; for most speakers, *enpatae* locates the figure much closer to the foot of the ground than *aoh po* (though there was some disagreement). They can be added to the vertical support subgroup. *Pona*, like *tae*, is mostly a motion postposition (see 9.4.3); it occurred as by far the best alternative to one picture (58 'ladder against wall'), with *po* as a marginal second possibility. In this sense, *pona* is probably best seen as a 'non-vertical support' postposition. *Pohtë* 'at the tip of' (related to *potï* 'beak, tip'), and also *:roowë* 'in the middle/centre of' (cf. *(pï)ro(pï)* 'chest') and *rawë* 'in the middle of' (cf. *ra* 'middle part of the body') contain 'more detail': they more clearly make reference to 'subparts' of the ground. In *pohtë* scenes, there may be some distance between the figure and ground, but that is not necessary (e.g. *kanawa pohtë* 'in front of the canoe' can be used to locate a figure either inside, i.e. in the front part of, the canoe, or not inside, i.e. really in front of it). Its high adequacy for Picture 71 'dog in kennel' is due to the fact that the dog is actually at the door of the kennel, which is seen as a 'hole' or 'opening' in the 'tip' of a house, so that something located 'at' or 'by' a door can be seen as being 'by the tip of' the house (*pakoro oota pohtë* 'by the door', lit. 'house-hole-*pohtë*').[10] *Rawë* and *:roowë* occurred relatively infrequently in the TRPS data (they are listed in Table 9.2, but not in Figures 9.1a–c); the difference between them is that *:roowë* refers to the middle or centre of a two- or three-dimensional ground (e.g. the centre of a circle of people, of a field, of a house), while *rawë* is better with one-dimensional grounds (e.g. the middle of a line).

The above information can be used to augment the map in Figure 9.3a, as shown in Figure 9.3b.

The remaining postpositions listed in the formal groups of Table 9.1 can probably also be appropriately added to Figure 9.3b (e.g. *anmao* 'entirely under, covered by', *antiïnao* 'deep in', could be the 'strong' counterparts of the 'weaker' *epinë* 'under', *hkao* 'in (water)'; formal group IV probably mostly belongs in the 'Non-Contiguity' category in Figure 9.3b; the semantically more complex postpositions in formal group VI can probably be placed in the 'Higher Complexity'

[9] *Aoh po* < *aotï* 'rib(s)' with the 'general locative' *po*; the combination *aotï pë(kë)* also occurred once. Such cases could still be analysed as *po*-phrases, but they may also be grammaticalizing as independent postpositions.

[10] Metaphorically, *pohtë* is also used to signal that an event is imminent, about to happen:

a. [[*waa tï-w-ei-ø*] *pohtë*] *rën* *pa*
NEG 3R-S_A-COP-NZR almost EMPH REPT
'(He was) about to die/disappear',
'(He was) almost going to die/disappear'

b. [*tï-tunta-to* *pohtë*] *ahtao*
3R-arrive-NZR almost when
'When (they were) close to arriving / about to arrive, . . .'

category). Since, however, the data on many of these postpositions are rather scant, their possible classification is here merely suggested; further research remains necessary. (See §9.5 below for some more details on their semantics.)

9.4 Motion

The description of motion in Tiriyó uses lexical resources: verbs of motion and goal- and source-indicating postpositions (and also adverbs or ideophones). The passages in (3–5) illustrate the use of these means, using the following conventions: in all of them, motion verbs are single-underlined, directional postpositional phrases are double-underlined; ideophones are underlined with a broken line, and adverbs with dots.

The passage in (3) is an excerpt of a narrative based on the 'Frog Story' book (see Chapter 1, §1.4.3), referring to the 'cliff scene' (pp. 15–19 from the original book). An occasional postpositional phrase marks a goal (e.g. *iija* 'to him'), but most details are inferred rather than explicitly asserted.

(3) Extract from Frog Story. The 'cliff scene' (pp. 15–19)
irë-npë pëe, tï-këhtumu-hpë ahtao wïkapau
this.ANA-PAST from 3R-shout:NZR-PAST when deer
tï-w-ëe-se ii-ja.
PAST-W-come-PAST 3-to
'After this, after (lit. when) he had shouted, a deer came to him'
tï-w-ëe-se irë-npë pëe, i-putupë tae
PAST-W-come-PAST this.ANA-PAST from 3-head LOC
t-ee-se, i-retï awëe t-ee-se.
PAST-COP-PAST 3-horn LOC PAST-COP-PAST
'He (=deer) came and then, he (= boy) was on his (=deer's) head, on his horns'
irëme wïtoto-pisi taa-t-ainka-e ii-ja,
then person-DIM REDUP-PAST-run.away.with-PAST 3-ERG
m-ene-n,
2A-see:PRES-DBT
'then he (=deer) ran away with the little person (=boy), do you see,'
ekï ja t-ëurë-e ken, tïwe-tï-wekena-e
3:pet ERG PAST-bark-PAST CONT REDUP-PAST-follow-PAST
ii-ja.
3-ERG
'his (=boy's) pet (=dog) kept barking at him, and kept following him (=deer)'

irë-npë *pëe-no-npë* *arima* *wïkapau*
this.ANA-PAST from-NZR-PAST strongly deer
t-ee-tunuhtë-e, *ë-waarë*,
PAST-DETR-stop-PAST 2-known.to
'After all this, the deer stopped suddenly (lit. strongly, i.e. with a jerk), you know,'

ankana me nërë *iweike*, *kawë tuna eta* *iweike*.
cliff as 3.ANA because high river 3:bank because
'because he (=deer) was (at a place like) a cliff, because the river bank was high'

irë-npë *pëe* *mëe* *t-onota-e*
this.ANA-PAST from this.ANIM PAST-fall-PAST
t-ee-sika-e *taanë*,
PAST-DETR-yank-PAST yonder
'after that this [person] (=boy) fell, he was thrown (lit. threw himself) there (far),'

ekï-npë *marë* *t-onota-e*. *m-ene-n*,
3:pet-PAST also PAST-fall-PAST 2A-see:PRES-DBT
t-ënmiï-se *to*, *topo*,
PAST-plunge-PAST 3:COL splash.IDEO
'his (=boy's) pet also fell. See, they plunged, /topo/ (= "splash!"),'

tuwei marë to *t-ënmiï-se*, *ekï-npë* *marë*.
two also 3:COL PAST-plunge-PAST 3:pet-PAST also.
'the two of them plunged, his pet also'

The passages in (4) are descriptions of videoclips containing moving objects, based on a series of stimuli developed at the MPI in Nijmegen (the ECOM or Event Complexity videoclips). Notice that motion verbs may contain path information (*au(mu)* 'rise', *anota* 'fall'), or, more rarely, manner (*e-manaka* 'roll'; cf. also *ainka* 'run off (with O)' from (4)); goal/source information is given in postpositional phrases.

(4) a. *t-oonatï-ke-n* *mokama-n* *n-e-manaka*,
HAVING-stalk-HAVING-NZR round-NZR 3-DETR-roll:PAST
pakoro-pisi ranme, *tukusipan* *pona*.
house-DIM near triangular.house to
'The circle (lit. round one with a stalk) rolled, (going) close to the small house, to the *tukusipan* (triangular house)'

b. *mokama-n* *t-oonatï-ke-n* *n-aun*,
round-NZR HAVING-stalk-HAVING-NZR 3-rise:PAST

tawama-n *i-htëpu* *rehkïï*, *irë-npë* *pëe* *n-anota*,
blue-NZR 3-heel to.summit.of this.ANA-PAST from 3-fall:PAST

irë-npë *pëe* *nï-tën* *tukusipan* *apo-n*
this.ANA-PAST from 3-go:PAST triangular.house like-NZR

pona, *i-rehkïï*.
to 3-to.summit.of
'The circle (lit. round one with a stalk) rose, to the summit of the heel of the blue one; after this, it fell; after this, it went to the one like a triangular house, to its summit'

In (5), the description of a Tweetie cartoon, the same basic pattern is maintained. Ideophones occur as 'echoes' of motion verbs (*kurun* 'enter' in (5a), *tora* 'exit' in (5c)), but also independently (*kopo* 'fall' in (5c)); they can also mark the end of motion (*naka* 'end' in (5c)). Adverbs indicate path (*kawë* 'high' in (5b)) or speed (*aipïme* 'fast' in (5c)). Note that phrases with locative postpositions can be used to express direction (*tao* 'in', used instead of *ta* 'into' in (5a–b); see § 9.4.3). Note also that the 'source' of the water is indicated with a nominalized postposition in (5b): *pakoro pëe-no-npë* 'the one which was (=came) from the house' (in apposition to *tuna* 'water').

(5) a. *iisiri* *mokama-n*, *tuna* *enï*, *irë* *ta* *n-ëmïn-jan*,
iron round-NZR water 3:container this.ANA into 3-enter-PRES

kurun,
enter.IDEO
'The round iron, the water container (i.e. drain pipe), there he (=cat) entered, *kurun*,'

n-ëmïn-janë *re . . .* *këpëewa* *mëërë* *ja* *pa* *pena*
3-enter-PRES FRUST but that.ANIM ERG REPT already

tï-rë-e,
PAST-put-PAST
'he entered, but in vain . . . because (lit. but) that one (=bird) had already put (it = ball),'

irë-npë *pëe . . .* *ë-waarë*, *arakapusa-imë*
this.ANA-PAST from 2-known.to firearm-AUGM

arï-npë *kïh-kaa-ø-ti . . .*
contents-PAST 1+2-say-PRES-COL
'and then . . . you know, the cannon ball (lit. contents of big firearm), we say (=we call it) . . .'

irë *eemïn-jan*, *mëërë*, *mërë* *tao*, *tuna*
this.ANA 3:put.inside-PRES that.ANIM that.INAN in water

enï *tao*.
3:container in
'this thing, he, that one (=bird) put inside, into this thing, into the water container'

b. *irëme* *tuna* *i-w-ëeh-to* *enï* *tao*, *pakoro*
then water 3-S_A-come-NZR 3:container in house
pëe-no-npë,
from-NZR-PAST
'Then, inside the water container (lit. container for the water that comes from the house),'

irë *enï* *tao* *n-eemïn-jan*, *irëme* *nï-të-në*
this.ANA 3:container in 3-put.inside-PRES then 3-go-PRES
re *mëërë*
FRUST that.ANIM
'in the container for that, he (=bird) put it (=ball), then that one (=cat) went up high, but in vain,'

kawë, *këpëewa*, *tï-nuikapo-e* *ii-ja*.
high but PAST-swallow-PAST 3-ERG
'he swallowed it.'

c. *irë-npë* *pëe* *irë-npë* *ainka-n*,
this.ANA-PAST from this.ANA-PAST 3:run.off-PRES
tora *n-e-pataka*
exit.IDEO 3-DETR-put.out:PAST
'After this, he ran off with this thing (=the 'cannon ball'), *tora* he came out,'

aipïme *irë-npë* *pëe* *n-et-ainka-n*, *mërë*
fast this.ANA-PAST from 3-DETR-run.off-PRES this.INAN
n-ainka-n,
3-run.off-PRES
'fast (from the pipe), after that, he runs, this thing (= 'ball') runs with (=carries) him,'

naka, *kopo*, *atï* *atï*, *anpo* *hpe*
end.IDEO fall.IDEO WH.INAN WH.INAN WH.LOC INDEF
n-anota,
3-fall:PAST
'*naka*, that's all, *kopo*, it falls, what? what?, it fell somewhere,'

irë *nai* *t-ëne-ø* *ta* *wï-ja*.
this.ANA 3:COP PAST-see-PAST NEG 1-ERG
'this I haven't seen'

Table 9.3 *A sample of Tiriyó motion verbs*

An 'O' in the gloss stands for a possible O argument.					
		INTRANSITIVES			
TRANSITIVES		A conjugation		O conjugation	
		të(mï)	'go'	*tunta*	'arrive'
		ëe(pï)	'come'	*eeseka*	'jump'
		ëmï(mï)	'enter'	*anota*	'fall'
enïhtë	'take O down'	*(p)ïhtë*	'go down'	*urakana*	'stroll'
anu(ku)	'take O up'	*ënanu(ku)*	'go up'	*au(mu)*	'rise;
arë	'take O (away)'	*ët-arë*	'take oneself		stand up'
ene(pï)	'bring O'		(somewhere);		
enno(kï)	'send O (do something); order O'		go'		
oo(mï)	'go, revolve around O'				
re(të)	'cross, go past O'	*ee-re(të)*	'cross, go past'		
manaka	'roll O, make O roll'	*e-manaka*	'roll'		
mo(kï)	'move O away'	*e-mo(kï)*	'move away'		
pataka	'make O leave'	*e-pataka*	'leave, exit'		
rama	'return O'	*e-rama*	'come back'		
ainka	'run off with O'	*et-ainka*	'run (away)'		

9.4.1 Motion verbs

In Tiriyó, only the verbs of 'controlled/voluntary motion' seem to constitute a formally identifiable class (see next section). Verbs with a 'motion' element in their meaning can be found in all formal classes (transitive, A-conjugation intransitive and O-conjugation intransitive).[11] Table 9.3 has a representative (but not exhaustive) list of Tiriyó motion verbs. (For convenience, the detransitivizing prefix *ët-/et-/e-* has been segmented out on the verbs with obvious transitive sources.)

In Talmy's (1985) terminology, Tiriyó motion verbs often have Motion+Path conflation (*ënanu(ku)* 'go down', *(p)ïhtë* 'go up', *ëmï(mï)* 'enter', *e-pataka* 'exit', *oo(mï)* 'go around O'), but only exceptionally Motion+Manner (*e-manaka* 'roll', *et-ainka* 'run (away)'). A more frequent way of indicating manner in Tiriyó is either with a non-finite (nominalized) verb form (occurring

[11] In Tiriyó, as in many Cariban languages, the person-marking morphology is rather complex. Transitive verbs have independent A- and O-marking prefix sets, used in different circumstances. Intransitive verbs form two subclasses: the A conjugation (in which transitive A-marking prefixes are used to mark the subject) and the O conjugation (in which transitive O-marking prefixes are used to mark the subject), i.e. formally a 'split-S' system. Most (but not all) members of the A conjugation are derived from transitive verbs with a detransitivizing (middle/reflexive) prefix. For further details, see Meira 1999a: 282–94, 2000b; and also Gildea 1995: 16–17, 79–96.

with a postposition, like the 'essive' *(n)me* 'as, in the capacity of' in (6a)), or with an adverbial (6b) or ideophone (6c). A partial list of motion-related ideophones is given in (6d).

(6) a. *wïtoto n-e-pataka tï-w-eeseka nme ken*
person 3-DETR-put.out:PAST 3R-S_A-jump:NZR as DUR
'The person (i.e. someone) came out jumping'

b. *koeri me nï-tën*
walkabout as 3-go:PAST
'(S/he) went strolling around'

c. *irë mao rëken pa tïï-të-e nïrïï, sirin*
this.ANA in.time only REPT PAST-go-PAST cricket IDEO
sirin sirin kurun ken
IDEO IDEO enter.IDEO CONT
'Only at this moment did the cricket leave, going [ʂ iɽiŋ] [ʂ iɽiŋ] [ʂ iɽiŋ] (in small steps), [*kuɽuŋ*] (=entering his house)'

d. Some motion-related ideophones (mostly manner indicators):
kïkïkïkï 'unrolling' *pijon* 'going away'
taran 'assembling, *topo(n)* 'splashing'
meen 'coiling, rolling'
sep, suksekï 'jumping', piling'

9.4.2 Other verbal constructions involving motion

There are three motion-related constructions in Tiriyó: the *supine* or 'purpose-of-motion' construction, the *venitive* ('come-and-do') construction and the dynamic or *allative* ('go-and-do') verb form.

The supine or purpose-of-motion construction is based on a special non-finite form of the verb, the supine (marked by the suffix *-se* ∼ *-je* ∼ *-e* ∼ -Φ), which is used in subordinate clauses to indicate purpose if the main clause contains a verb of controlled/voluntary motion, like *ëe(pï)* 'come' or *të(mï)* 'go', and the subjects of the main and subordinate clauses are the same. In other cases (i.e. if the subjects of the main and subordinate clauses are not the same, or if the main verb does not indicate voluntary motion), a different purpose construction must be used (cf. (7f), in which the supine form *eranpae* 'to make O laugh' cannot replace *eranpatoo me*).

(7) a. *pahko nï-tën ëiwa-e*
1:father 3-go:PAST hunt-SUP
'My father went hunting'

b. *ji-karakuri apëë-se wï-të-e*
1-money get-SUP 1-go-PRES:CTY
'I am going (there) to get my money'

c. *irëme w-ëe-ne ëë-ja ëturë-e*
thus 1-come:PAST 2-to talk-SUP
'So I came to talk to you'

d. *pata pona ji-tunta, ëturë-e pahko ja*
village to 1-arrive:PAST talk-SUP 1:father to
'I arrived at the village to talk to my father'

e. *menjaarë pa p-ïhtë-e, epë-e pa*
now REPT 1-go.down-PRES:CTY bathe-SUP REPT
'I am going back down now (e.g. from the tree) to bathe'

f. *ji-pawana i-jomi wi-kuu-ja-e, pahko*
1-friend 3-voice 1-imitate-PRES-CTY 1:father
*eranpa-too me (*eranpa-e)*
make.laugh-NZR as
'I am imitating my friend's voice (= i.e. accent) to make my father laugh'

The following controlled motion verbs have been attested thus far in examples with a supine complement: *të(mï)* 'go', *ëe(pï)* 'come', *erama* 'return', *ëmï(mï)* 'enter', *(p)ïhtë* 'go down', *ënanu(ku)* 'go up', *etainka* 'run', *urakana* 'stroll, walk around', *eerë(të)* 'cross, go over (to the other side)', *epataka* 'exit'; *arë* 'take O', *ene(pï)* 'bring O', *ainka* 'run off with O', *enïhtë* 'take O down, make O go down'. The relevance of 'voluntariness' for this construction can be seen in the variation concerning the verb *anota* 'fall'. In the sense of 'falling', i.e. responding to the Earth's gravitational field without control, it cannot take a supine complement; in the sense of 'landing' (used when talking about aeroplanes), however, it can, according to some (but not all) speakers.

The two verbs *të(mï)* 'go' and *ëe(pï)* 'come' are the simplest motion verbs semantically. As Wilkins and Hill (1995) observed, 'come' and 'go' verbs do not follow a universal prototype; rather, they often differ markedly in meaning and usage from language to language. Based on data obtained from three Tiriyó speakers with the procedure outlined in Wilkins 1993b, the difference in usage between *të(mï)* 'go' and *ëe(pï)* 'come' can be characterized as follows:

> Only *ëe(pï)* can describe motion with the deictic centre (i.e. the place where the speaker and the addressee are located) as its target, although it is not necessary that the deictic centre be reached (i.e. *ëe(pï)* does not have to be telic). If the motion has another target but the trajectory happens to bring the mover visibly closer to the deictic centre at some point (e.g. the target is on a line between the mover and the deictic

centre; or the mover moves diagonally, coming close but not passing by the deictic centre on its way to the target), then both *ëe(pï)* and *të(mï)* are possible. Otherwise (i.e. if the mover does not come visibly closer to the deictic centre), only *të(mï)* can be used.[12]

The supine form of the verb can also be used with the hortative and the venitive particles (*npa* 'let's go!' and *mïï* ∼ *mi(i)* 'come'). These two particles are apparently equivalent to the hortative form of *të(mï)* 'go' and to the imperative form of *ëe(pï)* 'come'; (8a–b), in which the particles are used, are synonymous with (8c–d), in which the verbal imperative forms are used.

(8) a. *npa ëiwa-e*
HORT hunt-SUP
'Let's go hunting!'

b. *epë-e mïï*
bathe-SUP VENIT
'Come bathe (here)!'

c. *kï-tën-ne ëiwa-e*
HORT-go-HORT hunt-SUP
'Let's go hunting!'

d. *oh-kë epë-e*
come-IMPER bathe-SUP
'Come bathe (here)!'

Finally, there is, in addition to the normal imperative form in *-kë* (as in (9a)), an allative imperative form in **-***ta*, with the meaning 'go V', 'go somewhere else to V' (9b).

(9) a. *maja apëh-kë!*
knife get-IMPER
'Get/buy the knife!'

b. *maja apëh-ta!*
knife get-ALLAT.IMPER
'Go (e.g. to the store) get/buy the knife!'

9.4.3 Directional postpositions

As was observed in Section 9.3, most locative postpositions have a directional (goal-indicating) counterpart (see Table 9.1), used in motion predicates. The examples in (10) illustrate the postpositions *pona*, *ta(ka)*, *hka(ka)* and *juhkïï*, the directional equivalents of *po* 'at/on', *tao* 'in', *hkao* 'in water' and *juuwë* 'on (top of)'. Note that, as was observed in the discussion of (5) above, locative postpositions can be, and frequently are, used to express direction. Thus, the locative equivalents of the phrases in (10) would also be acceptable expressions of direction.

(10) a. *Makapa pona nï-tën*
Macapá to 3-go:PAST
'S/he went to (the city of) Macapá'

b. *tuna hka n-anota*
river into 3-fall:PAST
'S/he fell into the river'

[12] Two kinds of motion path were not described with *të(mï)* 'go' or *ëe(pï)* 'come': circular paths (which need the verb *oo(mï)* 'go around O') and paths passing by/through the deictic centre or some other point (in which the verb *:re(të)* 'go past O' is used).

c. *n-ëmïn pakoro ta*
3-enter:PAST house into
'(S/he) entered (into) the house'

d. *n-eeseka i-potï juhkïï*
3-jump:PAST 3-beak onto
'(S/he$_i$) jumped onto his/her$_j$ beak'

There are, however, important mismatches between directional and locative postpositions. First, there is an 'allative' postposition *ja*,[13] usually found with person names (11a). Like *pona* 'to', *ja* has static locative uses ('facing toward', as in (11b)); however, it has no formal locative counterpart corresponding to *po*. The 'facing' meaning of *ja* is probably derived from its allative meaning (i.e. from indicating the 'direction of the gaze' to indicating the 'position/orientation of the gazer').

(11) a. *Nasau ja nï-tën*
Nasau to 3-go:PAST
'S/he went to Nasau('s house)'

b. *enpata wewe ja*
3:face tree to
'His/her face (is) toward the tree'

Second, the non-vertical support postpositions in Figure 9.3b deviate from the regular correspondence between locatives and directionals observed in the other subgroups.[14] The postposition *pë(kë)* 'Attachment-Adhesion' has no formal directional counterpart. Descriptions of motion ending in a configuration describable with *pë(kë)* are done with other directionals, like *pona* in (12) (also from the ECOM data).[15] *Awëe* 'astride of' also has no formal directional equivalent; for lack of data, it is not known how speakers would express motion that leads to an *awëe* configuration. *Tae* and *pona* are exceptional in that both can indicate location and goal, *tae* as a perlative (described in the next section) and *pona* as an allative, corresponding to *po*. The clear connection between the static and dynamic uses of *tae* and *pona* suggest that the former are derived from the latter (which, given their frequency, seem to be more basic).

[13] *Ja* is also used to mark the agent of a nominalized or adverbialized transitive verb (from which, after certain forms were reanalysed as finite, it also became an ergative marker), and also as a marker of causees, datives and benefactives.

[14] This deviation is more impressive than the lack of directional counterparts already observed in Section 9.3.1.1 for the 'semantically complex' postpositions in formal group VI, since they are much 'simpler' and more frequently used and might thus be expected to have naturally developed directional counterparts.

[15] Although one might arguably place it in an independent formal group, *pë(kë)* was included in formal group I because of its vague formal similarity with the *po* / *pona* / *pëe* series (it begins with *p*, and there are facts that suggest a diachronic connection between the vowels *ë* and *o* in Cariban languages). If this similarity is taken seriously, one could suggest that *pona is* the directional counterpart of *pë(kë)* (which would agree with the absence of other directionals in the ECOM data for motion events that end in *pë(kë)* configurations). However, even if this is accepted, the mismatch would remain, since the directional *pona* would correspond to two locatives, *po* and *pë(kë)*.

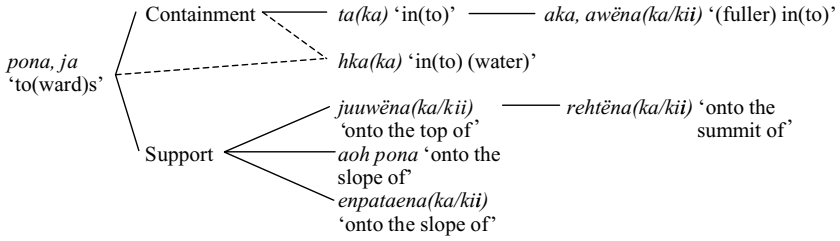


Figure 9.4 A possible semantic map of some Tiriyó directional postpositions (corresponding to the Containment and Support subgroups in Figure 9.3b)

(12) *panti apo-n pona nï-tën mokama-n*
buckle like-NZR to 3-go:PAST round-NZR
t-oonatï-ke-n . . . panti apo-n pë
HAVING-stalk-HAVING-NZR buckle like-NZR attached:to
mokama-n.
round-NZR
'The circle (lit. round one with a stalk) went to(wards) the square (lit. the one like a buckle) . . . the circle (is) on (i.e. attached, stuck to) the square'

The mismatches observed above suggest that Figure 9.3b would have to be changed in order to come closer to representing the possible internal ordering of directional postpositions. Figure 9.4 above is the current working hypothesis. Note the absence of a non-vertical support subgroup.

9.4.4 Ablative and perlative postpositions

As was said in Section 9.3.1.1, the series of ablative ('from') and perlative ('by', 'via') postpositions, quite regular in some Cariban languages, has shrunk in Tiriyó, to the point that only a few postpositions remain.

The general ablative (source-indicating) postposition is *pëe*. As can be seen in (13), *pëe* is used with any kind of source: a geographic location ((13a); locative *po*), water ((13b); locative *hkao*), a liquid other than water ((13c); locative *tao*, as can be seen in the example itself), a closed container ((13d); locatives *tao*, *awë*), or time ((13e); locative *po*). *Pëe* can also mark anteriority with a past-nominalized verb (13f).

(13) a. *Makapa pëe pa n-e*
Macapá from REPT 3-come:PAST
'(S/he) has come from Macapá'

b. *t-ët-ëu-ja-e* *tuna* *pëe*
1-DETR-extract-PRES-CTY water from
'I am coming out of the river/water'

c. *i-munu-hpë* *pëe* *ë-munu* *tao* *n-ee-jan*
3-blood-PAST:POS from 2-blood in 3-come-PRES
'From his/her blood (=the blood that was his/hers), (the illness) comes into your blood'

d. *panpira* *wii-sika* *pakara* *pëe*
paper 1-take:PAST bag from
'I took the paper out of the bag'

e. *maio* *pëe* *agosto* *pona* *rën*
May from August to really
'From May to August'

f. *t-ënee-se* *wï* *manko* *ja* *sen* *pona,*
PAST-bring-PAST 1:PRO 1:mother ERG this to
j-enuru-hpë *pëe*
1-be.born:NZR-PAST:POS from
'My mother brought me here, after I was born'

There are a few attested examples of perlative use of *pëe*, like (14) below. However, since these examples come from older speakers and are not always accepted by younger people ((14) was refused by one twenty-year-old male speaker), they are probably archaisms.

(14) *okomo* *nï-htë-n* *wewe* *pëe*
wasp 3-go.up-PRES tree along
'The wasp is going up the tree'

The current general perlative postposition is *tae*. It is used to indicate a path, like English 'by' or 'along' (15a–b), or also like English 'via' or 'through' (15c). By metaphorical extension, it can also mean 'in (a language)' (15d), or 'according to' (15e).

(15) a. *sen* *ëema* *tae* *nï-tën*
this.INAN path along 3-go:PAST
'(S/he) went by/along this path'

b. *irëme* *tarëno* *nï-tën* *tuna* *tae*
then Tiriyó 3-go:PAST river along
'Then the Tiriyó went by/along the river'

c. *ëikëëkë-pisih* *tae* *n-ëmïn-jan*
wound-DIM through 3-enter-PRES
'(It) enters through small wounds'

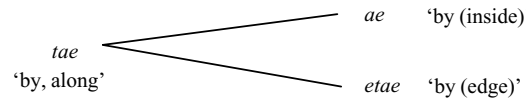


Figure 9.5 Tiriyó perlative postpositions

d. *tarëno i-jomi-h tae*
Tiriyó 3-language-POS by
'In the Tiriyó language'

e. *mërë pohpa ji-n-ehtë-hpë tae rën*
that.INAN EMPH 1-O:NZR-plan-PAST:POS along really
'That went really according to my plan (lit. to what I had planned)'

Ae is also a perlative, much less frequent than *tae*. Although often synonymous with *tae* ((16a); cf. (12a)), it can also include an element of 'containment', as in (16b), which describes the subject as actually on the river, e.g. in a canoe (unlike (10b), which is also compatible with the subject's walking along the river bank).

(16) a. *ëema ae wï-të-e*
path along 1-go-PRES:CTY
'I am going by/along the path'

b. *tuna ae wï-të-e*
river along 1-go-PRES:CTY
'I am going by/along the river'

A third perlative, *etae* 'along the edge of' (from formal group IV), is derived from the noun *eta* 'edge, margin, rim' and can be used instead of *ae* in (16b) or *tae* in (15b) to specify that the subject is moving along the river bank (17a). In (17b), it describes the path of an insect along the edge of a gourd. The relationship suggested by the meanings of *tae*, *ae* and *etae* is represented in Figure 9.5.

(17) a. *tuna etae wï-të-e*
water along 1-go-PRES:CTY
'I am going by/along the river (bank)'

b. *kariwa etae nï-të-n*
gourd along 3-go-PRES
'(It) is going along the edge of the gourd'

9.5 Frames of reference

The three types of frames of reference (absolute, intrinsic and relative) mentioned in Chapter 1 (§1.5.3) occur in Tiriyó. The formal elements used to

Table 9.4 *Tiriyó frame-of-reference terms identified thus far*

ABSOLUTE		INTRINSIC / RELATIVE			
Nominals (Noun phrases)		*Adverbs (A) and Nouns (N)*			
wei	'East'	*pëëjae* (A), *pëëjae(no)* (N) *ëpëjano* (N)			'left'
iwepatakato(po), *wei iwëehto(po)*					
wei iwëmïnto(po)	'West'	*ëpëtu(nu)* (N)			'right'
wei aotï	'across' (North/South)	*Postpositions (from formal groups III–V)*:			
Postpositions (from formal group III)		*enpatao*	'in front of'	*rato*	'parallel to'
amohtë	'upstream'	*nkae*	'behind'	*pato*	'in alignment'
aarena	'downstream'	*notonnao*	'behind, invisible'	*epoe*	'above, over'
				epinë	'below, under'
		hpïtïnao	'behind, at the rear of'	*anmao*	'under (and covered)'
		pohtë	'at the tip of, in front of'		

express these systems (nouns or noun phrases, adverbs and postpositions) are not formally distinguishable from other members of their classes. The frame-of-reference systems of Tiriyó are thus much less grammaticalized than the systems of languages like Tzeltal or Arrernte.

Table 9.4 contains an overview of the relevant terms. Notice that the terms in the first column have only absolute uses. The terms in the second column, on the other hand, can all have either intrinsic or relative uses (despite the existence, for some terms, of clear preferences; e.g. the postpositions are almost always used intrinsically).

The sun-based absolute terms are actually fully analysable phrases, composed of *wei* 'sun' and deverbal nominalizations (*e-pataka* 'come out' → *w-e-pataka-to(po)* 'place of coming out'; *ëe(pï)* 'come' → *w-ëeh-to(po)* 'place of coming'; *ëmï(mï)* 'enter' → *w-ëmïn-to(po)* 'place of entering') or the simple noun *aotï* 'ribs'. These phrases, as is suggested by the occurrence of two possibilities for 'east', seem not to be fully conventionalized: presumably, other expressions involving *wei* 'sun' for 'west' and 'north/south' also exist. They are used as 'obvious landmarks', perhaps only a little more frequently than a nearby mountain or river would be. Notice that the two directions of the 'across' or 'north–south' are not distinguished.[16]

[16] One speaker made a distinction between north and south, opposing to *wei aotï* 'sun's ribs' *wei aotï iratoe* 'the one opposite to the sun's ribs' (*ratoe* 'enemy; other one (of a pair of things linked

(18) *i-pitë-to nai wei i-w-e-pataka-to wenje*
3-begin-NZR 3:COP sun 1-S_A-DETR-put.out-NZR close.to
'Its beginning (=of the path) is close to East (=to the place where the sun comes out)'

The river-based terms are somewhat more grammaticalized: two postpositions, *amohtë* 'upstream' (a locative, with the corresponding directional *amohkïi*, or also *amohtëna(ka)*, *amohtëna(kïi)* '(to) upstream') and *aarena* 'downstream'. Both postpositions locate figures along rivers; the ground can be either another location ('up/downstream from X', as in (19a)), or the river itself ('up/downstream on/along river X', as in (19b)). It must be noted that these terms are relatively rare (there were no occurrences in the Men and tree data). Therefore, despite being 'more grammaticalized', 'more conventionalized' forms than the sun-based noun phrases, they do not seem to constitute, by themselves, an independent (formal or semantic) subclass of postpositions.

(19) a. *i-pata nai ë-pata amohtë*
3-village 3:COP 2-village upstream
'His village is upstream of yours'

b. *j-arë, Paru aarena*
1O-take:PAST Paru downstream
'(S/he) took me downstream on the Paru (river)'

In the intrinsic/relative group, there is one basic adverb (*pëëjae* 'left', 'left-handed') and one basic noun (*ëpëtu(nu)* 'right one', 'right arm'), as well as two derived nouns (*pëëjae(no)* 'left one', the regular *-(no)*-nominalized form of *pëëjae*, and *ëpëjano* 'left one', 'left arm'). The basic, and probably the earliest, meaning of *ëpëtu(nu)* and *ëpëjano*, usually present in neutral contexts, is 'right arm' or 'left arm' (e.g., when possessed: *j-apëtun* 'my right arm', *j-apëjano* 'my left arm'); cf. also *ëpë* (non-possessed), *j-apë* (first person) '(my) arm', to which they must be historically related. However, both words can be used simply to mean 'right-/left-hand direction' (20e-f). *Pëëjae* can indicate the left-hand area (20a) and it can also mean 'left-handed' (20c). *Pëëjae(no)* simply works as the nominalized form of *pëëjae* (i.e. 'one that is *pëëjae*', either 'on the left side' or 'left-handed'). These terms can be used intrinsically, referring to an object onto which a left–right distinction was projected (20d), or relatively, referring to the speaker's own left and right (20e–f). Often, however, there is ambiguity: in (20a–b), either a relative or an intrinsic interpretation is possible: the woman can be on the left (right) side with respect to the speaker, or then to the left (right) of some previously mentioned entity.

together); the one facing/opposing/opposite to'). However, he was not consistent on which of these meant 'north' and which 'south'; it may be that these were nonce creations.

(20) a. *pëëjae nai wëri*
left 3:COP woman
'The woman is on the left'

b. *ëpëtun wenje nai wëri*
right close 3:COP woman
'The woman is on the right'

c. *pëëjae w-a-e*
left.handed 1-COP-CTY
'I am left-handed'

d. *kaikui nai wïtoto apëjano ja*
jaguar 3:COP person left to
'The jaguar is on the person's left'

e. *j-apëtunu ja wï-të-e*
1-right to 1-go-PRES:CTY
'I am going to the (lit. my) right'

f. *j-apëjano ja wï-të-e*
1-left to 1-go-PRES:CTY
'I am going to the (lit. my) left'

The postpositions in the second column of Table 9.4 are predominantly intrinsic; however, since relative uses can sometimes be found, they were not placed in a new group. It is sometimes difficult to decide whether a certain postposition indicates a topological relation, or rather an intrinsic frame of reference (cf. the discussion in the final chapter). For instance, *pohtë* 'at the tip of, in front of', can be used in both ways: *kanawa pohtë*, as has already been noted at the end of Section 9.3.2, can mean either 'in front of the canoe' (i.e. in the area ahead of the canoe, towards which it is moving) or 'in the front part of the canoe' (as said, for instance, of someone who is sitting there). The same situation also obtains for the opposite of *pohtë*, *hpïtïnao* 'in the rear of, behind' (*kanawa hpïtïnao* 'in the rear of the canoe' or 'in the area behind the canoe'). The examples in (21) illustrate the uses of the remaining postpositions. Interesting differences are: *anmao* 'fully under (and thus invisible)' (21d) vs. *epinë* '(not necessarily fully) under, below' (21e), and the several 'behinds': *hpïtïnao* 'in the rear of, behind', *nkae* 'behind (not necessarily as close to ground as with *hpïtïnao*; (21b)), *notonnao* 'behind, often invisible' (i.e. usually in such a way that the figure is not visible; (21c)).[17] Note also the postpositions *rato* 'parallel to' (21g–h) and *pato* 'in alignment with' (21i). *Pato* apparently implies that there is a line from the ground to the figure, and that this line relates to some other point in space; the example in (21i) was said to someone who was preventing a hunter from aiming

[17] Not much is known about the semantic properties of *enpatao* 'in front of'.

at his game. The reflexive form of *pato*, *tï-pato* 'in alignment with itself', is often used with the emphatic particle *rë* (which harmonizes to *ro: tï-pato ro*) to mean 'straight', 'not bent or twisted', and also 'right', 'correct', 'adequate'.

(21) a. *j-enpatao nai mëe*
1-in.front 3:COP this.ANIM
'This (guy) is in front of me'

b. *ë-pakoro i-nkae m-akoroka-e*
2-house 3-behind 2A-sweep-PRES:CTY
'You sweep (the area) behind your house'

c. *wewe notonnao nai*
tree behind 3:COP
'(S/he) is behind the tree (and cannot be seen)'

d. *panpira anmao nai tëpu-pisi*
paper under 3:COP stone-DIM
'The little pebble is under the paper (and cannot be seen)'

e. *apëi epinë nai miki*
table under 3:COP cat
'The cat is under the table' (usually visible; TRPS (31))

f. *turi nai apëi epoe*
lamp 3:COP table over
'The lamp is over/above the table' (TRPS (13))

g. *wewe-pisi nai saran i-rato*
wood-DIM 3:COP hose 3-parallel
'The little stick is parallel to the hose'

h. *ë-ehke nai ji-rato*
1-hammock 3:COP 1-parallel
'Your hammock is parallel to mine (lit. to me)'

i. *ji-pato ta eh-kë!*
1-aligned NEG COP-IMPER
'Get out of my way!' (lit. Don't be in alignment with me!)

To illustrate the use of reference frame terms, (22a–c) contain the director's description of photographs 2.3, 2.4 and 2.5 from the Men and Tree Game (all three from the same pair of speakers), and (22d) contains an excerpt of a longer path description by a different pair of speakers (the director was trying to explain to the matcher how to move a toy man so as to replicate a prearranged path). Terms are double-underlined when used absolutely, single-underlined when used relatively and underlined with a broken line when used intrinsically. Notice that absolute terms do not occur at all in (22a–c). Even in path descriptions,

absolute terms were rather rare; (23) was selected precisely because it had them. Notice also that verbs like 'facing, looking', and directional postpositions like *ja* 'to' were also used for relative coding (e.g. (22c)), although they are not at all specialized in that use.[18] The coding of the facing and standing information for the Men and Tree photographs (see description of this game in Chapter 1) is summarized in Table 9.5.

(22) a. Photo 2.3 (6th), Men and Tree task, Game 2; Director/Matcher facing north

ma, serë wi-ponoo-ja-e ëë-ja, akoron, sen apo
well, this.INAN 1A-tell-PRES-CTY 2-to other this.INAN like

nai i-ponoh-to irë, tïwërë ken nai nkërë pa.
3:COP 3-tell-NZR this.ANA different CONT 3:COP still REPT

aan, eeke nai i-ponoh-to, aan, pëëjae wenje nai, akï,
ahn how 3:COP 3-tell-NZR ahn left near 3:COP who

wïtoto, wïtoto eeke nai irë i-ponoh-to, tëërë nai
person person how 3:COP this.ANA 3-tell-NZR EXIST 3:COP

t-ëpëi-je sa, aan, tï-tusi-ke,
HAVING-support-HAVING DIM ahn HAVING-stick-HAVING

t-ëkun pona i-tus . . . tï-tusi ta kiï-ja,
3R-behind against 3-stick[interruption] 3R-stick PTC 1+2-to

tï-jahta-a pona. ma, i-po . . . akoron nai,
3-armpit-POS against well 3-tell[interruption] other 3:COP

wewe, k-ëpëtun wenje, irë apo. irëme ij-apo-no ro
tree 1+2-right near this.ANA like thus 3-like-NZR EMPH

irë apo ahtao, irëme erahtë-kë.
this.ANA like if then find-IMPER

'Well, this I am telling (describing) you, another one, now it's to be described like this, again it's different (from the previous photos). Uh, how should it be described, ahn, on the left there is, who (=what-do-you-call-him?), a person, a person. How should this be described, there is (a person), with a support (=little pedestal), uh, with a stick, his stick is lying against his behind (interruption), his stick is towards us, against his armpit. So, if (there is) one just like that, then find it.'

[18] It is quite possible that the various 'near'/'next to' postpositions mentioned in Section 9.3 also contain information about an intrinsic frame of reference; notice that several of them are used in (21). This is a question for further research.

b. Photo 2.4 (8th), Men and Tree task, Game 2; Director/Matcher facing north

ma, sen apo nai sen i-ponoh-to, aaŋ. . .
well, this.INAN like 3:COP this.INAN 3-tell-NZR ahn

wi-ponoo-ja-e, tïwërë ken nai sen, eeke
1A-tell-PRES-CTY different CONT 3:COP this.INAN how

nai i-ponoh-to, nëërë wïtoto nai,
3:COP 3-tell-NZR ANA:ANIM person 3:COP

t-ee-sokahtë-e nai wïtoto, soka, këpëewa
PAST-DETR-stand-PAST 3:COP person stand.IDEO but

enpata taanë, ëema tae. Aan, i-tusi nai, kawë,
3:face yonder path along ahn 3-stick 3:COP high

i-tusi-h-pisi, kawë, koon . . . ma, akoron nai, wewe,
3-stick-POS-DIM high up.IDEO Well, other 3:COP tree

apëtun wenje, irë apo. Irëme ij-apo-no ro,
right near this.ANA like thus 3-like-NZR EMPH

erahtë-kë i-kuhtu, ëis-apo.
find-IMPER 3-likeness RECP-like

'Well, telling about this one is like this, uh . . . I am telling, this one is different, how should it be told, that guy, the human being, he is . . . the person is standing, *soka*, but his face is (toward) far away, along the path (i.e. the director thinks that the toy man is going somewhere). Uh, his stick is, high, his little stick, high, *koon*. . . . Well, the other thing is, the tree, it's on the right, like that. So, one exactly like this, find its like-ness (i.e. the photo that represents it), (one) exactly alike.'

c. Photo 2.5 (2nd), Men and Tree task, Game 2; Director/Matcher facing north (Successful attempt after three unsuccessful ones)

ma, tëinken pa, sen erahtë-ø kure . . . wewe nai,
well, once REPT this.INAN find-IMPER well tree 3:COP

pëëjae, *këpëewa . . .* ëpëtun *wenje ta, m-eta? soka!*
left but right close NEG 2-hear-PAST stand:IDEO

ma, irëme wïtoto, irë ja rë enpata, irë
well thus person this.ANA to EMPH 3:face this.ANA

rë ene-n, mure-pisi, irë rë ene-n.
EMPH 3:look-PRES child-DIM this.ANA EMPH 3:look-PRES

'Well, once more, (try to) find this . . . there is a tree, on the left, but . . . not on the right, did you hear? It's standing . . . Well, then a person,

Table 9.5 *Coding of the standing and facing information in (22a–c)*

	Photo 2.3		Photo 2.4		Photo 2.5	
Standing	Man is on the left	(REL)	Tree is on the right	(REL)	Tree is on the left	(REL)
	Tree is on our right	(REL)				
Facing	Stick is against man's armpit	(INT)	Man is looking away, facing his path	(INT)	Man is facing tree	(INT)
	Man's arm is towards us	(REL)				

REL = relative coding, INT = intrinsic coding.

(s/he) is looking precisely at it, looking exactly at it, the little child, (s/he) is looking exactly at it.'

d. *wei . . . wei i-w-ëeh-to wenje ë-enpata tïrï-Φ, irëme*
sun sun 3-S_A-come-NZR near 2-face put-IMPER then
të-kë . . . mï-të-e siisime, ë-waarë ikapuu-pisi,
go-IMPER 2-go-PRES:CTY normally 2-known.to lump-DIM
imïnïnï ka-to, irë juuwë të-kë . . . mï-të-e . . .
small.hill say-NZR this.INAN on.top go-IMPER 2-go-PRES.CTY
naka . . . mï-të-e mï-të-e . . . ë-waarë nai
end.IDEO 2-go-PRES:CTY 2-go-PRES:CTY 2-known.to 3:COP
tara, tara rëken, pëëjae-n *. . . te!* ëpëtun wenje
fence fence just left-NZR error.IDEO right.one near
kï-të-e menjaarë . . . irë wenje kït-a-e
1+2-go-PRES:CTY now this.ANA near 1+2-COP-CTY
oroko me, irëme, irë ekunnë mï-të-e, k-ëpëtun
work as then this.ANA near 2-go-PRES:CTY 1+2-right
wenje, irë i-ranme rën mï-të-e, irë
near this.ANA 3-close really 2-go-PRES:CTY this.ANA
i-ranme rëken epinë, epinë mï-të-e.
3-close only 3:under 3:under 2-go-PRES:CTY

'Turn your face to the east, then go . . . you go normally; you know the little lump, the thing called a little hill, go on top of it . . . you go . . . it ends . . . you go . . . you go . . . you know the fence, just a fence, on the left . . . no! On the right we are going now . . . we are working ("busy") near it, then, you go close to it, on our right, really close to it, really close to it, under it, you go under it.'

9.6 Conclusion

After this first overview of spatial relations in Tiriyó, it is clear that, although more work is necessary to ascertain the details (e.g. the specific meanings of the various postpositions), certain typological remarks can already be made.

The most striking impression about the treatment of space in Tiriyó is that, in comparison with the other non-European languages in this volume, it is reminiscent of that of Indo-European languages. Tiriyó has a rich system of postpositions (comparable to the rich prepositional systems found in, e.g., German or Russian), distinguishing direction (goal) from location; motion is described lexically, in verb stems that conflate it with path more often than with manner (like, e.g., Portuguese or Spanish); and frames of reference are based on the left–right distinction, the position of the sun and the upstream–downstream direction.

Of course, there are also important differences that must be pointed out. Tiriyó postpositions cut the semantic space in ways that are quite non-Indo-European (especially, for instance, in the absence of an 'on' postposition; cf. the final chapter). There are also some surprising cases, such as the 'aquatic' postpositions (*hkao, hka(ka)*), which contain information about the ground, or some of the more complex postpositions, like *rato* 'in parallel with' or *rato* 'in alignment with'. The distinction between goal and source is also made more systematically in Tiriyó, with 'locative' and 'directional' elements added to a 'postpositional stem', often diachronically derived from nouns (body parts, parts of objects like 'tip', 'top', 'bottom', 'edge', etc.); in this respect, Tiriyó is closer to Hungarian than to Indo-European languages.

10 Elements of the grammar of space in Ewe

Felix K. Ameka and James Essegbey

10.1 The language and its relevance for spatial language research

Ewe is a major dialect cluster of the language cluster that has come to be known as Gbe or Tadoid (Capo 1991, Duthie 1996). It is spoken in the south-eastern part of Ghana across to parts of southern Togo as far as and just across the Togo–Benin border by about two and a half million people. Ewe, and for that matter Gbe, belongs to the Kwa family of Niger-Congo (Stewart 1989, Williamson and Blench 2000).

Dialect variation in Ewe is quite enormous where groups of villages that are two or three kilometres apart from one another use distinct varieties. Nevertheless, the local dialects may be grouped geographically into coastal or southern dialects, e.g. Aŋlɔ,Tɔŋú etc., central, e.g. Ho, Kpedze, Dodóme, and northern dialects, e.g. Hohoe, Peki, Kpando, Fódome, etc. The central and northern dialects are collectively characterized indigenously as *Ewedomegbe* and may be referred to as the inland or northern dialects as opposed to the coastal or southern dialects (see Agbodeka 1997, Ansre 2000, Gavua 2000). Speakers from different localities understand each other and are aware of the peculiarities of the different areas. Add to these, a written standard that was developed in the nineteenth century based on the regional variants of the various sub-dialects (Ansre 1971, 2000, Adzomada 1979). With it has also emerged a standard colloquial variety (spoken usually with local accent), that is very widely used in cross-dialectal contact situations such as in schools, markets and churches. The present study is based on the varieties of Ewe spoken in Tegbi and Keta representing one southern dialect and in Anfoega and Peki representing two inland or northern dialects.

As will become evident in the course of the chapter, the three dialects reported on vary in the expression of spatial notions. For instance, in the Peki dialect there is a distinct stative-resultative construction that is used in complementary distribution with the single-verb locative construction for expressing the basic locative function. Similarly, while the Ewe language as such employs the relative frame of reference, in the coastal dialects this is replaced by a system predominantly based on a kind of seaward and lagoon-ward description. In

the inland dialects, on the other hand, we get predominantly left/right expressions, but sometimes an uphill/downhill characterization. This further shows that variation in spatial language and conceptualization can occur not only across language boundaries but also within a language and across dialects.

Another striking feature of Ewe in the spatial domain is that the language has both prepositions which have evolved from verbs, the majority of which have locative semantics, and postpositions, designating axial parts and regions of objects, which have evolved from nouns. Furthermore the language is a verb-serializing language. As has been noted already in the literature, such languages pose a problem for the typology of the lexicalization of motion proposed by Talmy (1985). The main issue is that serializing languages are not easily classifiable as 'verb-framed' or 'satellite-framed'. Even if one adopts the revision of Slobin and Hoiting (1994) to say that such languages are 'complex verb-framed' languages, the classification of Ewe is further complicated by the fact that Ewe possesses several generic verbs which neither conflate the fact of motion and manner nor motion and path – a feature which is crucial for the typology (Talmy 2000).

In the rest of the chapter, we first discuss some of the lexical and grammatical resources available in the language for spatial description. Then we focus on the expression of topological relations in Section 10.3. The systems of frames of reference employed in spatial description are outlined in Section 10.4 and Section 10.5 discusses the coding of motion situations. The chapter ends with a summary of the basic ideas.

10.2 Grammatical overview

10.2.1 Linguistic-type features

Ewe is a tone language with high and non-high tonemes. Complex rising and falling tones also occur. It has a seven-vowel system. Each of these has both an oral and a nasalized counterpart. It also has double articulated labial velar stops. There is a contrast between bilabial fricatives written '*f*' and 'ʊ' and labiodental fricatives 'f' and '*v*'. Similarly there is a voiced apical post-alveolar stop 'ɖ' which contrasts with a voiced dental stop 'd'. Morphologically, Ewe is an isolating language with agglutinative features. It makes use of compounding as well as reduplication and triplication and affixation processes in the formation of new words. In terms of lexis, Ewe has ideophones – a set of words with interesting phonological and syntactic properties – some of which code manner (of motion) concepts. For instance, Westermann (1930: 107–9) gives forty ideophones that can be used in collocation with the general motion verb *zɔ* (glossed by him as 'walk', but more appropriately 'move, travel') 'according to the manner of going'. This is one strategy for encoding manner, which does

not get conflated in the verb. For instance, one narrator describes the manner of movement of the deer in the 'Frog Story' (see Chapter 1, §1.4.3, for description of this elicitation tool) with ideophones as follows:[1]

(1)

É-le	*afɔ*	*ɖe-ḿ*	*dudza*	*dudza*
3SG-be_at:PRES	foot	remove-PROG	IDEO	IDEO
dudza	*le*	*dzo-dzo-ḿ*	*álé*	*bé . . .*
IDEO	be_at:PRES	RED-move_upward-PROG	such	SAY

'It was taking strides gallopingly (and) jumping so that . . . (when you see it you will be frightened)' (Frog Story)[2]

Ewe also has a number of utterance particles which signal the illocutionary force or the attitude of the speaker. In addition there are particles for indicating the status of information units and for framing discourse in general (see Ameka 1990, 1992, 1998).

Ewe is a language with grammatically specified word order, with basic SVO syntax (and subject and object are morphologically unmarked). The forms of pronominal clitics (see Table 10.1) that are used to express the subject relation in a clause contrast with those for non-subject relations.

The language also has a logophoric pronoun *ye* which is used in reportive contexts to designate the individual(s) (except for the first person) whose speech, thoughts, feelings and so on are reported or reflected in the linguistic context. It occurs in grammatical or discourse-dependent contexts in clauses introduced by the dependent-clause introducer *bé(ná)* 'SAY, that' (cf. Clements 1979, Essegbey 1994).

[1] The following abbreviations are used in the interlinear glosses: ABL – ablative; ALL – allative; ALTRI – altrilical, i.e. different place preverb; COM – comitative; COP – copula; CQ – content question marker; DEF – definiteness marker; DEIC – deictic marker; DEM – demonstrative; DET – determiner; DIM – diminutive; DIST – distal demonstrative; aFOC – argument focus marker; HAB – habitual aspect marker; IDEO – ideophonic word; INDEF – indefiniteness marker; INSTR – instrumental; INT – intensifier; intr. – intransitive; INV – invariable marker; ITIVE – itive preverb; LOC – locative; MOD – modal; NEG – negative; NP – nominal phrase; NPRES – non-present; PFOC – predicate focus marker; PL – plural marker; POT – potential marker; POSS – possessive linker; Postp – postposition; PostpP – Postpositional phrase; Prep – preposition; PrepP – Prepositional phrase; PRES – present; PRIV – privative marker; Pro – pronominal; PROG – progressive aspect marker; PROX – proximal demonstrative; PROSP – prospective aspect marker; Q – propositional question marker; QP – topic-only-question marker; RED – reduplicative formative; REL – relative clause introducer; REP – repetitive; SUBJUNCT – subjunctive; SG – singular; TP – background information terminal particle; tr. – transitive; VENT – ventive; 1 – first person; 2 – second person; 3 – third person; *(X) – unacceptable without X; (*X) – unacceptable with *X.

[2] Note that in this example, the verb *ɖe* 'remove' in collocation with *afɔ* 'foot' just describes the movement of the feet and says nothing about the manner of movement. The manner is added by the repetition of the ideophone *dudza*. Similarly, the verb *dzo* simply entails the movement of a body upward. Depending on the body it can be glossed as 'jump', 'fly' etc. (see Essegbey 1999: 83–4 for further details).

Table 10.1 *Ewe personal pronouns*

	SINGULAR			PLURAL		
	1st person	2nd person	3rd person	1st person	2nd person	3rd person
Subject						
1st form	m(e)	e	é	mí(é)	mi(e)	wó
2nd form		n(e)	wò			
Object	m	wò	i, e, ɛ	mí	mi	wó
Free form	nye	wò	é(ya)	míá(wó)	mia(wó)	wó(áwó)

Clausal negation is marked by a discontinuous negative morpheme: *mé. . . . o*. *Mé* occurs just before the VP and tends to be cliticized onto the first element in the VP while *o* occurs at the end of the clause but before sentence-final utterance particles.

10.2.2 The syntax of the nominal phrase

The fixed constituent order of a fully expanded simple noun phrase is:

Identifier – N /Pro – Qualifier – Quantifier Phrase
– DET1 – DET2 – Plural – Intensifier

The DETerminer1 slot can be filled by the definite article (*lá* ∼ *a* 'the') or the particularized indefiniteness marker *áɖé* 'a certain'. The DETerminer2 slot is filled by demonstratives which vary from one group of dialects to the other (see Table 10.2). However, all Ewe dialects have a basic two-term demonstrative system: a speaker-anchored proximal and a speaker-anchored distal as shown in Table 10.2. It is possible to augment the distances by two strategies based on the distal terms. One of the means is by the suffixation of *-i* 'deictic' to *kemá* 'that' or *má* 'that' to get *kemɛ* 'that yonder' or *mɛ* 'that yonder' respectively. The second strategy is to use the particle *ɖá* 'in the distance' as a modifier of the basic as well as derived distal forms, e.g. *kemí ɖáa* 'that further away in the distance'. The elements underlined in Table 10.2 are truncated forms of the corresponding forms which have specific uses. The truncated forms of the distal terms are always accompanied by a pointing gesture, either a manual, lip or head point.[3] In

[3] Manual point is done with the right hand; either with the index finger or with flat vertical hand shape. There is a cultural taboo on the use of the left hand in pointing and in social interaction (see Ameka 1987, 1994a; but see Kita and Essegbey 2001 on the overriding motoric functions that prompt the use of the left hand in gesturing). There is a further restriction on forward thumb point since it has a conventional meaning of 'I defecate in your mouth' used as an insult. One can, however, use thumb point if the reference object is behind him/her.

Table 10.2 *Ewe demonstratives*

	Standard dialect	Southern (Aŋlɔ) dialect	Northern dialect
PROXIMAL	*sia* *(ési)*	*yia; yi* *(-i)*	*ke; kelɛ; xe; tsyi [ci]*
DISTAL	*má, kema*	*má, kema* *-ḿ, keḿ*	*mí*; *kemí*

the Inland dialects, the definiteness marker and the demonstratives can co-occur. In the Southern and Standard dialects, however, they are mutually exclusive.

These demonstrative terms are used adnominally as modifiers. Equivalents of demonstrative pronominal forms are derived from the collocation of the 3SG subject pronoun form modified by the appropriate demonstrative term. For example:

(2) *é-sia* *é-má* *é-kemí* *ɖá*
3SG-this 3SG-that 3SG-that in the distance
'this one' 'that one' 'that one further in the distance'

Similarly, locative deictic notions such as 'here' and 'there' are derived by using the appropriate demonstrative to modify a generic place noun *afí* 'place' as shown below:

(3) *afí-ì* place-DEIC 'here'
afí-ḿ place-DIST:DEIC 'there' (Southern)
afí *sia* place this 'this place'
afí *ma* place that 'that place'
afí *mɛ* place that:DEIC 'that further away place'

In a presentational construction, obligatorily accompanied by a gesture in the colloquial dialects, the demonstrative terms occur by themselves as predicates. The structure of such constructions is: NP-Focus DEM. For example:

(4) a. *Kofí-é-ḿ* (Southern dialects)
K.-aFOC-DIST:DEIC
'That/There is Kofi'

b. *Nye-é* *ke* (Inland dialects)
1SG-aFOC PROX
'Here I am / This is me'

In the standard dialect, however, the focussed NP and the demonstrative predicate are linked by the equative copula *nyé* 'be'. In addition, the predicate has to

be the pronominal form of the demonstrative. Compare the following example to the ones in (4) above:

(5) *Kofí-é nyé é-má/ é-si* (Standard dialect)
K.-aFOC COP 3SG-DIST:DEIC 3SG-PROX:DEIC
'There is Kofi' / 'Here is Kofi'

In general, the possessor precedes the possessum. 'Alienable' possession is indicated by a possessive marker *fé* 'poss' which is interposed between the possessor and possessum. Body parts have 'alienable' syntax (Claudi and Heine 1986, Ameka 1996).

10.2.3 Ewe verbal syntax

Ewe is an aspect-prominent language. Habitual aspect is the only category marked on the verb by a toneless suffix *(n)a* which inherits its tone from the tone immediately preceding it. Preverbal markers are used to express various modal and aspectual categories on the verb. The linear order of these markers in relation to the verb is:

POTential (l)á/ REPetitive (ga) MODal Verb(-HABitual)
SUBJUNCTive (n)a

A bare verb or the aorist form has a completive meaning. This yields a past interpretation in English for active verbs and a present interpretation for inchoative verbs. The POTential can have future time interpretation in context (see Essegbey in press). All these temporal interpretations can be reinforced by temporal adverbials.

There is no passive construction in Ewe although a modal construction in which the undergoer argument of a bivalent verb functions as the subject and the actor-like argument is optionally expressed as a dative prepositional object has sometimes been described as formally similar to a passive (see Duthie 1996: 110, Essegbey 1999: 132). The semantics of this construction does not fall within the semantics of passive structures in other languages. Nor is it used for topic-continuity functions in connected discourse (see Ameka 1991, Chapter 9). The functional equivalent of agentless passives is an impersonal construction in which the subject function is expressed by the third person plural pronoun (*wó*). Some spatial scenes construed as a result of someone's action are described using such structures. For example, Picture 22 (paper on pin) of the 'Topological Relations Picture Series' (TRPS, see Chapter 1, §1.4.1) can be described as:

(6) *Wó-tɔ́ pepa-wó ɖé atí ŋú*
3PL-thrust paper-PL ALL stick SKIN
'Pieces of paper have been stuck on a stick'

Moreover, Ewe is a 'hypertransitive' language. There are no verbs equivalent to some of the so-called canonical intransitive verbs such as 'run', 'jump' or 'swim' (cf. Dixon 1994: 124). The equivalents of these are expressed by transitive or two-place constructions, and the verbs involved in such constructions must obligatorily take two arguments (see Clements 1972, Ameka 1994, Essegbey 1999, 2002). For example,

(7) *Kofí fú tsi*
K. move_limbs_in_a_medium water
'Kofi swam'

Nor do the intransitive verbs in Ewe fall into the unergative and unaccusative classes (see Essegbey 1999) which are presumed to be universal in many theories (cf. Levin and Rappaport 1995). Furthermore, both arguments in a simple transitive clause have to be expressed. Thus unlike its closely related neighbour, Akan, Ewe does not have null objects in simple clauses (see Saah 1992, and Osam 1996, 1997 on Akan).

Three major verb argument-construction types are relevant for spatial language to different degrees. We follow Essegbey's (1999) characterizations of these structures. A one-place construction is a structure in which a verb occurs with one syntactic argument which has subject function. Some inherently directed motion verbs participate in this construction, for example, *dzó* 'leave' and *gbɔ* 'come back (to a place thought of as base)'. A two-place construction, by contrast, is a construction in which a verb occurs with two syntactic arguments. One argument has Actor-like properties and the other has Undergoer-like properties. Essegbey (1999: 125–36) distinguishes between a causal two-place construction and a non-causal two-place construction. In the former, the Actor-like argument is construed as being in control of bringing about the state of affairs represented in the construction. Example (8) above is an instantiation of this construction involving the motion verb *fú* 'move limbs in a medium'. In the non-causal construction, the Actor-like argument is seen more as a Theme and the Undergoer-like argument is a locative. The locative verb *le* 'be_at:PRES' participates in this type of construction (see §10.3.2).

The third major argument construction type is the three-place construction where the verb has three syntactic arguments and the semantics of the construction is that of 'caused transfer'. The specific meanings of the construction, depending on the verb semantics, are:

a. X causes Y to undergo a change of location towards Z
b. X causes Y to make contact with Z
c. X causes Y to be located at Z

As is evident from the senses of the construction at least two of them are directly related to space and several spatial verbs participate in this construction. Many verbs can participate in more than one of these argument-structure constructions. For instance, we shall see that *dze* 'make contact', a primarily bivalent verb, can occur not only in a two-place construction (where in some cases it can be interpreted as expressing motion) but also in both a one-place as well as a three-place construction.

Ewe is also a verb-serializing language. This is a monoclausal construction in which a series of finite verbs occur without any connector indicating syntactic dependence. All the verbs have the same subject, which is expressed only once, and each verb can occur with its own complements and adverbial modifiers. Serial verb constructions (SVCs) play a prominent role in Ewe spatial language and description. First, they are used to express caused locative situations. For example,

(8) *é-tsɔ́ ɖeví-á mlɔ́ anyí*
3SG-take child-DEF lie ground
'S/he laid the child down'

Second, they are used in describing different kinds of motion situations. For instance, example (9) below is an SVC with a manner-of-motion verb and a boundary-crossing verb (see further examples in §10.5).

(9) *É-tá do go*
3SG-crawl exit outside
'S/he crawled outside'

Third, and related to motion, is that serial verb constructions are used to express the posture or position assumed while doing something, as illustrated in (10).

(10) *É-nɔ anyií ɖu nú*
3SG-be_at:NPRES ground eat thing
'S/He sat down and ate'

Fourth, SVCs are used in the description of facing relations within frame of reference (see §10.4). We shall also see that one of the locative constructions for describing topological relations in the Peki dialect is an SVC (see §10.3.5).

Another multiverb construction in Ewe which plays a marginal role in spatial language usage has been termed the 'overlapping clause' (see, e.g., Duthie

1996, Ameka 2003a). This construction is a biclausal structure involving a topic switch. The pronominal subject in the second clause is usually coreferential with a non-subject argument expression or with the event expressed in the first clause. An example is provided below:

(11) *É-fú* *du* *wò-sẽ́*
3SG-move_limbs_in _medium course 3SG-become_strong
'S/he ran hard (lit. she moved on a course it was hard)'

Multiverb constructions have served as a vehicle for the grammaticalization of verbs into other spatial linguistic expressions. Some have become preverbal markers, three of which relate to spatial language and, more specifically, to motion. One of these *vá*, glossed 'VENTive', bears a heterosemic relation to the verb *vá* 'come'; the form *hé*, glossed 'ITive' and used to mark sequentials, must have evolved from the verb *hé* 'go away, disappear', while *ɖa*, glossed 'ALTRI' for altrilocal, is surmised by Westermann (1930: 133) to have evolved also from a motion verb which is lost in the present-day language. The following excerpt from one of the Frog Story narrations illustrates the use of *vá* and *ɖa* as preverbal modal markers.

VENTive stands for the preverb directional marker derived from the COME verb; ITive is the gloss for the directional preverb marker for sequentials derived from a motion verb of the GO family, hence the name, and ALTRI stands for altrilocal, that is a preverb marker that indicates that the event is carried out in a place different from the deictic centre.

(12) *É-vá* *dzɔ* *gbe* *ɖeká* *bé*
3-SG-VENT happen day one SAY
ɖevi *sia* *ɖi* *tsa* *ɖa-lé* *akpɔkplɔ-ví*
child this go_down stroll ITIVE-catch frog-DIM
'It came to pass one day that this child took a walk and caught a cute frog'

Verbs have also grammaticalized into prepositions (see, e.g., Ansre 1966a, Heine and Reh 1984, Heine, Claudi and Hünnemeyer 1991, Lord 1993). This is discussed in the next section.

10.2.4 Prepositions

Prepositions in Ewe constitute a small closed class of less than ten elements. They are distinguished from verbs by the fact that they cannot occur with the habitual suffix *-na*. Spatial prepositions are given in Table 10.3 with an indication of their verbal sources. Two other non-spatial prepositions, *kplé*

Table 10.3 *Ewe spatial prepositions*

Preposition	Function	Gloss	Verbal sources	source gloss
le	LOCATIVE	'at'	< *le*	'be_at'
ɖé /	ALLATIVE	'to, towards'	< *ɖé*	'reach'
*ɖó**			*ɖó*	'arrive'
tsó	ABLATIVE	'from'	< *tsó*	'originate, come_from, arise'
tó	PERLATIVE	'through'	< *tó*	'pass (by)'
váséɖé	EXTENT	'up_to, until'	< *vá*	'come'
			sé	'stop'
			ɖé	'reach'

The forms *ɖé* and *ɖó* are alternants. *ɖó* occurs when the complement of the preposition is not adjacent to it. Consider the following example where in the first clause the complement occurs adjacent to the preposition, hence we get the *ɖé* form. In the second clause, however, the complement is fronted for focus and the form *ɖó* appears:

míe-yɔ́	*mi*	*ɖé*	*vɔ̃*	*áɖéké*	*dzí*	*o*,
1PL:NEG-call	2PL	ALL	evil	none	surface	NEG
ké	*boŋ*	*ɖagbe*	*dzí-é*	*míe-yɔ*	*mi*	*ɖó*
but	rather	peace	surface-aFOC	1PL-call	2PL	ALL

'We did not summon you for any evil intentions rather we summoned you for PEACE' (Hlomatsi 1994: 109)

'with' COMITATIVE/INSTRUMENTAL and *ná* 'to/for' DATIVE, also occur but they will not be further discussed here (see Ameka 1995, 2003b).

Since the prepositions have evolved from verbs they have been referred to as a class of verbids (Ansre 1966a, 2000). Multiverb constructions are the channel for the general development of verbs into verbids (see Lord 1993). Note that *váséɖé* 'until', for example, is the result of the compounding of the grammaticalized forms of three verbs: *vá* 'come', *sé* 'stop', *ɖé* 'reach'. The combined semantics of these verbs is consistent with the meaning of the preposition. Note also that there is no erosion or difference in form between the verbal sources and the prepositional forms. From a semantic point of view, then, the grammaticalization of the verbs has resulted in the development of heterosemy of the forms (cf. Lichtenberk 1991).

10.2.5 Postpositions

Postpositions constitute a closed class of about thirty members. They have evolved historically from nouns but now constitute a distinct form class which

Table 10.4 *Simple postpositions*

Postposition	Gloss	Putative source	Gloss
dzĭ	upper surface	< *dzí*	sky
fo	flat horizontal surface	< *fo*	belly
gbɔ́	place, vicinity		
gbá	surface around something		
gbé	purpose		
gbe	area, region		
xa	beside	< *axa*	side (of body)
me	containing region of		
nŭ	entrance, opening, end point	< *nŭ*	mouth
ŋgɔ	front	< *ŋgó*	forehead
ŋú(tí)	outer surface	< *ŋú(t)í*	skin, body
ta	upper end, peak	< *ta*	head
té	under, bottom		
tó	edge	< *tó*	ear
sí	domain	< *así*	hand

is not necessarily a subclass of the nominal class. Westermann (1930) comments on the evolution and function of these forms as follows: 'Substantives of place are substantives which are employed to indicate place . . . These substantives of place often do the work of English prepositions, adverbs, and conjunctions' (p. 51). He adds: 'These substantives of place may be called postpositions because they always follow a substantive or pronoun' (p. 52). The last feature noted by Westermann is criterial for defining the members of the class. Because of this, Duthie (1996: 47) talks of them as 'bound elements'.

Postpositions have evolved mostly from body-part terms. As far as we are aware, only one comes from a landmark term, *dzi* 'sky'. Thus Ewe exemplifies two of the sources, even if one only minimally, that have been noted in the literature for the development of adpositions from nouns (see Heine, Claudi and Hünnemeyer 1991, Heine 1998, Svorou 1994 among others). Tables 10.4 and 10.5 show that the sources of some postpositions are not entirely obvious.

The postposition *gbe* is rather productive and occurs with several nouns to indicate the region where the figure can be found. It occurs in terms for different kinds of vegetation as in *avegbe* 'forest area', i.e. a place with forest; *dzogbe* (fire area) 'grassland', i.e. place where grass is that one can set fire to; *tógbe* (mountain area) 'mountainous region'. It is lexicalized with *dži* 'sky' and *anyí* 'ground, down' to form terms for upper region and lower region respectively, as in *dzigbé* 'upper region, upper area'; and *anyígbe* 'lower region, lower area'.

Table 10.5 *Complex postpositions*

Postposition	Gloss	Putative source	Gloss
gódo	outside of, other/opposite side	< *go*	bank
gódzí	in the direction of	< *go* + *dzí*	bank + upper surface
góme	part, region	< *go* + *me*	bank + containing region of
dome	between, among	< *do* + *me*	?? (hole) + containing region of
ɖome	under, bottom	< *ɖo* + *me*	female genital organ + containing region of
gɔme	under, bottom	< *agɔ* + *me*	anus + containing region of
ŋkúme	front	< *ŋkúme*	face
tame	apex, peak	< *ta* + *me*	head + containing region of
megbé	back, behind	< *me* + *gbé*	back (of body) + region
lɔfo	around, in the direction of	< *(a)lɔ* + *fo*	arm + belly > horizontal surface
tome	hollow, interior	< *to* + *me*	cavity + containing region of
kɔ́go	outside	< *akɔ́* + *go*	chest, breast + bank
yome	trails	< *yo* + *me*	???? + containing region of

10.3 Topological relations

10.3.1 'Where'-questions and the 'basic locative comstruction'

Two kinds of questions may be used when asking for the location of entities in Ewe. One is the use of a topic-only question marked by the particle *ɖé*, glossed 'QP' (question particle). As the name implies, such a question seeks information about the entity in its scope. It is not specifically asking about the location of that entity, but it can be interpreted in context as a Where-question (see, e.g., Ameka 1998 on the semantics of such questions in Ewe). For example, if one wants to know about a cup in an elicitation context where there is a picture of a cup on a table (TRPS 1), one could pose the following question:

(13) *Kɔ́pu-a ɖé*
Cup-DEF QP
'The cup, I want to know something about it'

As the gloss suggests, such a question is not a specific locative question because the information required could be about its size, appearance, suitability for a function, etc., rather than about its location. Hence, this was not the form of question used in the elicitation.

The specific locative question is formed by using the generic locative noun *a-fí* 'place' with an interrogative determiner expressed as *ka* in southern and standard dialects or *ne* in inland dialects, namely, *a-fí ka* 'place-CQ, i.e. where'

or *fí-ne* 'place-CQ, i.e. where' (CQ is the gloss for content question marker). This interrogative locative nominal phrase occurs clause-initially and is optionally marked with the argument focus marker followed by an NP that represents the figure followed by the locative verb *le* 'be_at:PRES'. Thus in relation to Picture 1 in the TRPS ('cup on table'), the question used is:

(14) *Afí ka-é kɔ́pu lá le?*
Place CQ-aFOC cup DEF be_at:PRES
'Where is the cup?'

A typical response to such a question is given below with the functions and structures of the constituent elements labelled.

(15)

Figure		Relation	Reference object	search domain
NP		V-LOC	[NP	Postp] PostpP
Kɔ́pu	*lá*	*le*	*kplɔ̃-a*	*dzí*
cup	DEF	be_at:PRES	table-DEF	upper surface

lit. 'The cup is located at the table's upper surface'

The above sentence is in all Ewe dialects an instantiation of the basic locative construction (BLC), as explicated in the introductory chapter to this book. The different kinds of relations represented at the different levels of the BLC Hierarchy can be described using this construction with one proviso that for level 5 – relations involving clothing and adornment on body – an external possessor construction is the first preference for expressing the ground (see below for details).

Three features of the Ewe BLC are notable: first, there is only one verb that is used in the construction. This is the suppletive locative verb set *le* ~ *nɔ* 'be_at'. The *le* form is used for PRESent situations while *nɔ* is used for Non-PRESent situations. From this point of view, Ewe is a single locative verb language. Second, no prepositions are used in the BLC, even though, as we have seen, the language has prepositions. The explanation might be that the verb in the construction encodes the locative relation; as such there is no need for a preposition to fulfil this function. Third, the search domain information is encoded in postpositions (see §10.2.4). The BLC described here is available in all dialects; however, the Peki dialect has another construction in competition with it which, for lack of a better term, we will call the 'serial stative-locative construction'. This structure will be discussed in Section 10.3.5.

It seems that part of the difference between a single-locative verb language like Ewe and a single-copular verb language like English is reflected in the fact that in the latter the copula can be elided in context while in the former the locative verb cannot be elided. In English, an answer to a Where-question of

the form 'where is the cup?' can just be 'on the table' where both the figure and the copular verb are omitted. In Ewe, on the other hand, neither the figure nor the locative verb can be elided. At most, the figure might be pronominalized. This suggests that in the two types of languages the burden of locative relation information is distributed differently: in English it is concentrated in the preposition, while in Ewe it is in the locative verb which is thus not omissible. Moreover, the English preposition contains the search-domain information which is provided by the postposition in Ewe.

10.3.2 The locative verb suppletive set

Like locative verbs in other languages, the locative verb set – *le* 'be_at:PRES' and *nɔ* 'be_at:NPRES' – has other uses: it is used in possessive, existential and imperfective aspectual constructions. The verb has the locative semantics of 'be somewhere' in these usages, the specific interpretations of possessive, existential etc. being derived from this meaning and those of the other elements in the constructions as a whole (see Ameka 1995, 1999). For instance, for the existential, the form *le* takes an invariable pronoun as its complement. The interpretation is one of generic existence. If non-present existence is to be expressed, then the form *nɔ* is used. In this case it takes the locative nominal *anyí* 'ground' as its complement. The sentence in example (16) was used at the beginning of a Frog Story narration to introduce the existence of one of the characters, a boy.

(16) *ɖeví áɖé li éye avú nɔ é-sí*
child INDEF be_at:PRES:3SG and dog be_at:NPRES 3SG-HAND
'It once happened that there is a child and he had a dog' (Frog Story 05)

Example (16) also shows that for its possessive use, the verb must take a postpositional complement which is headed by a specific postposition *sí* 'HAND'. In such a construction, the possessed item (here 'dog') is the subject while the possessor is the dependent nominal in the postpositional phrase (here 'his HAND') which functions as the object (see Ameka 1991, Heine 1997 for explanations in grammaticalization terms).

When the alternating locative verbs are used in the progressive and prospective aspect constructions, they take an aspectual phrase complement headed by either the progressive aspect marker or the prospective aspect marker. See example (1) above for an illustration of the use of *le* in the progressive construction.

The verb is also used in a resultative stative construction where it takes a nominalized verb derived by reduplication as a complement. For instance, in the description of Picture 20 ('balloon on stick') of TRPS, a couple of consultants

who paid attention to the nature of attachment between the balloon and the stick characterized it as follows (but not as the first preferred answer).

(17) *Fúfútoɖóé lá le sa-sa ɖé atí-á ŋú*
Balloon DEF be_at:PRES RED-tie ALL stick-DEF SKIN
'The balloon is tied onto the stick' (TRPS 20)

The alternating forms of the verb can be used to predicate qualities of entities when they take a property denoting adverbial as their complement.[4]

(18) *Avɔ lá le dzĩ-e /*
cloth DEF be–at:PRES red-ADVER /
dzẽ-ɖé (Predicator of qualities)
red-ADVER
'The cloth is red'

Finally, the *le* verb form, but not *nɔ* 'be_at:NPRES', has grammaticalized into a locative preposition as discussed in Section 10.2.4 above. The extension of locative verbs for the expression of existence, possession, qualities and aspectual meanings is a widespread cross-linguistic phenomenon (see, e.g., Clark 1978a). What is less common is the use of a suppletive set based on a present/non-present distinction in a language that is tenseless for these functions (see Essegbey in press). In the basic locative construction, given the present orientation of the location request the *le* form of the verb is used. Nevertheless, the non-present form can also be used in a non-present locative construction. The example below from a Frog Story narration is an instance of such a construction where the narrator is talking about the location of frogs in that place at that time and not in the present.

(19) *Akpɔkplɔ búbu áɖé-wó hã nɔ afí ma*
Frog other INDEF-PL also be_at:NPRES place that
'Other frogs also were there' (Frog Story 04)

10.3.3 Modulations of the BLC

As noted earlier, the BLC is used to describe the various kinds of relations on each level of the BLC Hierarchy except for level 5 – clothing and adornment. For all the scenes on this level, and more generally for the location of a figure on a part of the body in a stereotypical fashion, the ground phrase is preferably expressed in a possessive construction. The preferred construction is an external

[4] The form of the de-adjectival adverbializer varies from dialect to dialect. In the Southern dialects and the standard it is an /-i/ with various allomorphic realizations such as *-e*, as in the example. In the Inland dialects the form is *ɖé*, as reflected in the alternative form in the example.

possessor construction in which the body-part term functions as the direct object of the locative verb *le* and the possessor is expressed as a dative prepositional object as in (20).

(20) *Asígɛ le así nɛ*
Ring be_at:PRES hand DAT:3SG
'The ring is on his/her finger' (TRPS 10)

The ground phrase can also be expressed with an internal alienable possessive phrase where the body part is linked to the possessor by the connector *fé*. This is less preferred, but note again that there is no postposition used.

(21) *Asígɛ le ame áɖé fé así*
ring be_at:PRES person INDEF poss hand
'Ring is on someone's finger' (TRPS 10)

In other cases, a postposition may be used to make explicit the place on the body part where the figure is to be found. This is the strategy employed by many consultants in the description of Picture 35 in the TRPS task ('plaster on leg'), as in (22):

(22) *Plasta le afɔ gɔme ná ame-a*
Plaster be_at:PRES leg under DAT person-DEF
'Plaster is on the bottom part of the leg of someone'

A possessive construction strategy is also used by the inland dialects to make a distinction between a figure in contact with the highest part of a reference object and one where there is no contact between the figure and the reference object. The Inland (but not Southern) dialect speakers link the postposition that specifies the region where the figure is to be found to the reference object NP by the possessive connective *fé*. This distinction manifests itself in the characterization of pictures involving an 'above' relation such as 'lamp above table' (Picture 13), 'cloud above mountain' (Picture 36). Compare (23a) and (23b):

(23) a. *Akaɖí le kplɔ̃-a ta.me* (Southern dialects)
Lamp be_at:PRES table-DEF above
'The lamp is above the table'

b. *Akaɖí le kplɔ̃-a fé ta.me* (Inland dialects)
Lamp be_at:PRES table-DEF poss above
'The lamp is above the table'

Such a distinction is not made for the 'under' and 'beneath' relations. Thus Picture 16 'ball under chair' (with no contact) and Picture 53 'chewing gum under table' (with contact) are both described using the BLC, with the choice

of postposition (either *té* 'under', *gɔme* 'under' or *ɖome* 'under') depending on one's dialect.

For some particular spatial scenes, reference objects can be left unspecified although they can be expressed optionally in a dative prepositional phrase as in (24) below, which is a representation of a lamp above a table:

(24) *Akaɖí le ya-me (ná kplɔ̃-a)*
Lamp be_at:PRES air-containing_region_of (DAT table-DEF)
'The lamp is in the air (above the table)'

In the absence of the reference object the search domain is presented as the area 'in the air'. The optional prepositional phrase restricts this region to the region above the table.

In this section, we have shown that the BLC is used for the type of relations represented on all levels of the BLC Hierarchy except level 5 – clothing adornment. We noted that for this level the main deviation concerns the representation of the ground information in a possessive phrase rather than a postpositional phrase. In the next section we discuss other types of constructions that were elicited with the TRPS.

10.3.4 Non-basic locative constructions

In this section we consider other constructions elicited using the TRPS but which were not used as the preferred response to a locative question. Before getting into the ones that are locative constructions, we discuss two which are not.

In general, the BLC is used to describe scenes involving 'damage as figure' such as 'hole in towel' (Picture 18), 'writing in shirt' (Picture 68) and 'crack in cup' (Picture 26). However, the 'crack in cup' was more difficult to locate using the BLC. The reason for this is that a crack does not have a ready name in the language. There is a good noun for 'hole' so there was no problem locating a hole in the towel in the normal way. Similarly, 'writing' also has a conventional way of being identified, albeit using a gerundive nominal. A crack, however, is not conventionally expressed as a nominal. Slight dialect differences show up. In the Inland dialects the verb *dze* 'split' is used in a one-place construction where the cup is subject as shown in (25a). The Southern dialects use a transitive expression as in (25b). Both structures are non-locative constructions.

(25) a. *Kɔ́pu-a dze*
Cup-DEF split
'The cup is cracked'

b. *Kɔ́pu-a ɖe fe*
Cup-DEF take_out nail
'The cup is cracked'

Interestingly, the Inland dialects speakers were not comfortable with nominalizing the verb *dze* 'split' by reduplication to create a name for a crack – the formal mechanism available for doing this. Some of the Southern dialect speakers, however, were happy to form a gerundive nominal based on the verb plus noun collocation to name the crack, as follows:

(26) *Fe-ɖe-ɖe le kɔ́pu-a ŋú*
Nail-RED-take_out be_at:PRES cup-DEF SKIN
'A crack is in the (skin/body of) cup'

As (26) shows, this enables them to use the BLC to locate the crack in the cup. It seems then that the availability of a term for the figure may also affect the way in which a language extends its BLC to cover certain spatial situations.

While the constructions in (25a and b) are not locative, the next ones we turn to are. As is evident from the discussion so far, the BLC does not say anything about the specific configuration between the figure and the ground at the location. Other constructions are deployed when there is interest in such information. Significantly, these constructions were used to describe scenes on levels 1 and 2, which can largely be described as attachment scenes, e.g. scenes in which the figure is stuck to the ground (level 2) or is impaled by the ground (level 1). One construction could be characterized as a 'dynamic positional construction', in which the figure is presented as being able to assume a position by itself. The figure NP functions as the subject in the clause and the verb is a spatial configurational verb. The ground information, that is the reference object and the search-domain expression, is obligatorily introduced by the allative preposition *ɖé* – perhaps to reflect the dynamic semantics of the construction. In fact, the verbs that occur in this construction are inchoative. Thus, their use in the unmarked or aorist aspect leads to the interpretation that the entry into the state has occurred before now and that the figure is now in the state. For instance, Picture 58 ('ladder against wall') can be described as follows:

(27)

Figure		Relation		Ground	
		Config. verb	Preposition	reference object	search domain
NP		V	[Prep	[NP	Postp]PostpP]]PrepP
ŋtsroe	*lá*	*ziɔ*	*ɖé*	*gli-a*	*ŋú*
Ladder	DEF	lean	ALL	wall-DEF	SKIN

'The ladder is leaning against the wall'

Another construction that can be used to describe level 2-type configurations such as those tied or encircled is one in which the figure is presented as being in a configuration which it cannot enter by itself. We mentioned this construction

in (17) and labelled it a 'stative resultative locative construction'. In this construction the relation between figure and ground is expressed by the locative verb *le* as in the BLC. However, the verb takes as its complement a nominalized configurational verb derived by reduplication. The ground information in this case too is introduced obligatorily by the allative preposition. Thus Picture 58 ('ladder against wall') can also be described as (28) below. Compare (28) with (27) above.

(28)

Figure		Relation			Ground	
		Loc. verb	Config. expression	Preposition	reference object	search domain
NP		V		[Prep	[NP	Postp]]
ŋtsroe	*lá*	*le*	*ziɔ-ziɔ*	*ɖé*	*gli-a*	*ŋú*
Ladder	DEF	be_at:PRES	RED-lean	ALL	wall-DEF	SKIN

'The ladder is leaning against the wall'

An instructive difference between the 'dynamic positional construction' and the 'stative-resultative locative construction' is that animate figures can participate in the former but not in the latter. Not surprisingly, the human basic postures are described using the 'dynamic positional construction'.

Turning now to situations in which the figure is impaled by the ground (level 1), apart from the BLC two other construction types can be used. One is the serial verb construction in which the figure NP functions as the subject. Consider example (29) below which is a description of the location of an arrow in a fruit (Picture 30, 'skewer in/through apple').

(29)

Figure			reference object	search domain	<path	goal>
NP		V1	[NP	PostpP]	V2	NP
Aŋutrɔ	*lá*	*tó*	*atíkútsétsé-á*	*me*	*do*	*gó*
Arrow	DEF	pass	fruit-DEF	containing_region_of	exit	outside

'The arrow passed through the fruit and exited it'

Both V1 and V2 are motion verbs, thus the figure is presented as a moving entity. Note that the complement of V1 is the ground expressed in a postpositional phrase while V2 takes an inherent complement, so to speak. Even though the description presents the scene as a dynamic one, it is interpreted as static location resulting from motion into and out of (but stuck) in a region.

The second construction is a two-place construction in which the same scene is represented as the figure doing something to the reference object, namely, piercing it. In this case an active verb *ŋɔ́* 'pierce' is used in the unmarked aorist aspect to indicate that it has happened and the result is the configuration.

(30) *Aŋutrɔ lá ŋɔ́ atíkútsétsé-á*
Arrow DEF pierce fruit-DEF
'The arrow pierced the fruit'

The verb in this case is not a spatial verb and therefore no postposition is required. Spatial scenes which can be construed as resulting from some prior action of someone can be described using impersonal constructions. The attachment scenes of levels 1 and 2 of the BLC Hierarchy lend themselves to such descriptions. As we noted in the grammatical overview, impersonal constructions in Ewe are those in which the 3PL impersonal pronoun functions as the subject. We noted further that they are the functional equivalent of, e.g., agentless passives in Standard Average European languages. One can thus see the connection between such impersonal constructions and resulting states. There are two variants of these impersonal constructions. One is a locative three-place construction in which the first object is the figure NP and the second object is a postpositional phrase expressing the ground information as in (31a) (see Essegbey 1999: 170ff.). The alternative construction is to use a 'manipulative' serial verb construction in which the first verb is *tsɔ́* 'take' and its complement is the figure NP and the second verb is a caused locative verb with the ground information phrase as its complement. Compare the following alternative descriptions of picture 3 'stamp on letter'.

(31) a. *Wó-tu stampu agbalẽ-kotokú-a dzí*
3PL-press_on stamp paper-pocket-DEF upper_surface
'A stamp has been put on the envelope'

b. *Wó-tsɔ́ stampu tu agbalẽ-kotokú-a dzí*
3PL-take stamp press_on paper-pocket-DEF upper_surface
'A stamp has been put on the envelope' (lit. A stamp was taken and fixed on the envelope)

We should remark that the *tsɔ́* serial verb construction is the structure used to express caused location. We now turn to some unique constructions in the Peki dialect.

In addition to the full range of constructions discussed above, speakers of the Peki dialect deploy two variants of a construction which we have called a 'serial stative-locative construction'. In this construction the locative verb *le* 'be_at:PRES' takes a VP complement comprising a positional or configurational verb followed by the ground information. It is in the coding of the ground information that the two variants are distinguished. In one case, the ground information is encoded in a postpositional phrase which is the complement of the positional verb, similar to the situation in the BLC. In the other case the ground information including the relational information is encoded in an

allative prepositional phrase containing a postpositional phrase. We will refer to the first subconstruction as the postpositional subtype and to the second as the prepositional subtype.

The postpositional subconstruction is in competition with the BLC in the sense that they both seem to be equally preferred for scenes even at level 6 on the BLC Hierarchy. Thus for Picture 1 'cup on table', in addition to the BLC the postpositional type of the serial stative construction is also used.

(32)

Figure	Loc. verb	Positional verb	reference object	search domain
Kɔ́pu-ɔ	*le*	*lí*	*kplɔ̃-ɔ*	*dzí*
Cup-DEF	be_at:PRES	upright_on_base	table-DEF	upper_surface

'The cup is (upright on its base) on the table' (Peki dialect)

The main difference between this construction and the BLC is that there is a positional verb that specifies the configuration of the figure with respect to the ground. To that extent the postpositional serial stative construction is more specific than the BLC. Note that this construction is not used for situations which could be construed as the figure being contained in the ground. For such situations the speakers of the Peki dialect use the BLC. Moreover, the construction is not used for clothing and adornment on body situations (level 5 on BLC Hierarchy) nor for situations where the figure is part of a whole (the ground) – level 4.

The prepositional serial stative construction is used in the description of situations where the figure is attached to the ground by being tied to it. For instance, in the description of Picture 4 'ribbon on candle' where attention is paid to the prior action leading to the state and the nature of the configuration the prepositional construction is used, as in (33).

(33)

Ribbon	*le*	*blá*	*ɖé*	*candle*	*ŋú*
Ribbon	be–at:PRES	wind_around&tie	ALL	candle	SKIN

'A ribbon is tied around a candle' (Peki dialect)

The main difference between the prepositional construction of Peki as in (33) above and the pan-Ewe stative-resultative construction is that in the latter the configurational or positional information is encoded in a nominalized verb derived by reduplication. In the Peki dialect prepositional serial stative construction, however, the configurational or positional information is expressed by a verb. Not unexpectedly, the prepositional construction alternates with the serial stative construction even in Peki.

The use of the serial stative construction as part of the repertoire of locative constructions in the Peki dialect could be seen as an innovation in the Peki dialect under influence of Akan (and possibly other Guang languages neighbouring on Peki like Anum and Boso). The BLC in Akan is a stative construction in which

the locative relational information is encoded in a set of about twenty-five dispositional verbs in the stative form signalled by a low tone, with the ground information expressed in a postpositional phrase. The important thing to note about the Akan construction is that it is a stative construction and that it involves several verbs. Consider the description of Picture 1 in the TRPS ('cup on table') in (34).

(34) *Kɔpu no si ɔpʊnʊ no so*
Cup DEF be_upright table DEF upper_surface
'The cup is (upright) on the table' (Akan language)

We suggest that the Peki serial stative constructions are a kind of calque on this basic construction in Akan where the *le* locative verb in combination with a positional verb gives a stative interpretation. Once this is possible then several verbs can be used in the positional verb slot, just as Akan can use any verb more or less in its stative construction (see Richter 1997). There has been long-standing contact between Peki and Akan communities and many Pekis are multilingual in the Peki dialect and Akan and some other language. The Peki contact with Akan has been more intensive than any other Ewe group, and in fact during the colonial period Peki was the only Ewe state that belonged to the Gold Coast together with the Akan states. The other Ewe states belonged to the then German Togoland. It is more than chance that the unique locative constructions of Pekigbe have developed as a consequence of contact between Akan and Peki. It is also interesting that the serial stative construction, as it were, has not yet been extended to cover the full range of the domains of the BLC in Ewe or in Akan – a sign that it is an innovation.

10.3.5 Summary of topological relations

We have demonstrated in this section that there is a pan-Ewe BLC which uses a single locative verb *le* 'be_at:PRES' with its postpositional phrase complement expressing ground information. We noted that the postposition in the construction specifies the part and/or region of the reference object where the figure can be found. Significantly, no preposition features in the BLC. Where the ground involves a body part, the ground information is preferably expressed in a possessive construction, either an external or internal one. This construction can be used for all levels of the BLC Hierarchy (provided the figure has a distinct name in the language). Scenes involving the attachment of a figure to the ground in one form or the other – stuck to, tied to, impaled – can alternatively be described by other locative constructions. We have called these the 'dynamic positional construction' and the 'stative-resultative construction'. In both constructions the allative preposition and postpositions are used – the

Table 10.6 *Locative constructions across dialects*

Construction	Dialect	Structural description	Significance	Use
BLC	all	F- *le*- NP- Postp	Figure is located in the part/region of reference object specified by postposition	All levels of BLC Hierarchy except level 5: clothing and adornment on body, where it is not first choice
Dynamic positional	all	F- Positional Verb- Prep- NP- Postp	Figure autonomously assumes a position denoted by verb and is located in the part/region of reference object specified by postposition	Situations where figure is attached to ground in a 'tied-to' configuration
Stative resultative	all	F- *le*- Nominalised verb- Prep- NP- Postp	Figure is in a position which it cannot assume by itself from some prior action and is located in the part/region of reference object specified by postposition	Used for situations where figure is stuck to the ground
Postpositional serial stative	Peki	F- *le*- Verb- NP- Postp	Figure is in a position denoted by the positional verb and located in the part/region of reference object specified by postposition	Not used for situations where figure is clothing or adornment on body, a part of the ground or is attached to the ground in a 'tied-to' configuration
Prepositional serial stative	Peki	F- *le*- Verb- Prep- NP- Postp	Figure is in a position which it cannot assume by itself from some prior action and is located in the part/region of reference object specified by postposition	Used for situations where figure is in a 'tied-to' relation with respect to the ground

former to express part of the locative relation and the latter to specify the search domain. Furthermore, these constructions encode configurational information either in a positional verb or in a nominalized verb derived by reduplication. These constructions bear a resemblance to the constructions used in the Peki dialect in competition with the BLC. We suggested that the Peki dialect constructions may have evolved due to contact between Peki and Akan dialects. This points to the role of contact in dialect differentiation even in the spatial domain, showing that not only languages but also dialects vary significantly in the way spatial scenes are construed. Table 10.6 displays the form, significance and use of the individual locative constructions involved in the description of static locative scenes.

10.4 Frames of reference

In Section 10.3.2, we noted the importance of the locative predicate *le*, 'be.at:PRES', in the two-place construction for the description of topological relations. The same predicate and construction occur in the description of angles or directions where the figure and ground are somewhat removed from each other in space. Thus, it is not wrong to say that the difference in distance between static figure and ground does not make much difference for the Ewe speaker. However, depending on the kind of information that needs to be coded, other constructions are used. For instance, while axial information is consistently expressed with the locative predicate construction, orientational information is expressed by other constructions. In terms of frames of reference, Ewe speakers use all three in describing objects which are located in space. The choice between relative frame of reference and absolute frame of reference is, however, dependent on the dialect of the speaker: Inland speakers are more likely to use the relative frame of reference, while Aŋlɔ speakers use both relative and absolute frames of reference with some preference for the latter. All speakers use the intrinsic frame of reference.

Aŋlɔ speakers use two forms of absolute terms for the axial information. The first are *dziehe* and *anyiehe*. While meaning 'upside' and 'downside' respectively, the topography where these terms are used is flat, and they do not, therefore, describe any inherent characteristic of the region. *Dziehe* refers to the south-west while *anyiehe* refers to the north-east. One speculation on their etymology is, therefore, that they come from an era when the Ewes lived in a hillier region. The orthogonal axis is expressed by reference to the sea and the lagoon which are located on the east and west of the region respectively (see Figure 10.1). Both axes are involved in the description of the Men and Tree photo 2.6 below (see Chapter 1, §1.4.2, for a description of this elicitation tool).

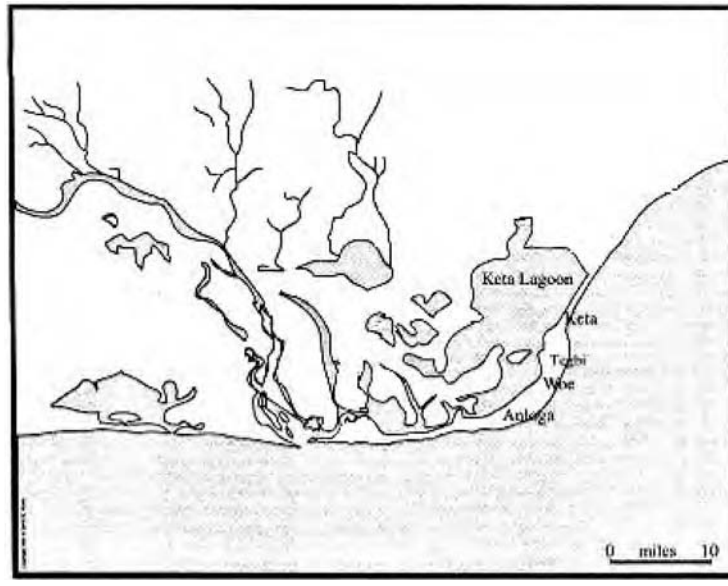


Figure 10.1 Map of Aŋlɔ coastal area

(35) *gbe si me-le gbɔ-gblɔ-ḿ lá hã*
bush REL 1SG-be_at:PRES RED-say-PROG TP too
ga-le dziehe góme nɛ [mm]
REP-be_at upside area DAT:3SG [mm]
éye wò-dze ŋgɔ amu me [mm]
and 3SG-make_contact front lagoon containing_region [mm]
'the bush which I was talking about is on the "uphill" side.
And he has faced the lagoon area.' (R&T)

We return to the construction involved in the horizontal axis presently. First, we draw attention to the fact that *dziehe* in this construction, as in all occurrences, is a nominal which occurs with the postposition *góme* 'side'. This recalls the basic locative construction in which the predicate is *le* 'be_at:PRES' and the ground information is expressed with a postpositional phrase.

The use of the terms *dziehe/anyiehe* seems, however, to be restricted to the people who are engaged in the main economic activity of the area, which is fishing. People who have been to school tend to shy away from their use, unless it is to point out a landmark (e.g. Keta is at *anyiehe*), because the terms are used differently in the schoolbooks such that they end up creating confusion. Educationists have mistakenly taken *dziehe* to represent the upper part of the map and,

hence, the north. The result is that the terms have contrasting interpretations for the locals and the 'school people' (a school teacher actually complained that the locals make wrong use of the terms!). Speakers who do not use *dziehe* and *anyiehe*, instead, use a strategy whereby major landmarks are taken to be boundary markers along a line. These landmarks are the principal towns along the major road leading from the area to Accra, the capital of Ghana. Keta, the district capital, is taken to be the starting point and Anloga, the traditional capital, is the end point. It is this system that is used by most people, including the majority of our consultants. For instance, the following is an exchange in the description of the Men and Tree photo 2.4:

(36) *atí-a le mía-fé núɖusi me*
stick-DEF be_located 1PL-POSS right containing_region
'the stick is on our right'
[tɔ́ gbɔ. Mé álé ya me-dze ŋgɔ-ɛ-a?]
wait for_now NEG thus this 1SG-make_contact front-aFOC-Q
'wait is it not this way I am facing?'
álé ya míé-trɔ́-e, álé ya me-trɔ́ ye-ko
thus this 1PL-turn-INV thus this 1SG-turn 3SG-just
wò hã ne-trɔ-e, ye-ko-e má
2SG too 2SG-turn-UFP 3SG-just-aFOC that
'the way we have turned, the way I have turned, that is just how you have also turned, that is it'
[ao, nye-mé-trɔ́ nenemá o]
no, 1SG-NEG-turn like_that NEG
'no, I've not turned like that'
mé ɖe ne-dze ŋgɔ tsiafu-ɔ [ee] ee nye hã
NEG PFOC 3SG-make_contact front sea-DEF [yes] yes 1SG too
me-dze ŋgɔ tsiafu-ɔ, ko mía katã mia-fé
1SG-make_contact front sea-DEF just 1PL all 1PL-poss
ɖusi me le [woa- tɔ́. .] Anloga
right containing_region be_at:PRES [you wait] Anloga
'Aren't you facing the sea? [yes] I am also facing the sea and both our right hands are facing Anloga'

We said at the beginning of this section that speakers use all three frames of reference. This exchange shows, however, that the relative frame of reference can be problematic for some Aŋlɔ speakers, so they prefer to use the absolute frame of reference. In this particular instance, once the director realized that the relative frame was difficult for the matcher, he kept to the absolute. Thus in describing the Men and Tree photo 2.5, he said:

(37) *Atí-á le Keta, Keta góme*
tree-DEF be_at:PRES Keta, Keta side
'The tree is on the Keta side'

The previous exchange in (36) does show that some amount of the relative frame of reference is used among the Aŋlɔs as well, even if not by everybody. In fact one pair of our Aŋlɔ consultants used only the relative frame of reference.

Although Inland speakers also have the terms *dzigbé* and *anyígbe* (the Aŋlɔ equivalents of *dziehe* and *anyiehe*, respectively), they do not make use of the absolute frame of reference. Instead, they use the relative frame in places where the Aŋlɔ speakers use the absolute frame. This is how one director described the Men and Tree photo 2.5:

(38) *E-ke, séfofo-tí-ɛ vá le emia me,*
3SG-this flower-tree-DEF come be_at:PRES left containing_region
ye ŋutsu-ɔ le ɖusí me
and man-DEF be_at:PRES right containing_region
'this one, the flower is on the left and the man is on the right'

For this same picture, an Aŋlɔ director who used the relative frame indicated with the choice of possessive pronouns that her body was being used as the coordinate:

(39) *E-yi me-ga-kpɔ́ ɖe, atí-á le nye emia*
3SG-this 1SG-REP-see TP, tree-DEF be_at:PRES 1SG left
me [mm] ɖekákpui-a le
containing_region [mm] young_man-DEF be_at:PRES
nye núɖusí me [mm]
1SG right containing_region [mm]
'the one I've seen again, the tree is on my left [mm] the young man is on my right [mm]'

Implicit in both exchanges is the indication that the figures are, from the perspective of the speaker, located on the left/right of the ground objects. The ground object can be expressed with the dative prepositional phrase *ná* + NP (Dative + NP) as is done by the first set of consultants (R&T) cited at the beginning of this section (see example (35)).

So far, the discussion has centred on the way axial information is expressed. As we have shown here, these are basically treated like topological relations such that the locative predicate *le* is used and the ground information is expressed by a postpositional phrase. We have also seen that this can be with an absolute

frame of reference or a relative frame of reference. As our very first sentence in this section illustrates (see example (35)), speakers do not only code axial information, they also express the orientation of the figure. That is to say, in order to distinguish between the pictures, the directors needed to indicate the directions in which the man in the pictures was facing. Photos 2.3 and 2.4 are similar in that the man is facing the same direction. However, they differ in that in 2.3, the tree is in front of the man (thus he appears to be facing it) while in the other, it is behind him. We show how they are distinguished (Men and Tree, Photo 2.3):

(40) a. *é-trɔ́ ŋgɔ dze atí-á* (S&W)
3SG-turn front make.contact tree-DEF
'He has turned and faced the tree' (Aŋlɔ dialect)

b. *ŋútsu-ɔ dze ŋku me*
man-DEF make_contact face containing_region
sefofoti-ɛ (F&J)
flower-tree-DEF
'The man is facing the flower' (Inland dialect)

The first speakers are Aŋlɔ while the second are Inland. Both make use of the verb *dze* 'make contact' but in different constructions. While the Aŋlɔ director makes use of a serial verb construction (SVC) with the verb *trɔ́* 'turn' preceding *dze*, the Inland director uses *dze* in a three-place construction with the direction expressed as the second object. It can be observed that in both cases, the intrinsic frame of reference is used, both meaning literally turning the face to make contact with the tree and moving the face into contact with the tree respectively. Interestingly, it is only the speakers who made use of the relative frame of reference who used the intrinsic frame of reference alone to express facing information. Those who used the absolute frame of reference either combined it with the intrinsic or used the intrinsic alone. Fragments from two directors are repeated below:

(41) a. *Éye wò-dze ŋgɔ amu me [mm]*
and 3SG-make_contact front lagoon containing_region [mm]
'and he is facing the lagoon side'

b. *mé ɖe ne-dze ŋgɔ tsiafu-ɔ [ee]*
NEG PFOC 2SG-make_contact front sea-DEF [yes]
'Aren't you facing the sea? [yes]'

Speakers also use the intrinsic frame of reference alone to express facing information. We therefore conclude that while users of the relative frame of reference are inclined to use the intrinsic frame of reference alone to provide such

orientation information, those who use the absolute frame of reference sometimes combine it with the intrinsic. Nobody uses the relative frame to indicate orientation, however.

In order to indicate that the man in the photo is facing away from the tree, all the speakers use an SVC, as shown below (Men and Tree, Photo 2.4):

(42) *ɖekákpui-a le nye mia me*, (S&W)
young_man-DEF be_at:PRES 1SG left containing_region
évɔ é-trɔ́, é-trɔ́ nu err megbé dé atí-á
yet 3SG-turn 3SG-turn mouth, err back cause_located tree-DEF
'the young man is on my left, yet he has turned his back to the tree'

(43) *ŋútsu-ɔ é-trɔ́ megbé dó flowers- ɛ* (F&J)
man-DEF 3SG-turn back cause_located flowers-DEF
'The man has turned his back to the flowers'

Dé 'cause located' and *dó* 'cause located' are dialect variants.

To conclude, the Ewes use both relative and absolute frames of reference (depending on the dialect) to express axial information. This information is expressed with the basic locative construction because the object is simply seen as located with respect to the ground. Those who use the relative frame of reference for this purpose tend to use only the intrinsic frame to indicate the orientation of a figure. On the other hand, those who use the absolute frame of reference for the above purpose, either combine it with the intrinsic frame or use the latter alone to express orientation. Facing orientation is expressed with the verb *dze* 'make contact' in an SVC or three-place construction while turning one's back on something is, more often than not, expressed with an SVC consisting of the verbs *trɔ́* 'turn' and *dé/dó* 'cause to be located'.

10.5 Motion

10.5.1 The expression of motion

There are no criteria to distinguish a form class of verbs dedicated to the expression of motion. Verbs which have motion semantics pattern with other verbs in various subclasses. We will illustrate this with one-place motion predicates. We noted earlier that there are no grounds for recognizing the so-called unergative and unaccusative classes of one-place predicates in Ewe. Instead Essegbey (1999) argues for a possible grouping of one-place predicates into three covert subclasses on the basis of (i) whether they can function in a two-place construction, and if so, (ii) the syntactic realisation of the argument of the one-place verb in the two-place construction. Of the 240 one-place verbs listed in the

Appendix in Essegbey (1999) (extracted from Westermann 1928), less than one-sixth of them – thirty-five to be precise – have motion semantics. These motion verbs are distributed over the three groups. Group 1 verbs are those which undergo causative alternation, where the single argument which functions as the subject in the one-place construction functions as the object in the two-place construction. Motion verbs like *gé* 'drop, fall' *dzɔ́* 'drop, fall', *mli* 'roll' and *tró* 'spin' belong here. For group 2 verbs, the single argument that functions in the one-place construction as subject also functions as subject in the two-place construction. Motion verbs such as *vá* 'come', *yi* 'go', *zɔ* 'travel', *do* 'exit' and *tsa* 'wander' belong here. Group 3 one-place predicates function only in the one-place construction. To this group belong motion verbs such as *dzó* 'leave' and *tɔ* 'stumble, limp' *vlã́*, 'move in a quick way'.

The examples cited so far are primarily monovalent verbs. There are bivalent motion verbs as well such as *liá* 'climb up' and *fú* 'move limbs in a medium'. On the whole, however, the motion verb lexicon is rather small. Not surprising, since the total verb lexicon is itself not too large (probably not more than 600 verb roots with no morphological means of verbal derivation, see Clements 1972: 236). As such, motion semantics is derived from other forms and their collocations.

10.5.1.1 Motion interpretation from non-motion expressions

One of the constructions which can be interpreted as motion is the stative-continuative aspect construction. Schematically the construction has the form: NP_1 *le/nɔ* [NP_2 *dzí*]$_{PostpP}$. For motion interpretation, NP_1 must be animate and NP_2 filled by a nominal that can be the means, e.g. *gasɔ́* 'bicycle', or the medium or site of motion, e.g. *du* 'course'. For instance, in the Frog Story narration cited below in (51), the speaker uses this construction to indicate that the deer was running (from the cliff to the water). This may well be the link between motion and stasis where the aspectual construction can be thought of as a specific subtype of the basic locative construction.

Motion can also be expressed using contact verbs such as *lé* 'hold, catch' and *tsɔ́* 'take' with motion-related nominal or other complements such as *du* 'course'. In one of the Frog Story narrations we collected, the narrator describes the dog's starting to run away after the boy fell from the tree (p. 13) as follows:

(44) *Avu* *kpɔ́* *nú* *sia* *ko* *lá*
dog see thing this just TP
é-lé *du* *tsɔ́*
3SG-hold course take
'Once the dog saw this thing that happened, he took to his heels,
(i.e. he started running)

Note that the second line of the example above is an SVC and *du* 'course' is the so-called shared object of both verbs. The contact verbs tend to contribute an inceptive reading to the structures, as the translation of the sentence in (44) shows. Similarly, the verb *dze* 'contact' in collocation with a postpositional phrase headed by the postposition *yome* 'trails' yields a motion interpretation of 'move following someone/something'. Motion interpretations can also be derived from the collocation of the verb *dze* 'contact' with prepositional phrases headed either by the dative, or the locative or the allative prepositions. Consider the following typical utterances:

(45) a. *Dze* *ná* *vu-a*
contact DAT vehicle-DEF
'Move to give way to the vehicle'

b. *Dze* *ɖé* *mɔ́-á* *tó*
contact ALL road-DEF edge
'Move to the side/edge of the road'

Like contact verbs, structures involving change of location verbs and their complements which could be construed as having motion-related features can yield motion interpretations. We saw in example (1), from a Frog Story narration, the use of the verb *ɖe* 'remove' plus the complement *afɔ* 'leg' giving a motion reading. Other complements which this verb can take yielding a motion interpretation include *du* 'course', *azɔlĩ* 'deportment' and *abla* 'speed'. The allo-dialectal forms *gé* (Aŋlɔ) and *dzɔ́* (Inland) 'drop, fall off' in collocation with the allative preposition can also yield a boundary-crossing interpretation of 'enter'. In fact, there is no verb root that codes the notion of 'enter' in Ewe (see below).

10.5.1.2 Motion verbs

What we have shown so far is that even though there may not be many motion verbs in the language, the fact of motion as such can be inferred from various collocations and constructions involving stative-locative, contact and change-of-location verbs. We now turn our attention to verbs that have a motion semantic component. There are generic motion verbs which code the fact of motion and nothing more, or else some further minimal component. Examples are *zɔ* 'move, travel' and *tsa* 'move about, wander' which are primarily monovalent, and *kplɔ* 'accompany, move with' and *fú* 'move limbs in a medium' which are primarily bivalent.

Let us illustrate how distinct collocations involving one of the verbs yields various interpretations. We take the verb *kplɔ* which has various interpretations depending on the constructions in which it occurs. In a two-place construction,

the verb can be interpreted in a couple of ways depending on the semantics of the complement. It has a conventionalized interpretation as 'sweep' in the physical sense when its complement is the generic nominal *nú* 'thing' or a location. For example,

(46) *Wó-kplɔ xɔ-a me / nú*
3PL-move_with building-DEF containing_region_of thing
'They swept the room' / 'They swept'

Another interpretation of *kplɔ* is that of 'accompany' or 'lead' as in:

(47) *Yiyi kplɔ nyitsú lá (éye wó-yi mɔzɔzɔ lá dzí)*
Y. move_with bull DEF and 3PL-go journey DEF surface
'Yiyi led the bull (and they continued the journey)' (Nyaku 1997: 26)

In collocation with the satellite *ɖó* 'reach' the verb *kplɔ* means 'follow, chase after', i.e. to follow after someone intending to catch up with them, as in lines (j) and (q) in (51) below. In an SVC, where it occurs as the first verb and the second verb is a motion verb, *kplɔ* has a similar 'accompany' or 'lead' sense, as in (48).

(48) *Wó-kplɔ-e kplé aséyetsotso tso tɔsísí* gã *lá*
3PL-move_with-3SG INSTR rejoicing cut river big DEF
'They accompanied him with great joy to cross the river'

Although the various interpretations relate to other components of motion such as path, manner and goal, these are derived from other things in the context and not from the verb *kplɔ* itself. Nevertheless, there are small sets of verbs that conflate the fact of motion and either manner, speed or path. Frequently occurring manner and motion conflated verbs are *mli* 'roll', *tró* 'spin' and *glí* 'glide, slide', which can occur in both one-place and two-place constructions, and *tá* 'crawl (of babies and cripples), move slowly (of vehicles)', *tɔ* 'limp' and *níní* 'slip', which are all one-place predicates.

There are less than a dozen verbs which could be said to express direction in the verb root (cf. Schaefer and Gaines 1997). Some of these are anchored at the destination or goal of the motion: *ɖó* 'arrive at a place', *vá* 'come to a place by moving towards a place thought of as place where speaker is', *gbɔ* 'return, come back to a place thought of as home base', *gbugbɔ* 'move back to a place where movement started from' and *yi* 'go to a place'. Others are anchored to the beginning point such as *hé* 'go away from a place', *dzó* 'depart, leave', *tsó* 'arise, originate, come from a place' and *vlɔ́* 'go far away from a place'. These

verbs can be used in the construction of motion trajectories, as we shall see in Section 10.5.2.

In addition there are path-focussed verbs, to use Slobin and Hoiting's (1994) term. These are *líá* 'climb, go up' and *ɖi* 'go down'.[5] For both verbs, the site of the movement, e.g. mountain, or slope, is expressed as the direct argument of the verbs. Source is added to these by prepositions and the goal by the direction verbs *vá* 'come' and *yi* 'go'. Sometimes the allative preposition *ɖé* is added to the 'go' verb for this purpose. Change of orientation is coded in the intransitive verb *trɔ́* 'turn' which collocates with some inherently directed verbs, such as *vá* 'come', *yi* 'go' and *gbɔ* 'return', or prepositions to express various nuances of return paths. The verb *tra* 'lose one's way, go astray' can be viewed as a change-of-direction verb. It takes the site noun *mɔ́* 'road, way' as a direct argument.

There are a couple of boundary-crossing verbs too, such as *do* 'exit', which when used in a plain one-place construction can be interpreted as 'appear, emerge'. Typically, the single argument in such a construction is a meteorological noun such as *tsi* 'water, rain', *ŋdɔ* 'sun' or *dzinú* 'moon'. When it occurs in a two-place construction, the goal of the exiting is expressed as the direct argument but this is restricted to a noun like *go* 'outside'. More commonly, the same resources for source and goal as described above for path-focus verbs are employed for this verb as well. Other boundary-crossing verbs occur such as *tso* 'cut, go across' as in (48) above (note that the site crossed is expressed as a direct argument of the verb). The verb *tó* 'pass by' also has the site or landmark passed expressed as a direct argument. However, *gbagba* 'overflow' is an intransitive verb and leaves the boundary exceeded implicit, to be deduced from context. Conspicuously absent from the boundary-crossing verbs in the language is a monomorphemic verb equivalent to 'enter'. We noted earlier that the collocation of a change-of-location verb *gé* or *dzɔ́* 'drop, fall' is used to express the notion of 'enter', with the allative preposition *ɖé* and the region crossed coded in a postpositional phrase headed by the postposition *me* ('containing region of'). In some contexts a reach/arrive verb in collocation with a bounded region denoting complement can be interpreted as 'enter' as well. For example,

[5] In the grammaticalization literature, this verb is usually cited as the source of an adverbial *ɖí* 'down' (see Heine, Claudi and Hünnemeyer 1991, Heine et al. 1993, Lord 1993: 228). While the development of an adverbial meaning 'down' from a verb meaning 'descend' is very plausible, the evidence from Ewe points to the fact that it is not the verb *ɖi* 'descend' that has grammaticalized to the adverbial. The main piece of evidence is that even though the segmental forms of the two forms are the same they differ in tone. The verb has a low tone and the adverbial has a high tone. In fact, the adverbial comes from a prepositional phrase made up of the allative preposition *ɖé* and the invariable pronominal object – *i*. The intersubstitutability of *ɖí* for *ɖé anyí* 'ALL ground' in expressions such as *gblẽ ɖí* vs. *gblẽ ɖé anyí* 'leave behind, abandon' (lit. 'spoil ALL ground') supports this claim.

(49) a. *É-ɖó xɔ-a me*
3SG-arrive room-DEF containing region of
'S/he entered the room'

b. *É-ɖó vu-a*
3SG-arrive vehicle-DEF
'S/he boarded the vehicle'

We should also point out that in the Aŋlɔ dialect the verb *de* 'reach, been to' is regularly interpreted as 'climb' when it takes a postpositional phrase headed by *dzi* (see line b. in the Frog Story narration excerpt in (51) below).

A final set of motion verbs conflate the fact of motion and the speed of movement. Verbs belonging to this set include *ʊlá́* 'move fast' (intr.), *gógó* 'fast approaching' (tr./intr.), *yɔ* 'hurry' (tr./intr.), *sí* 'move quickly, escape, flow (of water)' (intr.) and *minya* 'move stealthily, sneakily'. This last verb is related to the ideophonic adverb *minyaminya* 'stealthily' which regularly collocates with the general verb of motion *zɔ* 'move, travel' as in the following line of a dirge:

(50) *mi-zɔ minyamiya mía-vá-kpɔ́ -e ɖá*
2PL-move IDEO 1PL-VENT-see-3SG in_the _distance
'Walk stealthily and we go have a look'

In sum, looking at the nature of the features that are conflated with the fact of motion in various verbs we see that some verbs conflate motion and direction/path, others motion and different categories of manner, yet others still motion and some characteristics of the figure. We have also pointed out that some verbs which do not conflate manner or path as such with motion can be interpreted as manner-of-motion or path verbs. It is thus difficult to classify Ewe as a predominantly path-type, manner-type or figure-type language à la Talmy (1985). We will arrive at a similar conclusion with respect to the packaging of motion in clauses in the next section.

10.5.2 Motion event packaging

We now turn to the way a motion event – the core schema and the co-event in the sense of Talmy (2000) – is packaged in Ewe. Let us first consider a Frog Story narration. The text is broken down into clauses and each clause is marked with a letter.

(51) a. *ɖevî lá kpɔ́ kpé gã áɖé*
child DEF see stone big INDEF

b. *éye wò-de é-dzí . . .*
and 3SG-reach 3SG-upper surface
'The child saw a huge rock and got on top of it . . .'

c. *ésí wò-nɔ kpé lá dzí lá,*
when 3SG-be_at:NPRES stone DEF upper surface TP

d. é-kpɔ́ lã gã ádé si ké tó dzo . . .
3SG-see animal big INDEF REL INT grow horn
'When he was on top of the rock he saw a big animal with horns . . .'
(It is that animal that is called one-year-one horn, i.e. deer)

e. *Esi wò-do go ko lá*
when 3SG-exit outside only TP

f. *é-tsɔ́ é-fé dzo lá hé-tsɔ́ ɖeví lá*
3SG-take 3SG-POSS horn DEF ITIVE-take child DEF
le kpé lá dzí
LOC stone DEF upper surface
'Once he (the deer) emerged, he used his horns and took the child from the rock' (p. 15)

g. *álébé ɖeví lá lé ɖé dzo lá fé fome*
so_that child DEF hold ALL horn DEF POSS STOMACH
'and the child got stuck on to the horn'

h. *é-tsɔ́e le du dzí sésĩe ko lá,*
3SG-take-3SG be_at:PRES course surface hard only TP

i. *avu lá hã kpɔ́-e*
dog DEF also see-3SG

j. *éye éya hã fú du lá*
and 3SG also move_limbs course DEF
hé-kplɔ wó ɖó vuu . . . kékéké . . .
ITIVE-accompany 3PL ARRIVE long_time much
'He carried him running hard and just then the dog also saw it and he too ran and chased them for a very looooong time' (p. 16)

k. *Nukútɔe lá, wó-vá ɖó tɔ ádé tó*
surprisingly TP 3PL-VENT arrive river INDEF edge

l. *gaké tɔ lá le bali me [mm]*
but river DEF be_at:PRES valley containing_region_of
'Unexpectedly, they eventually came to the bank of a river, but the river was in a valley'

m. *álébé éyi lã lá vá-ɖó kpó lá dzí*
so-that when animal DEF VENT-arrive mound DEF surface
ko lá,
only TP

n. *é-tsɔ́ ɖeví lá fú gbe ɖé tsi lá*
3SG-take child DEF strike bush ALL water DEF

me
containing_region_of
'when the animal got to the higher ground on the edge of the river he took the child and threw him away into the water'

o. *Ké ési avu-a hã mé-nyá o ta lá,*
but when dog-DEF also NEG-know NEG reason TP

p. *éya hã nɔ du lá dzí vuu kéké*
3SG also be_at:NPRES course DEF surface long_time much

q. *éye wò-yi ɖa-gé hé-kplɔ ɖeví lá ɖó*
And 3SG-go ALTRI-drop ITIVE-acompany child DEF ARRIVE
'But since the dog also did not realize this he continued running for a long time and he went and fell and followed the child'

r. *dzɔgbenyúitɔe lá, tsi lá mé-goglo tútútú o ta lá*
fortunately TP water DEF NEG-deep exactly NEG reason TP

s. *wó-fú tsi hé-do ɖé kpó lá dzí*
3PL-move_limb water ITIVE-exit ALL mound DEF surface
'Fortunately for them since the water was not too deep they swam and came out onto the mound/higher ground' (pp. 17–18)

In this excerpt, eleven of the nineteen clauses have motion interpretation. More than half of these eleven clauses are instantiations of serial verb constructions (SVC). This shows that SVCs are a prominent device for motion description. Recall that an SVC is a clause with a sequence of two or more verbs sharing the same subject argument. This structure makes it hard to place Ewe (and other serializing languages for that matter) in the satellite-framed vs. verb-framed typology of Talmy (e.g. 1985, 2000). Schaefer (1986: 182) drew attention to this problem when he observed that 'a . . . language like Emai, where serial verb structures abound, raises a dilemma by not holding to the assumptions of [Talmy's] model, since in serial structures two verbs in a single surface level clause are used to refer to a motion event'. As we have seen, Ewe has some path-conflating verbs and these can occur in any position in an SVC. The relevant context for our present purposes is when they co-occur with manner-conflating verbs in an SVC. In such a construction the manner verb occurs first and the path verb occurs second. Consider the following example:

(52) *É-tá do le xɔ-a me*
3SG-crawl exit LOC building-DEF containing_region_of
'S/he crawled out of the room'

In such an expression, the path expression is a verb and it cannot be considered a satellite. Moreover, the manner expression is also a verb and cannot be considered subordinated in any way to the boundary-crossing verb as would be

the case in a verb-framed language such as Spanish. Slobin and Hoiting (1994: 492) suggest that signed and spoken serializing languages be considered 'complex verb-framed languages' (although Slobin seems to have moved away from this term suggesting that Chinese – a serializing language – is satellite-framed with some verb-framing features (Slobin 2000: 109)). We think that serializing languages display some features of verb-framed and of satellite-framed languages, but they have a distinct character that should be explicitly recognized in the typology (see Ameka and Essegbey 2001 for discussion).

Serializing languages have a distinct pattern for expressing source and goal of motion as well. In Ewe, the source expression can be a direct argument of the verb, that is, its role is read off the semantics of the verb. This is the case with verbs which can function as two-place predicates and which have a beginning anchor, e.g., *tsó* 'come from, originate'. Source can be explicitly indicated by the use of prepositional phrases headed by the LOCative (*le*) (see (52) above) and the ABLative preposition (*tsó*). For example,

(53) *É-gé tsó atí-á me*
3SG-drop ABL tree-DEF containing_region_of
'S/he fell from the tree'

Goal can also be just a direct argument of a verb that entails an end point. Thus the direct complements of deictic and directional verbs such as *yi* 'go', *vá* 'come', *de* 'reach' as well as the boundary-crossing verb *do* 'exit' are all goals (see line e. in (51) above). The ALLative preposition *ɖé* also introduces goal complements and can co-occur in instantiations of a one-place construction with verbs like *yi* 'go' and *do* 'exit' as in (51s).

Source and goal of motion are both generally expressed in one clause, typically using a serial verb construction where there is at least one ground phrase per verb. The boundary-crossing verb *do* 'exit', however, can occur by itself with both a goal NP and a source PrepP in a two-place construction as in:

(54) Goal Source
É-do go tsó xɔ-a me
3SG-exit outside ABL building-DEF containing region of
'He came (to) outside from the room'

The more iconic order of source followed by goal occurs in a serial verb construction where the goal argument is always introduced by one of the directional (end-point anchored) verbs as the last verb in the series.

(55) *Kpé-á mli tsó tó-á dzí vá aga me*
stone-DEF roll ABL hill-DEF surface come valley containing_region
'The stone rolled from the top of the hill into the valley'

All the examples of goal NPs given so far can be interpreted as 'to place X'. The distinction between a 'to-a-place' and 'towards-a-place' goal is not lexically coded in Ewe, but it is derived from aspectual distinctions on the verb. Thus the two verbs *yi* 'go' and *gbɔ* 'come back to base' when marked with the habitual *-na* have a 'motion-in-progress-at-the-current-time' interpretation and thus have a 'towards-the-goal' reading.[6]

(56) *Dadá yi-na afé me*
mother go-HAB house containing_region_of
'Mother is going (towards) home'

The 'moving-towards-a-place' interpretation of utterances such as those above is stronger when these motion verbs marked with the habitual occur in a final position in an SVC. Similarly, telic verbs such as *ɖó* 'reach, arrive' in contexts where they can be interpreted as having a 'getting to V' interpretation also have a 'towards-the-goal' interpretation.[7] In addition the verb *ɖó* 'set, put' in collocation with *ta* 'head', *ɖó ta* 'to head for', can take a goal complement. Such a structure is interpreted as 'moving towards the goal'. For instance,

(57) *Míe-ɖó ta afé*
1PL-set head home
'We headed for home' (i.e. 'we went towards home')

Slobin (1997) suggests that verb-framed languages tend to have one ground phrase per verb and cannot express more than two ground phrases per clause, unlike satellite-framed languages which can have multiple grounds per verb. As we have shown, Ewe, and serializing languages for that matter, can have mostly one and maximally two ground phrases per verb, but they can have several ground expressions in a monoclausal SVC. From this point of view, serializing languages share one feature with verb-framed languages and another feature with satellite-framed languages.

As should be clear from the various examples up to this point, SVCs play an important role in the coding of directional manner of motion as well. Notice that in this case the manner-encoding verb occurs first and path and directional verbs follow, as in (51s) above. This is a pattern commonly found in serializing languages (see Slobin and Hoiting 1994 for signed languages, Durie 1997 for spoken languages and Schaefer and Gaines 1997 for the pattern in African serializing languages). In addition, SVCs in which the first verb is a handling or manipulative verb, such as *tsɔ́* 'take', with a motional nominal complement

[6] These are the only two verbs in the language whose habitual form has a progressive interpretation.
[7] It should be mentioned also that, when such verbs co-occur with the perfective marker *vɔ* 'FINISH', they have a near-completion interpretation and are therefore also interpretable as 'towards the goal'.

such as *du* 'course' can be interpreted as expressing manner as we have seen. In such structures, too, the manner expression comes first. In fact it is such expressions that are conventionally used to express notions like 'bring' in many serializing languages. In Ewe such constructions have a marker *-i* on the second verb to indicate that the subject and the object of the first manipulative verb concomitantly are involved in the realization of the state of affairs encoded in the second verb. Thus a structure of the form *Ytsɔ́ X vá-i* 'Y bring X' can be literally paraphrased as: 'Y take X [Y together with X] come' (cf. Ansre 1966b, Clements 1972, Lewis n.d., Collins 1997, Ameka and Schultze Berndt 2000).

The comitative or instrumental preposition *kplé* with a motional nominal complement can also be interpreted as manner as in (58).

(58) *Wó-nɔ afé yi-m kplé du*
3PL-be_at:NPRES home go-PROG COM course
'They were going home running' (Hlɔbiabia 730)

Manner of motion, as we have seen, can also be interpreted from collocations of generic verbs with nominal complements, as, for example, when 'stroll' is the interpretation of *ɖe afɔ gɔme* 'remove foot under'.

By far the commonest means of expressing manner, including manner of motion, is by the use of ideophones. The collocation of motion verbal expressions with ideophones can be interpreted as manner, but the ideophones encode not just manner but intensity as well. We have already noted the possibility of using the verb *zɔ* 'move, travel' with several ideophones to describe various manner-of-motion situations (see §10.2.1). To give a couple of examples from Westermann (1930: 107ff.): *zɔ bɔhɔbɔhɔ* 'describes the heavy walk of a fat person'; *zɔ gɔwugɔwu* 'to limp slightly with one's head'; *zɔ kpukpuu* 'describes the hurried walk of a small person'; *zɔ lúmɔ́lúmɔ́* 'describes the hurried running of small animals'. In these examples, the ideophones help to bring in not only the manner of motion but also features of the figure and, in general, add expressiveness to the general meaning of the verb.

To summarize, manner of motion in Ewe is conflated in a few verbs and can be interpreted from various collocations of adverbs, ideophones and verb nominal complement collocations as well as from some comitative prepositional phrases. Different types of multiverb construction also play a crucial role in the expression of manner. Slobin (1997, 2000) notes that languages differ with respect to the attention they pay to manner in the verbalization of motion events, which is determined by whether a language is verb-framed or satellite-framed. He suggests that languages have a two-tier lexicon with respect to manner: tier one consists of the common everyday basic motion verbs like *run*, *fly* etc. and tier two comprises the more expressive tier with verbs like *dash*, *swoop*. While all languages have tier-one verbs, Slobin suggests that it is satellite-framed languages that have an elaborate tier two of expressive manner-of-motion verb

lexicons. He is aware of the fact that languages with ideophones or mimetics like Japanese may confound the issue (Slobin 1997: 464, footnote 4), but he does not make any pronouncement on the matter. Schaefer (2001) takes up this issue and hypothesizes that verb-framed languages that do not have second-tier manner-of-motion verbs code expressive manner notions in ideophones. He further restricts the occurrence of ideophonic adverbs to verb-framed languages and suggests that they will tend not to occur in satellite-framed languages. This is, however, an empirical question that deserves further investigation. If this claim is correct then the presence of ideophones in Ewe is one other feature that it shares with verb-framed languages. However, it should be abundantly clear that Ewe cannot be easily classified as either verb-framed or satellite-framed.

In the foregoing discussion, we have focussed on the verbal and relational side of motion expressions. However, we noted in the grammatical description that postpositions play a role in motion description as well. Thus we noted that the indication of the ground as either source, goal, etc. is either implicit in the verb or is signalled by the LOCative, ABLative or PERLative prepositions. The region with respect to the entity is, however, expressed by postpositions. A place through which a figure moves, or spaces entered or exited typically involve the postposition *me* 'containing region of', as a perusal of several examples would reveal, to create the boundary for the entity, so to speak. However, the 'go across' verb *tso* tends to take NPs as its direct argument representing the entity that is crossed (see example (48) above). An entity that is passed by is marked by postpositions such as *gbɔ́* 'place', *ŋú* 'skin' or *dzí* 'surface'. Here again we see that there is a division of labour in motion description between the verb, its complements, the preposition, the NP that represents the reference entity and the postpositions.

10.6 Conclusion

In this chapter, we have described some characteristics of the grammar of space in Ewe. We have showed that in this language spatial information is distributed over elements in a spatial construction, be it the structures that are used to describe static locative relations or motion situations. Various form classes in the language seem to be specialized for one or the other type of function. Thus prepositions are used in non-static locative situations to code relations of source, goal, location and, in collocation with other motion-related nominals, the comitative preposition can be interpreted as expressing manner. Similarly, there is a form class of postpositions that are used regularly to signal the search domain and in motion situations some elements of the path. Ideophonic adverbs tend to be used to code manner including manner of motion. Sometimes they convey information also about the figure.

The data from Ewe surveyed here amply demonstrate that spatial language varies not only across language boundaries but even within a language, across dialects. Such variation may be due to differences in preferences for strategies in fulfilling similar functions. For instance, we pointed out that while all three forms of frames of reference are used by Ewe speakers, Inland dialect speakers tend to use relative frame of reference while Aŋlɔ speakers tend to use the absolute frame of reference more. This is also shown in the way orientation is described: those who use the relative frame of reference use only the intrinsic frame for this purpose while those who use the absolute frame of reference combine it with the relative or the intrinsic. Variation across dialects may also be due to contact between one dialect and another language with consequent approximation to aspects of the grammar of the contacting language. We have argued that this is the case with the innovation of the 'serial stative construction' involving the locative predicate *le* and a configurational verb in the Peki dialect. We suggested that this construction is modelled on the Akan basic locative construction in which many verbs can occur provided they are marked as 'stative' or rather 'continuative', unlike Ewe which has only one verb in its BLC.

Ewe, being a serializing language, makes extensive use of serial verb constructions in spatial description. We have seen that they are used in the description of static locative scenes, in the description of facing relations in the Men and Tree tasks and above all in directional motion description. We have shown that due to some constraints on serialization, for the description of manner of directional motion, for example, the manner-indicating expression comes first and then the directional verbs follow. We argued that this serialization property makes it hard to place Ewe and similar languages in the verb-framed vs. satellite-framed typology of Talmy (see also Ameka and Essegbey 2001). Furthermore, the possibility of packing two or more verbs into the same clause allows for the expression of two or more ground expressions in a clause. It goes without saying that the overall linguistic properties of a language have a bearing on the way a semantic domain is expressed in that language.

11 Spatial language in Tamil

Eric Pederson

11.1 Tamil and Tamils

The Dravidian language family is one of the world's major language families with perhaps 200 million speakers speaking approximately twenty-five mutually unintelligible languages. There are four major literary Dravidian languages all of which are indigenous to South India. Three of these major Dravidian languages are in the South Dravidian branch: Tamil, Kannada and Malayalam.

Following the 1991 Indian Census data (http://www.censusindia.net/), native Tamil speakers make up about 6.3 per cent of the total Indian population. The majority of these speakers (48,434,744) live in the state of Tamil Nadu where they constitute 86.7 per cent of that state's population. They make up the largest minority language population in Kerala, with 616,010 native speakers (2.1 per cent) and there are perhaps another 2 million native speakers elsewhere in India. Including the Indian population, there are perhaps 70 million speakers worldwide with substantial minority populations in Malaysia, Singapore, Sri Lanka and elsewhere.

Tamil has a continuous written history with records dating back approximately 2,000 years. There has also been a long tradition of mutual influence with Sanskrit and other ancient Indian languages and literatures. The classical Tamil period dates to perhaps as early as 300 BCE, a period in which the Tolkaappiyam was produced, a grammar apparently modelled on Pannini's Sanskrit grammar. Because of the age and probable linguistic conservatism of these writings, classical Tamil forms often resemble what is reconstructed for Proto-Dravidian spoken over 3,000 years ago. Even today, modern literary Tamil is perhaps the most conservative of the written Dravidian languages.

This literary conservatism has led to significant diglossia with the spoken language. The diglossia is sufficiently acute that separate grammars have been

Much of this work derives from my attempts to understand the lessons of the various native-speaker teachers and consultants I have worked with. Most notably K. Paramacivam, but also E. Annamalai, V. Krishnaswami, J. Arun Selvan, as well as many whose names are now lost. I take full responsibility for the errors which I have introduced. My great appreciation also for comments from S. Levinson and D. Wilkins.

written for the modern literary (Literary Tamil, LT) and modern spoken languages (Spoken Tamil, ST)[1] and Tamil often serves as a principle exemplar of the phenomenon, e.g. in Britto (1986). While spoken forms have been presented in written form since the 1950s, it has thus far been limited to the direct representation of colloquial speech. Literary Tamil is also spoken in certain formal contexts and is generally understood even by non-literates.

Where there are no grammatical differences between literary and the standard spoken dialect, I'll use examples from each without discrimination. The few circumstances where literary and spoken grammar deviate from one another are noted.[2]

11.2 Grammatical sketch

By way of background, I provide the briefest of sketches for those features of Tamil grammar which are relevant to the discussion of spatial language which follows this section. Note that the subsequent major sections are organized according to semantic/functional category rather than by morphosyntactic form class. While certain form classes (e.g. postpositions) have many markers with clear spatial functions, there are no form classes in Tamil which are dedicated to spatial use alone.

11.2.1 Typical SOV, agglutinative

Tamil, like all Dravidian languages, is a fairly typical SOV, agglutinative suffixing language with a nominative/accusative morphological case system. There is no grammatical gender, but referent gender (man, woman, respected one, etc.) is obligatorily marked.

Syntactically, Tamil tends to fairly flat structures with a minimum of clear subordination. Rather, it extensively uses clause-chaining constructions for a wide variety of functions. It is not uncommon to have a dozen or more non-finite verbs before the final finite verb which inflects for tense and grammatical subject. The only grammatical constraint on length is that there is a fairly strict constraint that each verb must have the same grammatical subject. Of

[1] For example, Schiffman (1979) for spoken Tamil (broadcast standard dialect). Various descriptive grammars were written for specific caste and regional dialects within the Dialect Survey of Tamil Nadu Project at Annamalai University in the 1970s. Arden (1942) is the most standard reference for written Tamil and perhaps the most comprehensive grammar in print is Lehmann (1989).

[2] The data for this paper was collected from many different native speakers of standard spoken Tamil during a number of field trips to the Madurai district of Tamil Nadu between 1992 and 1996. It is literally impossible to thank everyone individually, so I give a collective *nanRi* 'thanks' to them all. There are undoubtedly errors which are entirely my fault. Many examples which I give for Tamil as a language may not be accepted by all speakers, as different speakers with different native dialects contributed material independently.

the verbs that participate regularly in clause-chaining constructions, around a dozen are sufficiently 'grammaticalized' to be generally considered auxiliaries, although most auxiliaries have both an auxiliary and main verb use with a fairly transparent semantic relation between the two uses.

Tamil also sanctions nominal predicate sentences for equational statements, i.e. X (is) a Y, where 'Y' occurs without any copula and may be a simple noun or a nominalization of a tensed verbal predicate, i.e. X (is) the one-who-brought-my-book-back.[3]

(1) *avan* *tirutan*
Dist-3sm thief
'He is a thief'

(2) *avan* *en* *puStakattait*
Dist-3sm 1s.Obl book-Acc
tirumpikkonTuvantavan
turn-ConV-take-ConV-come-Ps-Adj-Nomz-3sm
'He is the one who returned my book'

Depending on the analysis, there are approximately seven classes of verbs grouped according to which allomorphic form of the tense suffixes they take. The majority of these classes can be collapsed into two classes, one without gemination of the consonant of the tense morpheme and one with such gemination. Many roots participate in both such macro-classes, with the non-geminate paradigm indicating an intransitive use and the geminate paradigm indicating a transitive use. Historically, there is some argument that the overwhelming majority of Tamil roots were inherently intransitive with many transitivizing constructions and essentially no detransitivizing constructions.[4]

11.2.2 Explicit case marking

11.2.2.1 Traditional analysis: the eight Sanskrit cases

Even today, most Tamil grammars are influenced by the organization of the original Tolkaappiyam grammar. Tolkaappiyam is divided into three sections:

[3] I use the following conventions for grammatical morphology (glosses with initial Capital or number): 1s – 1st person singular, 3sm/f/n – 3rd person singular masculine/feminine/neuter, Acc – accusative, Adj – adjective, Adv – adverb, ConV – converb, Cop – copula, Dat – dative, Dist – distal, Emph – emphatic, Fu – future tense, Imp – imperative, Immed – immediative, Incl – inclusive, Inf – infinitive, Intr – intransitive, Loc – locative, Nom – nominative, Nomz – nominalizer, Obl – oblique, Perf – perfect, Pr – present tense, Prfv – perfective/*viTu*, Prog – progressive, Prox – proximal, Ps – past tense, Resp – respectful form, Simul – simultaneous.
Capital consonants in transliteration represent retroflexed values most approximated by the Latin characters. 'z' represents the retroflexed approximate found as the final sound of the native pronunciation of the word tamiz 'Tamil'. Note that geminate oral stops are typically voiceless and non-geminate stops are typically voiced in medial position.

[4] Tamil is a fundamentally intransitive language in the typological sense of Nichols (1982).

Table 11.1 *Modern Tamil cases (categorized on the basis of morphological forms)*

Standard WT form	Gloss
Null	Nominative
-ai	Accusative
-ku	Dative
-aal	Instrumental
-ooTu	Sociative (non-human)
-uTan	Sociative/Commitative (human)
-utaiya/Oblique stem	Genitive
-il	Non-rational locative*
-iTam	Rational locative

* 'Rational' entities are human or human-like

Phonology, Morphosyntax and Semantics/Rhetoric. There are few works in English on Tolkaappiyam and these mostly concern the semantics sections.[5]

Presumably following the model of Panini for Sanskrit, Tolkaappiyam demonstrates six case suffixes, plus the zero-marked nominative for a total of seven cases which relate the noun to the verb. Tolkaappiyam treats the vocative case suffix separately as it does not relate the noun to the verb. Nonetheless, this gives a total of eight case suffixes for Classical Tamil: Nominative, accusative, instrumental/sociative, dative, ablative, genitive, locative and vocative.

However well this eight-fold inventory worked for Classical Tamil, it is quite a stretch to claim that Modern Tamil has these eight cases.[6] For one thing, the vocative case is scarcely used, while other cases remain either obligatory or at least indicate distinct semantics when omitted (i.e. the indication of indefinite reference by the absence of an accusative with inanimate object nouns). Going through the list of the remaining seven traditional cases: there are two case endings referred to as sociative; Modern Tamil no longer has a simple ablative suffix; there are different locative morphemes with contrastive functions (more on these last two in §§11.2.3 and 11.3.2, respectively). Following the morphological forms alone, I would ascribe the nine cases in Table 11.1 to Modern (Written) Tamil.[7]

[5] Subrahmanyasastri (1979) is devoted to the grammatical portions of *Tolkaappiyam* and discusses case at length.

[6] This remains the standard way to describe the cases in Tamil, however. E.g. in Arden (1954), the nominative is referred to as the first case through to the vocative as the eighth case.

[7] The forms for Spoken Tamil are more complex, with dialect variation and some morphophonemic complexity, so the Written to Spoken Tamil correspondences are not included in the table.

11.2.3 Postpositions/locative nouns

In addition to case, there is a fairly small set of locative nouns, which typically combine with a dative-marked NP. All of these forms are still transparently nouns ('top', 'side', etc.) with independent status, but they do not (usually) take case endings themselves and form a set with other (non-locative) roots some of which no longer occur as independent nouns. Accordingly, the locative nouns in Tamil are often referred to as part of a separate postpositional form class – although the boundaries of inclusion in this set are rather indistinct.

The postpositions combine with nouns to further specify location when case marking alone is communicatively inadequate. Examples of these are found in the following section.

11.3 Topological relations

11.3.1 The locative case(s)

11.3.1.1 -il (LT); -le (ST)

The most common way of indicating a locative relationship is with the locative case. This does not specify nor deny a more exact nature of the relationship between figure and ground ('in contact', 'figure vertically superior', etc.). In normal use, the locative will be used mostly for canonical relationships.

(3) *kap meejaiyil irukkiRatu*
cup table-Loc Cop-Pr-3sn
'The cup is on the table'

Accordingly, to represent a boat typically floating on the surface of the water, one would probably use the simple locative case as in (4). It is also possible to use a postposition (5), though it is overly emphatic for most contexts. If the boat were submerged, one would obligatorily use a postposition (6).

(4) *paaymarakkapil kaTTalil ninRukkoNTirukkiRatu*
sailboat ocean-Loc stand-ConV-Prog-Pr-3sn
'The sailboat is in/on the water'

(5) *paaymarakkapil kaTalkumeelee ninRukkoNTirukkiRatu*
sailboat ocean-Dat-top stand-ConV-Prog-Pr-3sn
'The sailboat is on top of the water'

(6) *paaymarakkapil kaTalkuuLLee mungkiyirukkiRatu*
sailboat ocean-Dat-interior-Emph sink-ConV-Perf-Pr-3sn
'The sailboat has sunk'

Conversely, a fish submerged (i.e. alive and swimming) in water would be referred to with *taNNiril* (water-Loc), but one dead and floating with *taN-NiRkumeelee* (water-Dat-Top-Emphatic).[8]

Bowerman and Pederson (ms.) refer to this marking strategy as pragmatically inferencing in that the more precise nature of a locative relationship need not be specified when adequately recoverable. In contrast with this marking strategy, other languages (e.g. English) are semantically specifying in that they must specify a more precise locative relationship even when this relationship is fully retrievable pragmatically. This cross-linguistically variable obligatoriness for explicit expression is also discussed in Ameka (1995) for Ewe, English and Arrernte.

In Tamil, when a location is ambiguous, a more specific postposition is preferred. For example, an object might as commonly be IN a table (i.e. contained in the drawer) as ON a table (i.e. in contact with the upper surface). In which case, the postpositional form is preferred. Some more complex examples of the contrast between locative case and *meel* 'on/above' are given in the discussion of *meel* in the locative noun section (§11.3.2.1).

(7) *peepar* {*??meecaiyil / meecaimeelee*[9]} *keTaikkiRatu*
paper {table-Loc / tabletop} be.available-Pr-3sn
'The paper is on the table'

On the other hand, when there is no appropriate postposition for a locative relationship, then the locative case may well be used if the semantic generality is acceptable to the discourse. So for quickly describing a picture of a fruit skewered on a long spike, the locative case is readily used even though the same description might also be used to describe the fruit resting on a supine spike.

(8) *koyyaappazam aaNiyil irukkiRatu*
guava-fruit nail-Loc Cop-Pr-3sn
'The guava is on the nail'

Note, however, that describing the same relation with the spike as subject and the fruit as ground requires (or at least strongly prefers) *kayyaapazattukkuuL* 'inside the guava' rather than the locative case (for further discussion of *uuL*, see §11.3.2.3).

As with locative marking in other languages, the Tamil locative case can unremarkably be used to represent 'location' in time, in states, in abstract media,

[8] If a discourse had long established the sunken nature of the boat or the floating nature of the fish such that this were no longer noteworthy, it becomes possible that both might be referred to with the simple locative case.

[9] Though this elicited example is given in literary Tamil form, *meelee* typically occurs without the dative more in spoken than in literary Tamil. More on that issue below.

etc. Such non-spatial uses are beyond the scope of this chapter. However with temporal reference, note that the locative case can indicate 'location' after an interval of time rather than containment or location within. This is analogous to the English *in a* (unit of time):

(9) *oru naaLil engkaL viiTTukku vaarungkaL*
one day-Loc our house-Dat come-Imp-Resp
'Come to our home in a day('s time)' (example from K. Paramacivam, p.c.)

11.3.1.2 -iTam (.LT); -kiTTe (ST)
-iTam is the second 'locative case' form in traditional accounts of Modern Tamil grammar.[10] This form is transparently a noun 'place', though it does not take a case ending itself when suffixed to a noun, so the form cannot be understood as forming a compound noun. As such, this form appears to be a recent postposition becoming a fully-fledged case ending. The spoken form *-kiTTe* transparently derives from the verb *kiTTu* 'approach, be near', and appears to have approximately the same degree of fusion as *-iTam*.

Both *-iTam* and *-kiTTe* can only be used with 'rational' NPs, that is NPs representing entities with human-like cognition, including humans, gods and anthropomorphicized animals. *-il/-le* can be used with rational and inanimate NPs. The distinction between the *-iTam* and *-il* is sometimes subtle. As might be expected with a form restricted to animate NPs, *-iTam* is generally used when the locative relationship between figure and animate ground has a dynamic character, typically with the ground actively involved. For example, the simple locative *-il* in (10) suggests pure location, that is, that the money is located on his person, with no implication of possession or control (e.g. he could be a corpse being searched). The verb *iru* is discussed in Section 11.4.

(10) *avanil paNam irukkiRatu*
Dist-3sm-Loc money Cop-Pr-3sn
'Money is on him' (lit. 'the money is at him')

In contrast to this *-iTam* in (11) implies that the money is under his current control, although ownership is still not implied.

(11) *avaniTam paNam irukkiRatu*
Dist-3sm-place money Cop-Pr-3sn
'He has money (to use)' (lit. 'money is his-place')

Finally, to denote ownership or ultimate control, the dative is used, though this implies nothing about the physical presence of the money:

[10] Lehmann (1989) classifies this as a bound postposition but provides no particular argument for this analysis. His list of postpositions also include transparently verbal forms.

(12) *avanukku paNam irukkiRatu*
Dist-3sm-Dat money Cop-Pr-3sn
'He has (i.e. owns) money' (lit. 'the money is to him')

Similarly, *-iTam* alternates with the dative in indirect object constructions to suggest that there will be a dynamic/subsequent relationship after the motion/transfer of the object. (The *-il* locative case cannot be used with indirect objects.)

(13) *avanukku paNam koTutteen*
Dist-3sm-Dat money give-Ps-1s
'I gave him money' (transfer ownership: to keep, own, etc.)

(14) *avaniTam paNam koTutteen*
Dist-3sm-place money give-Ps-1s
'I gave him money' (transfer of control: to hold, pay for something, etc.)

11.3.2 Locative/relational nouns

Topological relations are commonly specified with a locative noun or postpositional construction. As in many languages, postpositions (or relational nouns) are also used for non-topological spatial relations (e.g. *vaTakku* 'to the north of', see below) as well as for non-spatial uses (e.g. *paTi* 'in the manner of').

I treat an item as a postposition if it combines with a nominal (which may itself be in the oblique and may also take a case ending) to create a larger syntactic unit which more fully specifies a relationship between subject and the nominal taking the postposition. While in principle any semantically appropriate noun could occur in this position, I consider morphemes fully grammaticized as members of the postpositional class only if they do not themselves inflect for case. Denoting spatial relations is the primary function of many postpositions – other functions include: discourse operators 'concerning topic N', temporality 'previous to N', manner, etc.

There are perhaps twenty nouns which can function as postpositions and which specify a spatial relationship. The existence of many near-synonyms (and the frequent diachronic change in inventory of this class) suggests that the class is still somewhat open. Because these nouns can occur independently, there is little reason to suppose that this is a special morphological form class. However, when attached to other nouns they denote more specific relationships than case endings and they do not take case endings themselves. Note, however, that the locative case serves quite well in most discourse. Even when eliciting reasonably nuanced spatial language in the 'Topological Relations Picture Series' (TRPS) elicitation task (see Chapter 1, §1.4.1), postpositions were spontaneously suggested with no more than half of the pictured relations.

The most minimal type of postpositional construction uses an oblique form of the main nominal immediately followed by a relational noun with no case ending.[11] Most of these are spatial postpositions. Note that these postpositional forms can also be used adverbially, e.g. *kiiza* 'down' in the fourth sentence of (44) in Section 11.4.3.

Most locative nouns participate in the postpositional class, although there are a few locative nouns which typically receive case marking and do not qualify for full postpositional status. I will exemplify some of these in Section 11.3.2.5. Also, while the emphatic clitic *-ee* would not normally be used with a bare nominal root, the emphatic will frequently cliticize to a postpositional use of the same root – especially in Spoken Tamil.

The oblique form is generally used in possessive compounds (PossessingNoun.Oblique + PossessedNoun) as well as being the base form onto which explicit case marking is attached. Thus a construction GroundNoun.Oblique + LocativeNoun is structurally ambiguous as being either a possessive compound (e.g. table's top) or an emerging (partially grammaticized) case marking (e.g. table-SuperiorCase). As mentioned above, the locative nouns generally do not take case when occurring in this construction. Accordingly, the locative noun construction seems closer to becoming case marking than to being a compounding construction.

For purely locative relations, an alternate form of this construction is preferred which marks the ground-denoting nominal with a dative after which follows a locative noun. Interestingly, this construction seems essentially limited to expressing spatial relations. Of note is that many (perhaps most) spatial postpositions can occur both following an oblique nominal and following a dative nominal – with potentially distinct interpretations, as I shall discuss in the following subsection.

To exemplify postpositional use, I'll consider examples using two of the more common spatial postpositions: *meel* 'on, above' and *uuL* 'in(side)'.

11.3.2.1 Meel(ee)

Like many languages, Tamil uses a single form to represent both contact 'on' relations, as well as non-contact vertical superiority relations 'above'. From the

[11] Lehmann (1989) includes *muulam* 'by means of', *varai* 'until', *illaamal* 'without' and *allaamal* 'except for' in his list of postpositions, and these four combine with the nominative (rather than the more typical oblique or dative) form of the nominal. *muulam* exceptionally derives from Sanskrit (*muula*) 'base, cause' and can take the adverbial suffix. This suggests that this *muulam* by itself in Modern Tamil may be a shortened form of an adverbial phrase. *varai* is an indigenous noun 'border, limit' and can take case endings even when appearing as an alleged postposition. This suggests that *varai* is also not quite in the same form class as the other postpositions. *illaamal* and *allaamal* are still transparently reduced predicates with the nominal as subject. Accordingly, I am disinclined to consider these as candidate postpositions.

oldest texts, the form *meel* as an independent noun had a principal semantics of 'upper part'. The use of *meel* as a clitic or postposition with roughly its current function dates to prehistory, although it is unclear whether it was ever used for non-contact superiority in Old Tamil. Rajam (1992) lists the form only with a contact (or metaphorical contact) meaning; Agesthialingom (1979) lists *meel* as a clitic with the meaning 'upon'.

By the time of the *ThirukkuRal* (Late Classical, *c*. fifth century CE) the sense of 'above' is clearly citable (Dhamotharan 1972) and the 'above' sense is found throughout the South Dravidian branch (drawing from Burrow and Emeneau 1984). (The time depth to Proto-South-Dravidian is perhaps 2,000 years and there has been considerable language contact since then.)

It is probable that the meaning of 'above' in Tamil and other South Dravidian languages developed from a grammatical meaning originally restricted to contact relationships with upper regions or surfaces of grounds.[12] The root is also found in the form for 'west', as shall be discussed in Section 11.5.2 below.

Like most spatial postpositions, *meel* can occur immediately cliticized to an oblique ground nominal or it can follow a dative ground nominal. The difference has been described by Schiffman (1979) and Lehmann (1989) as denoting contact (oblique) vs. non-contact (dative). While this appears to hold for some speakers, for others the two constructions are often synonymous. The use of the simple oblique plus *meel* suggests a contact relation to most speakers I have asked – especially if in direct contrast with the dative form of the ground nominal. For example, a dative on candle in (15) is dispreferred:

(15) *ripan mezukuvartti(?kku)meelee kaTTiyirukkiRatu*
ribbon candle(-?Dat)-*meel*-Emph tie-ConV-Perf-Pr-3sn
'The ribbon is tied on the candle'

It is unclear whether this is a direct reading of the semantics of the construction or whether this is the influence of an iconic interpretation of the close fusion between ground and relational noun. The dative marking itself affixes to the oblique form of the ground object, so the construction ground-Dat+*meel* has additional material separating the relational noun from the ground nominal. Add to this that the dative normally expresses 'direction to(wards)' and not 'location at', and an interpretation of Dative + *meel* as expressing a non-contact relationship seems natural.

[12] *meel* is found across the Dravidian family – although in some languages more distantly related to Tamil, the meaning may be restricted to a non-spatial sense of 'goodness' or 'excellence' (following Burrow and Emeneau (1984)).

However, at least for some speakers this interpretation is far from automatic. For example, a tablecloth has a clear contact with the supporting table, but the noun 'table' was more readily marked with the dative:

(16) *tuNi vaicci* *meecaikku meelee* *muTiyirukku*
cloth put-ConV table-Dat above-Emph attach-ConV-Cop-Pr.3sn
'The cloth is placed on top of the table'

Generally speaking, the more the contact can also be seen as restrictive of the figure's motion, the less likely the occurrence of the dative case marking on the ground nominal. For example, the following all were offered principally without the dative case:

'lamp/telephone (stuck) on wall'
'stain on shirt'
'stamp on letter' (*steemp leTTar-meel*)
'raindrops striking on window'
'candles stuck on cake'
'A book on a shelf' equally readily occurred with and without the dative.

As in perhaps all languages, locative nouns have non-spatial or metaphorical uses as well. For example, *atukkumeel* 'on top of that' has the same sense of 'additionally' as in English. Note that in such examples, the dative marking is obligatory. This is consistent with a view that the absence of dative marking implies physical contact.

11.3.2.2 Contrast with simple locative

In all of these examples, it should be remembered that *meel* is only optionally replacing the locative case. In many examples, the use of *meel* instead of the locative is unnecessarily emphatic or overly specific. For example, a picture on the wall would normally be described only with 'wall'-Locative since there are no locative relationships other than flat against the wall which are readily imaginable alternatives. On the other hand, a picture on the table quite readily takes 'table'(*-kku*)+*meel* since the picture could be readily imagined within a drawer, leaning against the table, etc. Similarly, a design on a shirt, even when printed 'onto' the fabric is awkwardly expressed with 'shirt' *-meelee* whereas the simple locative is completely normal. The same holds for a plaster on a foot and so forth.

A picture on a stamp is normally expressed with the locative case. Interestingly, 'stamp' + *meelee* can be used, but then it implies a 'resting on' relation, not a 'printed-on' or 'stuck on' relation. This is presumably a pragmatic interpretation of the decision not to mark the relation as a typical locative-case-type relation.

Similarly, a sauce (e.g. mustard on a hotdog) flowing on/along a ground-object can take *meel*, that is, there is marking of a contact relationship with the ground and the flowing is in respect to that contact. However, a simple locative can imply that the sauce is flowing 'onto' the ground-object, i.e. the flowing is with respect to a generic location of the ground-object and the contact is actually created by the flowing.

(17) *haTTutaaku(kku) meelee oTikkoNTirukkiRatu*
hotdog-(Dat) *meel*-Emph flow-ConV-Prog-Pr-3sn
'[It] is flowing on the hotdog'

(18) *haTTutaakil oTikkoNTirukkiRatu*
hotdog-Loc flow-ConV-Prog-Pr-3sn
'[It] is dripping/flowing onto the hotdog'

Importantly, when *meel* (with the dative-marked ground nominal) is used with a non-contact sense, there is a restriction to an 'above', i.e. a superior, relationship. This is consistent with the core semantics of the noun *meel* of 'upper (part)'. When *meel* is used with the oblique it can be used for contact/support relationships which do not place the figure in a superior position. That is, the range of contact relations is broader than non-contact relations, although, unsurprisingly, I have no examples of *meel* indicating a notably inferior contact relation.

11.3.2.3 uuL(ee)

The form *uuL* is historically a noun with the meaning of 'interior', and although the form is seldom used as a stand-alone noun in Modern Tamil, it often occurs as the first element of many N+N compounds, e.g. *uL* + *paavaaTai* 'skirt' > 'petticoat' or 'underskirt' and *uL* + *naakku* 'tongue' > 'uvula'.

As a postposition or relational noun, it denotes containment or location within a ground object.

(19) *appel boolukkuuLee irukkiRatu* (preferred: *boolil* 'bowl-Loc')
apple bowl-Dat-inside Cop-Pr-3sn
'The apple is inside the bowl'

In parallel with *meel*, *uuL* co-occurring with the dative marking does not suggest contact with the ground. This is hardly surprising given the semantics of 'inside'. Unlike *meel*, *uuL* does not occur with a bare oblique ground nominal even though such a construct might have been expected to indicate 'contact containment' or 'location on the interior surface of'. Accordingly, even if for some reason a speaker felt the need to use *uuL* rather than a simple locative with 'apple in bowl' and felt that the contact with the inner surface of the bowl was not obvious, the dative form would still be used.

Apparently, there had been little communicative need for a ± contact contrast to have grammaticized. Even English *inside G* does not imply on its own any contact with a surface. Like many of these locative nouns, *uL* can combine with *pakkam* which creates a noun denoting the interior surface of an object, but this compound noun is not a postposition (it must take case, etc.).

11.3.2.4 Other locative nouns

In addition to the more common *meel* and *uuL*, there are several other common 'topological' locative nouns which occur after an oblique (genitive) or dative-marked ground, for example *kiiz* 'below, under', which is typically an antonym of *meel(ee)*. Like *meel*, without the dative case on the ground nominal, *kiiz* may suggest an inferior relationship which involves contact, e.g. on the lower part of something. With the dative, the form is more likely to express an 'under' relationship, that is, inferior, non-contact.

(20) *eTTukkaalpuucci cuvar kiizee irukkiRatu*
8-leg-bug wall below Cop-Pr-3sn
'The spider is low on the wall'

(21) *pantu meecaikku kiizee irukkiRatu*
ball table-Dat below Cop-Pr-3sn
'The ball is under the table' (i.e. on floor beneath table, not on the underside)

Note that NP.Oblique+*kiiz* + *pakkam* 'side' can be used to express a relationship of contact (with support) on the 'underside' of a ground, e.g. gum on the underside of a desk, although this could also be used for 'on lower surface of'.

(22) *eTTukkaalpuucci meecaikiizpakkattil irukkiRatu*
8-leg-bug table.Obl-below-side.Obl-Loc Cop-Pr-3sn
'The spider is on the underside of the table'

Other similar locative nouns include:

(i) *veLi(yee)* 'outside'. Typically an antonym of *uuL(ee)*.
(ii) *etir* 'opposite'. This more commonly occurs taking a case ending and thus not as a proper postposition, see below.
(iii) *appuRam* 'behind' i.e. literally 'at the distal side'. This tends to be used for speaker-relative perspective, i.e. what is beyond from the deictic centre. Somewhat contrastively, *pin* 'after' tends to be used for figures inherently located behind grounds, e.g. behind in line, but can also be used for speaker-relative perspective. This will be discussed in the frames of

reference section below. Unsurprisingly, *appuRam* is also used temporally for 'next'.

11.3.2.5 Ground + Dative + LocativeNoun + Loc

Two locative nouns *iTai* 'middle, waist' and *naTu* 'middle' which both denote 'between, in the middle of, among' are exceptional in that they inflect for locative case themselves. Note that these two locative nouns with locative case can occur only in conjunction with dative marking on the ground, whereas most of the other locative nouns can alternate between occurring with oblique and dative marking on the ground, thus *nammiTai* / **nammiTaiyil* 'among us.inclusive'. As we will see below, there is some reason to treat Ground-Dat + LocNoun as a distinct construction.

The locative noun *etir* 'opposite' may also occur in this construction by taking locative case in addition to taking dative case. The dative case seems more suggestive of direction than location, but the contrast is not consistent.

11.3.2.6 Ground + Locative/Dative + LocativeNoun

Most locative nouns can co-occur with a ground which is marked with the locative case (23) or more marginally with the dative case (24), a construction already seen above in (16).

(23) *eTTukkaalpuucci cuvaril meelee irukkiRatu*
8-leg-bug wall-Loc above Cop-Pr-3sn
'The spider is high on the wall'

(24) *?eTTukkaalpuucci cuvarku meelee irukkiRatu*
8-leg-bug wall-Dat above Cop-Pr-3sn
'The spider is high on the wall'

In such cases, the locative noun is better analysed as serving as an adverbial modifier ('on/to the wall, the spider is being high/above') rather than as part of a postpositional phrase.

11.3.3 Verbally described location

Following the Max Planck Institute for Psycholinguistics' Space Project typology (see Kita and Dickey 1998: 55–61 and the concluding chapter to this volume), we can identify the use of either the locative case or a postposition plus the copula as the basic locative construction (BLC) for Tamil. We have seen that the locative case can be applied (when pragmatics permits) even to those

situations least likely cross-linguistically to receive expression by the BLC.[13] For example, a pierced/piercing relationship (8) can be expressed with the BLC – as it can be in many European languages as well. However, some situations, e.g. encirclement, are more 'comfortably' expressed using an agent/patient-type verbal expression rather than a BLC.

In Talmy's terms (1985), Tamil is a archetypal verb-framed language. It expresses path information with verb roots rather than with satellites such as postpositions or locative nouns. Similarly, complex spatial arrangements are often best indicated by verbal elements alone. For example, (25) expresses a path (with contact) around a box, which effectively entails that the ribbon lies along such a path. Similarly, (26) expresses location along a path without contact. Note that grammatically speaking, such sentences do not directly express a locative relationship at all even though the only normal interpretation is one of location. The 'ground' object takes the case of direct object, i.e. that which normally marks the patient.

(25) *ripan peTTiyai cuttikkaTTiyirukkiRatu*
ribbon box-Acc circumnavigate-ConV-tie-ConV-Perf-Pr-3sn
'The ribbon is tied around the box'

(26) *viTTaic cutti velliya poTTirukkiRatu*
house-Acc circumnavigate-ConV outside put-ConV-Perf-Pr-3sn
'The fence goes around house'

The verbal component of a sentence does not subcategorize for a specific case, rather the case is determined according to the desired semantic match. Accordingly, when communicatively appropriate, path verbs may also occur in conjunction with simple locative case marking on the ground. In such cases, the expression of the locative relation is divided between nominal locative and verbal path components:

(27) *ripan mezukuvarttiyil cuttikkaTTiyirukkiRatu*
ribbon candle-Loc circumnavigate-ConV-tie-ConV-Perf-Pr-3sn
'The ribbon is tied around on the candle'

It is important to remember that the verbal expression still literally expresses a motion event even when the inference of location along a path is automatic. That is, verbs such as *cuRRu* 'circumnavigate' are used only when the denotation of a motion event which creates a path around something is appropriate. As such, an item which simply happens to encircle but did not follow a path to attain that

[13] Roughly speaking, Tamil most readily uses a BLC for scenes 6 to 3, though it can be used albeit clumsily for scenes 2 and 1. (See the concluding chapter to this volume.)

configuration does not take *cuRRu*. For example, a ring is actually slid along the length of a finger rather than wrapped around the middle:

(28) *mootiram viralil* {*irukkiRatu / pooTTiyirukkiRatu /*
ring finger-Loc Cop-Pr-3sn / put-ConV-Perf-Pr-3sn /
**cutti . . .*}
circumnavigate-ConV . . .
'The ring {is / has been put / * circumnavigates} on the finger'

11.4 Motion events

This section describes the various resources which Tamil speakers bring to descriptions of motion events. For current purposes, I will treat 'motion event' as an intuitive notion.

The most common expression of motion is with a simple directional verb, or with a manner verb followed by a directional verb when manner is communicatively relevant. When path and/or manner is complex, a series of short clauses of 'converbs' will be strung together, with no linguistic limit to the number of clauses beyond what is deemed appropriate to the discourse. After first discussing manner verbs and their associated directional and other auxiliaries, I provide a narrative example from the 'Frog Story' (see Chapter 1, §1.4.3 for a description of this elicitation tool) as a typical description of a complex motion event.

11.4.1 Manner verbs

Like many languages, Tamil has a largish class of manner-of-motion verbs which by themselves do not indicate translational motion. If translational motion is to be indicated, a motion verb (principally 'go' or 'come', which are discussed at greater length below) must combine with the manner-of-motion verb. There is little reason to consider either verb as the semantically primary verb. Inflected verbs in many languages are treated as auxiliaries when the semantics of the sentence seems to be basically about the non-inflected verb. For example, English *he will come* is intuitively about 'coming', not 'willing'. However, in Tamil, an analysis as main/uninflected manner verb with an inflected directional auxiliary does not seem more appropriate than an analysis as main/inflected motion verb with a manner adverbial construction. For example, it is unclear whether (29) should be understood as a sentence about walking (with relatively incidental direction) or as a sentence about coming (with relatively incidental manner). The relative importance of the elements depends on context and the two verbs are perhaps best treated as semantically coordinated sisters.

(29) *naan viiTTukku naTuntu*[14] *vanteen*
1s house.Obl-Dat walk-ConV come-Ps-1s
'I walked home (here)'

Some verbs which pattern like this may not be immediately understood in the same sense of manner as with verbs, e.g. walking, which refer to continual activity during – and perhaps causally related to – the motion event. This construction also allows verbs which need not refer to continuous activity, but rather the results of the verb remain relevant during the 'go/come' phase of the event. For example, *tirumpu* 'turn.Intransitive' can group with the noun phrase expressing the location of the turning (back) in a journey as in (30). However, it commonly joins with the main translational motion verb presumably to emphasize the relevance of the turning to the consequent motion in (31). We can understand this as manner in an extended sense in that the activity of coming is enacted while being in the state of turned away from a certain location, as opposed to other cross-linguistically typical manner verbs which express being involved with the activity of flapping wings, shifting legs, etc.

(30) *naan paLLikkuuTattiliruntu tirumpi viiTTukku vanteen*
1s school.Obl-Loc-Cop-ConV turn-ConV house.Obl-Dat come-Ps-1s
'I turned back from school and came home'

(31) *naan paLLikkuuTattiliruntu viiTTukku tirumpivanteen*
1s school.Obl-Loc-Cop-ConV house.Obl-Dat turn-ConV-come-Ps-1s
'I returned home from school'

This unit *tirumpiva* is not a compound in that it still retains the explicit coordination through the converbial morphology, but it is nonetheless part of a single intonational unit. One might speculate that (30) is more readily understood as expressing relatively separate motion events and that (31) is more readily understood as expressing a more unified, if complex, motion event. This would be in line with, for example, Givón's notion of event integration (Givón 1990).

11.4.2 Auxiliary verbs go/come/be/leave

Tamil has perhaps a dozen auxiliary verbs depending on the choice of formal criteria. Four of the most common can be considered to constitute a paradigmatic set in that each can commonly occur in the same position: *va* 'come', *poo* 'go', *iru* 'be' and *viTu* 'leave'.

The verbs *va* and *poo* still essentially denote their literal and historical meanings, whereas both *iru* and *viTu* have undergone considerable semantic

[14] Note that *naTu* 'walk' can also be used to represent 'operate' as with machines, etc. Since *naTu* indicates a type of repetitive motion without any necessary translational motion, this seems less divergent a sense than English *the running machine*.

generalization. Correspondingly, these last two ('be' and 'leave') can also modify the other two ('go' and 'come') whether or not go/come occur as main verbs or in an auxiliary function. 'Go' and 'come' are more strictly limited to following non-auxiliary verbs and can be considered less fully grammaticized than 'be' and 'leave' on both semantic and structural grounds. The following discussion of 'go' and 'come' was considerably informed by the method developed in Wilkins and Hill (1995). In this method, a standardized set of motion paths (with carefully controlled deictic centre, source and destination) were presented to native speakers to exhaustively explore the range of expression of verbs which are typically translated as 'go' and 'come'. Specific scenes mentioned below are taken from Wilkins (1993b).

11.4.2.1 Go

The verb *poo* can be used as the sole verb of a sentence or clause when the manner of motion is communicatively irrelevant. Equally commonly, it follows a manner-of-motion verb which by itself does not indicate direction.

(32) *paRavai paRantuppooyviTTutu*
bird[15] fly-ConV-go-*viTu*-Ps-3sn
'The bird flew past/away'

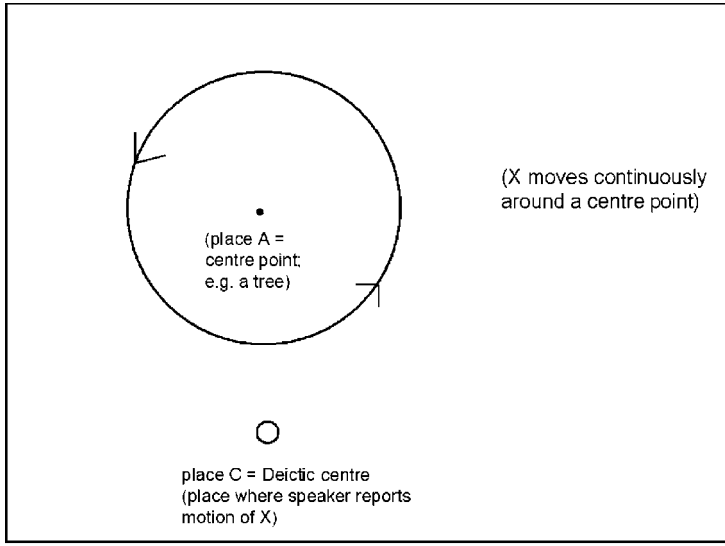
As in many languages, the use of the manner verb alone would not indicate any direction of motion and accordingly implies lack of translational motion (the bird flew 'around', i.e. in roughly the same place).

Again, it is somewhat artificial to speak of either verb as semantically subordinate to the other in that each contributes distinct components to the overall motion depiction. Whether appearing as the sole verb of the clause or following a manner-of-motion verb, *poo* denotes motion which ultimately travels away from the deictic centre. An entity moving roughly towards the deictic centre, passing nearby and then continuing on will be marked with *poo*, although additional specification of the path is also possible (see Scene 15 in Figure 11.2).

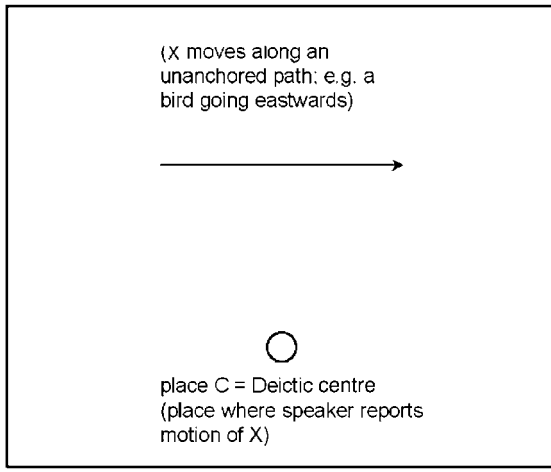
As in many languages, English 'go' is the semantically less marked form of the 'go/come' pair. If direction is not specified, but a motion verb is called for, 'go' is used with no implication of a specific direction to the motion. In contrast to this, 'come' will only be used in cases of motion to be marked as specifically containing direction toward the deictic centre.

Relative to English 'go', Tamil *poo* is somewhat more semantically marked. If motion does not specifically result in at least some portion of the path moving away from the deictic centre, *poo* generally will not be used. For example, an entity travelling around and around the deictic centre could be denoted with

[15] Note that *paRavai* is a historical nominalization from the same root 'fly'.



Scene 10



Scene 15

Figure 11.1 Three scenes from Wilkins's (1993b) 'COME' and 'GO' questionnaire

the verb *cuRu* 'wrap, circle' plus the verb *vaa* 'come', but not with the verb *cuRu* plus *poo*. This contrasts with English *he was going around and around us* and **he was coming around and around us*. In Tamil, if the circling is taking place remote from the deictic centre, then either *vaa* or *poo* can be used with no apparent difference in interpretation (Scene 10 in Figure 11.2). This contrasts

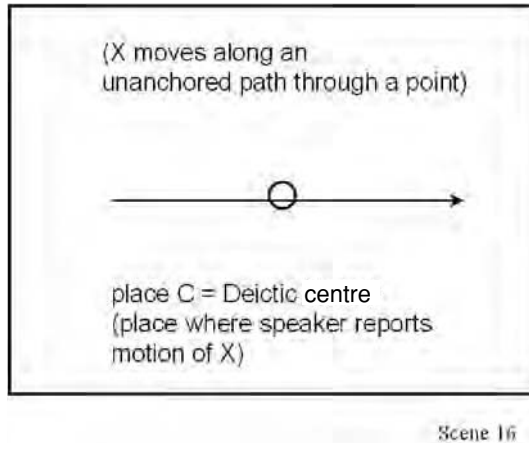


Figure 11.1 (*cont.*)

with English which accepts *he was going around and around over there*, and still rejects *he was coming around and around over there*.

11.4.2.2 Come

As just stated, *vaa* is used in more cases of motion than English *come*. However, it is far from being a generic motion verb like English *go*. An event denoted by *vaa* must have motion at least tangentially in the direction of the deictic centre and if there is subsequent motion roughly away from the deictic centre, this must be marked with *poo*.

For example, an entity moving towards, through and then away from the deictic centre (Scene 16 in Figure 11.1) can be described in Tamil with *poo* alone or with *vaa* plus *poo*, but not with *vaa* alone.

(33) *angkeeyiruntu* *(vantu)* *poonaan*
Dist-place-Cop-ConV (come-ConV) go-Ps-3sm
'He (came and) went from there'

It seems then that *vaa* and *poo* share fairly equal markedness status. Neither serves as the default motion verb and both require roughly the same degree of specificity of direction (and neither is the more grammaticized). This is in contrast to languages like English which have an asymmetrical pairing, with the 'go' verb being typically a generic verb of motion as well as a marker of motion away from the deictic centre and 'come' being the more semantically marked form.

In spoken Tamil, *vantu* (the converbial form of *vaa*) has come to be used as a topic marker for nominative arguments. Typically a referent will be

(re-)introduced to the discourse and in immediately following sentences or reasonably independent clauses, a bare nominal or pronominal form which is coreferential with that form will be maintained as (pro)Noun + *vantu,* . . . (lit. 'N coming, [it] . . .'). This topical subject marked with *vantu* need not even be capable of motion. Since Tamil normally uses zero marking for nominative case, this allows a contrast between topical subject and unmarked subject. More broadly, *vantu* occasionally even combines with non-nominal (and therefore non-subject) forms, as in (34).

(34) *appa<u>vantu</u> oru paaTTilkuLLavantu oru tavaLa irukkum*
then-Topic a bottle-Dat-inside-come-ConV a frog Cop-Fu.3sn
'Next, inside a bottle, there is a frog' (Frog Story told by nine-year-old girl)

Radetzky (2001) argues that topic markers commonly derive cross-linguistically from locative markers (most probably via contrastive and temporal uses). This non-spatial use of a motion verb appears to exemplify another way in which spatial language extends into topic marking, adding to our localist inventory of spatial markers which enter the domain of discourse marking.

11.4.2.3 Be

Through Middle Tamil (*c*. fifteenth CE), the verb *iru* was a main verb with the meaning 'be seated'. It can now be understood as denoting the zero-case of motion and thus part of the same semantic paradigm as *vaa* and *poo*. However, this is somewhat misleading in that, unlike *vaa* and *poo*, *iru* has grammaticized into a variety of auxiliary functions which are only abstractly related to (non-)motion.

In Modern Tamil, *iru* has generalized to an attributive (in (35)) or possessive (in (36)) copula when appearing as a main verb, and as a stative/perfect marker when appearing as an auxiliary (in (37) and (38)).

(35) *avan paittiyamaaka <u>iru</u>kkiRaan*
Dist-3sm crazy-Adv Cop-Pr-3sm
'He's (acting) crazy(ily)'

(36) *avanukku paNam <u>iru</u>kkiRatu*
Dist-3sm-Dat money Cop-Pr-3sn
'He has money (on him)' (Lit. 'To him, there is money')

(37) *taattaa kaTTilil paTutt<u>iru</u>kkiRaar*
grandfather bed-Loc lie.down-ConV-Cop-Pr-3sResp
'Grandfather is lying on the bed' (example from K. Paramacivam, p.c.)

(38) *avan* *ingkee* *vantirukkiRaan*
Dist-3sm Prox-Place-Emph come-ConV-Cop-Pr-3sm
'He has arrived here'

This last use has given rise to a common evidential usage as well:

(39) *poona* *iraattiriyil* *mazai* *peytiyirukkiRatu*
go-Ps-Adj night-Loc rain spew-ConV-Cop-Pr-3sn
'It must have rained last night' (e.g. the ground is visibly wet)

As Modern Tamil now only has the verb *uTkaar* 'to sit down', i.e. a change of posture verb, the state of sitting needs to be represented as *uTkaarntiru* (*uTkaar*-ConV-*iru*) 'having sat down' or more literally 'sitting down, be seated'.

11.4.2.4 Ablative

Just as the converbial form of *vaa* commonly participates as the functional equivalent of a topic-marked nominative, the converbial form of *iru* commonly participates in the representation of motion events in a source locative construction which is the functional equivalent of ablative case. Traditional grammars actually refer to this as ablative case, despite the construction being transparently *SourceNoun-LocativeCase+ iru-ConverbForm*. That is, there is a clause which has the same communicative function as ablative case marking in other languages, but which is far more compositionally explicit. This is noted in modern grammars such as Lehmann (1989), but it is still considered a case despite its structure, presumably in deference to indigenous grammatical tradition.

(40) *kumaar* *marattiliruntu* *vizuntaan*
Kumar tree.Obl-Loc-*iru*-ConV fall-Ps-3sm
'Kumar fell from the tree' (Lehmann 1989: 42 'Ablative case')

There is no 'from' or ablative overtly expressed at all in this ablative construction. Rather, the subject is denoted as having been in a specific location prior to a subsequent motion event. One automatically infers a direction of motion 'from' that location towards whatever direction is indicated by the following clause.

As evidence that Loc+*iru* has not become simply a frozen form, note that the same locative function of *iru* occurs when it combines with a deictic locative such as 'there/here'+*iru*, as we have already seen in Section 11.4. Further, *iru* gives an ablative sense when it combines with the marker *iTam* (LT) / *kiTTu* (ST) 'location at rational entity' (discussed above in §11.4):

(41) *viSNu* *mutalaiyiTamiruntu* *yaanaiyaik* *kaappaaRRinaar*
Vishnu crocodile-*iTam*-*iru*-ConV elephant-Acc rescue-Ps-3sResp
'Vishnu rescued the elephant from the crocodile' (example from K. Paramacivam, p.c.)

11.4.2.5 Leave (viTu)

Lastly, we have perhaps the most enigmatic Tamil auxiliary: *viTu*. This was historically a main verb with the semantics 'leave', but no longer occurs except as an auxiliary in Modern Tamil. The auxiliary *viTu* is usually described as a perfective or completive marker. Herring (1988) describes *viTu* as a general marker of discourse boundaries. With respect to motion events, *viTu* is fairly straightforward. When the path of the motion event is simple, that is, when it consists of just *vaa* or *poo* (and not *iru*), then *viTu* occurs as an auxiliary to indicate that the motion ceases at the specified or implied goal.

For example, if an entity travels from the city of Cennai (Madras) to Thricchi, and the deictic centre is in Thricchi, *viTu* is optional:

(42) *naan cennaiyiliruntu*
1s Cennai-Loc-*iru*-ConV
tiriccikku {*vanteen / vantuviTTeen*}
Thrichi-Dat {come-Ps-1s / come-ConV-*viTu*-Ps-1s}
'I {came to / arrived in} Thrichi from Cennai'

However, when the deictic centre is in Madurai (that is, roughly in the same trajectory from Cennai, but beyond Thricchi), then *viTu* is more appropriate:

(43) *avan cennaiyiliruntu*
Dist-3sm Cennai-Loc-*iru*-ConV
tiriccikku {*?vantaan / vantuviTTaan*}
Thrichi-Dat {come-Ps-3sm / come-ConV-*viTu*-Ps-3sm}
'He {?came to / arrived in} Thiricci from Cennai'

Note that *poo* is unacceptable in both of these sentences unless the deictic centre is shifted elsewhere, e.g. to North India.

11.4.3 Complex motion/decomposition

The examples above were elicited and fairly simple. As motion events become more complex, their representation becomes multi-clausal. The English pattern of stacking satellites (e.g. Talmy's 'You come right back down from up in there') is not an option in a language such as Tamil which uses verbs to represent the dynamic portions (as opposed to the pure locations) of motion events.

To give an example of how this looks in natural discourse and for comparability with other chapters in this volume, I have selected a fairly typical depiction of the 'cliff scene' from a Frog Story narrative (see Berman and Slobin (1994) for a full description of this procedure and Chapter 1 of this volume for the relevant scene).

A sentence-by-sentence breakdown of this section of the story corresponds closely to the pages of the book. This retelling happens to be from memory, rather than while looking at the book. Accordingly, the incentive to follow the pagination in structuring the narrative can be understood as reduced, though it presumably is still a factor. I provide notes for the main motion verbs in this passage following the example.

(44) Extract from Frog Story, cliff scene; 2 August 1992: Woman (age 60) telling to son (30) and granddaughter (2)

1st sentence:

ate *kiLainnu* *ninacciTTu*
Dist-3sn-Acc branch-say-ConV think-ConV-Prfv
ate puTicciTTu
Dist-3sn-Acc grasp-ConV-Prfv
'He grabs this thing, thinking it's a branch,

ippaTi *paakkum* *pootu atu periya* *. . maan*
Prox-so see-Inf-Incl when Dist-3sn-Nom large-Adj . . deer
and when he looks like this, it's a big . . deer'

2nd sentence:

atu *urjensi taan* *avana* *tuukkikkiTTuk*
Dist-3sn-Nom urgency Emph Dist-3sm-Acc raise*-ConV-Simul-ConV
koNTukiTTu **ooTiyeepookutu.** [1]
hold-ConV-Simul un-ConV-Emph-go-Pr-3sn
'With real urgency, it lifts him up and carries him off at a run'

3rd sentence:

ivanum *naaykuTTiyum . .*
Prox-3sm-Incl dog-baby-Incl
'He and the puppy . .

reNTum ceentukiTTu *ippaTiyee*
two-Incl join*(Intr)-ConV-Simul-ConV Prox-so-Emph
pooRaangka [2]
go-Pr-3p(Rational)
the both of them are joined together going like this'

4th sentence:

atu *pooyi [3] oru kuurai meela . .*
Dist-3sn.Nom go-ConV a river.bank above . .
inta *kiiza taLLiviTTutu* [4]
Prox-Adj down push-ConV-*viTu*-Ps-3sn
'It goes [to] the top of a river.bank . . and dumps [them] down below'

5th sentence:
kiiza taLLiviTTavuTanee

down push-ConV-leave-Ps-Immed-Emph

. . kiiza taNNi keTakku . . taNNi
. . down water be.available-Pr-3sn . . water
'As soon as (they) are dumped down, down there is water . . water' [5]

* Same root is used in both a transitive and an intransitive inflectional paradigm

Notes for example 44

[1] *tuukkikkiTTu koNTukiTTu ooTiyeepookutu* in sentence 2 is a fairly typical example of combined converbial forms. The spacing between every two converbial forms approximately indicates prosodic word boundaries. These six roots give the translation equivalent of 'take off running with'. While English might even omit the 'take off' from that phrase, it would be poor style to do so in Tamil. Indeed, if *tuukki* 'raise-ConV' were omitted, *koNtu* 'hold-ConV' would also be unlikely and the string would reduce to *ooTippoo* 'run away'.

Note that the main motion event has the emphatic marker *-ee* on the manner-of-motion converb. With appropriate communicative need, *-ee* could occur suffixed on any of the six converbs. Placing it on *ooTi*, effectively directs attention to 'running' as the most salient feature of this complex motion event. Without it, there would be no structural indication of which components are to be taken as the most salient. Prosody could in principle mark such salience without *-ee*, but generally *-ee* is included to form the locus of prosodic emphasis. Also note that the *poo* is fairly critical to the depiction of the motion event since it is essential to indicate that there was translational motion away from the previous scene.

[2] Here in the third sentence we have the same motion event described with just *poo*. The reason is that the motion event is now being rephrased in a way which highlights the boy and the dog. Indeed, they are not running, but simply going without directly contributing to the manner of motion. Because it was established in sentences 1–2 that the deer was carrying them, there is no need to express them as patients in a passive construction (which is quite uncommonly used anyway).

[3] Here in the beginning of the fourth sentence we have a simple converbial form of *poo*. Without a *viTu* auxiliary, it indicates that the deer's going to the goal (mentioned after *pooyi*) remains part of the subsequent sub-event.

[4] The inflected auxiliary *viTu* at the end of the fourth sentence indicates that the dumping of the boy and dog closes the complex motion event. A sentence following an inflected *viTu* will either have a new subject or the old subject will be involved in an action deemed distinctive.

[5] Note that in the fifth sentence there is no explicit mention of the boy and dog actually entering the water, though it is inferable that they probably landed in the water mentioned. The small number and the variety of Frog Story narratives collected makes it difficult to know how common such a strategy may be. That said, this pattern seems far less peculiar in Tamil than the direct English translation.

11.5 Deixis and frames of reference

With respect to oriented relationships between figure and ground, all three of the frames of reference are well represented in Tamil: 'intrinsic' (as in *at the head of*), 'relative' (or egocentric as in *to my right*), and 'absolute' (or geocentric as in *to the north of*). In addition to the introductory chapter of this volume, Pederson (1993), Levinson (1996c, 2003), Bickel (1997) and Pederson et al. (1998) provide overviews of this typology.[16] Functionally similar, but using different form classes, the Deictic system (*here/there*, *this side/that side*, *hither/thither*) is also used to locate a figure with respect to (particular sides of) a ground.

11.5.1 Deixis in Tamil

All speakers use two primary systems of deictic marking and these are coupled with deictic gesture as appropriate. The first of these deictic systems are the 'come' and 'go' verbs. These are deictic in that they denote direction toward deictic centre and away from deictic centre respectively. As these were discussed above (§11.4.2), this section is limited to the other deictic system in Tamil: the ubiquitous deictic prefixes.

Modern Tamil has three prefixes which obligatorily combine with certain adjectival, adverbial and nominal roots (with the appropriate sandhi). The deictic prefixes are not exotic in the number of deictic distinctions they make. They essentially express a two-way proximal/distal distinction, plus a question form (where/which). However, the system is noteworthy for being so widespread and grammatically obligatory across a number of different word classes.

The 'proximal' *i-* form indicates immediate/adjacent/most recent, etc. The 'distal' form *a-* is the least conversationally marked and indicates less immediate/less adjacent, etc. The 'question' form *e-* essentially indicates lack of knowledge of whether something is 'proximal' or 'distal'. This is usually in the form of a question, but when the *e*-prefixed root also takes the suffix *-oo* or

[16] In principle there could be altercentric reference, that is, from the perspective of the addressee ('to your right'). However, since the forms for this are always (?) the same as the forms for intrinsic and/or relative perspective, there seems little reason to posit a separate linguistic type.

the suffix *-aavatu*, then the word is not a question word but indicates that the speaker wonders (*e- -o*) or does not care (*e- -aavatu*) about the proximal or distal status of the root. For example, *ippoozutu* 'now', *appoozutu* 'then', *eppoozutu* 'when', *eppoozutoo* 'at some yet undetermined time', *eppoozutaavatu* 'at some time or other'.

The most transparently spatial use of these prefixes is in the set of demonstrative pronouns *ingkee/angkee/engkee* 'here/there/where?'. Following Woodworth (1991), one can view these forms as sound-symbolic in that /i/ is cross-linguistically more likely to associate with small/proximal denotata and /a/ is a more likely with large/distal denotata.[17] Historically, there was once an /o-/ form as well with medial denotation.[18] If we entertain the hypothesis of sound symbolism of size/distance from /i/ to /a/, /e/ and /o/ are presumably intermediate in value.

There are many non-spatial roots which these three prefixes combine with: manner, quantity (count), amount (mass), etc. For example, *ivalavu* 'this amount', *avalavu* 'that amount', *evalavu* 'what amount?'. The third person pronouns are constructed out of this set: *ivan/ivaL/ivar/itu* 'this male/this female/this respected_one/this neuter_one', etc. Indeed, one might argue that these are purely demonstrative forms with a pronominal function as opposed to the monomorphemic pronouns for first and second person singular and inclusive pronouns (*naan* 'I', *naam* 'we_inclusive', *nii* 'you_casual/singular', etc.).

The demonstrative adjective set (*inta* 'this', *anta* 'that', *enta* 'which') is also constructed from these prefixes plus the adjectival suffix form. That is, there is only sandhi connecting the prefix and the suffix, with no actual root to which they attach.

Because all of these third person demonstrative pronouns and adjectives obligatorily take one of these three prefixes, a speaker must continuously decide whether to encode third person referents as proximal or distal. (This presumably motivates the use of the *-o* and *-aavatu* suffixes mentioned above.) The two most common ways to decide between proximal or distal marking is by the actual physical location of the denotatum or by topical referent tracking. While this may establish a contrast between two referents (this guy vs. that guy), when the distinction is based on physical distance, a proximal vs. distal morphological contrast may not express a clear intention to establish a distance contrast in discourse. On the other hand, when distal/proximal cannot be read literally, the listener can probably presume that there is an ascription of discourse salience to the contrast.

[17] Note that these forms cannot be taken as additional confirmation of Woodworth's claim because these are cognate with the Kannada forms used in her study.

[18] It is not clear from texts I have seen whether the form was medial in the sense of intermediate distance, or medial in the Japanese/Spanish sense of near addressee (vs. near speaker or near neither).

For the physical location sense of these prefixes, the proximal form is used for any referent in or near the deictic centre. The distal form is used for all other referents.

The proximal form is used for topical referents which are being maintained as importantly distinct (i.e. contrastive) referents from all others in a narrative. For example, the boy in the cliff-scene example above is referred to as *ivan* 'Prox-3sm', while other entities specific to just this scene are with the distal prefix (e.g. *atu* 'Dist-3sn' for the deer). The distal form is essentially the default and is always used for more recently introduced characters unless there is a desire to signal a shift in primary protagonist. Of course, the physical location and topic senses often converge.

Sometimes, two referents to be contrasted using *i-* vs. *a-* are equidistant (temporally as well as spatially) and equitopical. In tabletop space manipulations which I have recorded, a speaker will sometimes mark the leftmost referent with *i-* (proximal) and the rightmost with *a-* (distal). In cases where the listener cannot actually see any accompanying gesture or gaze, there is still correct ascription of reference. That is, when instructed to 'pick this one up and put it next to that one', the listener correctly shifts the leftmost object towards the rightmost. This suggests that speaker and hearer share a referent-scanning sequence of left to right onto which the proximal/distal distinction is mapped. This has been confirmed in self-report during debriefing as well, although I would not claim all speakers share this.

11.5.2 Same form, different frames of reference

It is important to note that many locative nouns can participate in different frames of reference. For example, the four major terms for description of relations on the two major orthogonal axes (*mun* 'front', *pin* 'behind', *valatu* 'right', *iTatu* 'left') can be used for intrinsic reference with respect to inherent regions of the ground object as well as for relative reference.

Note that there is no formal distinction between terms which are used for these two frames of reference – that is relative and intrinsic usage of terms is not formally marked differently. English has a somewhat reliable distinction between *to its back* (intrinsic) and *to the back* (relative), but this discrimination is not tidily marked in Tamil.

This is familiar in examples like English *F is behind G* where the figure could be either behind the ground with respect to the deictic centre (relative) or with respect to an intrinsically 'behind' region of the ground, e.g. *get behind her (in line)*. Overall, terms like *pin(aale)* 'behind' in Tamil seem more flexible than corresponding terms in English, not so much in the number of frames of reference they participate in (that is about the same), but in Tamil's seemingly greater flexibility in assigning intrinsic regions to grounds.

Figure 11.2 Three potential 'behind' relationships

To take an example from Pederson (1993), *pin* can occur in reference to each of the three situations in Figure 11.2, whereas English can use *behind* in at most two of these. In the left drawing, the horse is behind the tree from a viewer's perspective (relative). This is acceptably 'behind' in both Tamil and English (45). In the middle drawing, the tree is located in a region associated with the intrinsic behind region of the horse. This is perfectly reasonable in Tamil, and at least an allowable interpretation in English (see (46)). In the right drawing, the orientation of the horse combined with the presence of the tree creates an oriented line, in what I shall call **ascribed intrinsic reference**. That is, if the tree is in front of the horse, it is sensible that the horse is also behind the tree. This symmetry is at least possible for some Tamil speakers, while I have yet to find an English speaker to accept such an ascription (see (47)).[19]

(45) *kutirai marattukku pinnaale irukku*
horse tree-Dat behind-Loc Cop-Pr-3sn
'The horse is behind the tree' (same interpretation possible in English)

(46) *maram kutiraikki pinnaale irukku*
tree horse-Dat behind-Loc Cop-Pr-3sn
'The tree is behind the horse' (same interpretation marginal in English)

(47) *kutirai marattukku pinnaale irukku*
horse tree-Dat behind-Loc Cop-Pr-3sn
'The horse is behind the tree' (same interpretation impossible in English)

The forms for absolute spatial reference (*vaTakku* 'north', *teRku* 'south', *kizakku* 'east', *meRku* 'west') can be used only with respect to cardinal directions. However, they belong to the same formal class as the locative nouns used for intrinsic and relative reference. Accordingly, the absolute spatial reference is only lexically and semantically distinct from the other frames of reference in

[19] Note that this usage is also distinct from the so-called Hausa pattern (following Hill (1982)), which ascribes a front and back to the tree using the alignment of the tree with respect to the viewer (i.e. the back of the tree is on the viewer side assuming that the viewer and tree are aligned). In this usage the viewer is irrelevant and the front/back assignment is relative to the participants intrinsic to the scene.

that 'east' must refer to (the rather abstract) compass direction. A form meaning 'east' could never refer to a region defined by the ground or speaker.[20]

These forms also derive from nouns with the dative case (*-ku*), though many other locative nouns also do (e.g. *piRaku* 'behind'), so the cardinal terms are not exceptional in this way. Of some note, there is no evidence of non-cardinal use of the forms for north and south dating back to prehistory. However, the terms for east and west, while similarly ancient, are transparently related to the locative nouns for low and high respectively. The general lay of the traditional Tamil-speaking territory has a mountain range as its western border (the high country). Apparently from this geographical circumstance, ancient Tamils living hundreds of kilometres away in the eastern plains still referred to the west as upwards and the east as below. Interestingly, the same forms are used in Malayalam, a sister language which has a distinct written history dating back about a thousand years. However, the Malayalam-speaking territory is between the same mountain range and the west coast of South India. Thus the forms for east and west are etymologically inappropriate (since it is now the east that is generally higher). Despite this, the forms have continued to be used in this way for at least a millennium. This suggests that the period in which the forms became understood as cardinal in reference rather than about actual elevation dates to a period well before the separation of eastern and western South Dravidian languages.

11.5.3 Distribution of frames of reference among South Indian Tamil speakers

Of more current sociolinguistic note, some Tamil speakers appear to only productively use deictic and intrinsic reference. That is, they do not have productive control of speaker-relative usage of terms such as 'left/right'[21] and absolute terms such as 'north/south'. Of course, reference to landmarks and visible parts is communicatively adequate under most circumstances. However, in the unusual situation of having to describe the angular relationship of a figure with respect to an unfeatured ground, there can be great communicative difficulty (e.g. when an insistent linguist refuses to allow the consultant to point).

Aside from these few speakers, most (in my informal survey) productively control intrinsic and either relative or absolute frame of reference – but not

[20] Of course, absolute spatial reference can be anchored by reference to various concrete objects which represent the compass directions, for example, the main east gate of a South Indian Hindu temple. However, the only reason that such reference can be used is that it is assigned the same orientation (within some degree of tolerance) as the earth's cardinal axes. Accordingly, 'to the east of the temple' is still essentially absolute/geocentric rather than intrinsic.

[21] As with many languages, there is generally greater facility with speaker-relative use of front/back than with speaker-relative left/right. This difference of axis becomes even more acute with hearer-relative uses of these terms when the speaker and hearer do not share an orientation.

both. Generally urban-dwelling Tamils and some rural Tamils make use of speaker/hearer relative terms and do not use the absolute frame of reference except perhaps on the largest scale (e.g. North vs. South India) where the spatial reference is not directly related to perception. The examples below are extracts from correctly matched descriptions from the Men and Tree Game (see Chapter 1, §1.4 for a description of this elicitation tool) played between two urban-dwelling[22] male acquaintances (presented in the sequence the photographs were described). Note the apparently felt need to clarify between viewer relative vs. intrinsic usage of spatial terms such as 'behind', 'left', etc. even though there is no actual referential ambiguity with this set of photographs.

(48) Extract from discussion of Picture 2.4 (Relative-speaking, 28/7/92)
D=director, M=matcher

D: *ungkaLukku iTattuppakkattile oru paiyan irukkaan*
2s-Resp-Dat left-side-Loc one boy Cop-Pr-3sm
'There is a boy on your left side'

M: *ceri, anta maram . . anta ceTi avanukkup piinaaTe irukku*
OK, Dist-Adj tree . . Dist-Adj plant Dist-3sm-Dat behind Cop-Pr.3sm
'OK, that tree . . that plant is behind him'

D: *avanukkuppiinaaTe irukkum. mutuku pinaaTe irukkiRatu. ceriyaa?*
Dist-3sm-Dat-behind Cop-Fu-3sn back-Dat behind Cop-Pr-3sn. OK?
'It'll be behind him. It's behind (his) back. Okay?'

(49) Extract from discussion of Picture 2.5 (Relative-speaking, 28/7/92)

D: *ungkaLukku valatukaipakkattile oru paiyan irukkiRaan*
2s-Resp-Dat right-side-Loc one boy Cop-Pr-3sm
'There is a boy on your left side'

M: *aam*
uh-huh
'Right'

D: *ungkaLukku iTattupakkattile oru ceTi irukkiRatu*
2s-Resp-Dat left-side-Loc one plant Cop-Pr-3sm
'There is a plant on your left side'

[22] Actually, the matcher was originally from a very rural community and reports having needed to learn to speak with relative terms when he moved to the city around age twenty-one. He also reports subsequent difficulty using absolute terms for spatial reference when visiting his home village.

M: *ceri. appo avan anta ceTiye paarttu nikkiRaan*
OK. then Dist-3sm Dist-Adj plant-Acc see-ConV stand-Pr-3sm
'Okay. Then he's standing looking at that plant'

D: *ceTiye paarttu niRkiRaan*
plant-Acc see-ConV stand-Pr-3sm
'He's standing looking at that plant'

(50) Extract from discussion of Picture 2.3 (Relative-speaking, 28/7/92)
D: . . . *ceTiye paarttu niRRukkaan*
. . .plant-Acc see-ConV stand-Pr-3sm
'. . . he's standing looking at that plant'

D: *niingka paarkkum pootu valutupakkam ceTi, iTattupakkam paiyan*
2s-Resp see-Fu-Adj time right-side plant, left-side boy
'As you look at it, plant on the right side, boy on the left side'

M: *ceri kampu ooNiyirukkiRaan*
OK stick grasp-ConV-Cop-Pr-3sm
'Okay, he's holding onto the stick'

D: *kampu ooNiyirukkiRaan*
stick grasp-ConV-Cop-Pr-3sm
'He's holding onto the stick'

In rural South India, speakers commonly use the absolute frame of reference to the exclusion of the relative even with respect to figure and ground within manipulable space. When terms like 'front/right' are used (if at all), they refer to intrinsic body regions (possibly with the speaker as ground object) rather than angular relations determined by perspective. For situations such as playing the Men and Tree Game, this can be quite efficient as the following correctly matched example demonstrates.

(51) Extract from discussion of Picture 2.3 (Absolute-speaking, 10/4/93, middle-aged woman directing man, all correctly matched)
D: *oru ceTi . . oruttan vaTakka tirumpi nikkiRaan*
a plant . . a-3sm north turn-ConV stand-Pr-3sm
'A plant, a man is standing turned to the north'

(52) Extract from discussion of Picture 2.4 (Absolute-speaking, 10/4/93)
D: *vaTakka ceTi tekka tirumpi nikkiRaan*
north-Dat plant south turn-ConV stand-Pr-3sm
'Plant to the north. He is standing turned to the south'

(53) Extract from discussion of Picture 2.5 (Absolute-speaking, 10/4/93)
D: *oru ceTi tekka tekka tirumpi nikkiRaan oruttan*
one plant south south turn-ConV stand-Pr-3sm one-3sm
'A plant to the south. Standing turned to the south, a man'

Of course, people speak with others outside of their immediate community, so some speakers have at least partial facility with both relative and absolute frames of reference, although speakers have reported difficulty in actively using both. Older rural children going away to school or work often need to adopt speaker-relative ways of speaking. When such individuals are away long enough, they can find it difficult to return to their 'native' absolute system. For some additional discussion of urban/rural and absolute/relative contrasts among Tamil speakers, see Pederson (1998).

11.5.4 Intrinsic reference

Presumably all languages make use of intrinsic reference. That is to say there are constructions with privileged part/region nouns which relate a figure to a ground by situating the figure with respect to a specific part of the ground. *At the foot of the mountain* is a standard English example demonstrating the conventional and yet largely intuitive nature of the body part mapping from animate to inanimate entity.

As in many languages, Tamil part terms commonly participate in both intrinsic and relative frames of reference. An example with *pin* 'behind' was given above in Section 11.5.2. In intrinsic reference, the term solely refers to a part or region of the ground object independent of observer (*the back of the church*). In relative reference, three points are necessary: the figure and ground (as in intrinsic reference) as well as a perspective point from (typically) the speaker.

Mappings in Tamil from animate body part to inanimate part/region are few and those few are quite familiar to what is found in many languages. Instead of (metaphorical) animate to inanimate mapping, Tamil generally uses more abstract vocabulary which denotes non-metaphorical, geometrically defined regions: interior, exterior, superior, etc. Generally speaking, location with respect to an animate body part implies contact or close adjacency (54). Location with respect to an inanimate region is less precise.

(54) *en* *kaiviralil* *uTkaarntaan*
1s.Obl hand+digit-Loc sit.down-Ps-3sm
'He sat at/on my finger'

(55) *en* *viiTTukkupinpakkattil* *kuTiyirukkiRaan*
1s.Obl house-Dat+back+side-Loc reside-Pr-3sm
'He is living on my house's backside'[23]

The general assumption in grammaticization theory is that inanimate region terms develop from concrete human or animal body-part terms. For example, English *front* derives from the Latin *front-/frons* usually translated in isolation

[23] This gloss is from Indian English.

as 'forehead'. However, Latin *front* also generally referred to anterior regions – so if a generalization from body part to abstract region occurred, it is prior to Latin and ill-documented. Many of the part terms in Modern Tamil are similar in that the abstract region usage also dates to earlier antiquity and a grammatical shift from body part cannot be safely assumed.[24] For example, *aTi* 'foot, base' appears to have had both senses since Proto-Tamil 3,000 years back – though 'foot' in Modern Tamil has been largely subsumed by *kal* 'leg, foot', so with respect to the grammaticalization trend from concrete to abstract, this example exemplifies a shift away from the body-part region, but fails to demonstrate a shift toward an abstract region in that we have no evidence of a prior exclusively non-abstract sense.

11.5.5 Relative and absolute frame of reference

The relative frame of reference works essentially as it does in mainstream English. Perhaps even more so than in English, a relative description is more generally used for relations discriminated on the sagittal axis ('in front of' vs. 'behind') than on the transverse axis ('to the left of', 'to the right of'). This is especially true for reference ground objects which are distinct from ego and where the interlocutor may not share the same orientation as the speaker.

The computational complexity of *iTatu/valatu* ('left/right') and *mun/pin* ('front/back') discriminations are geometrically comparable, but there is far greater conceptual difficulty with transverse body discriminations (where humans are roughly symmetrical) than with sagittal body discriminations (where humans are notably asymmetrical). Accordingly, it is not surprising that people prefer relative description for sagittal axis relations as easier to produce and that they are more likely to succeed communicatively.

Of note, the construction 'ground-dative *iTatu*' is ambiguous between 'to the ground's left' and 'to my left of the ground', which can cause confusion in some contexts, just as with English *to the left of the church*.[25] Since ascription of intrinsic 'left/right/front/back' is quite flexible in Tamil and the use of egocentric coordinates is widespread among many speakers, this confusion is common. As mentioned above, the proximal and distal forms are occasionally used for speaker/addressee-relative 'left/right' distinctions as well.

Given the frequent confusions which arise from relative usage of terms like left and right, it is remarkable that the terms are tolerated at all. Europeans often think of the tracking of absolute-bearing information as a formidable task, and this intuition is sometimes given as a justification for the use of

[24] For further discussion of this issue of directionality of semantic shift, see Wilkins (1996).

[25] Tamil lacks a ready disambiguating construction analogous to the English *to the church's left*, which for at least some speakers is necessarily intrinsic.

speaker/hearer relative terms. However, clearly many non-Europeans have little difficulty tracking absolute directions in their normal environments. Even if one forgets one's bearings and the physical environment provides no clues, simply listening to another speaker using absolute language for present referents will allow one to quickly reset one's coordinates.

On the other hand, Europeans, urban Tamils and many others do manage reasonably well with speaker-relative terminology through reference to their ever-present bodies. This would be trivial if it were not for the rampant confusion speakers have in the seemingly simple task of mapping from their own body image to projective spatial language. The relative frame of reference does have communicative advantages over the absolute frame of reference in certain contexts. Cultural practices which rely on discriminating left and right sides are obviously better served, for example the clockwise circumambulating of a deity's statue or the placing forks to the diner's left of a plate. Since these left/right discriminations are often of cultural value, there is reason for many speakers to acquire communicative proficiency in relative orientation despite its otherwise awkward utility for spatial location. Of course, the question arises how many of these cultural values arise as the result of the already extant use of relative language in the community.

11.6 Conclusions

While the section organization of this chapter is heuristically useful, it is important to note that it does not reflect formal constructional properties of Tamil and it is not clear that these distinctions (topological space vs. frame of reference, etc.) are even the more fundamental ones to consider for Tamil – although I cannot suggest any alternative system short of simply listing by grammatical form class. There is a locative case, which is indeed spatial, but it is, of course, just one of several cases. The deictic verbs *vaa* 'come' and *poo* 'go' pattern formally like any other non-spatial (auxiliary) Tamil verb. Even the distal/proximal prefixes *a-/i-* might be better described as far more general than just spatial in that they quite generally combine with adverbs of manner (e.g. *ippaTiyee* 'like this' in (44)).

Each of the phenomena which I briefly exemplified above is relatively simple in and of itself. Indeed it is the simplicity of each part which allows a consistent system across the whole of Tamil. Cases mark semantic relations which are maximally general. The allowability of that generality is set by pragmatic rather than semantic or lexico-grammatical factors. Greater specificity, when called for, comes through various uses of prepositions and locative nouns. It is not incidental that these locative nouns retain transparent spatial semantics in their own right as can be seen from adverbial use and their appearance in compound nouns.

Perhaps because these forms retain overt semantic values independent of the constructions they find themselves in, there is little functional need for a special grammatical construction dedicated to locative relations. Indeed, in morphosyntactic terms no such general locative construction exists (other than the use of the general locative case itself). Importantly for grammaticization theory, this is not because a historically locative construction has become generalized through metaphorical extension. Rather the postpositional system may have always existed for non-spatial as well as spatial uses, relying on the transparent semantics of the appropriate forms to make any spatial vs. non-spatial contrast overt.[26]

Just as the degree of specificity of a locative relation is left to pragmatic decision, the very existence of a locative relationship is left to pragmatic inference in the case of path verbs, such as 'encircle'. Again, these are not figurative uses of the verbs as evidenced by the real constraint that the path must be followed in creating the configuration (to wit, the inability to say 'a ring encircles the finger'). Rather, we can say that the lexico-grammatical strategy of Tamil favours greater expression of paths with a basic verb construction than English does. This is, of course, consistent with Tamil's verb-framed depiction of the path of motion events which languages like English happily express through satellites to the verb – following again Talmy (1985).

The effect of this grammar on discourse is that Tamil has relatively less direct expression of precise location. Conversely English seems to commonly require remarkable detail of spatial expression even when unnecessary to the current communication. This does not imply any particular advantage to either group of speakers for particular communicative tasks: Tamils can certainly be specific on demand. English speakers are remarkably proficient at communicatively unnecessary specification of obvious spatial relationships – with apparently little cost to their language production. For example, English speakers still have the processing resources to make nuanced expression of manner of motion even when stipulating richness of path.

Related to this, but not discussed in this chapter on spatial language, Tamil generally facilitates considerable attention to clause boundaries (for both spatial and non-spatial representations). Perhaps more than for English, there is a wealth of grammatical mechanisms to increase or decrease the degree to which verbs within a single sentence are to be taken to refer to a single event or a multiple-event complex. Again, this is not to suggest that Tamil speakers are necessarily more proficient than English speakers, but simply that Tamil has relatively simple and automatic grammatical resources for decisions about

[26] For comparison, Rajam (1992) lists about eighty-five case/postposition forms for Classical Tamil (*c*. second century CE). (Many of these forms are transparently related, so an exact count is not appropriate.) Of these forms, about half are basically spatio-temporal in function and the rest are non-spatial or have a spatial use as just one of many uses.

degree of clause juncture and the choice of how many verbs should be chained to represent the various facets of an event. This is a topic of considerable complexity and as it is not specific to spatial reference, I have not pursued it here.

As a counterpart to the English hyper-specification of static spatial semantics, Tamil generally calls for enhanced specification of motion components (e.g. through the nearly obligatory use of directional verbs) even when there is low salience to these components or they are fully recoverable from context. Rather than omitting low-salience information, it is included. For contrast, any high-salience components receive extra emphasis, for example by the emphatic clitic *-ee*.

12 A grammar of space in Japanese

Sotaro Kita

12.1 Introduction

Japanese is spoken by roughly 110 million people, most of whom live in Japan. The earliest extensive texts in Japanese date back to the early eighth century. Its genetic affiliation is controversial (see Shibatani (1990) for the survey of various suggestions in the literature). The language consists of many dialect groups. In this chapter, we will focus on the dialect spoken in the Tokyo metropolitan area.

Japanese expressions for three types of spatial information are discussed. One is location, namely, where an entity is located. The other is motion, in which an entity changes its locative relationship with another entity. The third is frames of reference, with which space is divided into regions with respect to a reference point so as to specify location and direction and trajectory of motion.[1]

12.2 Very brief grammatical overview of the language

Japanese has a nominative-accusative case-marking pattern, and the canonical order among subject, direct object and indirect object is S-DO-IO-V. While rigidly verb final, various discourse factors lead to 'scrambling' of the constituent order among S, DO, IO, adjuncts and adverbials. Furthermore, when recoverable from the context, verb arguments are usually left unexpressed in Japanese discourse. Derivational morphology of verbs is complex. Categories marked by productive verbal morphology include tense, aspect, passive, causative, reciprocal, 'can do X', 'want to do X', 'to do X too much', epistemic modality, negation and honorification. There is no participant marking on the verb, and grammatical relations are marked by postpositions on NPs. Adnominal modifiers, including relative clauses, come before their head noun.

[1] An important way in which location is specified, namely spatial deixis, is not covered fully in this paper due to the length limitation. See, for example, Özyürek and Kita (in preparation) for more discussion on spatial deixis.

Further information about the Japanese language can be found in Martin (1975), Shibatani (1990) and Tsujimura (1996).

12.3 Location

Different constructions are used to describe where an entity is located. This section will discuss the form and function of such constructions. In Japanese expressions of location, spatial nominals play a crucial role in specifying the locative relationship between figure and ground. Towards the end of this section, we will examine the semantics of various types of spatial nominals.

12.3.1 The structure of the basic locative construction

The basic locative construction, as schematized in (1), is the construction which is most commonly used to answer a question about object location, 'Where is X?' In the prototypical situation, one is concerned with the location of a relatively small and movable figure, which is vertically supported by a relatively large and stable ground.

(1) <Basic Locative Construction>
Figure_NP-*wa* Ground_NP-*ni* Locative_Verb[2]
TOP DAT
'Figure is at Place'

The figure NP is typically accompanied by the topic postposition *wa*, which is underlyingly the nominative postposition. The ground NP is marked by a locative postposition *ni*.

12.3.1.1 Verbs in the basic locative construction

There are four forms that can fill the slot for the verb in the basic locative construction. One set of forms contrast the animacy of the figure. The verb *iru* is used for an animate figure, and *aru* is used for an inanimate figure. (Note that the citation form of a Japanese verb consists of a verb root plus the present tense marker.)

(2) Animacy and locational verbs
a. *Yamada-san-wa Tokyo-ni i-ru*
Yamada-Mr.-TOP Tokyo-DAT be-PRS
'Mr Yamada is in Tokyo'

[2] Abbreviations used in the glosses are: ACC – Accusative, ABL – Ablative, ADVL – Adverbial ending of a verb or adjective, AHON – Addressee honorifics, CONN – Connective, COPL – Copula, DAT – Dative, ELOC – Event locative, FOC – Focus, GEN – Genitive, IPFT – Imperfective aspect, NOM – Nominative, NMLZ – Nominalizer, PST – Past, PRS – Present, RSMD – Resultative middle, TOP – Topic.

b. *Kiyomizudera-wa* *Kyoto-ni* *a-ru*
Kiyomizu.Temple-TOP Kyoto-DAT be-PRS
'Kiyomizu Temple is in Kyoto'

These two verbs are also used in existential statements, in which the canonical order of the two NPs is reversed (i.e. *Place_NP-ni Figure_NP-ga aru/iru* 'there exists in Place Figure'). Note also that *iru* and *aru* are not used in nominal predications ('John is a teacher') or in equational statements ('one plus one is two'), where the copula *da* is used instead.

The other two verbs contrast with *iru* with respect to honorificity. In general, Japanese verbs that take an animate subject have different forms for three honorification categories: plain, honorific and humble. The honorific form indicates respect for the subject NP referent, and the humble form lowers the subject NP referent (often the speaker, or a member of a group to which the speaker belongs), thereby showing respect to the addressee. For most of the verbs, the honorific form and the humble form are derived by productive complex-verb formation processes. However, *iru* has suppletive forms for both categories: *irassharu* for the honorific category, and *orimasu* for the humble category.

12.3.1.2 Place NP

In the basic locative construction, the place NP is marked by the dative postposition *ni*. (Note however that *ni* is used also in other non-spatial constructions.) In the examples discussed so far, the place NP has always been a place name. However, the place NP can be complex in the sense that it denotes a specific region with respect to ground. The region is specified by various spatial nominals. That is to say, the distinctions made by English prepositions such as 'in', 'on', 'above', 'under' and 'near' are encoded by spatial nominals. (These are discussed in more detail in §12.3.2.) It is not clear whether spatial nominals constitute a form class. They are probably members of a larger form class, functional nominals, which include words such as *tame* 'reason' (= due to) and *toki* 'time' (= when) (see Martin 1975 for further discussions).

(3) < Complex Place NP >
Ground_NP-GEN Spatial_Nominal

A Complex Place NP can be used as a part of the basic locative construction, as follows. The spatial nominal in (4) is *naka*, which roughly translates as English 'inside'.

(4) Scene depicted in Picture 2 of 'Topological Relations Picture Series' (TRPS; see Chapter 1, Figure 1.2)
ringo-wa *booru-no* *naka-ni* *a-ru*
apple-TOP bowl-GEN in-DAT be-PRS
'The apple is in the bowl'

12.3.1.3 The application range of the basic locative construction

The Japanese basic locative construction is used as an answer to a Where-question in a far more limited range of situations than its English counterpart (Figure_NP + *be* + prepositional phrase, as in 'The apple is in the bowl'). One of the main situations in which the Japanese basic locative construction is a felicitous answer is the following.

Situation A: Figure is not attached to ground, and could move freely in at least two dimensions.

We have seen examples of this situation in (2a) and (4). In these examples, figure is supported by the ground from underneath. However, the support relationship is not a necessary condition for the felicity of the basic locative construction. Consider the following examples.

(5) *pen-wa kami-no shita-ni a-ru*
pen-TOP paper-GEN under-DAT be-PRS
'The pen is underneath the paper'

(6) *sakana-wa iwa-no ushiro-ni i-ru*
fish-TOP rock-GEN behind-DAT be-PRS
'The fish is behind the rock'

There is another class of commonly encountered situations, in which the basic locative construction is felicitous.

Situation B: Figure is inherently fixed with respect to ground.

The figure is 'inherently fixed' when it is not possible to conceive of any process or change that could have moved the figure into the current spatial relationship with ground, as in the following two examples.

(7) *Shikago-wa irinoi-ni a-ru*
Chicago-TOP Illinois-DAT be-PRS
'Chicago is in Illinois'

(8) *Kanzoo-wa i-no shita-ni a-ru*
liver-TOP stomach-GEN under-DAT be-PRS
'The liver is under the stomach'

This class subsumes the examples in which a landmark is located with respect to a place, as in (2b). Situations A and B are similar in that they do not suggest any particular type of preceding event, in which the figure and ground interact with each other, in such a way as to produce the current spatial relationship between figure and ground.

In contrast to Situations A and B, there are many other situations in which the Japanese basic locative construction is not a felicitous answer to a

Where-question, though its English counterpart is felicitous. In these situations, some other constructions, which will be discussed in the following section, are used to answer a Where-question. Situations C–F below are examples where the Japanese basic locative construction is not a felicitous answer to a Where-question:

Situation C: Figure is tightly fixed to ground
(e.g. The handle is on the door; The button is on the shirt; The stamp is on the envelope; The gum is on the shoe sole.)

Situation D: Figure is impaled by ground. Figure impales ground.
(e.g. The apple is on a skewer; The arrow is in the apple.)

Situation E: Figure is 'damage' or negative space.
(e.g. The crack is on that cup; The hole is on that wall.)

Situation F: Figure is adornment or clothing.
(e.g. The ring is on his middle finger; The hat is on his head.)

In these situations, there is a strong suggestion that the figure and ground have come into the spatial relationship because of a preceding event in which they have interacted with each other. Situation C suggests a plausible preceding event in which physical bonding between figure and ground has occurred. Situations D and F suggest that the figure and/or ground have moved in a very specific way with respect to each other. Situation E suggests that the negative space constituting the figure has come into being in the originally intact ground.

12.3.1.4 Other constructions for answering a Where-question

What are the constructions used to answer a Where-question in the Situations C–G, for which the basic locative construction is not felicitous? In all such situations, except for some subcases in Situation F above, a Where-question is answered by a resultative construction that refers to the presumed earlier event in which figure–ground interacted.

Two alternative resultative constructions can be used to answer a Where-question. Both of them are used for Situation C. When a ditransitive verb refers to the presumed preceding change-of-location event, as in the stamp-on-the-envelope scene in Situation C, the resultative-middle construction with the verbal suffix *te-a-ru* is used as in (9).

(9) Scene depicted in Picture 3 of TRPS (see Figure 12.1)
kitte-wa *fuutoo-ni* *hat-te-a-ru*
stamp-TOP envelope-DAT adhere(transitive)-CONN-RSMD-PRS
'That stamp is in the state of having been stuck to the envelope (by someone)' Note: *te-a* can literally be glossed as CONNECTIVE-be, but this combination indicates resultative-middle.

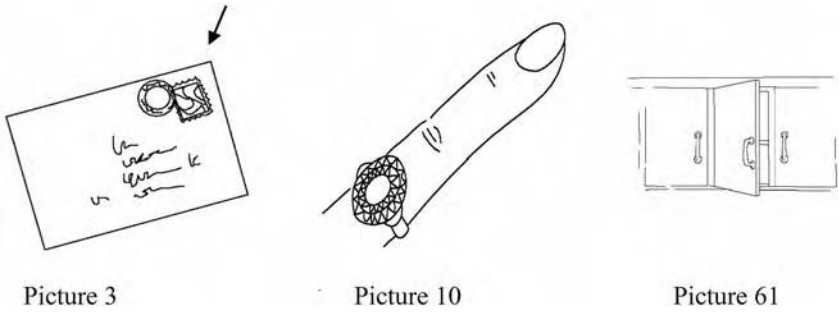


Figure 12.1 Pictures from the 'Topological Relations Picture Series'

When a ditransitive verb is in the resultative-middle construction, it refers to the end-state of the change that was brought about by an agent acting on a patient. In this construction, the agent, which is otherwise marked with nominative case, is unexpressed (unlike in the passive construction, it cannot ever be overtly expressed). Moreover, the patient undergoing a change, which is normally marked with accusative, is marked by nominative. (In (9), the underlying case for the topicalized NP is nominative.) The locative case marking for the goal argument for a ditransitive verb does not change in the resultative-middle construction.

In (9), only a ditransitive verb can refer to a possible preceding event. However, in some cases, there is an intransitive verb as well as a ditransitive verb that can refer to a possible preceding event. In this case, the resultative construction with the intransitive verb is preferred. Consider a case in which there is a handle fixed to a door. In this case, a presumed preceding event can be denoted either by an intransitive or ditransitive verb of attachment. When a Where-question is asked, the imperfective of the intransitive verb (the verb root suffixed with *te-i-ru*) as in (10a) is a preferred answer, as compared to the resultative middle of the ditransitive verb as in (10b). This preference holds even if the speaker believes that someone must have attached the handle on the door at some point in the past.

(10) Scene depicted in Picture 61 of TRPS (see Figure 12.1)
(ano) totte-wa doko?
'Where is the handle?'

a. *totte-wa kono doa-ni tui-te-i-ru*
handle-TOP this door-DAT attach(intransitive)-CONN-IPFT-PRS
'The handle is in the state of having attached to this door'

b. *totte-wa kono doa-ni tuke-te-a-ru*
handle-TOP this door-DAT attach(ditransitive)-CONN-RSMD-PRS
'The handle is in the state of having been attached to the door (by someone)'

The reply (10b) invites an inference that the speaker knows what the preceding event actually was (e.g. the speaker has seen someone attaching the handle to the door or attached the handle to the door him- or herself), and thus it is felicitous only when this inference is desirable. For the same reason, (10b) is a preferred answer when the question is 'What did you do with the handle?' (as opposed to a Where-question).

Also in Situation D, in which the figure is impaled by the ground, or the figure impales the ground, both a ditransitive verb and an intransitive verb can refer to the suggested preceding event. Just like the cases discussed above, the imperfective of the intransitive is the felicitous answer to a Where-question.

The verbs used for Situation D (or figure/ground impalement) have noteworthy properties. The answer to a Where-question for these scenes involves the verb, *sasat* (citation form *sasaru*) 'to pierce' (intransitive), as shown in (11) and (12).

(11) Scene depicted in Picture 70 of TRPS (Chapter 1, Figure 1.2)
ringo-wa kushi-ni sasat-te-i-ru
apple-TOP skewer-DAT pierce-CONN-IPFT-PRS
'The apple, a skewer has pierced'

(12) Scene depicted in Picture 30 of TRPS (Chapter 1, Figure 1.2)
ya-wa ringo-ni sasat-te-i-ru
arrow-TOP apple-DAT pierce-CONN-IPFT-PRS
'The arrow has pierced the apple'

Note that the underlying case for the topicalized NP is nominative in both (11) and (12), and thus the two sentences are morphosyntactically identical.[3] The verb *sasaru* encodes that the referents of the nominative NP and the locative NP are in a piercing relationship. Furthermore, the verb exhibits 'Figure-Ground indeterminacy' (Kita in press), that is, the verb does not specify whether the piercer or the piercee should appear as the figure NP (Brown (1994) reports a similar phenomenon in Tzeltal, a Mayan language).

When the figure is a negative space such as a hole or a crack (Situation E), the imperfective of an intransitive verb is again preferred over the resultative middle of a ditransitive verb, that is (13b) is more felicitous than (13c) ('#?' indicates

[3] This contrasts with a pair of English sentences such as *The bees swarmed the bush* and *The bush swarmed with the bees*, which are not morphosyntactically identical. See Kita (in press) for further discussions on this issue.

slight infelicity, # indicates infelicity). This is the same as the cases we have seen so far. What sets Situation E apart from other cases is the associated canonical word order. The felicitous word order for Situation E is first the ground NP, which is marked with the locative, and then the figure NP, which is nominatively marked (underlyingly). Thus, (13b) is more felicitous than (13a).

(13) *sono ana-wa doko?*
'Where is the hole?'

#? a. *sono ana-wa kono kabe-ni ai-te-i-ru*
that hole-TOP this wall-DAT open(intransitive)-CONN-IPFT-PRS
'The hole is in this wall'

b. *kono kabe-ni sono ana-wa ai-te-i-ru*
this wall-DAT that hole-TOP open(intransitive)-CONN-IPFT-PRS
'The hole is in this wall'

c. *kono kabe-ni sono ana-wa ake-te-a-ru*
this wall-DAT that hole-TOP open(ditransitive)-CONN-IPFT-PRS
'The hole is in this wall'

The different canonical word order for Situation E may be due to a type of existential presupposition that is associated with the first position in a sentence. The canonical word order for Situation E is the same as that for an existential sentence (i.e. Location-LOC Entity-NOM be, *there exists Entity at Location*). An existential sentence is felicitous when the existence of the entity referred to by the nominative NP cannot be presumed in the discourse nor by the real-world knowledge. By the same token, the inherently non-existent figure cannot be presumed to exist, and thus is expressed preferably in a non-initial position in the sentence.

When the figure is adornment or clothing (Situation F), then it is expressed as a topicalized direct object of the verb of wearing (i.e. the figure NP is underlyingly marked with accusative). The verb is marked with imperfective, like other examples for the Situations C–E.

(14) Scene depicted in Picture 10 of TRPS (see Figure 12.1)
(ano) yubiwa-wa doko?
'Where is that ring?'

yubiwa-wa Yamada-san-ga shi-te-i-ru
ring-TOP Yamada-san-NOM wear-CONN-IPFT-PRS
'As for that ring, Mr Yamada is wearing'

However, unlike in Situations C–E, the aspectual construal is not always resultative. Some of the VPs of wearing, such as *yubiwa-o suru* in (14), are activity VPs. When an activity VP is marked with imperfective aspect (IPFT), the interpretation is equivalent to English progressive.

This rather different construal of the situation in (14) is due to the fact that when the figure is clothing or adornment and the ground is the wearer, it is in general not possible to syntactically suppress the wearer as an agent. There are no intransitive change-of-state verbs with clothing or adornment as the figure, which would mean 'to become worn'. When the figure is clothing and adornment and ground is the wearer, ditransitive verbs cannot be used in the resultative-middle construction in the manner we have seen in (9). For example, the resultative middle for *yubiwa-o hame-ru* 'to put a ring into a tight-fit configuration with something' is infelicitous when somebody puts the ring on his/her own finger, but felicitous when the ground is a stick as in (15a) or when the ring is presumed to have been put on by a third party (e.g. in the post-mortem decoration of a mummy), as in (15b).

(15) a. *yubiwa-ga boo-ni hame-te-a-ru*
ring-NOM stick-DAT put.into.tight.fit-CONN-RSMD-PRS
'The ring is in the state of being put into a tight-fit configuration with the stick (by somebody)'

b. *yubiwa-ga nakayubi-ni hame-te-a-ru*
ring-NOM middle.finger-DAT put.into.tight.fit-CONN-RSMD-PRS
'The ring is in the state of having being put into a tight-fit configuration with the middle finger' (not by the wearer but by a non-wearer)

Wearing is a special case in which the agent cannot be suppressed. Consequently, unlike the Situations C–E, the locative relationship between figure and ground cannot be construed as a result state of a change in which agentivity is backgrounded. Thus, (14) is a felicitous answer to a Where-question because it refers to the on-going interaction between figure and ground, namely the activity of intentionally keeping clothing or adornment on, rather than the interaction between figure and ground in the preceding change-of-state.

To summarize, when the situation strongly suggests a preceding event in which figure and ground interact and get into a particular spatial configuration, a resultative construction referring to the change is the felicitous way to answer a Where-question. The suggested preceding event is simply presupposed, and not asserted. The preference for using a resultative construction is so strong that it is possible to construe a situation as a result of change even when the speaker knows that the change presumed in the choice of the verb never actually happened. For example, (13b) is felicitous even if the wall was constructed with a hole in it from the beginning (see Matsumoto (1996b) for more examples of the same kind).

When referring to the presumed change, the agent is suppressed if possible. When there is a choice between a ditransitive verb and an intransitive verb,

the intransitive verb is preferred. Even when a ditransitive verb is used due to the lack of an appropriate intransitive verb, the resultative-middle construction suppresses the agent. This is consistent with Ikegami's (1981, 1991) characterization that, in comparison to English, Japanese generally prefers to use spontaneous change over agentive change, as a basic building block for constructing construals of an event and a state (Ikegami characterizes Japanese as a 'BECOME-language', and English as a 'DO-language').

12.3.2 Semantics of spatial nominals

Spatial nominals play a crucial role in spatial expressions in Japanese. They are used in expressions of location. Furthermore, as will be discussed later, the same spatial nominals are used to locate different kinds of events, including motion events. In other words, English words such as *in* and Japanese spatial nominals are similar in that they can be used for both location and motion descriptions. In this section, we will discuss the semantics of selected spatial nominals. Spatial nominals cover different domains of meaning, which include topological relations, proximity, direction, deictic relations, relations based on the absolute, the relative, and the intrinsic frames of reference. Note also that virtually all of the spatial nominals have non-spatial 'metaphorical' senses, which are beyond the scope of this chapter.

12.3.2.1 Spatial nominals expressing topological relations

Topological relations are spatial relationships such as containment and connectivity. A number of spatial nominals specify location in terms of 'surroundedness' relationships (which include the containment relationship). The spatial nominal, *naka*, refers to the region that is surrounded or (partially) contained by ground. The earlier example (4) illustrates the use of this spatial nominal. This sentence can be an answer to a question, 'Where is the apple?', in the situation depicted in Picture 2 in Figure 1.2 (Chapter 1). (The spatial nominal *naka* is not applicable to any other of the eight pictures in Figure 1.2.) Other spatial nominals that make reference to surroundedness include *soto* 'outside', *aida* 'between' and *mawari* 'around'.

Note that there are no Japanese spatial nominals that make reference to connectivity (e.g. contact and attachment) between figure and ground except for some spatial nominals that imply lack of connectivity (i.e. spatial nominals for proximity, e.g. *soba* 'near'). This is in contrast with prepositions in languages like English and Dutch, in which different types of connectivity are referred to, as in the English preposition *on* or Dutch *op* and *aan*.

In Japanese, different types of connectivity are expressed, instead, by verbs (see Matsumoto (1996a, 1997) for a thorough discussion of the lexicalization of different semantic elements in Japanese and English verbs). There is a rich

inventory of verbs of attachment, sticking, piercing and enmeshment. We have seen some of them in the previous examples, such as *tsukeru* 'to attach something', *kuttsukeru* 'to stick something', *haru* 'to stick something flat', *sasu* 'to put something into an impaling relation with something', and *hameru* 'put into a tight-fit configuration'.

12.3.2.2 Absolute relations

The next set of spatial nominals denote a spatial relationship that is absolute in the sense that the relationship is given by a division of space based on a factor external to any properties of the ground or a presupposed 'observer' who provides a perspective. Cardinal direction terms are examples of such spatial nominals: *kita* 'north', *minami* 'south', *higashi* 'east' and *nishi* 'west'.

The two spatial nominals of verticality denote not only a relationship based on the absolute frame of reference. For example, *ue* 'on/above', refers to a region vertically higher than ground (absolute frame of reference). In its verticality sense, the contact between figure and ground are irrelevant.

(16) *teeburu-no ue-no rampu*
table-GEN on/above-GEN lamp
'the lamp on/above the table'

Thus, (16) is applicable to Picture 13 in Figure 1.2 (Chapter 1), in which the lamp makes no contact with the table, but it is also applicable to the situation in which the lamp is on the table.

The other verticality spatial nominal, *shita*, refers to a region vertically lower than ground (absolute frame of reference). The contact is again not relevant.

(17) *isu no shita*
chair-GEN under/underneath
'under/underneath the chair'

Thus, (17) can be part of the basic locative construction for Picture 16 in Figure 1.2 in which the figure is not in contact with the chair. The example (17) could also be used in a situation in which the figure is in contact with the chair, for example, underneath one of the legs.

12.3.2.3 Intrinsic relations and relative relations

The spatial nominals, *mae* 'front', *ushiro* 'back', *migi* 'right' and *hidari* 'left', refer to spatial relations based on the relative frame of reference and two types of intrinsic frames of reference. In the relative frame of reference, the figure is located with respect to a region projected from the ground by an external perspective. In the ground-external intrinsic frame of reference, the figure is localized by a region (external to the ground) near a certain intrinsic feature

of the ground. In ground-internal intrinsic frame of reference, the figure is localized at a specific part of the ground. (See Levinson (1996c) for further discussion of the distinction between the intrinsic and the relative frames of reference.)

Since two further variations of ground-external intrinsic frame of reference can be identified, there are in total four related senses of *mae* 'front', *ushiro* 'back', *migi* 'right' and *hidari* 'left'. The four senses and corresponding examples are illustrated for *mae* in (18).

(18) *mae*

1. (Ground-external intrinsic) the region projected from the frontal side of a body or a vehicle
   e.g. *Yamada san-no mae-ni* 'at Mr Yamada's front'
   e.g. *torakku-no mae-ni* 'at the truck's front'
2. (Ground-external intrinsic) the region projected from the side of an object that one canonically faces when one uses the object
   e.g. *tsukue-no mae-ni* 'in front of the desk (the side one typically faces when using the desk)'
3. (Ground-internal intrinsic) the part of ground that is close to its 'mae' side (in Sense 1)
   e.g. *gekijyoo-de ichiban mae-ni suwa-ru* '(One) sits at the front-most row in a theatre'
4. (Relative) the region projected from ground (possibly unfeatured, such as a ball) to the direction of the frontal side of the speakers body
   e.g. *hako-wa sono ki-no mae-ni a-ru* 'The box is in front of the tree'

Ushiro, migi and *hidari* all have four senses analogous to those listed in (18).

12.3.2.4 Other classes of spatial nominals

There are a large number of spatial nominals whose meaning is based only on the ground-internal intrinsic frame of reference. Examples of this class include *soko* 'bottom of a container or a body of water', *fuchi* 'a strip of surface near the edge', *heri* 'a strip of surface near the edge', *kado* 'convex corner', *sumi* 'concave corner' (see Kunihiro et al. (1982) for further discussions about these items).

There are a couple of spatial nominals that denote deictic relations.

(19) *mukoo* the direction with respect to ground, away from deictic centre

Example:
hei-no mukoo-ni ishi-o nage-ru '(One) throws a stone to the other side of the fence'

(20) *temae* the direction with respect to Ground, toward a deictic centre

Example:
sono honya-wa koosaten-no temae-ni a-ru 'The book store is before the intersection (as one follows the path)'

The spatial nominal, *hoo*, denotes a direction. Unlike spatial nominals discussed above, *hoo* cannot be used independently. Namely, it has to be always overtly modified by a genitive NP, which denotes ground.

(21) *hoo* the direction towards ground

Examples:
motto migi-no hoo-ni aru 'It is further to the right'
eki-no hoo-e iku '(One) goes to the direction of the station'

Note that other spatial nominals can also be used independently (without being modified by a genitive NP). For example, *ue* 'on/above' can be used independently as in *ue-o mi-ru* '(One) looks up'. The meaning of spatial nominals in their independent use is usually very closely related to that in their relational use with modification by a genitive NP.

12.3.3 Event locative postposition de

We have so far discussed the constructions and lexical items that are used to answer a Where-question about an entity. When an event, rather than an entity, is localized, the locative postposition, *de*, is used. (Note that *de* is also used to mark an instrument.) A place NP plus *de* is an adjunct, which denotes the location at which an event denoted by the rest of the clause takes place, as in (22).

(22) *Yamada-san-wa teeburu-no ue-de odot-ta*
Yamada-Mr-TOP table-GEN on/above-ELOC dance-Past
'Mr Yamada danced on the table'

A *de*-marked place NP can be added as an adjunct to any sentence denoting an event.

12.4 Motion

There is a wider variety of constructions for motion than for location in Japanese. This is because motion is a more complex notion than location for various reasons. First, motion involves different types of places, such as source, goal, and via-points, and for a given verb, different combinations of these places are obligatorily or optionally expressed. Second, motion unfolds in time, and constructions differ in their temporal schema (Aktionsarten). Third, multiple verbs can be combined to express one event (e.g. manner of motion and directionality of motion).

Japanese is a 'verb-framed language' (Talmy 1985) in the sense that the path notions are typically expressed by a verb, such as *hairu* 'enter' and *deru* 'exit'. In line with Talmy's observation on verb-framed languages, Japanese seems to have a smaller inventory of manner verbs compared to English (Matsumoto 1997). However, many of the manner distinctions that are made by a verb alone in English are made by a combination of a verb and an adverbial mimetic. For example, the verb *aruku* 'walk' combines with various adverbial mimetics to express various manners of walking, as in (23). (See Hamano 1998 and Kita 1997, 2001 for further discussions on the semantics of mimetics, and Ameka and Essegbey this volume, on the somewhat similar ideophones in Ewe.)

(23) (From Matsumoto, 1997: 131–2)
otobotobo aruku 'plod', *noshinoshi aruku* 'lumber', *burabura aruku* 'ramble', *yoroyoro aruku* 'shamble', *doshidoshi aruku* 'tramp', *yochiyochi aruku* 'toddle'

Slobin (1996) pointed out that discourse about motion events in verb-framed languages and satellite-framed languages such as English have different characteristics. The retellings of the 'Frog Story' (see Chapter 1, §1.4.3, for a description of this elicitation tool) by three Japanese speakers are analysed here (the narrative is elicited in the manner discussed in the introductory chapter). The following is an excerpt from one of the retellings.

(24) Frog Story (9703JP02)

a. *otokonoko-wa shika-san-no atama-no ue-ni*
boy-TOP deer-Mr-GEN head-GEN top/above-DAT
not-te
get.on-CONN

b. *shimai-mashi-ta*
complete-AHON-PAS
'The boy got on the deer's head, which one could not control'
('complete' in past tense in this and following sentences means having no control over what is happening)

c. *de shika-san-wa okot-te sono mama*
then deer-Mr-TOP get.angry-CONN that as.is
hashiri-dashi-te
run-begin-CONN

d. *shimai-mashi-ta*
complete-AHON-PST
'Then, the deer got angry, and started to run as it is (with the boy on its head), which one could not control'

e. *de otokonoko-wa mada shika-san-no atama-no*
then boy-TOP still deer-Mr-GEN head-GEN
ue-ni
top/above-DAT

f. *not-te-i-mas-u*
get.on-IMPF-AHON-PRS
'Then, the boy is still on the deer's head' (Lit. 'Then, the boy is still in the state of having got on')

g. *soshite shika-san-wa gake-no hoo-ni hashit-te*
then deer-Mr-TOP cliff-GEN direction-DAT run-CONN
it-te
go-CONN

h. *shimai-mashi-ta*
complete-AHON-PST
'Then, the deer went running towards the cliff, which one could not control'

i. *de otokonoko-to wan-chan-wa, wan-chan-wa*
then boy-and doggie-TOP doggie-TOP
'Then, the boy and the doggie, the doggie . . .'

j. *a! wan-chan-mo nanka motto*
ah! doggie-also somehow more
'Ah! Doggie also somehow more . . .'

k. *wan-chan-wa issho-ni*
doggie-TOP together-ADVL
hashit-te-ø-ta-n-da
run-CONN-IMPF-PST-NMLZ-COPL:PRS
'What it is is that the doggie was running together'

l. *de wan-chan-to otokonoko-wa gake-kara shita-ni*
then doggie-and boy-TOP cliff-ABL down-DAT

m. *massakasama-ni ochi-te shimai-mashi-ta*
upside.down-ADVL fall-CONN complete-AHON-PST
'Then, the doggie and the boy fell from the cliff downward upside-down, which one could not control'

n. *de ochi-ta tokoro-wa saiwai-ni-mo*
then fall-PST place-TOP fortunate-ADVL-FOC

o. *chiisana ike deshi-ta*
small pond COPL:AHON-PST
'Then, the place (they) fell was fortunately a small pond'

In Japanese, the number of ground- and path-denoting adjuncts associated with a motion verb tends to be small. In lines l. and m., the falling event is described with a verb to fall *ochi-* (the citation form *ochiru*) along with postpositional phrases for the source location (i.e. 'from the cliff') and the directionality (i.e. 'downwards'). This clause is exceptional in that all the other clauses describing the above sequence of events from the three speakers contained fewer ground-denoting postpositional phrases: ten clauses with one ground-denoting phrase and fourteen clauses with zero ground-denoting phrases. This is similar to what Slobin (1996) has found for Frog Stories in Spanish, another verb-framed language, and unlike Frog Stories in English.

In all of the three retellings, the goal location of falling is expressed in a separate 'setting' sentence in Slobin's (1996) sense, as in lines n. and m. It is in fact impossible for the clause headed by *ochiru* to have postpositional phrases for source, directionality and goal at the same time. This contrasts with English, in which it is possible and felicitous to express the three pieces of information within in a single clause; for example, *he fell off the cliff down into the water*. Thus, in Japanese motion discourse, ground information is often expressed in a sentence that is separate from a sentence expressing motion itself, which is similar to what Slobin (1996) found for Spanish.

12.4.1 Single-verb constructions for motion

In the following sections, we first discuss constructions for motion description with a single verb. This section will be followed by the discussions of multi-verb constructions and the temporal structure (Aktionsart) of Japanese motion expressions.

12.4.1.1 Case frames and verb types

Motion verbs can be classified according to the constructions they participate in. There are five postpositions that are relevant for distinguishing motion constructions: *e* 'allative', *ni* 'dative', *o* 'accusative', *kara* 'ablative' and *made* 'up to'. There are (at least) twelve distinct single-verb motion constructions, as illustrated below (the classification is partly based on that of Teramura (1982)). These motion constructions can be grouped into two major classes. One is spontaneous motion, in which there is no external agent causing motion. The other is caused motion with an external causer of motion.

Note that '( )' represents a semantically optional element in the following presentation of different construction types. The 'semantic optionality' needs further clarification. All postpositional phrases in Japanese are syntactically optional. They can be left unexpressed if the information can be easily filled in by the context. If semantically obligatory elements are left unexpressed

without contextual support, the utterance is informationally incomplete, and the addressee is urged to ask a clarification question. For example, if someone utters *gakko-ni it-ta* '(one) went to school' out of the blue, then the addressee is most likely to respond, 'whom are you talking about?' (Teramura 1982). This is because the figure of the motion event is a semantically obligatory element. In contrast, the addressee is not likely to respond to the utterance with a question, 'from where?', even though the source could be expressed with an NP marked by the ablative postposition, *kara*. Such postpositional phrases, which can be expressed but are not presupposed by the verb, are semantically optional.

Note also that embedded brackets express semantically optional elements that are conditionally expressible. '((A) B)' means A is expressible only when B is expressed or is implied by the context. Curly brackets are used to list options. For example, 'Goal-{ni / e}' means that a goal NP can be marked by either postposition *ni* or postposition *e*.

Spontaneous motion Type 1: Arrival-focussed change of locative relation with spatial extent.

These have the following structure:

a. Figure-*ga* (Origin-*kara*) {Goal-{*ni / e*} / Extent-*made*} Verb
b. Figure-*ga* Functional_Ground-*o* ((Origin-*kara*) Extent-*made*) Verb

Verbs: *iku* 'go', *kuru* 'come', *agaru* 'ascend', *wataru* 'cross', *hairu* 'enter'

Note: Goal can be the end point of motion or direction of motion, and it is distinct from 'extent', as we will discuss later. In (b), *hairu* 'enter' cannot take Origin-*kara* and Extent-*made*. The concept of 'functional ground' will be explained below.

Examples: (See also (43b), (44b), (48a), (50), (56)–(60)).

(25) a. *Hanako-ga heya-ni hait-ta*
Hanako-NOM room-DAT enter-PST
'Hanako entered the room'

b. *Hanako-ga mon-wo hait-ta*
Hanako-NOM gate-ACC enter-PST
'Hanako entered the gate'

Type 2: Arrival-focussed change of locative relation with no spatial extent.
This type has the structure:

Figure-*ga* Goal-{*ni / e*} Verb

using the following verbs:

Verbs: *tsuku* 'arrive', *kake-komu* 'run.into', *sasaru* 'pierce'

Note: *Sasaru* does not mark the goal NP with *e*.

Examples: See (11) and (12).

Type 3: Potentially symmetrical change of locative relation, with the structures:
a. Figure-*ga* Goal-*ni* Verb
b. Multiple_Figure-*ga* Verb
which use the following verbs:
Verbs: *karamaru* 'entangle', *kuttsuku* 'adhere'
Note: See Kita (in press) for more discussion on the semantics of this class of verbs.
Examples:

(26) a. *akai ito-ga aoi ito-ni karamar-u*
red thread-NOM blue thread-DAT entangle-PRS
'The red thread entangled with the blue thread'

b. *akai ito-to aoi ito-ga karamar-u*
red thread-and blue thread-NOM entangle-PRS
'The red thread and the blue thread entangled'

Type 4: Departure-focussed change of locative relation with spatial extent.
This type has the following structure:
a. Figure-*ga* Origin-*kara* {Goal-{*ni* / *e*} / Extent-*made*} Verb
b. Figure-*ga* Functional_Ground-*o* (Extent-*made*) Verb
and uses the following verbs:
Verbs: *deru* 'exit', *oriru* 'get off', *shuppatu-suru* 'depart', *hanareru* 'move away'
Note: This verb class actually consists of a few subtypes that differ in whether they can express goal at all in construction (a), and in what postpositions can be used to do so. The verb *oriru* 'get off' and *deru* 'exit' can take all of the three postpositions for goal/extent in (a), the verb *shuppatsu suru* 'depart' can only take *e*. *Hanareru* 'move away' cannot express goal/extent in any way. Note also that, in construction (b), only *oriru* can additionally express goal (when the functional ground is spatially extended like stairs.

Type 5: Pseudo-arrival transfer, with the structure:
Origin-*kara* Figure-*ga* Verb
Verbs: *tsuku* 'arrive', *todoku* 'reach'
Note: The canonical word order is NP-ablative and then NP-nominative. This construction cannot be used when the arrival is purely spatial without any implications for possession change, as in (27b).
Examples:

(27) a. *Kato-san-kara kozutsumi-ga tui-ta*
Kato-Mr-ABL parcel-NOM arrive-PST
'A parcel arrived from Mr. Kato'

b. **Tokyo-kara basu-ga tsui-ta*
Tokyo-ABL bus-NOM arrive-PST
'A bus arrived from Tokyo'

Type 6: Manner of motion, with the structure:
Figure-*ga* (Functional_Ground-*o*) ((Origin-*kara*) Extent-*made*) Verb
Verbs: *aruku* 'walk', *hashiru* 'run', *hau* 'crawl', *korogaru* 'roll'
Examples: See (24g), (28), (31c) and (41).

Type 7: Via-motion, with the structure:
Figure-*ga* Functional_Ground-*o* Verb
Verbs: *tooru* 'pass', *koeru* 'go over'
Examples: See (41a), (51) and (54).

Type 8: Turning, with the structure:
Figure-*ga* Functional_Ground-*o* Goal-{*ni* / *e*} Verb
Verb: *magaru* 'turn'
Note: The interpretation of the goal NP is only directionality of motion. It cannot be the end point.
Example: See (41b).

Caused motion Type 9: Arrival-focussed caused motion with spatial extent, with the structure:
Agent-*ga* Figure-*o* (Origin-*kara*) {Goal-{*ni* / *e*} / Extent-*made*} Verb
Verbs: *ireru* 'put in', *sashi-komu* 'pierce into', *watasu* 'make go across, hand over', *toosu* 'make pass'
Example: See (49).

Type 10: Arrival-focussed caused motion with no spatial extent, with the structure:
Agent-*ga* Figure-*o* Goal-{*ni* / *e*} Verb
Verbs: *oku* 'put', *nage-komu* 'throw in', *sasu* 'pierce'
Examples: See (29) and (30).

Type 11: Departure-focussed caused motion, with the structure:
Agent-*ga* Figure-*o* Origin-*kara* ({Goal-{*ni* / *e*} / Extent-*made*}) Verb
Verb: *dasu* 'take out'

Type 12: Potentially symmetrical caused motion, with the structure:
a. Agent-*ga* Figure-*o* (Source-*kara*) Goal-*ni* Verb
b. Agent-ga Multiple_Figure-*o* Verb
Verbs: *karameru* 'entangle', *kuttsukeru* 'adhere'
Note: See Kita (in press) for more discussion on the semantics of this class of verbs.

One intriguing fact about the above verb types is that there are more verb types for spontaneous motion than for caused motion. The lexical causative counterparts for the intransitive verbs in Types 1, 5 and 7 collapse into Type 9. There are no lexical causative counterparts for the intransitive verbs in Types 6 and 8 (a syntactic causative must be used for these intransitive verbs).

12.4.1.2 Postpositions and their functions in motion expression

The allative postposition *e* almost exclusively marks spatial notions, namely the goal or direction of motion for the verbs that denote change of locative relationship. There are three uses of *e*. The most frequent use is to mark the goal NP subcategorized by verbs of spontaneous motion (i.e. there is no external agent that causes the change) (e.g. *iku* 'go', *tsuku* 'arrive', *hairu* 'enter'), and verbs for caused motion (with an external cause for the change) (e.g. *okuru* 'send', *oku* 'put'). The second use is to express direction of displacement in expressions such as *nishi-e san-kiro* 'three kilometres to the east'. The third, somewhat marginal, use is to mark the indirect object for the verb 'to ask' as in *senmonka-e tanom-u* 'ask an expert (to do something)'. In all of the above uses, *e* and the dative postposition *ni* are in free variation. In the first and second uses, the two choices are equally natural in most cases. In the third use, *ni* is clearly preferred to *e* for most speakers.

Note that *ni* and *e* can mark a goal NP only for the verbs for change of locative relationship. Thus, they cannot mark the goal NP for the verbs that denote an event without the result state of a change, for example, manner-of-motion verbs such as *aruku* 'walk', as shown in (28). For manner-of-motion verbs, the end point of motion is expressed by an NP marked with *made* 'up to', which we will discuss in more details later.

(28) *gakkoo-{*ni/*e/made} arui-ta*
school-DAT/ALL/up.to walk-PST
'(One) walked to the school'

One difference between *ni* and *e* is that *ni* can mark an NP with abstract goal, but *e* can only mark goal in a strictly spatial sense. Thus, when the motion takes place in concrete space as in (29a), either postposition can be used. However, when the motion is abstract as in (29b), only *ni* can be used.

(29) a. *teeburu-no ue-{ni/e} kabin-o ok-u*
table-GEN on/above-DAT/ALL vase-ACC put-PRS
'(One) puts a vase on the table'

b. *eigo-kyooiku-{ni/*e} jyuuten-o ok-u*
English-education-DAT/ALL weight-ACC put-PRS
'(One) puts a weight (emphasis) on English education'

Another difference between *ni* and *e* is that *e* has to be used in a construction in which the motion is entailed. Thus, when the verb of motion is used in a resultative construction, which only presupposes motion, only *ni* is fully acceptable. This point can be illustrated by comparison of (29a) and (30). (Note that *ok* and *oi* are the same verb, differently conjugated.)

(30) *teeburu-no ue-{ni/??e} kabin-ga oi-te-ar-u*
table-GEN 'ue'-DAT/ALL vase-ACC put-RSMD-PRS
'The vase is in the state of having been put on the table (by someone)'

Thus, *e* is used to mark the goal for an entailed motion in concrete space. In contrast, *ni* has no such restrictions and it can be used whenever the verb is subcategorized for it.

The NP marked with *made*, as in (28), does not denote the spatial notion, goal. It rather denotes a more abstract notion, extent, which is the end of an interval. The interval could be spatial or temporal or something else. The evidence for the abstract nature of extent comes from manner verbs and caused motion verbs, which can take a *made*-marked NP with a temporal extent reading roughly equivalent to English 'until', as in (31b) (verbs in other verb types do not allow this reading because their Aktionsarten do not have a temporal extension). A *made*-phrase with this temporal interpretation cannot coexist with another *made*-phrase with spatial interpretation within a clause, as in (31c).

(31) a. *Taro-wa eki-made arui-ta*
Taro-TOP station-up.to walk-PST
'Taro walked to(till) the station'

b. *Taro-wa sanji-made arui-ta*
Taro-TOP three.o'clock-till walk-PST
'Taro walked till three o'clock'

*c. *Taro-wa eki-made sanji-made arui-ta*
Taro-TOP station-up.to three.o'clock-till walk-PST
'Taro walked to the station till three o'clock'

The anomaly of (31c) is not due to a general constraint on using the same postposition for both temporal and spatial modification within a clause. It is possible to use the same postposition (and a functional nominal) for spatial and temporal modification, as in (32):

(32) *Taroo-wa sanji-ni sono mise-ni it-ta*
Taroo-TOP three.o'clock-DAT that shop-DAT go-PST
'Taroo went to the store at three o'clock'

Consequently, it can be concluded that the anomaly of (31c) is due to the fact that *eki-made* and *sanji-made* compete for the same semantic role, namely extent.

The ablative postposition, *kara*, marks the NP denoting an 'origin', which is a reference point from which a change further unfolds, which includes the beginning point of an interval. The change can be along a continuum, as is often the case in the spatial and temporal domains, or it can be discrete. As with extent, origin is an abstract notion in that the interval can be of any kind, including spatial and temporal ones (the argument in (31c) can be made for *kara* as well).

A specific interpretation of origin depends on the verb. It can be a reference point on a route that defines the beginning of a relevant interval. The origin of the relevant interval may coincide with the beginning of a journey, as in (33a, b, d). However, the origin of the relevant interval may also be a mid-point of a journey. In (33a), Shibuya can also be a significant mid-point in Mr Mori's journey that specifies which route he took. In this reading, the interpretation of (33a) amounts to *Mr Mori took the route via Shibuya as opposed to other possible routes*. Similarly, the origin can be the point of entry or exiting as in (33c). It can also mark the starting point of an interval in which the activity denoted by a manner verb and a caused motion verb took place, as in (33d).

(33) a. *Mori-san-wa Shibuya-kara ki-ta*
Mori-Mr-TOP Shibuya-ABL come-PST
'Mr Mori came from Shibuya'

b. *Mori-san-wa sono heya-kara de-ta*
Mori-Mr-TOP that room-ABL exit-PST
'Mr Mori exited from the room'

c. *Mori-san-wa uraguchi-kara sono tatemono-o de-ta*
Mori-Mr-TOP back.exit-ABL that building-ACC exit-PST
'Mr Mori exited the building from the back exit'

d. *Eki-kara gakkoo-made arui-ta*
station-ABL school-up.to walk-PST
'(One) runs from the station to the school'

The accusative postposition *o* has a spatial interpretation when it is used with a verb of spontaneous motion. In light of the examples in (34), one might argue that the NP marked with the accusative postposition denotes the source or mid-point(s) of a motion. (Note, for example, that in (34a, b), *o* can be replaced by the ablative postposition *kara*.)

(34) ((a) from Tanaka 1997)
a. *ikada-ga kishi-o hanare-ru*
raft-NOM shore-ACC move.away-PRS
'The raft leaves the shore'

b. *seimon-o hair-u*
main.gate-ACC enter-PRS
'(One) enters from the main gate'

c. *Ginzadoori-o massugu ik-u*
Ginza.Street-ACC straight go-PRS
'(One) goes straight on Ginza Street'

d. *hodoo-o aruk-u*
side.walk-ACC walk-PRS
'(One) walks on the sidewalk'

e. *sono kawa-o watar-u*
that river-ACC cross-PRS
'(One) crosses the river'

However, in (35), the river, which is marked by the accusative postposition, is neither the source nor the mid-point of the motion. As we will see later, it is also not sufficient to characterize the function of *o* as marking the medium of motion.

(35) *sono kawa-o tochuu-made watat-ta tokoro-de hikikaeshi-ta*
that river-ACC mid.way-up.to cross-PST place-at turn.back-PST
'At the point where (one) was in the middle of crossing the river, (one) turned back'

A better characterization of the denotation of the *o*-marked NP in motion description is functional ground,[4] which constrains the trajectory of motion by its functional features. For example, Ginza Street in (34c) is not merely a location in which a motion event happens, but it is a functional entity that guides traffic in a particular way. Thus, (34c) denotes a motion event along Ginza Street but does not denote a motion event in any other direction on Ginza Street. By the same token, (34d) denotes the event when the sidewalk (as opposed to the car lanes) is used to go along a street.

The contrast between ground as a functional entity or a location becomes clear when there is a choice between *o* and *kara*, as in (36).

(36) a. *jyuutai-ga hidoi node,*
'Because the traffic jam was bad,
takushii-{o / # kara} *ori-ta*
taxi-ACC/ABL get.off-PST
(one) got off the taxi'

[4] Tanaka (1997) also maintains that the accusative NPs in such examples do not denote a spatial notion. He argues that such an NP assumes the patient role of an action, just as in all other transitive sentences. However, this treatment makes the concept of patient rather broad, and possibly too vague.

b. *bonnetto-kara kemuri-ga de-te ki-ta node,*
'Because the smoke was coming out of the hood (bonnet),
awatete takushii-{#o / kara} ori-ta
hurriedly taxi-ACC/ABL get.off-PST
(one) hurriedly got off the taxi'

When the ground (i.e. the taxi) is considered as a functional entity as in (36a), then *o* is natural, but *kara* is pragmatically infelicitous. Conversely, when the ground is considered a location as in (36b), then *kara* is natural, but *o* is infelicitous.[5]

When the figure is inanimate and cannot be aware of the functionality of the ground, *o* cannot be used, but *kara* can be used.[6]

(37) (Teramura 1982)
*kemuri-ga heya-{*o / kara} de-te ik-u*
smoke-NOM room-ACC/ABL exit-CONN go-PRS
'The smoke goes out of the room'

The figure's awareness of the ground's functionality also plays a role in different interpretations of the following example, depending on the choice of the postpositions.

(38) (Cf. (33d), (34a))
ikada-ga kishi-{o / kara} hanare-nai yoo-ni
raft-NOM shore-ACC/ABL move.away-not manner-DAT
moyaizuna-o shikkari musun-da
rope-ACC tightly tie-PST
'(One) tied the rope tightly so that the raft does not move away from the shore'

When *o* is used, the shore is construed as a functional entity. It is implied, for example, that people are about to get on the raft from the shore. In contrast, when *kara* is used, the shore is construed as a mere location, and it is possible to have a reading where functionality is irrelevant. For example, tying of the rope may simply be to prevent the loss of the raft, which may otherwise drift away from the shore.

Because *kara* marks the notional origin that subsumes a starting point in the spatial domain, but *o* requires an overlay of functionality, only *kara* is

[5] Morita (1988) has a similar suggestion that *kara* marks crossing of a boundary. However, his suggestion that *o* marks focus on the ground does not explain cases such as (36b) and (37), in which ground can be construed to be in focus, but the acceptability of *o* is low.

[6] Teramura (1982) attributes the contrast in (37) to the presence or absence of intentionality, but his account fails to explain the contrast in (36).

compatible with a purely spatial goal phrase (see the above description of the case frames for the Verb Type 4).

(39) (Matsumoto 1997: 200)
a. *mise-{o / kara} der-u*
shop-ACC/ABL exit-PRS
'(One) exits the shop'
b. *mise-{*o / kara} shadoo-ni der-u*
shop-ACC/ABL car.lane-DAT exit-PRS
'(One) exits from a shop to the car lane (of a street)'

The *o*-marked ground does not entail that the function emerges in the intentional act by a sentient agent. When inherent features of the ground enable a specific type of motion denoted by the verb, an *o*-marked ground is used as in (40).

(40) *sono ishi-ga kyushamen-o korogari-ochi-ta*
that stone-NOM steep.slope-ACC roll-fall-PST
'The stone rolled down a steep slope'

Also in the case of Type 7 and Type 8 verbs, as in (41), a Functional Ground enables a particular type of motion denoted by the verb.

(41) a. *sono saku-o koer-u*
that fence-ACC go.over-PRS
'(One) goes over the fence'
b. *sono kado-o magar-u*
that corner-ACC turn-PRS
'(One) turns at the corner'

This line of analysis also provides an account for a creative use of *o*-marked ground such as (42) (from Tanaka 1997).

(42) *Kamakura-o aruk-u*
Kamakura-ACC walk-PRS
'(One) explores Kamakura on foot' (Lit. '(one) walks Kamakura')
(Note: Kamakura-city is a typical tourist destination.)

In this example, marking the ground with *o* triggers a creative interpretation that the ground is full of inherent features relevant for walking.

To summarize so far, postpositions used with a motion verb characterize the ground in various ways. *Ni* and *e* mark the ground as goal (i.e. the end point or directionality of motion), framing the ground as a purely spatial notion (note, however, that *ni*, but not *e*, can also be used to express the goal of a presupposed motion or a metaphorical motion). *Kara* and *made* frame the ground in a more abstract way as origin and extent, respectively. These notions subsume

both spatial and temporal notions. Finally *o* frames the ground as a functional entity.

12.4.2 Multiverb constructions

In this section, we discuss expressions of relatively complex types of motion events, in which more than one verb is necessary. First, we will discuss the functions of deictic auxiliary verbs, *iku* 'go' and *kuru* 'come'. Second, we will discuss motion events whose trajectory is anchored in a mid-point. In English, this type of motion event is expressed by prepositions like 'past' and 'along', but in Japanese, a multi-verb construction is necessary. Finally, we will discuss how the 'path' and 'manner' of a motion event (à la Talmy (1985)) are expressed in Japanese. English uses a manner verb and verb particles and prepositions such as *in*, *out of*, *up* and *down*. In Japanese, both manner and path are expressed by a verb.

12.4.2.1 Deictic auxiliary verb constructions

The deictic verbs *iku* 'go' and *kuru* 'come' can be used alone as the main verb of a clause, but they often combine with other verbs as an auxiliary verb. The main verb and a deictic auxiliary verb essentially constitute a single (complex) verb that projects a single-argument structure and all the postpositional phrases are in the same clause as the deictic verb (Hasegawa 1996, Matsumoto 1996a). The argument structure of the complex verb always includes a nominative NP, which expresses the figure of motion, and in most cases a locative NP, which expresses the goal of motion. It may, in addition, include an accusative NP when the main verb's argument structure has an accusative NP.

The uses of a deictic verb as an auxiliary verb and a main verb are contrasted in (43), where (a) illustrates the auxiliary verb use and (b) the main verb use. In both cases, the verb *motsu* 'hold/have' is suffixed with the connective *te*, which creates one of the infinitive forms of the verb.

(43) (Matsumoto 1996a: 237)

a. *[Taroo-wa sono hon-o gakkoo-ni [mot-te it-ta]]*
Taroo-TOP the book-ACC school-DAT hold/have-CONN go-PST
'Taroo brought the book to the school'

b. *[Taroo-wa [sono hon-o mot-te] [gakkoo-ni it-ta]]*
Taroo-TOP the book-ACC hold/have-CONN school-DAT go-PST
'Holding the book, Taro went to the school'

The argument structure of the verb complex *mot-te iku* 'go holding/having' does not incorporate the full array of arguments for the main verb, *motsu* 'hold/have'. The verb *motsu* can have a dative NP, which expresses the hand that holds, as in (44b). However, this dative NP cannot be a part of the argument structure of

the verb complex, which consists of *motsu* and a deictic auxiliary verb, as in (44a). (As noted in conjunction with the examples in (32), having two locative NPs in a clause is not the cause of the unacceptability of (44a).)

(44)* a. *[Taroo-wa sono hon-o migite-ni gakkoo-ni*
Taro-TOP the book-ACC right.hand-DAT school-DAT
[mot-te it-ta]]
hold/have-CONN go-PST
'Taro brought the book to the school in his right hand'

b. *[Taroo-wa [sono hon-o migite-ni mot-te]*
Taro-TOP the book-ACC right.hand-DAT hold/have-CONN
[gakkoo-ni it-ta]]
school-DAT go-PST
'Holding the book in his right hand, Taro went to the school'

As Japanese allows scrambling of NPs within a clause, sometimes it is difficult to distinguish a bi-clausal structure as in (44b) and an auxiliary verb construction as in (43a). For example, when *gakko-ni* 'to school' in (44b) is scrambled to the position following the topic NP as in (45a), the sequence of morphemes at the end of the sentence is the same as in (43a). However, there is a difference between *mot-te it-ta* 'go holding/having' in (43a) and (45a).[7] In the deictic auxiliary construction, it is possible to contract *mot-te it-ta* into *mo-te-t-ta*, deleting the /i/. In contrast, in a bi-clausal structure, adjacent *motsu* and *iku* cannot contract; consequently, (45b) is not acceptable.

(45) a. *Taroo-wa gakko-ni [sono hon-o migi-te-ni*
Taroo-TOP school-DAT the book-ACC right-hand-DAT
mot-te] it-ta
hold/have-CONN go-PST
'Holding the book in his right hand, Taro went to the school'

*b. *Taroo-wa gakko-ni [sono hon-o migi-te ni mot-te]-t-ta*
'Holding the book in his right hand, Taro went to the school'

The deictic auxiliary verbs can combine only with certain classes of verbs. The following list of classes is partly based on those by Morita (1977) and Hasegawa (1996). As we have seen above, associated action verbs such as *motsu* 'hold/have' as in (43a) can combine with a deictic auxiliary verb. This verb class also includes *daku* 'hold in the arms', and *tsureru* 'be accompanied by' as in (46).

[7] As suggested by Matsumoto (1996a), another way to tease apart the clausal structure is to use the fact that a negative polarity postposition *shika* only must appear in the clause governed by a negated verb (Muraki 1978; but see Kato 1991).

(46) *Taroo-wa kodomo-o byooin-ni tsure-te it-ta*
Taro-TOP child-ACC hospital-DAT be.accompanied go-PST
'Taro took the child to the hospital'

Note that it is possible to contract *iku*, as in *tsure-te-t-ta*. The associated action verbs alone take a nominative and an accusative NP, and they do not encode directed motion. When they combine with a deictic auxiliary verb, they can additionally take a dative NP, expressing the goal, and encode directed motion.

Manner verbs (Type 6) are the second class of verbs that can combine with a deictic auxiliary verb, as in (47a).

(47) a. *Taroo-wa gakkoo-ni [arui-te it]-ta*
Taro-TOP school-DAT walk-CONN go-PST
'Taro walked to the school'

b. **Taroo-wa gakkoo ni arui-ta*
Taro-TOP school-DAT walk-PST
'Taro walked to the school'

Note that it is possible to contract *iku*, as in *auite-t-ta*, in (47a). As shown in (47b), a manner verb itself cannot take a goal argument (only an extent argument is possible, as already discussed in conjunction with (28)). However, the combination of a manner verb and a deictic auxiliary can take a goal argument with *ni* postposition.

The third class of verbs is constituted by the verbs of change of locative relation with spatial extent (Type 1 Verbs).[8] These verbs alone take a ground argument, and encode change of locative relationship (see §12.3.3 for the analysis of *hairu* 'enter' and *deru* 'exit'). When combined with a deictic auxiliary verb, there can be only one ground argument for the complex verb, as in (48a).

(48) a. *Taroo-wa sono biru-ni hait-te it-ta*
Taro-TOP that building-DAT enter-CONN go-PST
'Taroo went into that building'

*b. *Taroo-wa seimon-o toshokan-ni [hait-te it]-ta*
Taro-TOP main.gate-ACC library-DAT enter-CONN go-PST
'Taro entered the main gate, and went to the library'
(intended reading).

Note that it is possible to contract *iku*, as in *hait-te-t-ta*, in (48a). It is not possible for the main verb and the deictic auxiliary verb to each take a different ground argument (Matsumoto 1996a), as shown in the unacceptable (48b).

[8] The only possible combination between deictic main verbs and deictic auxiliary verbs is *it-te kuru* 'to go (and will soon come back)' (lit. 'to come and go').

As we will discuss in more details in 12.4.3, the semantic effect of adding a deictic auxiliary verb is that the Aktionsart (temporal structure) of the denoted event changes. More specifically, a deictic auxiliary verb introduces a dynamic phase ('activity phase') to the temporal structure of the denoted event.

The fourth class of verbs are transfer verbs such as *okuru* 'send' and *nageru* 'throw', which are a subset of Arrival-focussed caused motion verbs (Type 9 verbs). These verbs take the COME auxiliary verb, as in (49), but cannot take the GO auxiliary verb (Takahashi 1969/1976, Hasegawa 1996).

(49) *Taroo-wa kozutumi-o-uchi-ni okut-te ki-ta*
Taro-TOP parcel-ACC-home-DAT send-CONN come-PST
'Taro sent a parcel to my home'

This class of verbs is not compatible with the GO auxiliary verbs probably because they would not add anything new semantically. Like the GO verbs discussed by Wilkins and Hill (1995), GO does not semantically encode any particular directionality with respect to the deictic centre (it merely implicates motion away from the deictic centre due to the contrast with COME, which encodes motion towards the deictic centre). Directedness of motion is already part of the lexical meaning of verbs like *okuru* 'send'. Since the Aktionsart of these verbs contains a dynamic phase, there is thus no reason to add the GO auxiliary verb to change the Aktionsart. In contrast, the COME auxiliary verb semantically adds a specific directionality, namely the direction towards the deictic centre.

The fifth class of verbs are activity verbs that do not encode any change of location, for example, *taberu* 'eat', as in (50a). Unlike the cases discussed above, it is not possible to have a locative NP, expressing goal when *it* 'go' is used as an auxiliary verb. This is evidenced by the fact that *tabe-te it-ta* can be contracted in (50a), but not in (50b). In (50b), *it* 'go' is a main verb, not an auxiliary verb, governing the locative goal NP, and thus cannot be contracted.

(50) a. *Mori-san-wa asagohan-o tabe-te it-ta (tabe-te-t-ta)*
Mori-Mr-TOP breakfast-ACC eat-CONN go-PST
'Mr Mori left, having had breakfast'

b. *Mori-san wa gakko-ni [asagohan-o tabe-te]*
Mori-Mr-TOP school-DAT breakfast-ACC eat-CONN
*it-ta (*tabe-te-t-ta)*
go-PST
'Mr Mori had breakfast, and then went to school'

12.4.2.2 Bi-clausal expressions of VIA-notions

In order to express VIA notions, the verbs, *tooru* 'to pass', as in (51a,b), and *sou* 'be along', as in (51c), are used.

(51) a. *Taroo-wa [yuubinkyoku-no mae-o toot-te]*
Taro-TOP post.office-GEN front-ACC pass-CONN
gakko-ni it-ta
school-DAT go-PST
'Taro went to school past the post office'

b. *Taroo-wa [Yamatedoori-o toot-te] gakko-ni it-ta*
Taro-TOP Yamate.street-ACC pass-CONN school-DAT go-PST
'Taro went to school on Yamate street (at least part of his way)'

c. *Taroo-wa [kawa-ni sot-te] gakko-ni it-ta*
Taroo-TOP river-DAT be.along-CONN school-DAT go-PST
'Taro went to school along the river'

12.4.2.3 Two-verb expressions of manner and path

As mentioned above, Japanese is a verb-framed language, where path is expressed by verbs such as *hairu* 'enter', *deru* 'exit', *agaru* 'ascend', *koeru* 'go over' and *wataru* 'cross'. There are two main ways to connect a manner clause and a path clause, namely, a manner clause can be subordinated to a path clause by using a connective, *te*, or another connective, *nagara*. The examples in (52) illustrate these two constructions with a manner verb *korogaru* 'roll' and a path verb *deru* 'exit'.

(52) a. Manner-*te* Path
sono tatemono-kara korogat-te de-ta
the building-ABL roll-CONN exit-PST
'(One) exited the building by means of rolling'

b. Manner-*nagara* Path
sono tatemono-kara korogari-nagara de-ta
the building-ABL roll-as exit-PST
'(One) exited the building, as s/he rolls'

When the manner and path clauses are linked by the connective *te*, then the sentence expresses that the manner is chosen as a means to accomplish the change of locative relationship, denoted by the path clause. When the manner clause and the path clause are linked by the connective *nagara*, the sentence merely expresses that manner and path are simultaneous, and it is neutral as to the means–end relationship. When it is difficult to construe the event denoted by the subordinate clause as a means of changing the locative relationship, the connective *nagara* yields a natural sentence, as in (53a), but the connective *te* is pragmatically infelicitous, as in (54a). Conversely, when it seems necessary to construe the event denoted by the subordinate clause as the means of changing the locative relationship, the connective *te* yields a natural sentence, as in (54b), and the connective *nagara* is infelicitous, as in (53b).

(53) a. *sono tatemono-kara uta-o utai-nagara de-ta*
the building-ABL song-ACC sing-as exit-PST
'(One) exited the building, as s/he sings a song'

#b. *sono tatemono-kara aruki-nagara de-ta*
the building-ABL walk-as exit-PST
'(One) exited the building, as s/he walks'

(54) #a. *sono tatemono-kara uta-o utat-te de-ta*
The building-ABL song-ACC sing-CONN exit-PST
'(One) exited the building by means of singing a song'

b. *sono tatemono-kara arui-te de-ta*
the building-ABL walk-CONN exit-PST
'(One) exited the building by means of walking'

In addition to the bi-clausal constructions with a connective, manner and path can be associated by means of compounding, as in (55).

(55) a. *korogari-kom-u*
roll-get.crowded-PRS
'to roll in'

b. *kake-aga-ru*
run-ascend-PRS
'to run up'

V-V compounds are very extensive, but not productive. For example, there is no compound for roll-ascend even though roll-out-of and run-ascend exist. Some of the constituent verbs used in a compound cannot appear as an independent verb or have different meaning when used as an independent verb (e.g. *komu* 'get crowded' means 'in' in many compounds, as in (55a)). See Tagashira and Hoff (1986) and Matsumoto (1996a, 1997) for more information on V-V compounds.

12.4.3 'Enter'/'Exit' as 'discrete change of state'

Some Japanese motion verbs have an Aktionsart (the temporal contour of a denoted event) that is unexpected from its translational equivalent in English (see Kita 1999 for a more detailed account of the phenomena discussed in this subsection). Consider the class of events that are schematized by Figure 12.2 and the Japanese expression of this event in (56) (from Kita 1999).

(56) *Shikaku-ga en-ni hait-ta*
square-NOM circle-DAT enter-PST
a. '(Because the square moved to the left,) the square entered the circle'
b. '(Because the circle moved to the right,) the square was in the circle'

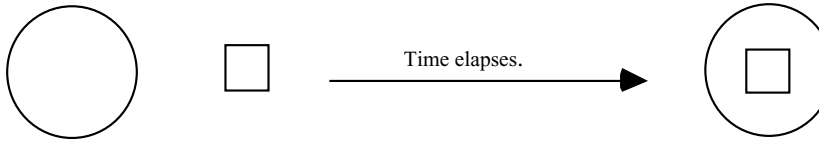


Figure 12.2 'Enter' ('come to be inside') as discrete change of state

The default interpretation of the sentence in (56) is (a), in which the referent of the nominative NP moves. However, this default interpretation of the transition phase is defeasible. In fact, regardless of how the transition happens, (56) is a good description of the whole class of events schematized in Figure 12.2. For example, (56) can describe an event where only the referent of the locative NP moves, as in (b). Example (56) can also describe the event in which the referents of the two NPs both move towards each other.

Note further that (56) entails that the square exists at the beginning. In other words, (56) cannot describe the event when neither the square nor the circle exists at the beginning, and the configuration of the square in the circle pops up. Moreover, it is possible that there is no movement of an object involved at all, as shown in (57) (from Kita 1999).

(57) *Taro-ga totemo okina en-o kai-ta node,*
Taro-NOM very big circle-ACC draw-PST because
shikaku-ga en-ni hait-ta
square-NOM circle-DAT enter-PST
'Because Taro drew a very large circle, the square was in the circle'

Thus, what is semantically encoded by (56) is the following, 'At Time 1 the square exists and it is not in the circle. Later, at Time 2 the square is in the circle.' I will call this type of Aktionsart, 'discrete change of state'.[9] The Japanese verb for exiting, *deru*, also encodes discrete change of state, and thus exhibits the phenomena characteristic of verbs of discrete change of state. In contrast to (56), its translational equivalent in English, *the square* {*went into / entered*} *the circle*, semantically encodes that the referent of the nominative NP moves during the transition phase. This English sentence cannot be used in context (b) in (56) and (57). I will call the Aktionsart in the English verb *enter*, 'analogue change of state'.

When deictic auxiliary verbs combine with *hairu* and *deru*, the Aktionsart of the resulting combination is analogue change of state (see Choi and Bowerman

[9] In the conclusion chapter of this volume, the editors dub this Aktionsart 'change of locative relation', and the semantics of the English counterpart verbs 'translocation', which in this chapter is called analogue change of state.

1991 for a similar phenomenon in Korean). In other words, deictic auxiliary verbs add a dynamic phase in the temporal structure of an event in which transitional movement of figure takes place. Thus, (58), which is constructed by adding the GO auxiliary verb to (56), now encodes that the referent of the nominative NP moves. It no longer allows the reading (58b), thus becoming equivalent to the English counterpart (7) (from Kita (1999).

(58) *Shikaku-ga en-ni hait-te it-ta*
square-NOM circle-DAT enter-CONN go-PST
a. '(Because the square moved to the left by 10 cm,) the square went into the circle'
*b. '(Because the circle moved to the right by 10 cm,) the square was in the circle'

Similarly, (59), which is constructed by adding *iku* 'go' to (56), is unacceptable (from Kita 1999).

(59) **Taro-ga totemo ookina en-o kai-ta node,*
Taro-NOM very big circle-ACC draw-PST because
shikaku-ga en-ni hait-te it-ta
square-NOM circle-DAT enter-CONN go-PST
'Because Taro drew a very large circle, the square went into the circle'

Discrete change of state should be further distinguished from 'punctual change of state'. Discrete change of state involves two definite time points (i.e. the end of the initial state and the beginning of the end state), whereas punctual change of state involves only one definite time point (i.e. the boundary of the initial state and the end state). The verb *shinu* 'to die' exemplifies verbs of punctual change of state. Verbs of discrete change of state differ from those of punctual change of state in that the former can combine with the verb, *hajimeru* 'to begin', which denotes the onset of a change with some temporal extent. This is illustrated in (60) (from Kita 1999).

(60) a. *Kuruma-ga tonneru-ni hairi-hajime-ta*
car-NOM tunnel-DAT enter-begin-PST
'The car began to enter the tunnel'
*b. *Taroo-ga shini-hajime-ta*
Taroo-NOM die-begin-PST
'Taroo began to die'

12.4.4 Summary of motion expression in Japanese

Japanese is a verb-framed language in Talmy's (1985) sense. Manner and path are typically expressed by separate verbs, and manner and path clauses are

associated by a connective particle. However, there are a couple of other ways to express manner and path. First, manner can be expressed as a mimetic, which can serve as an adverbial in a path clause. Second, manner and path can be expressed in a single compound verb. As with other verb-framed languages, Japanese motion discourse tends to restrict the number of grounds expressed in a clause with a motion verb and prefers to express landmarks relevant for a motion event in a 'setting' clause.

Twelve single-verb constructions for motion have been discussed. In these constructions, five postpositions, *e* 'allative', *ni* 'dative', *o* 'accusative', *kara* 'ablative', and *made* 'extent', mark various kinds of landmarks relevant for a motion event. The allative and dative postpositions have very similar distributions, and they typically mark the end location or directionality of motion. The accusative postposition marks the functional ground. The ablative postposition marks origin, a reference point from which a change (including a spatial change) unfolds. In addition, the ablative postposition along with the extent postposition can delineate an interval in an abstract sense, which subsumes both spatial and temporal intervals. In addition, there is an event locative postposition, *de*.

Three classes of multiverb constructions for motion have been discussed. The first one involves expression of manner and path with two different connectives. The second one involves deictic auxiliary verbs. The third one involves expression of VIA-notions by means of a subordinate clause.

Finally, we have discussed the fact that some motion verbs in Japanese do not encode continuous location change of figure. It is argued that semantics of Japanese 'Enter'/'Exit' verbs are best characterized as discrete change of state, in which the figure is not in State X at time 1, but is in State X at time 2.

12.5 Contextual factors for the choice of frames of reference

Frames of reference divide space into regions radiating from a reference point in order to specify location or direction. There are three qualitatively different frames of reference: relative, absolute and intrinsic. The lexical resources for denoting these different frames of reference are spatial nominals, whose semantics have been discussed in detail in Section 12.3.2. In this section, we will discuss the contextual factors that determine the choice of frame of reference in spatial description. In Japanese, one of the main factors is the scale of the space. In the following sections, we will discuss two different scales of space: tabletop space and a larger space.

12.5.1 Tabletop space

The choice of frame of reference for static arras in tabletop space was investigated by a referential communication task, the Men and Tree Space Game, as described in Chapter 1, Section 1.4.2. Three pairs of native speakers of Japanese

Table 12.1 *Spatial propositions used to distinguish Photos 2.3, 2.4 and 2.5 in the Men and Tree Game*

	Information type	Photo 2.3	Photo 2.4	Photo 2.5
Pair 1	Standing	Man is at the left side of tree.	Man standing at the left side of tree.	Man is at the right side of tree.
	Facing	Man is looking at tree.	Man orients his back to tree.	Man is looking at the tree.
Pair 2	Standing	Man is left, tree is right.	Man is at left side, tree is at right side.	Man is at right side, tree is at left side.
	Facing	Man faces toward tree. Man faces the right side.*	Man faces left.	Man faces left.
Pair 3	Standing	Tree is at right, man is at left.	Tree is at right, man is at left.	Tree is at left, man is at right.
	Facing	Man faces toward tree, faces right side.	Man faces left side, orients his back to tree.	Man faces toward tree, toward left side.

* This proposition was given after the matcher expressed difficulty with the first proposition. The 'relative' strategy persevered in following photos including, Photos 2.4 and 2.5.

participated in the Men and Tree Game. The relative and intrinsic frames of reference were used, but the absolute frame of reference was not used. The English translations of utterances used by the three speakers are summarized in Table 12.1, and the actual utterances from Pair 1 are in (61).

(61) Men and Tree Game (Pair 1)

Photo 2.3

tsugi-wa	*hito-ga*	*ki-no*	*hidari-gawa-ni*	*i-te*
next-TOP	person-NOM	tree-GEN	left-side-DAT	be-CONN

ki-o	*mi-te-i-ru*	*shashin*
tree-ACC	look-CONN-IPFT-PRS	photo

'The next one is the photo in which a man is at the left side of the tree, and orients his back to the tree'

Photo 2.4

sorekara	*ki-no*	*hidari-gawa-ni*	*hito-ga*
then	tree-GEN	left-side-DAT	person-NOM

ki-ni	*se-o*	*muke-te*	*tat-te-i-ru*
tree-DAT	back-ACC	orient-CONN	stand-CONN-IPFT-PRS

shashin
photo

'Then, the photo in which a man is standing at the left side of the tree with his back oriented toward the tree'

Photo 2.5

tsugi-wa	*hito-ga*	*ki-no*	*migi-gawa-ni*	*i-te*
next-TOP	person-NOM	tree-GEN	right-side-DAT	be-CONN
ki-o	*mi-te-i-ru*		*shashin*	
tree-ACC	look-CONN-IPFT-PRS		photo	

'The next one is the photo in which a man is at the right side of a tree, looking at the tree'

All three speakers encoded the standing information (i.e. the locational relationship between the two entities) with the relative frame of reference. Namely, they used *hidari* 'left', *hidari-gawa* 'left-side' and *migi* 'right' or *migi-gawa* 'right-side' to specify the relative location of the man and the tree, as readers can see in Table 12.1.

In the encoding of the facing information (i.e. the orientation of the man), the relative and intrinsic frames of reference as well as deixis were used. Deictic expressions such as *kochira-gawa o mui te iru* 'facing the region of this direction' are used to encode the facing information for the photos in which the man is facing towards or away from the participants of the game. For the photos in which the man is facing laterally, only relative and intrinsic were used. There is an indication that intrinsic may be somewhat preferred over relative for facing information. More specifically, one speaker used only intrinsic to encode facing information, as in (61). (Note that an expression such as 'the man is looking at the tree' is considered intrinsic because it is based solely on the photo-internal features.) Another speaker (Pair 2 in Table 12.1) started out with the intrinsic frame for the first photo with a man and a tree in the task (Photo 2.3). When the interlocutor showed a sign of difficulty, the speaker provided the facing information in the relative frame of reference. From then on, the speaker used only relative. The third speaker spontaneously provided both the intrinsic and the relative frames of reference.

12.5.2 Larger-scale space

The relative and intrinsic frames of reference are predominantly used to describe the 'standing' relationship on a horizontal plane between two entities in larger scales, as long as they are simultaneously visible, or if one can imagine them to be simultaneously visible. Thus, the relative frame of reference is typically used for two buildings close to each other on a street,[10] for two distant but

[10] In Kyoto, streets form a grid roughly aligned to cardinal directions. The conventional address format includes cardinal directions (e.g. 'from the intersection Street A and Street B, going south two lanes, enter east, on the north side'). This system, however, is not used for the streets just outside of the grid of streets. Thus, the system may be best categorized as based on the intrinsic frame of reference (similar to *front* as in 'the front row of the National Theatre'), rather than as based on the absolute frame of reference. See Levinson et al. (2002) for a similar discussion regarding English 'uptown' and 'downtown' used in New York City.

visible mountains, and even for two stars that are visible. The intrinsic frame of reference can be used if the ground is featured (e.g. 'that department store is in front of the bank'). When the ground is a body, the intrinsic frame of reference is dominant (e.g. 'There is a fly on your right shoulder'). The absolute frame of reference is used only for those spatial relationships that are learned from a map. One exception, in which the absolute frame of reference is used in the scale of a visual scene, is the description of real estate (e.g. 'There is a park on the south side of the house'). The relative locations between parallel streets, cities and countries are often described by cardinal direction terms.

For the 'facing' relationship, what we found in tabletop space applies to larger scale space, as long as figure is visible or visualizable. Namely, the intrinsic frame of reference is dominant, and the relative frame of reference and deixis are also commonly used. The absolute frame of reference is used only for spatial relationships that are learned from a map. Note that here again, description of real estate is an exception. It is very common to use the absolute frame of reference to describe the facing relationship, especially for rooms (e.g. 'a room facing south', 'a room facing west').

12.6 Conclusions

Japanese is in some ways quite similar to European languages, for example, in the preference for the relative and intrinsic frames of reference to describe relationship between two entities at all scales, and the restriction of the absolute frame of reference to large-scale relationships, largely those learned from a map.

Japanese, however, fundamentally differs from European languages in many other ways. First, the use of the basic locative construction as an answer to a Where-question is limited to canonical locational situations (e.g. an apple is on the table, or Chicago is in Illinois). Other situations (e.g. the stamp is on the envelope, or the apple is on a skewer) are construed as a result of a change. Furthermore, when referring to this change, the Agent is suppressed whenever possible (e.g. an intransitive verb for spontaneous change is preferred to a ditransitive verb for an agentively caused change). This is consistent with Ikegami's (1991) characterization of Japanese as a BECOME-language, as opposed to DO-languages such as English.

Second, unlike European prepositions, Japanese spatial nominals are oblivious to the notion of connectivity (contact and attachment). Spatial nominals do not make distinctions analogous to English *on* and *above* (contact vs. no contact) or to Dutch *op* and *aan* (two kinds of connectivity). In Japanese, various types of connectivity are expressed, instead, in verbs.

Third, some of the Japanese motion verbs construe a motion event as a discrete change of state (in the conclusion chapter of this volume, this construal is dubbed 'change of locative relation'). It has been shown that Japanese 'Enter'/'Exit' verbs do not require that the figure continuously move through space. Entering,

for example, is construed as a result of a discrete change of locative relation between time 1 and time 2. This is also compatible with Ikegami's (1991) characterization of Japanese as a BECOME-language.

Finally, it should be mentioned that many of the lexical items and constructions used for the expression of spatial concepts have non-spatial uses. All the postpositions except for allative *e* have non-spatial uses. This, in turn, means that all the constructions discussed above have non-spatial uses. The deictic auxiliary verbs and many of spatial nominals also have non-spatial uses. The relationship between spatial and non-spatial uses is an interesting topic for further investigation.

13 Some properties of spatial description in Dutch

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13.1 Introduction

In this paper we discuss a number of properties of spatial description in Dutch. Since Dutch is one of the closest linguistic neighbours of English, comparisons between Dutch and English are easily drawn. Yet while at first glance, English and Dutch indeed appear rather similar in the encoding of spatial relations, closer examination reveals remarkable differences. A first difference turns up in the domain of prepositions, postpositions and particles used in spatial descriptions. Not only do the two languages cut up the domain covered by prepositions rather differently (Dutch has, for instance, two kinds of 'on'), but also the division of labour among parts of speech in the expression of spatial relations in simple locative descriptions is radically different. Unlike English, Dutch has a form class of positional verbs expressing the posture of the figure, but also aspects of the relation between figure and ground. We also find that although both English and Dutch combine intrinsic and relative orientation in the expression of frames of reference, Dutch has a set of adverbs that can be used in combination with prepositions to give quite an elaborate set of expressions for frames of references, where speakers of English must resort to topological descriptions. Moreover, the regions that the terms of each language pick out are markedly different.

Yet, what truly sets Dutch apart in terms of spatial description is the effortless combining of the expression of topological relations and frames of reference, as well as both manner and path of motion in simple clauses:

(1) *Hij viel achterover de trap af tegen de voordeur*
he fell backwards the stairs off against the front.door
'He fell over backwards down the stairs against the front door'

13.2 Dutch: the language and its speakers

In the context of this volume, this chapter on Dutch is unique for two reasons. First, it is the only Indo-European language included in the volume.

Second, it differs in how the data were collected and organized. For all other chapters, the researchers had a long-term research commitment to the language described, and they implemented the various research and elicitation instruments themselves within the field context. The Dutch data, in contrast, were collected under the direction of the Cognitive Anthropology Group (later the Language and Cognition Group) of the Max Planck Institute for Psycholinguistics in Nijmegen by Dutch student assistants who drew on our regular subject pool for Dutch-speaking consultants. In almost all cases the Dutch consultants were university students attending the Radboud University in Nijmegen. It was the responsibility of the scientific staff of the group to analyse relevant data, but this was not from the point of view of a specialist Dutch linguist, but more from a comparative point of view. The multiple authorship of this chapter is a consequence of these facts.[1]

The Dutch data and analyses presented here primarily reflect Standard Dutch as spoken in the Netherlands. The official name of the language is Nederlands, and, along with English and German, it is a member of the West Germanic branch of the Germanic language family. The estimated number of native speakers in the Netherlands is about 15 million. Dutch is the official language of political administration, media and education.

Dutch is also one of the official languages of Belgium, which has about 6 million native speakers, and there is also a Dutch-speaking enclave in France with less than 100,000 speakers. As a consequence of both Dutch colonial expansion and significant emigration, varieties of Dutch are also spoken in a number of areas outside of Europe. For instance, it is the official language of both Surinam in South America and the islands of the Dutch Antilles, and there are dwindling enclaves of immigrant speakers in the USA, Canada, Australia and New Zealand.

The Netherlands boasts high rates of literacy in Dutch, as well as high rates of multilingualism. All of our (more than thirty) consultants also spoke English, and the majority also spoke German and/or French. Indeed, in both the media and in informal conversations, one notes high rates of borrowing and code-switching, especially with English.

The most authoritative general traditional grammar of Dutch is *Algemene Nederlandse Spraakkunst* (Geerts et al. 1984). The best reference grammar of Dutch written in English is Donaldson's (1997) *Dutch: A Comprehensive Grammar*. In 1993, the Centre for Linguistic Studies initiated a project entitled 'A modern grammar of Dutch' (based in Tilburg) the aim of which is to produce a grammar of Dutch in English which makes the results of theoretical work on Dutch syntax accessible to a general linguistic readership (see Broekhuis 2002).

[1] Although we are indebted to all our colleagues, we would like to thank especially David Wilkins and Stephen Levinson for their invaluable comments, advice and editorial suggestions.

Initial results of this project have appeared in the series Modern Grammar of Dutch Occasional Papers. Finally, it is worth mentioning that the most popular large dictionary of Dutch is the *Van Dale Groot Woordenboek der Nederlandse Taal* (Geerts and Heestermans 1995). All of these sources have been used in preparing the current chapter.

13.3 Grammatical background to spatial descriptions in Dutch

So much has been written on Dutch that an extensive overview of the language seems superfluous. In this section, then, we outline features of Dutch only to the extent that these are relevant to the description of space and facilitate the interpretation of the examples given in this chapter. Note that, as in English, spelling does not directly reflect the phonology of the language. There is still no uniform glossing system for Dutch and we have chosen to simply give the English equivalent of forms where possible. Morpheme breaks are only given when this is relevant for the discussion.

The description of basic word order in Dutch has long been a matter of debate. It has been described as SOV on the basis of subordinate clause word order and the position of non-finite verbs in the clause-final periphery, whereby the SVO order in main clauses is derived by movement (e.g. Barbiers 1998):

(2) *Hij heeft niet kunnen bewijzen dat zijn grootmoeder zijn*
he has not can prove that his grandmother his
grootvader al voor de oorlog had ontmoet
grandfather already before the war had meet:PART
'He has not been able to prove that his grandmother had already met his grandfather before the war'[2]

However, Dutch is also described as basically 'finite verb second' (cf. for instance Kooij 1990), whereby all other verbal elements, such as participles and infinitives occur in the final periphery of the clause, possibly followed by a prepositional phrase:

(3) *Ze zitten naar dat kikkertje te kijken in die kom*
they sit to that frog:DIM to look in that bowl
'They are looking at the frog in the bowl'

The first, preverbal, position is filled by either the subject, for instance *ze* in the example above, or another element, in which case the subject immediately follows the finite verb:

[2] Abbreviations used: DIM – diminutive; PART – participle; CONT – continuous.

(4) *Voor in de pauze neem ik altijd een appel mee*
for in the break bring I always a apple with/along
'I always bring an apple for during the break'

A notable difference between English and Dutch is that in Dutch there is great freedom in the kinds of constituents that occur in the preverbal position, where in English the preverbal constituent is almost invariably the subject.

Like English, Dutch has two grammatical tenses, past and present. Unlike English, however, Dutch frequently extends the use of simple present tense constructions to future reference also. Perfect aspect is expressed by the participle form of the verb in conjunction with one of two auxiliary verbs, *hebben* 'have' and *zijn* 'be' (cf. example (2) above). Auxiliary *zijn* is used with unaccusative verbs, where the subject is the undergoer, e.g. *komen* 'come', *vallen* 'fall', *bevriezen* 'freeze', *groeien* 'grow':

(5) *Die jongen is al flink gegroeid*
that boy is already quite grown
'That boy has grown quite a bit'

With all other verbs *hebben* can be used, for instance with verbs such as *geven* 'give':

(6) *Zij heeft hem een cadeautje gegeven*
she has him a present:DIM given
'She has given him a (small) present'

With some verbs, both *hebben* and *zijn* may be appropriate, depending on the constructions in which they occur. These will be discussed in Section 13.5.3 below.

Dutch nouns can be assigned to one of two classes: neuter and non-neuter. Singular neuter forms take definite article *het*, and demonstratives *dit* 'this' and *dat* 'that', while all others, including the plural neuter, take definite article *de*, and demonstratives *deze* 'this' and *die* 'that'. Likewise, relative clauses in which the relativized noun is either subject or object are introduced by *dat* if the relativized noun is singular neuter (cf. example (12) below), and by *die* in the other cases. If the relativized noun is the complement of a preposition, the relative clause is introduced by relative adverb *waar* 'where':

(7) *(Dan stapt de) kikker uit het glazen potje waar die in zat*
then steps the frog out the glass jar:DIM where that in sits
'(Then the) frog (steps) out of the glass jar in which it was sitting (lit. where it in sat)'

Another cross-classification can be made in terms of gender in anaphoric reference. Nouns that refer to female humans and higher animates as well as a

subset of the neuter class are anaphorically referred to by the feminine pronouns. All other nouns, including both non-neuter and all neuter forms, are masculine. This distinction has become somewhat blurred, in particular in the Northern varieties of Dutch where feminine anaphoric reference is restricted only to referents with clearly natural female gender. In the Southern varieties we do still find the distinction. Words like *peer* 'pear' and *tafel* 'table' may thus be anaphorically referred to by either *hij* 'he' (in the North) or *zij* 'she' (in the South).

Noun phrases in Dutch do not have overtly marked case distinctions. As in English, only the pronominal system shows two cases: nominative and accusative/dative. In noun phrases, modifiers generally precede the noun, regardless of whether they are adjectives, non-finite present or past participle constructions or *te* + infinitives:

(8) *De vliegende Hollander*
the flying Dutchman
'The flying Dutchman'

(9) *De te lopen afstand*
the to walk distance
'The walking distance'

Exceptions are modifiers with subordinating conjunctions, prepositional phrases or relative clauses, which follow the noun:

(10) *De reden waarom hij naar huis gaat*
the reason why he to home goes
'The reason why he goes home'

(11) *een jurk voor het feest*
a dress for the party
'a dress for the party'

(12) *het cadeautje dat jij me hebt gegeven*
the present:DIM that you me have give:PART
'the present that you gave me'

For the discussion of topological relations, motion and frames of reference, it is important to consider here one striking feature of Dutch morphology, which is the great freedom to form new words through compounding. Nouns, verbs, adjectives, adverbs and even prepositions may all be formed through the juxtaposition of free morphemes, whereby the second part determines the category of the compound. There are masses of conventional compounds, some with quite idiomatic meanings, but the process of compounding, in particular in the formation of nouns, is highly productive:

(13) *zwangerschapsverlof* (pregnancy + leave) 'pregnancy leave'
zwanenhals (swan + neck) 'swan's neck'
milieuvriendelijk (environment + friendly) 'environmentally friendly'
beregoed (bear + good) 'great'
achternazitten (behind + after + sit) 'follow, chase after'
autorijden (car + drive) 'drive'

In spatial descriptions in Dutch, we find compounds of adverbs and prepositions:

(14) *voor-in* (front + in) 'in the front'
boven-op (over + on) 'on top of'

In addition, deictic reference to a space or place also gives putative compounds, as well as verbs and 'particles' – so-called 'separable verbs' that express motion events:

(15) *daar-achter* (there + behind) 'behind that'
waar-heen (where + to) 'where to'
binnen-lopen (in + walk) '1. come into a fortune (idiom.), 2. walk in'
in-springen (in + springen) '1. lend a helping hand (idiom.), 2. jump in'

Dutch uses an elaborate set of prepositions to mark the semantic role of constituents in the clause (16) and to describe topological relations (17):

(16) *Ik geef het cadeau aan haar*
I give the present to her
'I give the present to her'

(17) *Het schilderij hangt aan de muur*
the painting hangs on the wall
'The painting is on the wall'

These prepositions may be mono-morphemic, or compounds consisting of a particle or 'adverbial preposition' like *voor* 'in front', *achter* 'behind', *boven* 'up' and *beneden* 'down', followed by a preposition. Note that these particles can also function as prepositions on their own (18), and that they may also precede the preposition as a separate adverb, giving meaning contrasts as in (20) and (21):

(18) *voor het huis*
in.front.of the house
'in front of the house'

(19) *voor-in de la*
in.front.of-in the drawer
'in the front part of the drawer'

(20) *Het staat boven in de kast*
it stands above in the closet
'It is above in the closet (i.e. on a higher floor)'

(21) *Het staat boven-in de kast*
it stands above-in the closet
'It is above in the closet (on the top shelf)'

In Dutch, in contrast to English, it is not possible to refer to spaces anaphorically by means of a demonstrative pronoun:

(22) *Onder de stoel/ *onder dat zit hij niet*
under the chair/ under that sits he not
'He does not sit under the chair / it'

Instead, one of the deictic adverbs *hier* 'here', *daar* 'there', *er* 'there (short form)' and the interrogative form *waar* 'where' combines with an adverbial preposition, giving an apparent compound:

(23) *Daar-onder zit hij niet*
there-under sits he not
'He does not sit under that'

In addition to reversed word order, we also find that the forms of the prepositions that precede the noun phrase are not always identical to the forms in the compounds. In particular, prepositions *met* 'with' and *tot* 'until' have equivalents *mee* 'with' and *toe* 'until' in the compounds, while *naar* 'to' and *van* 'from' in motion expressions correspond to *heen* 'to' or *naartoe* 'to' and *af*, *vanaf* or *vandaan* 'from', respectively:

(24) *Hij viel van het dak*
he fell off the roof
'He fell off the roof'

(25) *Hij viel er-van-af/ er-af*
he fell there-from-off there-off
'He fell off it'

In the examples so far, the deictic adverbs and the particles appear to have formed compounds, but they may also occur as separate words, as for instance *daar* + *uit* and *daar* + *heen* in the following examples:

(26) *Dan komt daar dus een uil uit*
then comes there so a owl out
'So then an owl comes out of that'

(27) *Daar kan hij niet heen*
there can he not to
'He cannot go there'

Although there are spelling rules for these types of compounds, in practice, there is little uniformity in the presentation of these forms. They may be referred to as 'separable deictics', by analogy to the 'separable verbs' discussed below, which behave as one word in some respects, but which may be separated under certain circumstances.

The word order in these separable deictics poses another question, and this concerns the possible analysis of postpositions in Dutch. Aside from the forms in these compounds, there is a whole range of forms that occur as prepositions, but that can also occur after the noun phrase. They may even occur after a noun phrase that is preceded by a preposition, or, alternatively, they may follow a verb where there is no noun phrase at all:

(28) *Hij reed de stad uit*
hij drove the town out
'He drove out of town'

(29) *Zij lopen voor ons langs*
they walk in.front us past
'They walked past in front of us'

(30) *De tak brak af*
the branch broke off
'The branch broke off'

The analysis of these constructions is still a matter of much debate in Dutch linguistics. It is possible to distinguish a set of postpositions as well as a set of circumpositions to account for (28) and (29). Alternatively, the forms may be described as adverb-like particles that occur not after the noun phrase per se, but rather in the final periphery of the clause along with any non-finite verbs, in which case (30) could perhaps be accounted for in the same way as (28) and (29). The question raised is whether these particles, if they occupy a position in the clause that is reserved for verbal elements, are somehow part of a verbal compound or are distinct words, and whether perhaps further distinctions among these seemingly similar constructions must be made.

Geerts et al. (1984), the most authoritative Dutch grammar, distinguishes true compounds, semi-compounds, i.e. the adverbial particles, and verbs plus postpositions (or circumpositions) that perhaps do not yield compounds at all. True compounds include so-called 'inseparable verbs'. They have an unstressed first element that is prepositional in origin, and their meaning often is quite idiomatic. Examples are *doorlopen* '(through + walk) complete', and *overvallen*

'(over + fall) rob'. The participial form of these inseparable verbs is identical to the infinitive citation form and always appears as a single word:

(31) *Zij heeft de school met goed gevolg door-lopen*
she has the school with good result through-walk:PART
'She has successfully completed her school education'

(32) *Een bank over-val je niet zomaar*
a bank over-fall you not just
'You don't just rob a bank'

The semi-compounds are the 'separable verbs', which derive their name from the fact that the parts of the compound do not always appear as a single word. Stress falls on the first element of the compound and the participial form is prefixed with *ge-*: *binnen* + *vallen* (in + fall) 'invade, drop in' has *binnengevallen*[3] as its participial. Separable verbs consist of a root verb and an element which may be one of a subset of prepositions, e.g. *op* + *komen* 'rise', *in* + *trappen* 'kick in' or 'be fooled'; an idiomatic object of the verb, e.g. *koffie* + *drinken* 'to drink coffee' or *televisie* + *kijken* 'to watch television'; an adjective, e.g. *schoon* + *maken* (clean + make) 'clean', *vol*+*gooien* (full + throw) 'fill up'; or one of a number of adverbs, e.g. *samen* + *komen* (together + come) 'gather', *weg* + *gooien* 'throw away'. The particle is positional with the non-finite verbs towards the clause-final periphery. When the root verb is finite, this means that the particle is 'separated' from the verb in the clause:

(33) *De zon komt op*
the sun comes up
'The sun rises'

(34) *Het jongetje gaat weg*
the boy:DIM goes away
'The boy goes away'

In transitive clauses the result is that the particle follows the object:

(35) *Zij loopt haar schoenen in*
she walks her shoes in
'She breaks in her shoes'

(36) *Hij schold mij uit*
he swore me out
'He called me names'

When the root verb is not finite, it also occurs in the verb periphery, and verb and particle again form one word, as in (37):

[3] Arguably, in these cases, *ge-* should be analysed as an infix.

(37) *Zo'n zware koffer kan hij niet mee-nemen*
such.a heavy suitcase can he not with-bring
'He cannot take along such a heavy suitcase'

Note that other non-finite verbs, such as modal verbs, may again break up the verb and particle:

(38) *Zoveel bagage heeft hij nooit mee kunnen nemen*
so.much luggage has he never along can bring
'He could never have taken that much luggage'

Another instance in which the two parts of the separable verb appear as one word is when they function attributively in a noun phrase or when they are a constituent, e.g. the subject in (41):

(39) *het op-geviste lijk*
the up-fish:PART corpse
'(lit.) the fished-up body'

(40) *het weg-gaande jongetje*
the away-go:CONT boy
'the boy who is going away'

(41) *koffie-drinken is tijd verspillen*
coffee-drink is time waste
'drinking coffee is a waste of time'

The difference between these constructions, and the truly disputable compounds that Geerts et al. consider verbs with postpositional complements, is not immediately obvious. Compare the following two examples:

(42) *Hij hangt het schilderij op*
he hangs the painting up
'He puts up the painting'

(43) *Zij liep de heuvel op*
she walked the hill up
'She walked up the hill'

At first sight, they would both warrant the same analysis. However, Geerts et al. (1984) note one important difference between them: *de heuvel op* can be fronted as a single constituent, while *het schilderij op* cannot:

(44) **Het schilderij op hangt hij*
the painting up hangs he

(45) *De heuvel op liep zij*
the hill up walked she
'Up the hill she walked'

This induces Geerts et al. to analyse (44) as containing the separable verb *op + hangen*, and (45) as a clause with a postpositional phrase. But weighing against a postpositional analysis for (45) is the fact that constituents can easily be placed between the noun phrase and the particle:

(46) *Zij liep de heuvel in haar eentje met gemak binnen een half uur op*
she walked the hill on her own with ease within a half hour up
'She easily walked up the hill on her own within half an hour'

We do not aim to resolve this matter or even to add new material to the debate, but what is important for present purposes is that these indeterminate compounds frequently have a spatial meaning. A single combination of verb plus particle often has one or more idiomatic, non-spatial meanings, and is clearly a separable verb, and a spatial meaning that falls into the indeterminate category. For instance, *in + lopen* has the idiomatic meanings 'to catch up with someone' and 'to break in (of, for instance, shoes)', as well as its meaning in motion descriptions 'to walk into'. Similarly, *af + vallen* idiomatically means 'to lose weight', but in motion descriptions it means 'to fall off something'. The former are always more likely to be spelled as a single word than the latter, but in either case there is by no means uniformity in the treatment of these constructions. We return to these constructions in Section 13.5.4 below.

13.4 Topological relations

Talmy (1985) assumes that location and translocation may in all languages be described under the single heading of 'Motion events'. However, it has been observed in various places in this volume that descriptions of location and movement may involve very different semantic and syntactic patterning. Considering the two as subtypes of 'motion events', or 'positional descriptions' as Miller and Johnson-Laird (1976) did in reference to English, may have been inspired by European languages such as Dutch and English, where the two do involve very similar semantic and syntactic processes. In Dutch, the description of static location, motion-in-place and locomotion all involve verbs expressing the manner or cause of motion, or aspects of the figure or ground, but typically not the 'path', i.e. 'the course followed or site occupied by the figure' (Talmy 1985: 61). Source, direction and location are all expressed in prepositional phrases, and motion is also expressed in so-called 'separable verb constructions', discussed in Section 13.5.4. This makes Dutch a prime example of a satellite-framing language (Talmy 1991), for both locative and motion descriptions.

For the description of topological relations we will focus on the type of construction that is the typical answer to a 'where is X' question in a prototypical

Table 13.1 *Hierarchy of contexts for application of BLC*

BLC unlikely ↑	1. figure is impaled by ground	
	2. figure is stuck to ground	
	3. figure is 'damage' or negative space	
	4. figure is part of whole (part of ground)	
	5. figure is adornment or clothing	
	6. figure is inanimate, movable entity in contiguity with ground	↓ BLC likely

kind of scene. The construction that was used in such scenes was introduced in the first chapter to this volume as the basic locative construction (BLC). A hierarchy was set up for inanimate objects (repeated here as Table 13.1), according to which the situations positioned lower down were most likely to be expressed in the BLC. The Dutch BLC involves a subject figure, a positional verb and a ground expressed in a prepositional phrase.[4] This BLC covers the whole range presented in (1) to (6) of the hierarchy, as the following examples illustrate:

(47) *De pijl zit door de appel*
the arrow sits through the apple
'The arrow is (pierced) through the apple'

(48) *De postzegel zit op de envelop*
the stamp sits on the envelope
'The stamp is on the envelope'

(49) *Het gat zit in mijn linker-mouw*
the hole sits in my left-sleeve
'The hole is in my left sleeve'

(50) *Het blad zit aan de boom*
the leaf sits on the tree
'The leaf is on the tree'

(51) *De ketting zit om de nek van de vrouw*
the necklace sits around the neck of the woman
'The necklace is around the neck of the woman'

[4] Occasional reference will also be made to descriptive locatives. These typically involve the locative adverb *er* 'there', but the other locative adverbs are also possible. In a BLC the figure is typically definite, but in a descriptive locative it is not:

Er staat een kopje op tafel
there stands a cup:DIM on table
'There is a cup on the table'

Generalizations that can be made, e.g. concerning the choice of positional verbs in BLCs, often apply to these descriptive locatives too, as the example above shows.

(52) *Het kopje staat op de tafel*
the cup:DIM stands on the table
'The cup is on the table'

However, there is a split at level 6 in the choice of positional verb. Section 13.4.1 below describes the prepositions in Dutch topological descriptions; Section 13.4.2 focusses on the positional verbs.

13.4.1 Prepositions

Dutch does not have a default locative form such as a case ending or all-purpose preposition that indicates simply 'spatial coincidence' between two entities. Even when the relation between figure and ground is canonical (e.g. cup on table, apple in bowl, armband on arm), a preposition must be used that indicates something about the nature of the relation (e.g. as being 'on' vs. 'in' vs. 'around'). The most important prepositions for expressing topological relations are *op* 'on$_1$', *aan* 'on$_2$', *over* 'over', *boven* 'above', *uit* 'out', *in* 'in', *om* 'around$_1$', *rond* 'around$_2$', *binnen* 'within, inside', *buiten* 'outside', *tegen* 'against', *tussen* 'between, among', *door* 'through' and *bij* 'at, with, by'. (These all have many non-spatial uses as well.) Let us examine their application to some major subclasses of topological relations.

13.4.1.1 Contact

Like English, Dutch makes a strict distinction between 'higher than and not touching', as in (53), and contact with an upper surface, as in (54).

(53) *De lamp hangt boven de tafel*
'The lamp hangs above the table'

(54) *De lamp staat op de tafel*
'The lamp stands on the table'

However, the Dutch preposition used for contact with an upper surface – *op* – is not a direct translation equivalent to English *on*. According to Herskovits (1986: 140–3), one of the most basic 'use types' for *on* is 'spatial entity supported by physical object'. In Dutch this use type is divided up among several prepositions, most importantly *op* 'on$_1$' and *aan* 'on$_2$', but also to some extent *tegen* 'against'.

The most prototypical use of *op* 'on$_1$' is for movable objects on a roughly horizontal upward-facing surface. For special emphasis, e.g. in the case of a saliently raised surface, the compound form *bovenop* 'above + on' [=on top] may be used:

(55) *Het boek staat op het schapje*
'The book stands on the shelf'

(56) *De kat zit op de mat*
'The cat sits on the mat'

(57) *op de kop van het hert wordt die meegenomen*
'on the head of the deer he was taken along'

(58) *Dat jongetje ligt in zijn bed en het hondje, dat ligt bovenop het bed*
'That boy lies in his bed and the little dog, that lies on top of the bed'

The ground entity can also be a point or a line instead of a surface ((59)–(60)), and the figure can be attached to the ground, rather than simply reposing on it ((61)–(64)):

(59) *De vlieg zit (boven)op de antenne*
'The fly is sitting on (top of) the antenna'

(60) *Zij dansen op het koord*
'They are dancing on a tightrope' (Cuyckens 1991: 175)

(61) *De antenne staat op het dak*
'The antenna stands on the roof'

(62) *de papiertjes op een spijker*
'papers on a spike' [impaled]

(63) *De boom staat (boven)op de berg*
'The tree stands on (top of) the mountain'

(64) *Het haar op je hoofd*
'The hair on your head'

Op can also be applied to many situations in which a figure is in contact with a vertical or downward-facing surface. In these uses its territory abuts that of other 'contact' prepositions, especially *aan* 'on$_2$' and *tegen* 'against', e.g.:

(65) *De vlieg op de muur*
'The fly on the wall'

(66) *De spin op het plafond*
'The spider on the ceiling'

(67) *Het schilderij aan de muur*
'The picture on the wall'

(68) *Het schilderij tegen de muur*
'The picture against the wall'

Characterizing exactly how *op*, *aan* and *tegen* differ is not an easy task (compare, e.g., Weijnen 1964, Heestermans 1979, Cuyckens 1991, Bowerman 1996, Beliën 2002). But some factors that play a role include the orientation of the relevant part of the ground (upward-facing vs. sideways vs. downward-facing), how much of the figure's surface is in contact with the ground (which in turn

implicates the shape of the figure – relatively flat or bulky and projecting), and whether the figure is attached and if so, how.

In the most detailed analysis available, Cuyckens (1991) adopts a 'family resemblance' network model of word meaning that distinguishes multiple senses of *op*, *aan* and *om*. He proposes that while all three forms express a relationship of 'coincidence' between figure and ground, they differ in the additional nuances of meaning they introduce. *Op* additionally expresses SUPPORT in examples like (70), where the weight of the figure presses upon the ground, but it expresses ADHERENCE (itself a family resemblance concept) in examples like (69)–(75). (Most examples are taken from our own data set; a few are adopted from Cuyckens.)

(69) *De fresco op de muur*
'The fresco on the wall'

(70) *De tekening op de zegel*
'The picture on the stamp'

(71) *De pleister op het been*
'The plaster on the leg' (leg in any orientation)

(72) *De postzegel op de brief*
'The stamp on the letter' (letter in any orientation)

(73) *De regendruppels op het raam*
'The raindrops on the window'

(74) *De stof op het computerscherm*
'The dust on the computer screen'

(75) *De magneet op de koelkast*
'The magnet on the refrigerator'

For one of the main senses of *aan*, COINCIDENCE is combined with ATTACHMENT, as in (76)–(87). (The ATTACHMENT sense of *aan* is distinguished from the ADHERENCE sense of *op* by reference to how much of the surface of a figure is in contact with the ground: for ATTACHMENT it is restricted to one or a few places, often by virtue of 'attachment devices' like screws, nails, or tying, whereas for ADHERENCE much of the figure must be in close contact with the ground.) For the second main sense, *aan* combines COINCIDENCE with CONTIGUITY, as in (88)–(89).

(76) *Het schilderij aan de muur*
'The picture on the wall'

(77) *Het handvat aan de kastdeur*
'The handle on the cupboard door'

(78) *De ballon aan de stok*
'The balloon on the stick' (tied to)

(79) *De jas aan de haak*
'The jacket on the hook'

(80) *De kleren aan de waslijn*
'The clothes on the clothes line'

(81) *De wasknijper aan de lijn*
'The clothespeg on the line'

(82) *Het hangertje aan de ketting*
'The pendant on the chain'

(83) *De vlieger aan de lijn*
'The kite on the string'

(84) *De hond aan de lijn*
'The dog on the leash'

(85) *De appel aan de tak*
'The apple on the twig'

(86) *Aan één van die bomen hangt een wespennest*
'On one of the trees hangs a wasps' nest'

(87) *Hij zit dus vast aan dat gewei*
'So he sits stuck on those antlers'

(88) *Zij wonen aan de Jan van Rijswijcklaan*
'They live on the Jan van Rijswijck avenue'

(89) *Hij heeft een huis aan de kust*
'He has a house on the coast'

Cuyckens (1991) suggests that *tegen* denotes CASUAL CONTACT: 'a COINCIDENCE relation ... in which SUPPORT, ADHERENCE, or ATTACHMENT are not at stake' (p. 263). Casual contact obtains when (part of) a figure is adjacent to a surface, but the figure is conceptualized neither as fully supported by the ground (this would be *op*), 'adhering' to the ground (also *op*) nor 'attached' to it (*aan*). In our data sets, the most consistent use of *tegen* was for figures leaning against their grounds, a relation in which most of the weight of the figure is supported from beneath. *Tegen* was also used for non-adhering or non-attached figures directly adjacent to their grounds, as in (92) and (93). Finally, it was sometimes used for insects or raindrops on vertical surfaces like walls and windows ((94)–(96)), or, less often, downward-facing surfaces like the ceiling, although *op* was more common (some of the variation is probably dialectical). These uses seem influenced by the fact that the figure is seen to have 'landed' on the ground shortly before, and is perhaps still in motion (motion expressions

like *De beestjes kruipen tegen de muur* 'The bugs creep against the wall' were often used).

(90) *De ladder staat tegen de muur*
'The ladder stands against the wall'

(91) *De stok staat tegen de boom*
'The stick stands against the tree'

(92) *De kast staat tegen de muur*
'The cupboard stands against the wall'

(93) *De pot ligt tegen de stronk*
'The pit lies against the stump'

(94) *De beesten zitten tegen de muur*
'The bugs sit against the wall'

(95) *Het insect tegen het plafond*
'The insect against the ceiling'

(96) *De regendruppeltjes tegen het raam*
'The raindrops against the window'

Is it possible to integrate what for Cuyckens (1991) are different senses of *op* and *aan* under a single definition for each preposition? In efforts to do so, Bowerman (1996) and Beliën (2002) appeal – although in somewhat different ways – to the 'force dynamics' of the contact situation. Force dynamics have to do with (the language user's construal of) the covert forces at work in a situation (Talmy 1988) – in this case, in their sense of the forces holding between figure and ground. Bowerman suggests that *op* is used when the position of the figure with respect to the ground is conceptualized as stable, in the sense that no salient external force is seen as currently acting on the figure to separate it from the ground. This situation holds when a figure rests on a horizontal surface, since gravity, to the extent that it is salient at all, works to pull the figure toward the ground, not away from it. Flies, spiders and other living creatures ((65)–(66)) seem just as 'at home' on their non-horizontal surfaces as other animals are on the floor (we do not conceptualize them as clinging for dear life), nor are we aware of the pull of gravity on relatively flat, lightweight figures that adhere over a large portion of their surface ((71)–(73)). In other situations, it is more obvious that the figure is subjected to a force (typically gravity, but also, e.g., wind or the centripetal movement of either figure or ground) that will separate it from the ground unless it is held in place, e.g., by nails, screws or string. In these cases, *aan* is the preposition of choice.

Beliën's (2002) alternative force-dynamic account appeals not to 'stability' vs. 'tendency to separation', but to the source of the force that 'sticks' the figure and ground together: *op* is used when a figure 'sticks' to the ground due to a

force directed from the figure toward the ground (e.g. gravity pulling the figure toward the ground; adhesive properties of the figure). *Aan*, in contrast, is used when there is 'sticking', but no responsibility for it is assigned to either the figure or the ground. Beliën also includes *tegen* in her analysis, distinguishing it from both *op* and *aan* on grounds that although the figure is in contact with the ground, it is not conceptualized as 'sticking' to it. (This accords with Cuyckens' claim that *tegen* is used for relations between surfaces only, not for 'attachment' devices.)[5]

Whenever the force-dynamic status (Beliën 2002, Bowerman 1996) or 'adherence-attachment' properties (Cuyckens 1991) of a contact situation are susceptible to alternative construals, a choice of prepositions is often possible, with slightly different meaning nuances. For example, half the Dutch respondents used *op* and half used *aan* for the 'Topological Relations Picture Series' (TRPS) stimulus 'butter on a knife' (*De boter zit op/aan het mes* 'The butter sits *op/aan* the knife') (see Chapter 1, §1.4.1, for a description of this elicitation tool). Stimulus items involving insects on a wall or ceiling elicited mostly *op*, but also sometimes *aan* or – as noted – *tegen*. *Tegen* and *aan* were also sometimes combined in the compound *tegenaan* 'against + on_2', e.g. *de spin zit tegen het plafond aan* 'the spider sits against the ceiling on_2', i.e. 'the spider sits on the ceiling' (in this kind of syntactic context the compound is discontinuous).

Both *op* and *aan* express coincidence in more abstract situations, not tapped by our stimuli, e.g.:

(97) *ik zit op mijn kamer*
'I am in my room'

(98) *Maria zit op school/op de universiteit*
'Mary is at school/ university'

(99) *Ze zitten aan tafel*
'They are sitting at the table'

(100) *Er is iemand aan de deur*
'There is someone at the door'

An interesting difference between English and Dutch occurs in the reduction of a three-dimensional view to a two-dimensional picture. This may happen in

[5] We will not attempt to decide here between Bowerman's and Beliën's accounts – both have certain weaknesses that need resolution. A problem Beliën notes for Bowerman is that in some examples there is no danger of the figure separating from the ground; what accounts then for the use of *aan*? One possibility is that these scenes fall under a kind of abstract spatial schema that *is* often associated with 'separation danger' (figures that project from grounds are often susceptible to forces that cause them to detach by falling, breaking, pulling, etc.), so they get blanketed in with more obviously force-dynamical uses of *aan*. A problem for Beliën is that the 'sticking force' underlying *op* situations does not in fact always reside in the figure; cf. for example, *dit plakband kan ik niet gebruiken; er zit haar op* 'I can't use this cellotape; there's hair on it!'

the description of photos or drawings (English *in the photo* versus Dutch *op de foto* 'on$_1$ the photo'), but also in television or film projections. In Dutch, it is possible to consider this two-dimensional picture as a flat object with an intrinsic up–down axis, and figures that in English would be at best 'in front of' a ground may in Dutch be 'below' it, as in the following utterance from a sports journalist covering an Olympic swimming match:

(101) *Ian ligt in baan vijf, onder Pieter in baan vier*
Ian lies in lane five below Pieter in lane four
'Ian is in lane five, below Pieter in lane four'

In the Men and Tree data (see Chapter 1, §1.4.2, for a description of this elicitation tool), 'horizontal' and 'vertical' were used to describe the two men either next to or behind each other, for instance in the following example:

(102) *nou twee mannetjes die dus verticaal staan*
well two men:DIM that so vertically stand
'(lit.) well two little men who are standing vertically then'
(i.e. behind each other)

13.4.2 Positional verbs

When it comes to verb use in the description of spatial relations, Dutch shows some remarkable differences from its closely related Germanic neighbours English and German. Whereas in these languages a single copular verb suffices in intransitive locative descriptions, as in 'the cup is on the table', a speaker of Dutch will almost invariably have to choose from among a small set of positional verbs: *staan* 'stand', *liggen* 'lie', *zitten* 'sit', or *hangen* 'hang'. In addition, *lopen* 'run' can function as a positional, but its use as such is restricted, and there are situations in which more specific manner verbs can be applied, such as *balanceren* 'balance', *groeien* 'grow', *drijven* 'float', *rusten* 'rest', etc. The difference between these verbs and the true positionals is that instead of the more specific verbs, a positional is always also an option. A basic locative construction must then have at least a positional verb, and possibly a more specific one. The use of *zijn* 'be' is, as we will see, restricted to a few marked situations only. The positionals form a class on the basis of their meaning and syntactic behaviour (Geerts et al. 1984, Boogaart 1999).[6] In this section we show that

[6] The positional verbs can also function as auxiliaries, expressing progressive aspect, usually without losing reference to the disposition of the agent:

a. *Hij ligt te slapen*
he lies to sleep
'He is (lit. lies) sleeping'

the choice of one of these verbs in the BLC is determined by aspects of the figure, and by the relation between the figure and the ground; for related, more detailed analyses, see van Oosten (1984) and Lemmens (2002).

The BLC Hierarchy has been proposed for inanimates only, but for Dutch the first five levels apply to animates and inanimates alike and are generally covered by *zitten* 'sit' alone (we will note a few exceptions shortly). At level 6, there is a difference between animate and inanimate figures. With animate figures, the choice of the verb depends solely on the figure's posture (e.g. a man sitting on a chair, lying on a bed, standing on a mountain or hanging from the edge of a cliff). Animals that are 'squatty', e.g. because they have short legs, such as small birds or insects, will take *zitten* whether they are on their feet or not. With inanimates, the choice of positional is governed by factors to be discussed shortly. Although the use of the copula *zijn* 'be' in locative descriptions is generally considered ungrammatical (or at best highly odd), there are a few instances in which it is used.[7] The copula is acceptable in 'Where'-questions, when there are no conjectures as to the disposition of the figure or indeed to the ground itself.

(103) *Waar zijn mijn schoenen?*
where are my shoes
'Where are my shoes?'

The use of *zijn* is increasingly odd when the suppositions about the disposition of the figure are stronger:

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b. *Je eten staat in de keuken te verpieteren*
Your food stands in the kitchen to wither
'Your food is (lit. stands) wasting away in the kitchen'

c. *Loop niet zo te zeuren!*
walk not such to whine
'Stop whining'

When there are multiple auxiliaries, the positional auxiliary will always occur in the position closest to the main verb, while at the same time, under certain conditions, disallowing the infinitive particle *te* (for more detail see Geerts et al. (eds.) 1984 pp. 537–9):

d. *De krant heeft de hele dag op me liggen wachten*
the newspaper has the whole day on me lie wait
'The newspaper has been waiting for me all day'

[7] Note also in this respect the distinction between existential and descriptive 'unspecified setting' constructions. These are similar, but the crucial difference between them is reflected in the choice of verb: while the locative takes a positional, as in (a), the existential takes the copula (b):

a. *Er zit nog thee in*
there sits still tea in
'There is (some) tea in it'

b. *Er is nog thee*
there is still tea
'There is (some) tea (left)'

(104) *Waar staan/ ?zijn de kopjes?*
where stand/ are the cups
'Where are the cups?'

Zijn may be acceptable when the ground is an extended amount of space and the disposition of the figure in relation to the ground is unclear or irrelevant:

(105) *Mijn meubels staan/ zijn al in Amsterdam, maar al mijn*
my furniture stand/ are already in Amsterdam but all my
boeken staan/ liggen/ zijn nog in Frankrijk
books stand/ lie/ are still in France
'My furniture is already in Amsterdam, but all my books are still in France'

Finally, the speaker is forced out of the positional system and must resort to a copula when confronted with a situation in which several figures have different dispositions that cannot be captured by a single positional, e.g. three bottles lying and four bottles standing on a table (Picture 46 in Ameka, de Witte and Wilkins 1999). The neutral but rather formal term *zich bevinden* 'be located' serves the same function.

When a positional is used, what determines which one is appropriate? The use of *staan* 'stand' is determined by the two considerations: the base of the figure in its functional context, and vertical orientation. A figure has a base if the figure has an inherent up/down axis with the 'down' part corresponding to the base on which the figure typically rests or is in a functional position. For instance, cups and plates have a functional base in Dutch, but knives do not. When the figure is on its base in its functional position it is said to be standing. Plates and telephones thus 'stand' when they are on their base, but when they are not, e.g. a plate turned upside down on a surface, *staan* is no longer used. The same applies to a figure, whether on its base or not, in a context in which it is not functional. A plate that is in pieces, or on the bottom of the ocean, or a stapler on the floor will be said to be 'lying' rather than 'standing', even when it is on its base.

The vertical orientation of an object's longest axis also prompts the use of *staan*. Objects with a long vertical axis 'stand', even when not functional in this position, e.g. a bottle which is upside down still 'stands'.[8] Here we also find a few exceptions to the BLC Hierarchy. When a figure is impaled or attached to the ground, yet at the same time has a clear vertical orientation, *staan* 'stand' may be preferred over the general positional for levels 1 to 5, *zitten* 'sit':

[8] Printed text, letters, numbers, words and the like always select *staan*.

(106) *De lepel staat/ ?zit rechtop in de pap*
the spoon stands/ sits upright in the porridge
'The spoon is (standing) upright in the porridge'

(107) *De tafel staat / zit aan de vloer vast-geschroefd*
the table stands / sits on the floor stuck-screw:PART
'The table has been screwed onto the floor'

In addition, letters or pictures always 'stand' on the surface they are printed on, even though they do not seem to have either a vertical orientation or a functional base:

(108) *Het portret staat op de postzegel*
the portrait stands on the stamp
'The portrait is on the stamp'

(109) *De woorden staan in het boek*
the words stand in the book
'The words are in the book'

When the longest axis of the figure is not oriented vertically, *liggen* 'lie' is used. This covers stretched out spaces such as parks, objects for which inherent axes are not relevant (e.g. spheres, flexible objects, masses) and dot-like figures on a wide background, such as a farm house in a field. The criteria for *staan* and *liggen* sometimes overlap: apples, for example, can be conceived of as spheres and are then said to 'lie', but they can also be construed as 'standing' on their base. When the Dutch informants in our experiments were confronted with a picture of a single apple on its base (TRPS picture), half of them described it as lying, the other half as standing.

The verb *hangen* 'hang' is used for figures suspended in the air, typically but not necessarily with downward orientation.

(110) *De kleren hangen aan de lijn*
the clothes hang on the line
'The clothes are on the clothes line'

Like *staan* 'stand', *hangen* 'hang' is sometimes appropriate for impalement relations:

(111) *De draad hangt uit het plafond*
the wire hangs from the ceiling
'The wire hangs from the ceiling'

The use of *lopen* 'walk, run' as a positional is very limited: much like English *run* it applies to figures such as stripes or roads that cover an extended distance in a linear fashion, i.e. starting at a source and moving to a destination:

(112) *De strepen op het behang lopen van het plafond tot de vloer*
the stripes on the wallpaper run from the ceiling to the floor
'The stripes on the wallpaper run from the ceiling to the floor'

(113) *Die rivier loopt naar zee*
that river runs to sea
'That river runs to sea'

(114) *De kabel loopt onder ons huis door*
the cable runs under our house through
'The cable passes (runs) under our house'

In almost all other cases in the BLC Hierarchy *zitten* is used. It might seem that *zitten* is the 'default' verb, but this is not the case. First, as indicated earlier, there are situations such as interrogatives in which only *zijn* is appropriate, and it is unclear why, if *zitten* were the default positional, this verb could not turn up there also. Second, we also noted that there are cases in which either *zitten* or one of the other positionals can be chosen. Third, it is not the case that whenever the focus is not on the disposition of the figure, *zitten* can be used. For instance, only when a cup is contained in a ground can it be said to be 'sitting':

(115) *De kopjes zitten nog in de picknickmand*
the cups sit still in the picnic.basket
'The cups are still in the picnic basket'

This suggests that there are positive choices governing the distribution of *zitten*, including almost invariably the relations expressed in levels 1 to 5 as well as the relation of containment. These will be explored in the following discussion of some of the more complex spatial relations.

The locations of figures that are negative spaces, such as holes, are always described with *zitten*. One reason is that a negative space simply ceases to exist when its surroundings are not taken into account, and as such it may be treated as a special case of part-whole relation:[9]

(116) *Er zit een gat in de handdoek*
there sits a hole in the towel
'There is a hole in the towel'

[9] It must be noted that for negative space, the chances of encountering a true BLC in spontaneous speech are rather low. The fact that all Dutch informants adhered to this structure to describe the scene must be due to the elicitation method, because corpus research did not yield a single BLC for negative space. Instead, expressions with a preposed prepositional phrase (*in de handdoek zit een gat* 'in the towel is a hole') or descriptive locatives (*er zit een gat in de handdoek* 'there is a hole in the towel') were encountered. In the case of a multiple negative space a speaker of Dutch can also state that the ground is 'full' of, for instance, holes (*de handdoek zit vol gaten,* 'the towel is full of holes'). Note that again *zitten* is used in all cases.

Other part-whole relations are treated in the same way. As soon as the fact that figure and ground are joined becomes more salient than aspects of the figure alone, or when they are treated in relation to each other, this is reflected in the use of *zitten*. In (117) the use of this positional implies that figure and ground are joined, that the stamp is actually stuck on the letter. If the stamp were lying loosely on the letter, *liggen* would be selected, because *zitten* for inanimates, in combination with the prepositions *op* or *aan*, always implies attachment. Attachment is conveyed in (118) as well, but in contrast to (117) informants were not unanimous in their answers: the balloon clearly has a downward orientation, with no support from below, which prompted some to refer to it as 'hanging'.

(117) *De postzegel zit op de brief*
the stamp sits on the letter
'The stamp is on the letter'

(118) *De ballon zit aan het stokje*
the balloon sits on the pole:DIM
'The balloon is attached to the little stick'

Body parts are always located on the body with *zitten*; this may be due to attachment (for the limbs) or to containment (for the organs). When the position of the organs is described in relationship to each other, *zitten* is also used:

(119) *De lever zit lager dan het hart*
the liver sits lower than the heart
'The liver is lower than the heart'

For impaled objects (an apple on a skewer, pieces of paper on a spike), which may be considered special instances of attachment, the same strategy is used. In cases of encirclement, verb choice will be influenced by the 'tightness' of the figure in relation to the ground: if the connection is loose enough for the figure to be regarded as separate, a necklace may be said to be 'hanging' on a neck, but when it is considered to be (tightly) encircling the neck, it can also be said to 'sit'.

(120) *De ketting hangt/zit om haar nek*
the necklace hangs/sits around her neck
'The necklace is around her neck'

The converse relation, when the figure is wrapped around the ground, is treated in the same way (121):[10]

[10] For situations in which the figure envelops the ground, speakers prefer – as for negative spaces – constructions with preposed grounds (e.g. *om het cadeau zit een papiertje* 'around the present is a piece of wrapping paper') or descriptive locatives (*er zit een papiertje om het cadeau* 'there is a piece of wrapping paper around the present').

(121) *Het cadeau-papier zit om het cadeau*
the present-paper sits around the present
'The wrapping paper is around the present'

Finally, *zitten* may also signal that the figure is fulfilling a role at its location. Example (122) is a perfectly normal way to describe the location of a bakery, as long as it is in operation. As soon as it loses its function, as in (123), the bakery will be referred to simply as a building, signalled by the fact that *zitten* is not the appropriate verb anymore. Functional role may also be the reason that pieces of clothing in relation to the body select *zitten*, although it may also be argued that clothing in a way encircles or is wrapped around the body.

(122) *De bakkerij zit op de hoek*
the bakery sits on the corner
'The bakery is on the corner'

(123) *De uitgebrande bakkerij *zit/ staat op de hoek*
the out-burn:part bakery sits/ stands on the corner
'The burnt-out bakery is at the corner'[11]

We now find that the distribution of *zitten* is governed by the relation between the figure and the ground, which must be one of 'attachment' or 'single unit organization', in a broad sense, including 'negative space', 'containment' and 'functional attachment'. This distinguishes *zitten* from the other positional verbs which are all related to the posture of the figure. If the two types of positionals pertain to different aspects of the BLC, then we might indeed expect that they are not entirely mutually exclusive. Indeed, in the exceptions noted above in relation to *staan* and *hangen* it is precisely the fact that both an impalement or attachment relation and the posture of the figure are salient that may give more than one possibility. Similarly, there may be degrees of containment: for figures that are totally enveloped by their ground, not visible and without conjectures to disposition, *zitten* will be used, whereas speakers might use one of the other positionals when they have a clear idea of the disposition of the figure:

(124) *De sokken liggen / zitten in de la*
the socks lie / sit in the drawer
'The socks are in the drawer'

On the whole, however, it seems that as soon as the relationship between figure and ground becomes more intimate, e.g. because they are taking on the form of a single unit, factors such as functional base or vertical orientation of the figure become irrelevant.

[11] It is significant that *zitten* is impossible even in the past tense **de uitgebrande bakkerij zat op de hoek*.

A final remark concerns Talmy's typology in relation to the static motion descriptions. As noted earlier, Talmy also distinguishes Path ('the site occupied') and Manner in static motion descriptions, our BLCs. What is interesting is that the positionals expressing posture can be treated as verbs that express the manner in which the figure is located somewhere, while *zitten* (with its focus on attachment) would be a path-expressing verb, specifying the topological relation between the figure and the ground. Path is then not solely expressed by the prepositions.

The fact that objects in mixed positions can prompt the language user to find an alternative for the positionals shows that these verbs convey information about the actual disposition of the figure. That is, they do not have a classifying function, as they do, for instance, in Yélî Dnye (Levinson this volume): even though 'standing' can be considered the canonical position of a bottle, a speaker of Dutch will refer to it as 'lying' when it is on its side.

13.5 Motion descriptions

As was mentioned in Section 13.4, Dutch stands out as an excellent example of a satellite-framing language. The verb in a Dutch motion description typically expresses aspects of the manner in which the motion takes place, the instrument with which the motion is performed, or the medium through which the motion takes place. These will be referred to as the manner-of-motion verbs. The path in a motion description is expressed by a particle or preposition, as a satellite. Dutch motion descriptions encode motion as a translocation, by which we mean that the motion is conceptualized as a durative trajectory with a possible source, goal and intermediate grounds. All elements – source, goal, path and manner – can be mentioned in a single clause:

(125) *Het hert gooit het jongetje van een klein afgrondje het water in*
the deer throws the boy:DIM off a small cliff:DIM the water in
'The deer throws the little boy from a small cliff into the water'

In this example taken from the cliff scene of the 'Frog Story' (see Chapter 1, § 1.4.3, for a description of this elicitation tool), source of movement (*een klein afgrondje* 'a small cliff'), trajectory (*in* 'in(to)') and destination (*het water* 'the water'), as well as manner of motion (*gooit* 'throws') are all expressed in a single clause.

When the verb expresses the manner in which the activity takes place, as in (126), motion may be implied but is never entailed, as (127) shows:

(126) *Hij fietste*
he cycled
'He cycled'

(127) *Hij fietste als een bezetene maar kwam geen centimeter vooruit*
he cycled like a mad.man but came no centimetre forward
'He cycled like mad but didn't move (forward) a centimetre'

In other words, in examples like the following it is not clear from the verb alone whether what is described in the clause is a change of location or a motion-in-place:

(128) *Hij springt het water over*
he jumps the water across
'He jumps across the water'

(129) *Hij springt op tafel*
he jumps on table
'He jumps on(to) the table'

(130) *Ze dansten de kamer in*
they danced the room in
'They danced into the room'

(131) *Ze dansten in de tuin*
they danced in the garden
'They danced in the garden'

(132) *De bal drijft naar de kant*
the ball floats to the side
'The ball floats to(wards) the shore'

(133) *De bal drijft op het water*
the ball floats on the water
'The ball floats on the water'

The set of prepositions used in motion description also shows a large overlap with the prepositions used in static descriptions, which means that it is not always clear whether a translocation or a motion-in-place is referred to. For instance, (131) and (133) above tell us only that the 'dancing activity' and the 'floating activity' took place in certain spaces, but are vague as to whether translocation has taken place. Example (133) may even be considered a static locative description expressing only that the ball is supported by the water; it is a possible simple answer to the question 'Where is the ball?' The verb *drijven* 'float' is similar to a positional verb in expressing information about the disposition of the figure, showing that the line between true positional verbs and other manner verbs in Dutch is very thin. In many cases, however, verb, adposition, or the construction as a whole will reveal whether stasis, motion-in-place or translocation is meant. These are discussed in the following sections.

13.5.1 Deictic and oriented motion verbs

In addition to the manner-of-motion verbs, Dutch has a set of deictic verbs, e.g. (*aan*)*komen* 'come, (arrive)', *brengen* 'bring', *vertrekken* 'leave', *terugkeren* 'return' and a few verbs of inherent directionality, such as *vallen* 'fall', *stijgen* 'ascend' and *dalen* 'descend', as well as a set of causative verbs. This last group of verbs include the transitive equivalents of the positional verbs in Section 13.4.2:

(134) *Ik zet het kopje op de tafel*
I put.standing the cup on the table
'I put the cup on the table'

(135) *Ik leg de appels op de schaal*
I put.lying the apples on the dish
'I put the apples on the dish'

Unlike the manner-of-motion verbs, the deictic, oriented and causative motion verbs always imply a change of location of the figure. Compare for instance the following two examples:

(136) *Hij valt in de modder*
he falls in the mud
'He falls into the mud'

(137) *Hij kruipt in de modder*
he crawls in the mud
'He crawls in the mud; he crawls into the mud'

In (136) the choice of verb entails that the subject changes from not being in the mud to being in the mud, but in (137) the subject can be interpreted as either being in the mud for the total duration of the activity *kruipen* 'crawl', or as crawling into the mud, i.e. as a motion description. For some deictic verbs it is hard even to specify a location in which the activity occurs, other than the source or goal:

(138) *?Hij komt in het dorp*
He comes in the village

(139) *Hij komt naar het dorp*
he comes to the village
'He comes to the village'

13.5.2 Translocation prepositions and adverbs

All the prepositions discussed in Section 13.4.1 in relation to static descriptions also occur in motion descriptions. In addition, there are a number of prepositions such as *naar* 'to', *van* 'from' and *langs* 'via' that are compatible only with

change of location; this is also true of the adverbs with *-waarts* '-wards', such as *zeewaarts* 'seawards', *neerwaarts* 'downward' and *bergopwaarts* 'up the mountain'. The prepositions invariably point to the source or goal of movement, or to an intermediary point along the trajectory from source to goal, while the adverbs express goal:

(140) *Zij fietsen naar school*
they cycle to school
'They cycle to school'

(141) *Hij loopt langs een struikje*
he walks past a shrub:DIM
'He walks past a small shrub'

(142) *Zij keerden huiswaarts*
they turned homewards
'They returned homewards'

At the same time there are other adverbials that will typically give a motion-in-place interpretation, such as (durative) time adverbs like *uren* 'for hours', *eindeloos* 'endless':

(143) *Hij kruipt uren-lang in de modder*
he crawls hours-long in the mud
'He crawls in the mud for hours on end'

13.5.3 Auxiliaries hebben *and* zijn

The distinction between translocation and motion-in-place may also be marked by auxiliaries. Dutch has two different auxiliary verbs, *hebben* 'have' and *zijn* 'be', which are both used with manner-of-motion verbs, but with different interpretations. This difference has been described in various ways. Geerts et al. (1984) speak of a difference in emphasis: when emphasis is on the movement itself, *hebben* is used, when emphasis is on the notion of change of location, *zijn* is preferred. Others, e.g. Donaldson (1997), interpret constructions with *hebben* as indicating that there is movement in a position or location but that the possible next position or location is not arrived at; *zijn*, in contrast, implies that the transition to the other position is completed. This explains why constructions containing prepositions that are only compatible with translocation take only the auxiliary *zijn* (144), while constructions with other prepositions may take either auxiliary (145).

(144) *Hij *heeft / is naar huis gelopen*
he has / is to house walk:PART
'He walked home'

(145) *Hij heeft / is door de stad gelopen*
he has / is through the town walk:PART
'He walked through town'

In our terminology, we find that the use of *hebben* is compatible with motion-in-place descriptions, while translocation takes the auxiliary *zijn*.

13.5.4 Separable verbs

The last construction type that unambiguously expresses translocation involves a 'separable verb' in which a manner-of-motion verb is immediately followed by a noun phrase, which in turn is followed by a 'particle' that can be categorized as either an adposition or an adverb:

(146) *Het hondje duikelt ook het water in*
the dog:DIM tumbles also the water in
'The doggie also tumbles into the water'

(147) *De eend zwemt onder de brug door*
the duck swims under the bridge through
'The duck swims "passed under" the bridge'

Recall from Section 13.3 that separable verb constructions may also involve other verb types, for instance *uit-schelden* 'lit. out-swear, abuse' as in example (36), which do not encode translocation.[12]

In separable verb constructions that describe translocation, the particle encodes the direction of movement. The first of the following two examples is impossible since *op* + *gooien* 'throw up (onto)' implies an upward movement of the object that is thrown, expressed by *op* 'up'. But when *op* precedes the location as a preposition there is no anomaly, since *op* here expresses a locative relation between a figure and a ground and not the direction of movement:

(148) **Hij gooide hem van de toren het lager-gelegen huis op*
he threw him from the tower the lower-positioned house on

(149) *Hij gooide hem van de toren op het lager-gelegen huis*
he threw him from the tower on the lower-positioned house
'He threw him off the tower on the house below'

Likewise, *op* cannot be combined in a separable verb construction with verbs expressing a downward movement, such as *vallen* 'fall':

[12] In conjunction with the fact that oriented verbs can also be used in separable verb constructions, this can be taken as evidence that the construction does not somehow function to disambiguate, but that the 'disambiguation' is a by-product of the construction.

(150) **hij viel de grond op*
he fell the ground on

(151) *Hij viel op de grond*
he fell on the ground
'He fell on the ground'

More frequently, both preposition and separable verb construction are possible but have different interpretations:

(152) *Zij liep het bos door*
she walked the forest through
'She walked through the forest (to the other end)'

(153) *Zij liep door het bos*
she walked through the forest
'She walked in the forest'

English also has an alternation between a verb followed by a ground nominal as its direct object (e.g. *climb the mountain*) or by a prepositional phrase containing this nominal (*climb up the mountain*). In both English and Dutch, the 'direct object' ground as in (154) is interpreted as being 'totally affected' by the action; the 'prepositional object' ground (155) is not. It comes as no surprise, then, that the perfect tense of these separable verb constructions, all expressing translocation, is formed with *zijn*, even when the verb without the particle would take *hebben*:

(154) *De vrouw is de berg op-gefietst*
the woman is the mountain up-bike:PART
'The woman cycled up the mountain'

(155) *De vrouw heeft op de berg gefietst*
the woman has on the mountain bike:PART
'The woman cycled on the mountain'

Separable verb constructions and simple prepositional constructions also behave differently in various syntactic processes such as relativization, which also show a distinction between translocation and motion-in-place or static descriptions. In the introductory section to this chapter we noted that prepositional phrases are relativized using the relative adverb *waar* 'where':

(156) *De boom waar hij in klom*
the tree where he in climbed
'The tree in which he climbed'

In a separable verb construction the noun phrase is the object of the verb and not of the preposition, and it is therefore relativized with *die/dat* 'this/that', as

in the relativizations of *hij klom de boom in* 'he climbed the tree in' (he climbed into the tree) and *hij liep het huis binnen* 'he walked the house in' (he walked into the house):

(157) *De boom die hij in-klom*
the tree that he in-climbed
'The tree that he climbed into'

(158) *Het huis dat hij binnen-liep*
the house that he in-walked
'The house that he walked into'

When the demonstrative adverbs *hier* 'here', *daar* 'there' and interrogative *waar* 'where' occur in a separable verb construction or a prepositional construction, it is unambiguous whether translocational motion is intended. As noted in Section 13.3, prepositions do not normally precede demonstrative pronouns as in English; instead, the adverbial counterparts of the prepositions are suffixed to the demonstrative adverbs, forming a single word. However, in a verb-particle construction, the particle parts up with the complex verb to form a compound. In both cases the first element of the compound is stressed, making the construction distinct in speech as well as writing. The following examples show sequences of demonstrative adverb, preposition particle and verb. By the auxiliary we can see that (159) has a simple verb plus prepositional phrase and means 'climbing around in a tree', while (160) contains a verb-particle construction and means 'climbing into a tree'. The underlined syllables are stressed:

(159) *Als hij <u>daar</u>-in geklommen heeft*
if he there-in climb:PART has
'If he has been climbing in there'

(160) *Als hij daar <u>in</u>-geklommen is*
if he there in-climb:PART is
'If he has climbed into that'

13.6 Conclusion

To illustrate how the different verbs, particles, prepositions and adverbs all join forces in the expression of translocation, we compare some of the expressions found in the description of the cliff scene from the Frog Story. The following examples all describe the same scene (example (125) is repeated here for convenience):

(161) *… het jongetje valt er-af en valt dan in het water*
the boy:DIM falls there-off and falls then in the water
'the boy falls off it and then falls in the water'

(162) *hondje duikelt ook het water in …*
dog:DIM tumbles also the water in
'doggie also tumbles into the water'

(125) *Het hert gooit het jongetje van een klein afgrondje het water in*
the deer throws the boy:DIM off a small cliff:DIM the water in
'The deer throws the little boy from a small cliff into the water'

All the examples describe translocation. The difference between the constructions is that (161) does so by virtue of the oriented motion verb *valt* 'falls', while the phrase *in het water* 'in the water' is the location in which (part of) the activity takes place; in (162) and (125), in contrast, *het water* is the goal of the motion event expressed by the complex verbs *in* + *duikelen* 'in + dive' and *in* + *gooien* 'in + throw' respectively. In both these separable verb constructions the particle *in* describes the path of the translocation.

13.6.1 Frames of reference

As discussed in the introduction to this volume, frames of reference are coordinate systems that designate angles or directions in which a figure can be found with respect to a ground. In Dutch spatial descriptions, we find frequent employment of frames of reference, even when the figure and ground are quite close or touching, and even when the relation between the figure and the ground may be considered 'stereotypical', as, for instance, in the following descriptions of Pictures 6 and 8 of the TRPS:

(163) *Het boek staat midden-op de boekenplank, ietsje naar rechts*
the book stands middle-on the book.shelf somewhat to right
'The book is in the middle of the book shelf, somewhat to the right'

(164) *De hond zit rechts naast zijn hok*
the dog sits right next.to his cage
'The dog is sitting to the right of its kennel'

There are three major types of frames of reference systems: absolute, relative and intrinsic. The first defines direction in terms of fixed but arbitrary bearings, the second uses bodily coordinates of the viewer mapped onto the scene, and the third makes reference to intrinsic facets of a ground object. Like English, Dutch does have terms for absolute cardinal points, but except among specific groups of people, e.g. sailors, or in specific contexts, e.g. describing large-scale topological relations ('Zaanstad is North of Amsterdam'), these are rarely employed in small-scale orientation. Indeed, most Dutch speakers would have difficulty instantly pointing out the four cardinal directions, and would have to consider the time of day and the position of the sun first. The only other possible

case of absolute orientation is the use of *boven* 'up' and *beneden* 'down', which always refer to the vertical up/down axis. In all other cases, intrinsic orientation is combined with relative orientation. In the examples above, the figure's position is referred to both in speaker-relative terms and by invoking intrinsic properties of the ground. Thus, in (163) and (164), *rechts* refers to the relation between the dog and its kennel, or the book's position on the shelf, from the speaker's point of view, but *midden* in (163) refers to the intrinsic regions of the shelf.

As in English, some of the terminology for intrinsic and relative orientation is identical. Thus, *rechts* 'right' and *links* 'left' and adverbs/prepositions like *voor* 'in front of' and *achter* 'behind' may refer either to the intrinsic left, right, etc. of the figure and/or the ground, or to the position of the figure in relation to the ground from the speaker's point of view. The potential for ambiguity may be verbally resolved by naming the frame of reference, as in the following exchange taken from the Men and Tree matching task:

(165) *D: En de foto waarvan ze naar links kijken . . . naast elkaar*
M: Naast elkaar ja
D: Of ja, achter elkaar staan ze
M: Voor jou achter elkaar, voor hun naast elkaar
D: 'And the picture where they look left . . . next to each other'
M: 'Next to each other yes'
D: 'Or actually, they are standing behind each other'
M: 'For you it's behind each other, for them it's next to each other'

An ambiguity also arises when speaker and hearer are facing opposite directions: the speaker's right is then the hearer's left and it will be made explicit whose right or left are meant:

(166) *Aan uw rechterhand ziet u het Paleis op de Dam*
on your right.hand see you the palace on the dam
'To your right, you will see the Palace on Dam square'

An interesting difference between English and Dutch is that in Dutch, just as in German (cf. Carroll and Von Stutterheim 1993), adverbs and prepositions in the expression of frames of reference pick out a part of the ground and a general area projected from the ground, whereas in English these words select only part of the ground object itself.

Compare the use of *achter* 'behind' in the following examples. The ground itself is implicit, but is idiomatically taken to be a house. The adverb can pick out either the area behind the house (167), as in English, or the back part of the house (168); English *behind* cannot be used in this second way:

(167) *Achter staat een prachtige kastanje*
behind stands a beautiful chestnut
'Behind the house is a beautiful chestnut tree'

(168) *Achter staan nog wel extra theekopjes*
behind stand still indeed extra teacups
'There will be some extra teacups in the room at the back'

Similarly, *boven* 'above' in relation to a cupboard can refer either to the area above the cupboard, as in English (169), or to the upper section of the cupboard ((170)–(171)):

(169) *Het schilderij hangt boven de kast*
the painting hangs above the cupboard
'The painting is over the cupboard'

(170) *Het schilderij ligt boven-in de kast*
the painting lies above-in the cupboard
'The painting is in the upper section (i.e. on the top shelf) of the cupboard'

(171) *Het schilderij ligt boven-op de kast*
the painting lies above-on the cupboard
'The painting lies on top of the cupboard'

For correct use of *boven* 'above' and *onder* 'under', both intrinsic properties of the ground and the relative position of the speaker can be relevant. For instance, a speaker standing on the roof of a house cannot say *boven op zolder* 'above in the attic', when the attic referred to is part of the same house, and so is below him. But he could say this when referring to the attic of another house, e.g. across the street.

In the expression of frames of reference, *standing* and *facing* relations can be distinguished. The first refers to the orientation relation between figure and ground, while the second refers to the direction in which the figure is oriented; these are illustrated in (172) and (173) respectively:

(172) *Ehm, mannetjes die links van de boom staan*
erm men:DIM that left of the tree stand
'Erm, the little men that stand to the left of the tree'

(173) *Twee mannetjes achter elkaar kijken naar ons en hebben*
two men:DIM behind each.other look at us and have
de stok aan de linkerkant
the stick on the left.side
'Two little men behind each other look at us and have the stick to the left side'

In Section 13.5 on motion descriptions, we saw that Dutch can express manner of motion, fact of motion, source, trajectory and goal in a single clause. In the description of the BLC it was shown that the disposition of the figure is expressed in the verb, while aspects of the relation between the figure and the ground are shared between the verb and the prepositional phrase. The expression of the 'standing relation' is the typical domain of the (extended) BLC in Dutch. The frame of reference can be expressed by one or more prepositions, possibly in conjunction with an adverb or a spatial noun and the ground as the complement, e.g. *aan de linkerkant van de boom* 'to the left side of the tree', or as in example (172) above. The facing relation can be expressed with a motion description involving the verb *kijken* 'to look', or through reference to aspects of the figure or the ground; for instance, body parts such as *rug* 'back', *gezicht* 'face', or (as in the following example) *neus* 'nose' may be called on, with these incorporated into a directional prepositional phrase:

(174) *Zij staan met de neuzen naar elkaar toe*
they stand with the nose.pl to each.other to
'The stand with their noses facing each other'

Both the fact of facing and the fact of standing are then typically expressed by a verb, so we might expect that when both are mentioned, a multi-clausal construction is needed. On the whole this seems to be true, although it is also possible to construe single-clause utterances expressing both the standing and the facing relation. Either the fact of standing is expressed in the verb *staan* 'stand' and the facing relation is expressed by reference to inherent parts of the figure or the ground, as in (175), or the fact of facing is expressed in the verb (*kijken naar* 'look at') and the direction of the facing as well as the standing relation in the prepositional phrase containing also the ground (176):

(175) *Hij staat met zijn gezicht naar mij toe*
he stands with his face towards me to
'He stands with his face towards me'

(176) *Het mannetje kijkt naar rechts naar de boom*
the man:DIM looks toward right toward the tree
'The little man looks to the right toward the tree'

13.7 Discussion

In the context of this book, it turns out that Dutch is rather exotic, not only in worldwide comparative perspective but even among closely related Germanic languages. First, Dutch is typologically exceptional in conflating location and motion descriptions. The verbal element of both location and motion descriptions typically encodes the manner of stasis or motion, while the topological

relation or the trajectory is expressed by prepositions, particles and possibly the choice of auxiliary. The obligatory use of the positional verb system in even the basic locative construction follows from this, to the extent that the disposition of the figure determines the choice of verb. But for relations of containment, firm attachment, encirclement and piercing, it is the topological relation between the figure and the ground that determines the verb *zitten* 'zit'. If these relations are considered expressions of Path in Talmy's sense, i.e. 'the site occupied', then for static locative constructions Dutch does have verbs expressing Path. On the whole, however, Dutch is a true 'satellite-framed' language.

It is shown that speakers of Dutch frequently configure the ground as a space or region rather than an object, or part of an object. For instance, in anaphoric reference to the ground in a locative or motion description, locative adverbials are found rather than pronouns. Thus Dutch speakers say *daarachter* 'behind there' in contexts in which English speakers say *behind it*.

It has been demonstrated that Dutch speakers categorize all expressions of figure – ground relations using these parameters, including caused locative constructions in which *zetten* 'put standing', *leggen* 'put lying', *doen* 'do, put' and *(in)stoppen* 'put (in)' are employed. However, the system of positionals in Dutch does not classify locative relations as in languages such as Yélî Dnye.

14 Patterns in the data: towards a semantic typology of spatial description

Stephen C. Levinson and David P. Wilkins

The chapters in this book present a kaleidoscopic impression of the range of variation in the linguistic treatment of the spatial domain. Each chapter presents a wealth of linguistic detail – what makes the overall exercise special is that, because each description uses the same elicitation devices, we can relatively easily set up fairly precise semantic comparisons in an unusual way. Naturally, the reader may not immediately be able to see the wood for the trees, and many detailed questions naturally arise. For example, one language, like Tiriyó, has a wealth of spatial adpositions, another, like Tzeltal has only one (and that not restricted to space). In contrast, Tiriyó has only one locative verb available for its basic locative construction, while Tzeltal has an extraordinary richness in spatial predicates available for its basic locative construction. Is there a systematic pay-off here? In addition, general questions also come to the fore: behind this variable expression, can we discern universal semantic parameters that might be attributed to general properties of human cognition?

In this final chapter, we have two goals. First, and foremost, we will try to draw the lessons learned from the careful comparative study reflected in these chapters – what are the main patterns that inductively emerge? Second, we will attempt to draw out the implications of this emerging typology of variation for the disciplines that have an important stake in the nature of human spatial cognition.

14.1 Universals and particulars: variation and its limits in semantic typology

As we review the languages surveyed, and draw out the general patterns, one impression that will remain is the extraordinary diversity in both the underlying conceptualizations of spatial distinctions and the manner in which they are coded in specific languages. Direct generalizations are not to be found on a superficial level. Rather, what we will find is that the cross-linguistic patterns can only be extracted on the basis of in-depth study of a reasonable sample of languages. These patterns are sometimes quite abstract – they may, for example, take the form of an underlying hierarchy, which may determine splits in the

coding of different kinds of spatial scenes, but will not predict either the type of coding itself nor, for any one language, where the splits will occur. Another kind of abstract pattern that will emerge is that in any one spatial sub-domain there are a limited set of semantic types – that is, a finite set of conceptual construals of the sub-domain, from which any one language will draw one or more types. Again, these types are only to be found on quite an abstract level, presupposing a real depth of semantic analysis, often with special techniques.

This picture is not in general different from the picture emerging from general linguistic typology, which is mostly dedicated to patterns of morphosyntactic coding. In empirical linguistic typology, simple universal generalizations are not to be found – instead, what we are offered are similar kinds of underlying hierarchies, together with limited series of types. Much of the interest of this work is located in implicational generalizations over types, where for any one language the possession of one type tends to imply the possession of another. What is interesting about the work represented in the current book is that it reveals the same kind of oblique and abstract patterning – underlying hierarchies, types and implicational scales over types. But this work, unlike most typology, is driven by semantic concerns. Indeed, we could say that this book represents the first extended essay in *semantic typology* – and the interest then is that we do not find in semantic typology any simpler pattern than we find in *syntactic typology*.[1] Further, there is no one-to-one correspondence between the semantic types and the syntactic types – we cannot predict the semantic patterns from the syntax, or the syntactic patterns from the semantic patterns.

For many in the cognitive sciences, this will be surprising. The predominant view is that cognitive universals provide a rich, innate representation of the world, which is mapped into the variable surface formats of languages: 'Knowing a language, then, is knowing how to translate mentalese into strings of words and vice versa. People without a language would still have mentalese, and babies and non-human animals presumably have simpler dialects' (Pinker 1994: 82). On this view, semantic analysis of different languages should reveal a single, universal conceptual representation in any domain – and especially in a domain like spatial cognition, essential to the survival of the organism: 'These linguistic categories and structures are more-or-less straightforward mappings from a preexisting conceptual space, programmed into our biological nature . . . This perspective would begin to account for the fact that the grammars and

[1] Traditional morphosyntactic typology and the new semantic typology here proposed have a close relation, but distinct goals and methods. Traditional typology makes recourse to semantic equivalence, where necessary, in order to establish formal equivalence – it uses meaning equivalence to explore formal patterning. Semantic typology does the converse: it uses formal distinctions as clues to the underlying structure of semantic fields, but its goals of course are to explore similarities and differences in semantical concepts. To achieve these goals, new methods are required, as exemplified in this book. Morphosyntactic typology can be done in the library, semantic typology has to be done in the field.

lexicons of all languages are broadly similar' (Li and Gleitman 2000). The idea of a semantic typology then hardly arises – there should be just the one type![2]

But as readers of this volume will have concluded for themselves, nothing like this degree of uniformity of spatial conceptualization is revealed by comparative semantics. Instead, we do indeed need to construct a serious semantic typology, and search for underlying patterns and uniformities on a quite abstract level. That is the message of this book. It does not follow that we cannot talk of semantic universals in the spatial domain – but these are constraints on the way in which a language builds its own conceptualization of a domain. They are, if one likes, more like building regulations than like blueprints. In what follows we will try to draw out these abstract constraints, offering a systematic vision of this new field of semantic typology. We will proceed by taking the three sub-domains that have been the organizing themes for this book – topology, motion, frames of reference – contrasting the patterns exemplified in the languages described in the book, and offering tentative generalizations about underlying patterns.

14.2 Topology

14.2.1 The BLC and a topological similarity space

Recollect that the topological sub-domain concerns the description of situations where figure and ground are in contiguity or close proximity, and angular discriminations are thus not relevant or required. In the introduction we introduced the notion of a *basic locative function* (answers to Where-questions), which allows the identification of a *basic locative construction* (BLC). Further, we introduced a hierarchy of scenes, *the BLC Hierarchy* (Figure 1.2 in Chapter 1, repeated here as 14.1), which is an emergent pattern from earlier work, based on the treatment of over fifty different scenes in a sample of eleven languages, about half of which overlap with the current sample (see Kita and Dickey 1998, Chapter 7). The essential finding was that, in any one language, the BLC may have restricted application over certain scenes; other scenes will be described using contrasting constructions of various kinds. We can use these formal distinctions in the linguistic treatment of spatial scenes as clues to the underlying structure of the semantic field. If one puts these individual language patterns together, one obtains an implicational scale: any language that uses the BLC for scene *i* will also use it for *j*, where *i* is higher in the scale than *j*. Not surprisingly, perhaps, at the core or bottom of the scale is a class

[2] The extreme versions of this doctrine are associated with those, like Fodor, who do not believe in semantic decomposition (see Levinson 1997b and 2003 for assessment of different positions here). Part of the motivation for holding onto semantic uniformitarianism is the belief, expressed by Pinker, Gleitman and others, that without it language learning would be impossible. But, as shown in this volume, semantic diversity is a fact, and the theories need to adjust to the reality (see Bowerman and Levinson 2001 for a range of opinion here).

of scenes of the kind: a relatively small, manipulable, inanimate, movable and independent figure object is in close contiguity with a relatively large, relatively stationary (fixed or immobile) ground object – for example, a cup on a table, an apple in a bowl. As these features are varied, so there is an increasing probability that some construction other than the BLC will be employed. For example, the figure may be attached to the ground to an increasing degree – consider a stamp glued onto an envelope, vs. a handle on a pan (or other part-whole relationships). The tighter the attachment, or the more the figure is an intrinsic part of the ground, the less likely we are to find the employment of the BLC. Another dimension of variation is contact. As contact is diminished, and there is increasing space between figure and ground, again the more likely we are to find the BLC avoided for another construction. This hierarchy has proved reasonably robust over a larger sample of languages, nevertheless some problems with it have emerged (some reflected in the details of this book, which do not support, for example, the position of clothing and adornment). It now seems more revealing to view the BLC Hierarchy as an emergent generalization over a complex, multidimensional semantic space. There are quite clearly a number of factors that make a particular figure–ground constellation a good candidate for BLC treatment – on the following dimensions, properties to the left favour a straightforward locative treatment:

1. Close contact ◄——► Separation
2. Independent figure ◄——► Attached figure ◄——► Part-whole configuration
3. Contained figure ◄——► Contained ground
4. Inanimate figure or ground ◄——► Animate figure or ground
5. Relatively small figure compared to ground ◄——► Relatively large figure
6. Stereotypical relation between figure and ground ◄——► unusual, atypical relation
7. Canonical figure (three-dimensional physical object) ◄——► two- or one-dimensional ◄——► negative space (or hole)

A situation like cup on table (Picture 1 in Figure 1.2, Chapter 1) then comes out high on BLC-inducing features, but a situation like an apple on a skewer (Picture 70 in Figure 1.2) scores relatively low on such features (the figure is relatively large compared to the ground, figure and ground are attached, and the relation is not quite stereotypical). In contrast, a stamp stuck on a letter (Picture 3 in Figure 1.2) is relatively more likely to get BLC treatment, because it has only one undesirable feature, namely attachment, and this at least is stereotypical. Thus there can be 'bad' figures (too large, or negative figures like holes or cracks), 'bad' grounds (too small, too animate) and 'bad' relations between figure and ground (too separated, too attached, too non-stereotypical, or preferred relations between figure and ground reversed). One can imagine a feature-optimizing account along Optimality Theory lines, which will increase

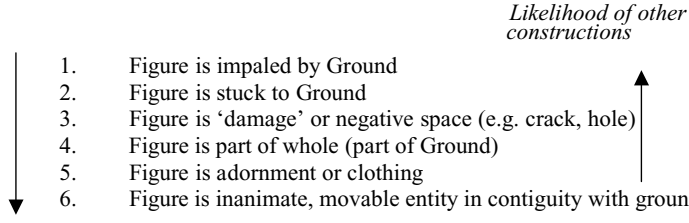


Figure 14.1 The hierarchy of scenes most likely to get coding in the 'basic locative construction' (BLC)

the chances of coding in the basic locative construction in accord with the optimal collection of features – hence the possibility of abstracting something like a unilinear hierarchy out of a multidimensional space.

This is not a bad account, but we believe that it is still an oversimplification. What is missing is that the BLC occupies a slot in a grammatical as well as a semantic space, and in that grammatical space there are competing constructions. There are thus not only semantic gradations away from good locative scenes, but positive attractors towards other constructions. One specially relevant class of competing constructions are stative resultative constructions, which express the result of an action. Figures that are cultural artefacts used to perform actions with typical results are likely to evoke this competing class of constructions. Hence a skewer through an apple (or a rope tied around a tree, or a ring placed on a finger) is more likely to invoke a resultative construction than a cup on a table, which is more likely to invoke the basic locative construction.

The overall picture then is a multidimensional semantic space, in which scenes can diverge from good locative scenes, and converge with good scenes for competing constructions. We will try to represent a large portion of this space using eight picture stimuli that are distributed across it. The pictures can be arranged in a plane to make simple diagrammatic comparisons between languages possible, as in Figure 14.2. Because the organization of this space is fundamental to topological relations, we will see some of the same spacing of scenes affecting the choice not only between constructions – as between the BLC and rival non-locative constructions – but also between resources or options within the basic locative construction.

Let us now illustrate how the languages in our sample systematically extend their *basic locative constructions* differentially through this space. Figures A1–11 in Appendix 1 represent for each language a mapping of crucial coding-choices onto the same similarity space, but with pictures reduced to verbal descriptions for diagrammatic clarity (in Figure A12 we add a similar diagram for English, for comparative purposes). Take first Arrernte (see Figure A4),

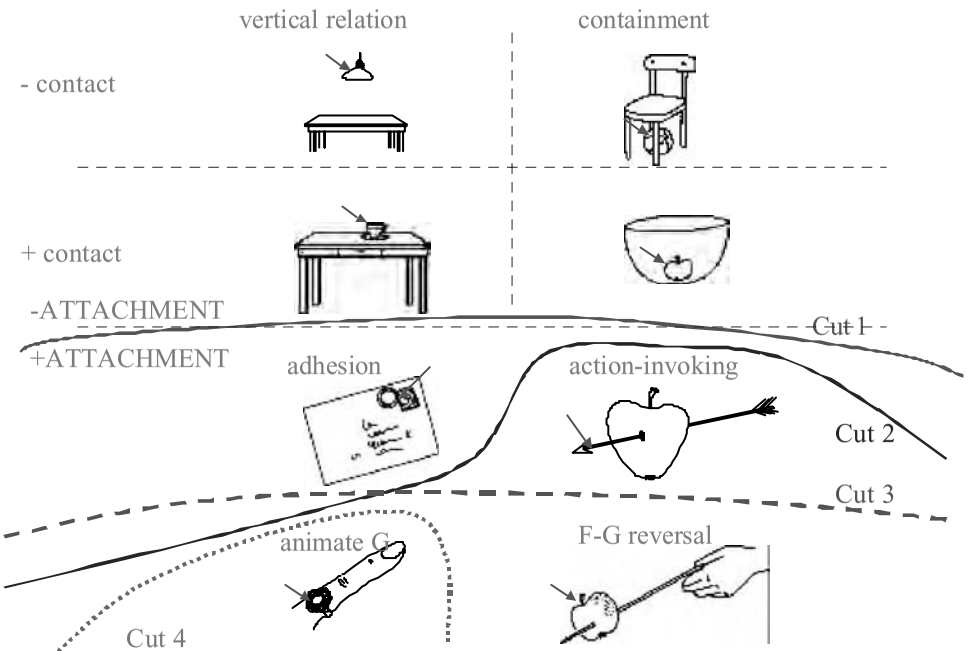


Figure 14.2 A similarity space for topological notions, with the relative positions of the Topology Series pictures (numbers 1, 2, 3, 10, 13, 16, 30, 70), with 'cuts' made by different languages according to whether the BLC is or is not used for portions of the space

where the BLC has a locative case on the ground phrase and an (optional) positional in the predicate. The BLC is not extended to any of the attachment scenes – that is, none of the pictures under Cut (1) in Figure 14.2. All the attachment scenes require a different construction, which treats them as the end result of a prior action (glossing, perhaps, as 'figure has been VERBED'). Note that Kilivila in Figure A3 shows roughly the same pattern. The BLC is here a stative construction with a locative preposition expressing the ground relation, and a positional verb sensitive to the shape and orientation of the figure. Again, this cannot be extended to the attachment scenes, which must have an action description (of the sort 'someone speared the apple'). Since the alternative construction to the BLC in these two languages assimilates all these attachment scenes to an action or its results, we are here seeing these scenes – each of which can be construed as the result of a deliberate action – being attracted to rival action or resultative constructions.

But note that Yukatek in Figure A5 crosses over this division to include the stamp-on-letter case within its stative, basic locative construction (with predicate *yáan* and prepositional ground phrase). It extends the BLC to Cut (2) in the diagram above (Figure 14.2), assigning the rest of the scenes to a resultative construction. Note that although a stamp stuck on a letter can be construed as the result of an action, it is also a normal place for the location of a stamp, unlike the skewer through the apple – stereotypical locations are more likely to be accommodated within the BLC, as we have seen. Tzeltal in Figure A6 goes a bit further, and encompasses the skewer through the apple within its BLC, which is formed with a rich inventory of stative positional predicates. Because of this rich inventory, Tzeltal can directly code within its BLC a great number of complex scenes which depict the result of actions. Still, Tzeltal does not code the cases with odd figure–ground relations within its BLC, that is the items beneath Cut (3) in Figure 14.2 – the one involving an animate ground, and the other a figure–ground reversal.

Japanese in Figure A2 is in some ways just like Arrernte and Kilivila but also illustrates the more complex patterns just reviewed. In Japanese the basic locative construction involves a stative locative verb with postpositions marking the ground. The top half of our similarity space is covered by this construction, just as in Arrernte or Kilivila. But four of the pictures lie outside the scope of this construction – that is, native speakers prefer to use other kinds of construction for these scenes. A 'middle' (quasi-passive) construction is used for the stamp-on-postcard (glossing say, 'The stamp is stuck on the postcard'), and a resultative construction for the skewer through the apple and the apple spiked on a skewer (i.e. for both these scenes which strongly invoke action schema). In a not uncommon pattern, one scene escapes easy description altogether – namely the ring on finger, where a reversal of figure and ground is necessary to express the relation. Because this scene is described with a construction most removed from the BLC, we have marked it out with 'Cut (4)' in Figure 14.2.

(This is because animates – especially humans – are too prominent in many languages to form good grounds: in such languages one would rather say 'The man is wearing a hat' than 'The hat is on the man'.)

All the rest of the languages – Dutch, Yélî Dnye, Jaminjung, Tiriyó, Warrwa, Ewe and English of course – allow the use of their BLCs over the entire range of scenes.

In this sort of way, then, we can generate a clear hierarchy of scenes, such that if a scene to the left is described with a language's BLC, all scenes to the right will be too:

Implicational hierarchy across topological space:

Animate-Ground > *Figure-Pierced* > *Ground-Pierced* > *Adhesion* > *Core-Scenes*

ring on finger > apple on skewer > arrow in apple > stamp > cup on table,
fruit in bowl
lamp over table,
ball under chair

The interest to semantic typology of these discriminations made by constructional alternates is that (a) these cuts preserve the similarity space (not isolating opposite corners as it were), and (b) they indicate a core set of topological relations with increasing divergences from the core in various directions.

The actual hierarchy generated here would need to be tested against a much larger sample of languages and stimuli, but the procedure is clear. Despite the limitations of the current sample, the reader will find that many of these same patterns recur when we take into account distinctions marked by differential use of resources within the basic locative construction. Note that because the space is multidimensional, we can expect some 'ties' or branching structure to emerge in the hierarchy.

14.2.2 The similarity space and contrasts within the BLC constructional alternates and adpositions

Let us now turn to the use of constructional alternates within the BLC. A good example is provided by Arrernte, as illustrated in Figure A4. As noted, the top four scenes (ON-, IN-, OVER- and UNDER-scenes) fall within the Arrernte BLC. But, as the diagram in Figure 14.2 makes clear, this space is differentiated by '+/− Contact between figure and ground'. In Arrernte the +contact scenes are indicated by the 'part-whole construction', where a spatial nominal in apposition to a ground nominal is marked with the locative case. In contrast, lack of contact is marked by the 'relative location' construction, in which the ground takes an ablative case and the spatial nominal a locative (for ON vs. OVER, the distinction is roughly 'table superadjacent-AT' vs. 'table-FROM

superadjacent-AT', i.e. the figure is in the vertical space away from the table). This example reminds us of the importance of constructional meaning in the spatial domain. Arrernte and many languages also offer other constructional alternates – for example, Yélî Dnye allows the abbreviation or truncation of the full BLC with systematic meaning difference. The full form, with postposition and positional verb, is the normal BLC; dropping the postposition is possible just in case the speaker intends to convey that the spatial array has stereotypical dispositions. This kind of alternation can be treated as pragmatic, since it conforms to Gricean or iconic considerations (Levinson 2000).

Another interesting perspective on this semantic space can be had by considering how distinctions are made within it by lexical choices within the BLC. First, taking adpositions alone, note how the space is differentially fractionated in our language sample (this can be easily seen by glancing over the figures in Appendix 1, where the range of adpositions or their functional equivalents is indicated in Venn-like diagrams). Some languages of course have no adpositions, like Jaminjung or Arrernte. Tzeltal has just one preposition *ta* which covers all the six scenes covered by the BLC; Yukatek uses just two, one general preposition *ti'* and another *ich(il)* reserved for scenes with proper containment. Japanese uses three, conflating OVER and ON, but distinguishing IN and UNDER; Kilivila uses four prepositions distinguishing OVER, ON, IN and UNDER. English most naturally uses five prepositions to cover the scenes – *over*, *under*, *on*, *in and through*. Tiriyó, which includes all eight scenes within its BLC, offers as few as six adpositions, or as many as seven – this is because, as described in the paper, Tiriyó exhibits an unusual hierarchical structure amongst its adpositions. Dutch requires seven prepositions to cover the eight scenes – conflating only cup on table and stamp on letter under *op*, coding surface contact. Yélî Dnye also requires seven postpositions, but it conflates only stamp-on-letter with ring-on-finger, under *p:uu*, coding adhesion.

14.2.3 The cup-on-table scene: adpositional *conflations in the similarity space*

This fractionated picture of overlapping contrasts is not what the literature on spatial language might lead one to expect. Johnston and Slobin (1979), for example, on the basis of acquisition of a wide range of European languages (including Turkish), conclude that IN and ON concepts, that is vertical support vs. proper containment, are universally available and are amongst the earliest learnt by children. But such notions are mostly linguistically conflated with other notions. Consider, for example, the treatment of the **cup-on-table** scene across our sample. Tzeltal conflates under the same adposition the cup-on-table scene with five other scenes out of the eight, and Yukatek covers three other scenes. Note that English too assimilates three other scenes from our eight to *on*

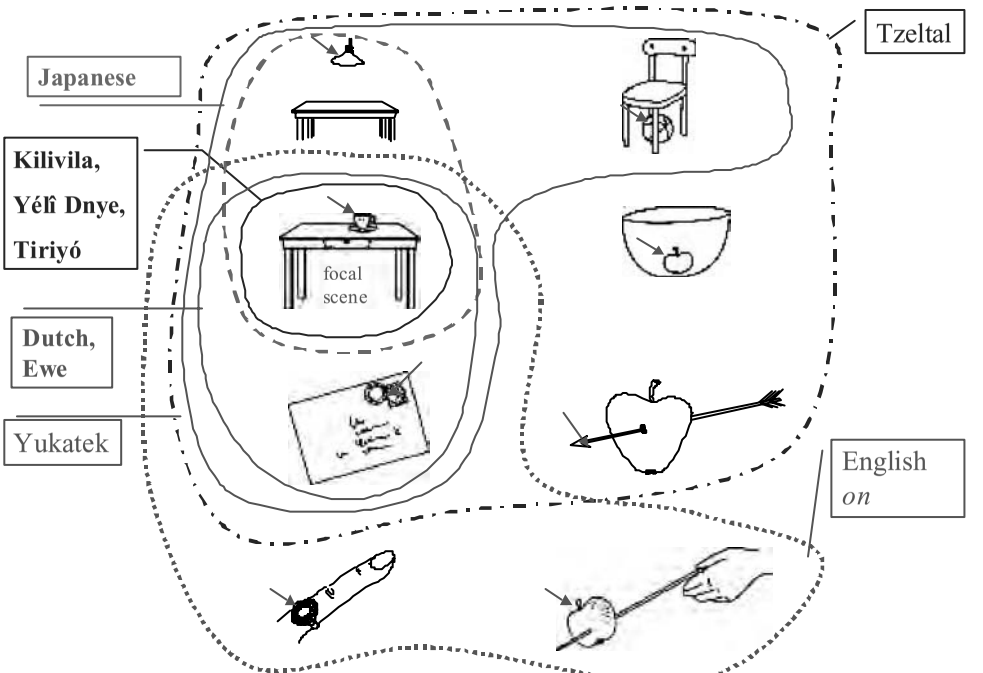


Figure 14.3 The extensional range of adpositions which include the cup-on-table scene

relations – a stamp is also *on* a letter, a ring is *on* a finger, an apple *on* a skewer. Dutch and Ewe are more discriminating but still conflate non-vertical support scenes like stamp-on-letter to the canonical vertical support scene cup-on-table. Japanese conflates OVER and ON. In fact, only Kilivila, Yélî Dnye and Tiriyó isolate the horizontal support scene in their adpositions. Figure 14.3 succinctly shows how variable these inclusions of other scenes are in the adpositional semantics of other languages – the scenes are the same, in the same arrangement, as in Figure 14.2. The diagram, following the conventions in Bowerman (1996), should be read as follows: each Venn-circle represents an extensional conflation under one adposition in one or more languages named alongside. One thing that is immediately obvious looking at this diagram is that we clearly have a good approximation to a similarity space – conflations of scenes under one adposition always suck in neighbouring scenes, not isolated distant ones in the semantic space. Another point to note is that these inclusion relations already suggest a componential analysis of the underlying space. A putative analysis might go as follows, taking the most semantically general adpositions first, and incrementing semantic features as we need them to restrict the denotations. The Tzeltal general preposition includes all scenes except those that invoke action schema with special figure–ground relations – call this 'static location'. Yukatek follows the same pattern, except that it also has a preposition with more semantic content covering proper containment (so with components 'static location' and 'proper containment'), which then probably pragmatically pre-empts the more general preposition just for IN-scenes. English has the next most general adposition *on*, adding a 'contact' requirement between figure and ground – the extensional range is further restricted by pre-emptive *in* and *through*. Japanese relaxes the contact condition but adds a requirement of figure being 'vertically positioned above ground', thus subsuming just the ON and OVER scenes. In contrast, Dutch and Ewe add a requirement of something like 'surface-to-surface contact', covering both scenes of immediate superposition without attachment (cup-on-table) and those with attachment (stamp-on-letter). Finally, Kilivila, Tiriyó and Yélî isolate the ON-scene by adding a condition of vertical support without attachment. Obviously, one cannot move mechanically from an extensional analysis of the kind displayed in the figure to an intensional analysis of the meanings of the terms – but as we have said, the extensional analysis is already very suggestive and essentially constrains such an intensional analysis. But those in search of universal concepts will see that it is only at this underlying componential level that we are likely to find them – there is no linguistic evidence that ON is a universal concept (otherwise it would show up everywhere), but there are certainly strong suggestions that concepts like 'contact', 'vertical relation' and 'horizontal support' are better candidates for such a status.

As mentioned, not all languages have adpositions, and languages that do often have additional means to mark spatial distinctions. If we take these

additional factors into account and see how they treat the cup-on-table scene, we will obtain, of course, additional (perhaps redundant) patterns of conflation in this semantic space. Arrernte, for example, uses spatial nominals (of the kind 'superadjacent') with case to make such discriminations – in this domain, taking cup-on-table as the focal scene, it patterns like Japanese in conflating the scenes cup-on-table with lamp-over-table. Jaminjung, which has a very restricted verb inventory, uses two main verbs, glossing 'be' and 'have' in the BLC, supplemented by coverbs, which make fine spatial discriminations. Here we find the reverse pattern from that in Japanese: UNDER and IN are conflated, but OVER and ON are distinguished. Despite the fact that the distinctions are sometimes being made in different parts of speech, the Australian languages reveal some interesting commonalties in semantic patterning. For example all three languages in the sample (Warrwa, Arrernte, Jaminjung) conflate IN and UNDER in a pattern that has been shown to have a wide areal diffusion (see Evans and Wilkins 2000) – Arrernte and Warrwa make the conflation in spatial nominals, Jaminjung in coverbs. This illustrates another utility of the comparative method we are here exemplifying – many areal features are semantic and cannot be extracted by looking at linguistic forms alone.

14.2.4 The cup-on-table scene: conflations and distinctions by locative predicates *within the similarity space*

This brings us to the discrimination patterns encoded in locative predicates. This is an almost totally neglected subject in linguistics (but see Ameka and Levinson in preparation) – looking at the handbooks would give the impression that predicates never play any essential semantic role in spatial description. But the facts are contrary – in some languages locative predicates are in opposition and carry much semantic load. Where relevant we have marked these verbal discriminations in the chart for each language in Appendix 1. Take Warrwa, for example: within the basic locative construction it opposes a BE (*-nga-*), a HAVE (*-ba-)* and a PIERCE verb (*-ra-*) – the BE verb extension has exactly the same coverage as the Yukatek basic locative construction as a whole (that is it takes in all the topmost scenes in Figure 14.2 down to Cut 2); the HAVE verb isolates the animate ground scene (ring-on-figure), and a 'pierce' verb absorbs the two skewer scenes. Thus, within the BLC of one language (Warrwa), we are getting the same kind of discriminations that other languages may make by varying the construction employed.[3] If we take the rather different kinds of distinction within the locative predicate made in Dutch, which has contrasting positional

[3] Jaminjung shows a fainter but similar pattern: a HAVE verb is optional and preferred just in the ring-on-finger scene, and a PIERCE verb can, but need not, be used for the skewer through the apple.

verbs, again we find some of the same basic cuts across the similarity space that we found when considering the mapping of the basic locative construction vs. alternative constructions in other languages. For example, Dutch *zitten* 'sit' marks off just the same set of scenes that lie outside the BLC in Arrernte and Kilivila (as can be seen in Figure A7).

There are two main types of system of contrasting locative predicates – one type is based on a small class of three to five contrasting 'posture' or positional verbs (e.g. drawn from verbs glossing 'sit', 'stand', 'lie', 'hang'), a type exemplified in this volume by Dutch, Yélî Dnye, Arrernte and Kilivila. Another type has a much larger set, ranging from a dozen to a hundred contrasting spatially descriptive predicates. Tzeltal exemplifies this type in this book. The predicates in the first, small-set, type act as a kind of nominal or sortal classification of the figure, while the locative predicates of the large-set type more precisely describe properties of the figure–ground relationship. The small-set type usually supplements other means of making spatial discriminations in adpositions (as in Yélî Dnye), or in case-marked spatial nominals (as in Arrernte), so that the interaction between the ground-marking system and the predicate-marking system yields a cross-cutting, fine-grained classification of spatial scenes – see the charts for Dutch (A7) and Yélî Dnye (A8) in particular (in other cases, as in Kilivila, the positional predicates may yield additional conflations rather than additional distinctions).

If we again focus just on the canonical ON-scene (cup-on-table), for languages with such contrastive spatial predicates, we can overlay the predicates which include the focal scene and see what patterns of conflation emerge as in Figure 14.4. Note that, once more, with the possible exception of the Yélî Dnye pattern, the similarity space holds up well – the five other languages at least conflate only strictly contiguous scenes. Dutch and Yélî Dnye are both languages with rich adpositions and with small-class positional verb systems that are sensitive to shape and orientation – Dutch *staan* 'stand' isolates our focal scene, since it collocates with a figure object oriented on its base, while Yélî Dnye *kwo* 'stand' collocates both with long or vertical axes (cup and arrow) and with projections from the ground (in the ring-on-finger picture, the ring is shown with a large projecting jewel). Tzeltal, on the other hand, exhibits a different pattern: it is a language which makes no spatial discriminations in adpositions (having as we have seen just one general one, see Figure 14.2 above) but can distinguish each of the six scenes it admits to its basic locative construction by selection from one of about a hundred verb roots, which code very precise spatial configurations. Nevertheless our focal scene, the cup-on-table, can be conflated with the fruit-in-bowl scene. This is because the predicate *pachal* collocates with *either* a figure *or* a ground which is bowl-shaped, an example of the way in which locative predicates of this large-class type are highly sensitive to overall figure–ground configurations.

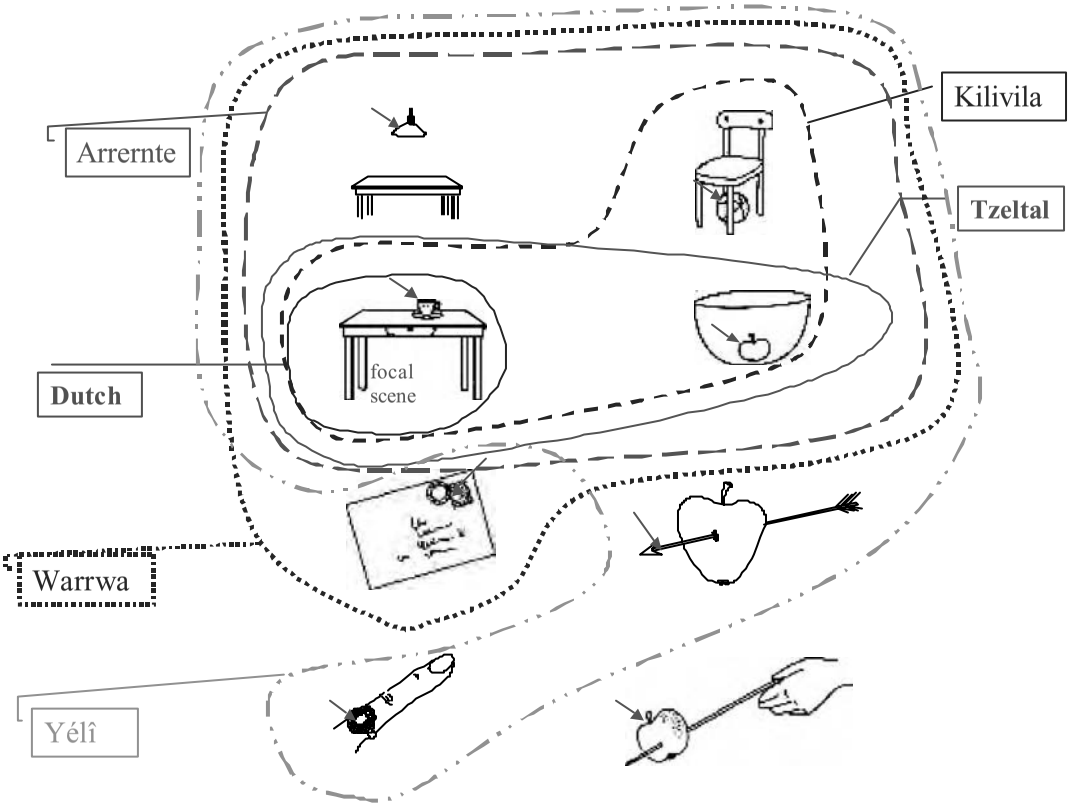


Figure 14.4 Extensional range of contrastive spatial predicates which include the canonical ON-scene

Let us sum up, by way of conclusions to this section. The topological sub-domain is usually judged to be the most fundamental part of spatial language and cognition, for this is the area earliest mastered by children learning European languages at least (see Brown and Levinson 2000 for a constrasting pattern in Tzeltal language acquisition). Despite this, what this section has shown is that there are no simple, surface universals in this sub-domain – for example no universal coding of prototype ON or IN categories of spatial relationship. Nevertheless, controlled comparison reveals that the sub-domain is orderly, constituting a structured similarity space. This similarity space is therefore repeatedly validated or respected by quite different kinds of linguistic distinction – distinctions between the basic locative construction on the one hand and rival constructions on the other, distinctions between constructional resources within the basic locative construction, distinctions within adpositional systems and distinctions made by contrastive locative predicates. Underlying this similarity space seem to be intensional notions like the following, ordered roughly from most general to most specific: stasis, contact, containment, vertical positioning, surface-to-surface contact, adhesion, horizontal supporting surface. These are the notions that are candidate universals in this area, not ON or IN concepts, which are themselves compositionally constructed (see Levinson and Meira 2003 for a more systematic demonstration).

Finally, we have clearly seen that this semantic information is variably packaged across languages, and distributed right across the clause of the BLC. The information is essentially information about the figure (especially shape and orientation), information about the ground (especially shape and medium) and information about the precise nature of the spatial relation between the two. How widely this can be distributed in different constructional, morphological and lexical forms throughout the clause is evidenced in each of the chapters – consider again the Arrernte sentence 'the cup is on top of the table' in Fig. 14.5.

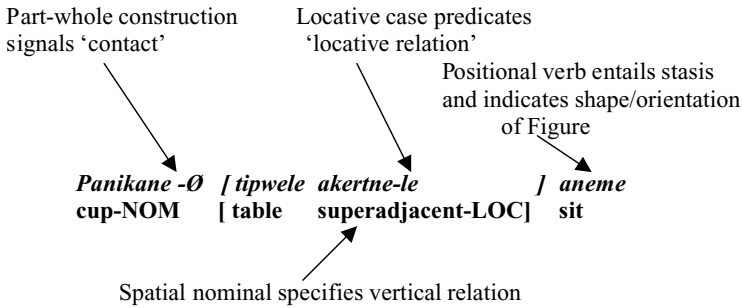


Figure 14.5 Distribution of topological information in an Arrernte clause

14.3 Motion

As we outlined in Chapter 1, there are a number of detailed topics that arise under the rubric of motion description viewed in cross-linguistic perspective:
(a) the typology of semantic packaging in the verb;
(b) the underlying semantical notions of path and motion itself;
(c) the form classes in which such concepts are coded, both verb subclasses and other form classes;
(d) the way in which source and goal are coded;
(e) the way in which all these resources are globally deployed in the clause or beyond to construct an overall depiction of a 'journey' or complex motion path.

Let us take up first the issue of semantic packaging within the verb, within the typological scheme suggested by Talmy (1985, 2000), namely the opposition between satellite-framed and verb-framed languages (see the review in the introductory chapter to this volume). Table 14.1 provides a summary of a number of relevant features of the dozen languages represented in this book. Recollect that Talmy observed that, as a matter of cross-linguistic generalization, 'path' or direction of motion does not conflate with 'manner' into a single verb root (e.g. there should be no verb root meaning 'to go downwards running').[4] This suggests that languages dichotomize into the verb-framed type, where the 'path' or direction of motion is coded in the motion verb, vs. the satellite-framed type, where the 'path' is coded in peripheral, sister constituents to the verb ('satellites'), thus allowing (but not requiring) manner distinctions to conflate into the verbal root. Following the typology, languages are expected to have a 'characteristic tendency' in one direction or the other, thus tolerating a few exceptional verb meanings; further, the presence of manner verbs alone is not diagnostic, only the general conflation of manner and motion, to the exclusion of path.

How well does this typology fare on our sample? A first point to note is that of the languages which can be clearly assigned one way or the other, the great majority are verb-framed – in fact only Dutch, like English, comes out clearly satellite-framed. This suggests that the Germanic satellite-framed pattern may be very restricted typologically. A second point to note is that the typology is in serious trouble with some of the languages – Warrwa, Jaminjung, Kilivila and Yukatek at least – and there are problems of assignment, or other troublesome details (e.g. concerning the coding of manner), in a number of others (Tzeltal, Yélî and Tamil). Take Jaminjung: its small overall set of verbs makes the detection of a 'characteristic pattern' already problematic. But most importantly both path and manner are typically indicated in coverbs – if one treats the coverbs as satellites, then it is unexpected to find manner and

[4] *Climb* might seem to be an exception, meaning 'go up, crawling', but since one can say *climb down*, the path element may be suggested from a meaning more like 'crawl on vertical surface'.

Table 14.1 *Summary of motion coding properties in the sample*

	Verb-framed or satellite-framed	Manner-of-motion resources	Source/Goal ground marking
Arrernte	• Verb-framed • Associated motion inflection also a source of Path encoding	• Very few manner-of-motion verbs • Not commonly coded in clause • If coded, then typically by adverb(ial)	• Case marking: ablative versus either allative or dative [depending on class of motion verb] • Both Source & Goal may occur in a clause
Jaminjung	• Not applicable • Only 7 verbs of locomotion out of a total of approx. 30 verbs in language • 'Fall' is a verb of change of locative relation	• Manner and direction of motion always expressed by coverbs • Path also characteristically coded in coverbs	• Case marking: ablative vs. allative • Both Source & Goal may occur in a clause • Some 'goal' types encoded in coverbs (.e.g. 'enter.water')
Warrwa	• Not applicable • Only 11 simple motion verbs out of an attested set of 61 verbs in language	• Both manner and path characteristically encoded in preverbs in a compound verb construction (CVC)	• Casemarking by postpositional enclitics: two ablatives versus allative or locative for goal • Some 'goal' types encoded in preverbs
Tamil	• Verb-framed • Extensive chaining of converb forms for complex motion events	• Largish class of manner-of-motion verbs • These verbs do not entail translational motion • Special construction of manner verb + go/come to code manner+translation	• Functional equivalent of ablative is complex construction: Noun-LOC +*ire*-Converb Form • Dat marks goal • *viTu* 'leave' as auxiliary codes motion ceases at goal
Kilivila	• Hard to place due to extensive use of serialization, and rich lexicalization of both path and manner	• Large class of manner verbs	• Goal marked by LOC if specific (goal interpretation derived from event expression) • Goal marked by 'to' if general • Verbs often incorporate source and or goal notions (go.down.to.beach)
Yélî Dnye	• Verb-framed (although not easy to identify a 'characteristic' lexicalization form)	• Rich set of motion verbs (often with very specific meanings)	• NPs get the interpretation of source or goal from the verb, not from any marking in NP • Only one reference location (source or goal) overtly expressed per clause

	Verb-framed or satellite-framed	Manner-of-motion resources	Source/Goal ground marking
Tzeltal	• Verb-framed (although there is a large set of directionals which are satellite-like in contributing path info)	• Relatively few manner-of-motion roots • Manners of motion can be indicated by derivational machinery	• One general preposition marking oblique phrases • Only one reference location (source or goal) expressed per clause • Interpretation as 'source' or 'goal' from verb and/or directional and/or context
Yukatek	• Problematic – if forced to assign, then verb-framed, BUT this would force us to redefine the notion of 'path' that is typically used. • 'Path' verbs do not entail durative locomotion along an extended spatial trajectory, but only punctual change of location. (i.e. the characteristic lexicalization form for motion verbs is non-durative, and 'oriented locomotion' is pragmatically inferred)	• Manner of motion primarily lexicalized in active intransitive verbs (only inactive and transitive motion verbs assign source or goal (or 'transit') readings to ground-denoting adjuncts) • By themselves such verbs do not entail change of location	• Grounds of motion events expressed by adverbials • Ground-denoting adjuncts do not reflect the 'path' of the motion event • There is no formal reflex of the 'source'/'goal' distinction • General prepositions, relational nouns, toponyms, etc. only get interpreted as 'source' or 'goal' based on verb semantics • Strict grammatical rule, only one ground-denoting adjunct per clause
Tiriyó	• Verb-framed	• Manner only rarely conflated with motion in the verb • Manner commonly indicated through adverbial, ideophone, or nominalized verbs	• Rich set of goal-indicating postpositions – often with specific meanings (e.g. into water; to the half) • Smaller set of ablative and perlative postpositions
Dutch	• Satellite-framed	• Large set of manner-of-motion verbs	• Source and goal marked by a set of distinct (and path-entailing) prepositions • The set of satellites (which may often occur attached initially to the verb, or after the ground NP) overlaps significantly with the set of prepositions

path both encoded in the same large or open-class category. Besides, as in Warrwa, coverbs play a much more multivaried role than Germanic closed-class verbal particles (like *up* in *go up*). Kilivila raises another kind of problem – it has a rich inventory of verbs encoding both path and manner, and serialization of these verbs makes complex verbs, which encode both path and manner.

Yukatek raises yet another kind of problem, because it challenges the very notion of 'path' as a durative progress through space – we take this issue up below, but the point here is that the element conflated into Yukatek motion verbs may be a different notion from what is conflated in other languages. Yukatek incidentally has good-sized inventories of both path-conflating verbs and manner-conflating verbs, but they are clearly of different classes, which is a possible solution to the constraint against manner and path in the same root. And indeed the Yukatek manner-of-motion verbs can be shown not to encode change of location. Other languages in the sample are problematic for other reasons: Tzeltal, for example, has verbal 'directionals' derived from motion verbs which carry path information (verbal satellites?), but is otherwise verb-framed. Many of the languages have good inventories of both manner-encoding and path-encoding verbs (e.g. Tamil, Yélî Dnye), and in some of these languages at least, the detection of a 'characteristic pattern' of conflation is problematic.

Thus the Talmy typology as it stands, despite having proved useful to understanding subtypes of European languages, does not clearly apply to a worldwide sample, and much more work needs to be done in this area to develop a wider set of types of verbal packaging. We need a better understanding of the underlying components of motion conceptualization, before we can get much further with a typology of how these are differentially conflated in different language types.

Incidentally, manner of motion in verbal semantics (as in 'run', 'crawl', etc.) should properly be distinguished from the conflation of instrument ('ride', 'sail', 'drive') and medium (as in 'float', 'swim'), as Frawley (1992) points out. In our sample there is evidence that languages treat these elements rather differently. Most unexpected, perhaps, are the 'aquatic' postpositions of Tiriyó, marking in, into and out of liquid. The same expression of liquid medium turns up in Jaminjung coverbs. Similarly, Yélî Dnye has a general motion-cum-'inhabit' verb *m:ii*, which means 'move in or inhabit the characteristic medium of the species', thus meaning 'fly' of birds, 'swim' of fish, etc. It also has very specific motion-by-instrument verbs, distinguishing, for example, 'go by sailing a canoe' from 'go by punting a canoe'. Other languages code medium as an adjunct, as in Arrernte 'go in air' or 'go in water' to convey flying and swimming, respectively – such expressions only implicate the characteristic manner of moving through the medium.

Jaminjung, like Tzeltal, has a rich set of posture-encoding elements, but whereas in Tzeltal these are in verb roots usually used in stative form, in

Jaminjung they are in coverbs, allowing the composition of complex motion+posture predicates. An additional feature that should properly be distinguished from 'manner' *sensu stricto* is 'speed', which need not entail a change of manner (cf. English *hurry*). Talmy suggested that 'speed' is never grammaticalized as a morphosyntactic feature, but Arrernte offers a counterexample to this with its associated motion suffix indicating 'go speedily/hurriedly'.

Returning to the need for a better understanding of the semantic components involved in motion events, one crucial notion here is the notion of motion itself. As mentioned in Chapter 1, we tend to presume that motion will be conceived of as *translocation*, that is, as a durative displacement of the figure along a continuous trajectory over time. This view entails a certain *Aktionsart* or inherent temporal structure, with predictions about interactions with time adverbials and aspect. But this durative conception of motion does not correspond to the Aktionsart of, for example, the motion verbs like 'enter', 'descend' in Yukatek, which have an inherent punctual change-of-location content (see §14.5 of the Yukatek chapter; see also remarks on 'enter' and 'exit' in the Japanese chapter). These sorts of fact alert us to the cross-linguistic variability of the very concept of motion.

On the basis of the kind of description in the chapters above, we can suggest tentatively that there are perhaps three rather different styles of conceptualization involved in the coding of motion events cross-linguistically, as in Figure 14.6. (Contrasting, incidentally, with this set of notions is another one might call 'internal motion' or 'manner of motion without change of locative state' – this is what is apparently coded in the manner verbs of Yukatek and Tamil.) In this typology, *translocation*, that is a durative event involving passage through an indefinite series of points in space over time, is only one possibility. Motion can instead be thought of solely as a change of state without transitional phases: at time t_1 figure F is in state S_1, at time t_2 F is in state S_2 – what happened in between may be immaterial. The simplest case of this is to think of motion as *change of location*: at time t_1, figure F is at the source S, at time t_2, F is no longer at S; alternatively, at time t_1 F is not yet at goal G, at time t_2 F is now at G. This kind of analysis suggests that motion verbs of this kind should never collocate with both a source and a goal. Bohnemeyer and Stolz argue that Yukatek motion verbs show both these tell-tale symptoms – punctual aspect, and no specification of both source and goal. For verbs with this kind of semantics, how the figure got from source to goal is not relevant – details of the trajectory, the manner of motion, the medium and the instruments involved are out of focus as it were. Languages that code motion semantics in verbs as change of location in this way are thus not likely to fuse manner (as in *crawl*), or medium (as in *swim*) or instrument (as in *drive*) into a genuine motion verb. Again in Yukatek, there are verbs meaning, for example, 'swim' or 'fly', but these do not take a source or goal specification (a location will instead be understood

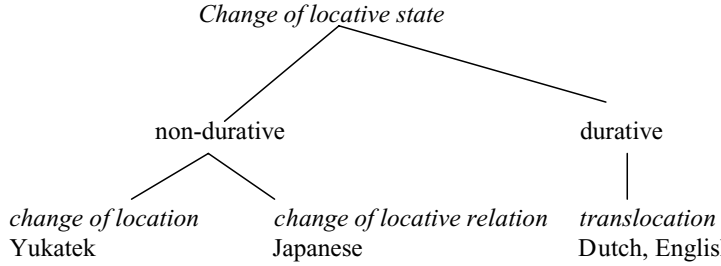


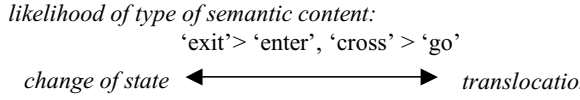
Figure 14.6 Three types of motion conceptualization

as the place within which the swimming or flying activity takes place). The facts in Tzeltal and Yélî Dnye are at least suggestive of a similar analysis.

A further possible subtype of change-of-state semantics for motion verbs would make change of location itself not a necessary part of the semantics. Instead, all that would be required is a *change of locative relation*: at time t_1 figure F is in locative relation R_1, while at time t_2 F is in locative relation R_2. Consider a ball outside a ring; a few moments later it is inside the ring. Although translocation of the ball is perhaps the most obvious way to achieve this change of state, an alternative is to move the ring. Some languages treat these two different translocations as the *identical* motion event – Japanese provides a clear case. Kita devised a motion stimulus to test this situation: paired films showing a circle moving inside a square boundary, and a square boundary moving to enclose a circle, were described in the same way. The same results were found for Tzeltal. More intriguingly, in a general triads test, which pitted identical path of motion against identical end-result of motion, both Japanese and Tzeltal speakers considered the same end-result pairs more similar than the same trajectory pairs, suggesting a general pattern of motion conceptualization. The same linguistic result has now been had from a number of languages using the ENTER–EXIT stimulus film designed by Kita (1999). This shows a man walking into a room from various angles (allowing different deictic codings), and this is contrasted with scenes in which the man dissolves outside the room and reappears inside the room ('beaming in' as it were). Dutch or English speakers will avoid 'going in' or 'entering' locutions, since the actual trajectory is unseen; but Japanese and Tzeltal speakers find 'enter' locutions fine. There is thus clear empirical support for motion verbs in some languages having this third type of semantics, encoding change of locative relation without trajectory.

It turns out that motion verbs in a language are not necessarily of a consistent type, although a predominant type of semantic content may often be discerned. From the details in the chapters a case can perhaps be made for a hierarchy of some kind of across 'motion' verbs, with a change-of-state semantics

more often involved with boundary-crossing verbs, like 'enter', and a translocation semantics involved with basic motion verbs like 'go', roughly perhaps as follows:



It is perhaps for this reason that, counterintuitively, 'exit' verbs also seem frequently to mean 'appear' (as in Tzeltal, and, as on one reading, in Arrernte) – they are especially likely to code change of state without path! The evidence for this hierarchy is that in some languages, like Tzeltal, 'go' clearly encodes durative translocation, but 'enter' and 'exit' code change of state without necessary translocation, while in others, like Arrernte only the 'exit' form encodes change of state without translocation, the 'enter' form having a translocation semantics (indicating that effective doublets, or functional antonyms can in fact have a rather different semantics). The data from Yukatek suggest that a more detailed hierarchy might be sustainable, with an ordering between our three types of motion construal:

	Change-of-locative-relation	**Change-of-location**	**Translocation**
Yukatek	'enter'/ 'exit'	'come'/'go'	
Tzeltal	'enter'/'exit'		'come', 'go'
Arrernte	'exit'		'enter', 'come', 'go'

This brings us to the question of distinct form-classes of motion verbs within languages. Although languages tend to have various minor form classes of verb, what pre-theoretically we may want to call motion verbs are perhaps rarely all of the same class (a point made by Lucy 1994). What one tends to find is that there is a more restricted class, which may include only or predominantly motion verbs (perhaps including some abstract 'path' verbs like perception verbs), and which may have special morphosyntactic properties (e.g. forming auxiliaries or directionals in Mayan languages like Tzeltal). The core class of motion verbs will typically include the deictic motion verbs ('come', 'go', 'return here', etc.) if they are coded lexically – although in many cases (as in Yélî Dnye) these deictic distinctions are made with additional 'hither'/ 'thither' morphemes or the like. One general finding is that such deictic coding is usually one-way: languages typically encode motion towards the deictic centre, but leave the 'away from deictic centre' meaning to pragmatic contrast (see Wilkins and Hill 1995) – as in many languages in the sample including Arrernte and Jaminjung. In any case, this core deictic class of motion verbs may fall into a different verb class from other good motion verbs – thus in Arrernte we need to distinguish three motion classes, with different argument structure: (1) core 'deictic' verbs,

with three argument slots, subject, source and goal, (2) oriented motion verbs like 'fall', with two arguments, and (3) manner verbs with a single nominative argument. In other languages, like Yukatek, verbs that on translation equivalence might be thought to be motion verbs, like the manner verbs, in fact do not encode external change of locative state at all.

Languages with a very small closed-class set of verbs of all types, like Jaminjung (*c.* 30) and Warrwa (*c.* 60), are very instructive here. Jaminjung, for example, has a minor form class of just seven motion verbs, two of which are intransitive (glossing 'come' and 'go'), the rest transitive (glossing 'leave', 'approach', 'follow', 'take' and 'bring'). All of these seem to have a 'translocation' type of semantics. Another minor form-class is centred around locative relations and includes locative 'be', and apparent motion verbs glossing 'fall', 'throw' and 'put'. Schultze-Berndt argues in Chapter 3 that a verb like the 'fall' verb in fact encodes 'enter into a configuration with ground', and the trajectory up or down, and even the fact of motion, are not essential preconditions to its use. In short, verbs of this class belong to our change of state type, and probably the change-of-locative-relation type, like Japanese 'enter'. These languages with small sets of verbs, where the exhaustive partitioning of all the verbs in the language into different subclasses is relatively clear, show that languages may have distinct types of 'motion' verb within their verbal inventories, and that there may be no simple correspondence between languages over how English translational equivalents will partition.

Interestingly, motion can be coded in many languages in form classes other than the verb. A spectacular example of this is provided by the set of fifteen Arrernte 'associated motion' affixes. These cannot be suffixed to core 'deictic' motion verbs, but can be suffixed to other classes of motion verb, and even to non-motion verbs. The suffixes offer a good range of different meanings. For example, where VERB is the meaning of the action specified in the verb, one suffix will mean 'do VERB while coming', another 'do VERB while going downwards', another 'do VERB hurriedly and go back', and so forth. This particular complex is a central Australian areal feature, but other languages in the sample show that motion coding outside of the verb is by no means restricted to that area. For example, Yélî Dnye has a series of oppositions expressed in portmanteaux morphs, which also code tense, mood, aspect, person and number. A full set of variants of these code something like associated motion, in this case 'Go and VERB' (e.g. 'go and see'). We would need more languages before we felt confident about this, but a tentative suggestion is that there is an implicational scale underlying associated motion semantics:

Go then/to VERB > Go while VERBing > VERB then go

– that is, it seems more common to have motion with purpose, or motion preceding the verbal action, than vice versa.

Mayan languages like Tzeltal have directionals, derived from motion verbs, encoding a full range of path oppositions, like 'go', 'come', 'ascend', etc. As particles following non-motion verbs they indicate that the action was done while going, or was done and then the subject went, etc. Although we do not have such examples in the sample of languages here, there are languages where motion coding is carried entirely by marking the ground elements – for example, Kayardild has verbless motion sentences (Evans 1995: 169), where the allative or ablative cases entail motion (a good case can also be made for these entailments in Arrernte, but the verb cannot be dropped).

Let us now turn to how the trajectory itself is coded. Talmy presumed that one can distinguish between *path* – or abstract direction – and *ground* specification; for example, 'John fell down' specifies a path, 'John fell down into the hole' adds a ground. In many languages, English included, this distinction can be unclear (English syntax is often indeterminate between particle and preposition; see Matthews 1991). In fact the best justification for the distinction comes from languages which use the absolute frame of reference, as in 'He went north', where 'north' is not a ground but a pure path or direction. Still, for most motion coding in most languages, source and goal specification play a crucial role in determining a direction of trajectory. Indeed, in some languages we find a nice kind of alternation between different kinds of marking of ground, one form indicating direction, the other goal. For example, in Arrernte, with one verb class (including 'enter', 'fall', etc.) the allative case encodes direction towards something not necessarily reached, while the dative case encodes goal. (Incidentally, we will treat source and goal as the main grounds for motion, and this is because perlative or *via* notions are more rarely directly expressed in languages. This may well in part follow from many languages having non-durative semantics in their motion verbs.)

The coding of source and goal is cross-linguistically very variable, as the reader will have noticed. On the basis of the languages described above, we can make some tentative typological suggestions. Some languages code sources and goals with zero-marking – that is to say, the relevant noun phrase appears without an adposition or case or other marking (Yélî Dnye is of this kind). Others use a general marker, e.g. a vacuous adposition which does not distinguish between source and goal (Tzeltal and Yukatek are of this kind). Clearly, in these cases the coding is effectively in the verb – a bit like the (uncharacteristic) English *John entered the house*, where the verb encodes motion to the interior of a space, and the noun phrase is bare. Yet other languages can be shown to have verbs of this type, where the semantics encodes the source or goal, but nevertheless redundantly encode source and goal on the NPs (Arrernte is a language of this type). Finally, there are languages where the coding of source vs. goal (or other kinds of ground) is very clearly marked only on the NPs (as in English, Warrwa or Dutch). This gives us a typology as in Figure 14.7. This typology

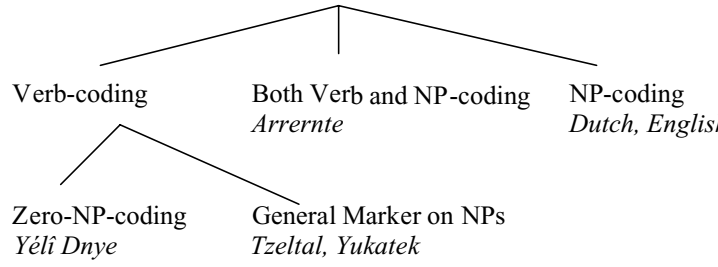


Figure 14.7 Typology of ground-encoding strategies

relates to Talmy's typology of verbal encoding mentioned earlier. First, Talmy (1985) argued that in no language is it characteristic to fuse the ground with the predication in verbal packaging, because the ground phrases are the background to the event description, 'the unvarying component in a situation'. But the languages that code ground specifications in the verb are clear counterexamples to this suggestion.[5] A second point is that verb-framing languages may tend to coincide with ground-encoding in the verb. This is perhaps because Talmy's own distinction between path and ground specification is ultimately a gradation – although path may be encoded in adverbial satellites, path or trajectory is also typically encoded with respect to grounds.

As mentioned in Chapter 1, an important general dimension of variation concerns the extent to which languages use the same resources in the description of motion vs. stasis. Talmy (1985) has suggested that they universally tend to do so, since static locatives are derivative from or modelled on motion descriptions. Thus (as mentioned in Chapter 1) in English *He went out of the office* is very similar in structure to *He is out of the office*, and the prepositions of motion seem to parallel the prepositions of location (cf. *in*∼*into, on*∼*onto*). But the parallels are often more opaque, as in the systematic distinctions in Tiriyó adpositions between location vs. motion. However, the main point is that some languages make very fundamental distinctions between the two domains. Tzeltal, for example, uses quite different resources in the two domains – for stasis it has a rich set of stative predicates indicating precise figure/ground relationships, and two frames of reference. For motion, it has a special subset of *c.* 20 motion verbs and derived directionals and uses only the absolute frame of reference. Even the coding of the absolute frame of reference differs in the two conditions – 'uphill' is coded with prepositional phrases such as 'at its upness' in the static condition, and is coded in motion verb roots like

[5] Talmy no doubt had in mind that the coding of *specific* grounds in verbs is relatively rare, as in *berth* (or *dock* of boats) or *dive*, but Yélî Dnye might be an exception here with verbs such as 'cross-over-sea' vs. 'cross-over-hill', 'go-home-after-feast' and many of the same ilk.

'ascend' in the motion domain. Similarly, Yélî Dnye has a huge inventory of postpositions used in static descriptions, hardly any of which are used in motion descriptions, because source/goal distinctions are built into the verb roots.

The Frog Story in cross-linguistic perspective

Let us now turn to compare the motion stimulus we have selected for cross-linguistic comparison, namely the Frog Story cliff scene. We chose to illustrate differences in motion coding across languages with this stimulus rather than some of the more detailed elicitation devices (like the ENTER–EXIT film mentioned above) because it gives a good impression of how these detailed differences in formal devices and semantic content work to construct a very different overall picture of a motion event (as the Berman and Slobin 1994 volume illustrates at length). Indeed, comparison shows that this uniform stimulus is coded linguistically in strikingly different ways.

Our focal part of the Frog Story, the cliff scene, portrays what Slobin (1996) calls a 'journey', that is a complex motion event with subpaths. Few tellings of the story mention all the subpaths, but this selection varies systematically with language – it is as if the coding of a visual stimulus into a particular linguistic representation renders some aspects of the event invisible, others prominent, and forces the interpolation of some scenes not visually represented at all. If we put the sample stories from our dozen languages together, and focus on the boy alone, we need to recognize a total of fourteen subevents derived by tellers from the four pictures that make up the cliff scene (see the figures in Chapter 1). The table in Appendix 2 shows which of the tellings in the languages in the sample mention each of these fourteen subevents, with an abbreviated 'propositional' rendering of the boy's journey between his standing on the rock, and his sitting in the water.

The simplified version of that table, Table 14.2, shows which of these subevents maximally recognized across languages are reflected in individual tellings in the dozen languages (we have added English for comparison, choosing one characteristic telling from the collection made by Slobin, by kind permission).[6] The point has been made by Slobin (1994, 1996) that the availability of resources for motion description in a language tends to build a distinctive style, typical for that language's narratives. What stands out from the table is

[6] English Adult from Slobin Sample:20F.
And – and what the boy took to be branches were really – antlers of a deer on which he gets caught – the dog – oblivious to all this looks behind the rock. The deer takes off with – the boy strewed across his antlers – and the dog runs at his feet yelling at him – to – to stop it. Um – they're approaching a cliff – and the deer – stops abruptly – which causes the boy to lose his balance and fall with the dog down into the stream – um – or a little puddle. [4/7]

Table 14.2 *Summary table of the 'cliff scene' from the Frog Story: subevents mentioned (+) in the different languages*

Scene	Jamin-jung	Warrwa	Arrernte	Tzeltal	Yukatek	Tamil	Kilivila	Yélî	Dutch	English
1	+	+	+			+	+	+	+	+
2	+		+	+	+	+	+	+	+	+
3		+	+		+	+	+	+	+	
4			+							
5										+
6						+	+			
7	+				+					+
8	+	+	+	+	+	+	+	+	+	+
9	+		+	+	+	+	+		+	+
10				+						
11									+	
12						+	+			
13		+								
14	+	+	+		+		+	+	+	+

that six subevents (numbered in bold in Table 14.2) are mentioned in at least 70 per cent of the languages – these involve the major stages of the trajectory. But some of the subevents are mentioned by just one or two of the languages, and focussing on these is revealing. For example, subevent 4 is the motion of the boy on the deer past the viewer (Picture 16 shows a side-view of the moving deer). This is mentioned only by Arrernte, which codes 'boy lying while moving past' using the associated motion suffix 'do while moving past' attached to the verb 'lie' – it is hard to escape the conclusion that this subevent is mentioned in Arrernte just because there are special grammatical resources that make it both conceptually prominent and easy to code. Another uniquely mentioned segment is 10, which gives us a snapshot of the boy spread-eagled mid-air. In this case, Tzeltal codes this using its rich set of dispositional predicates, one of which precisely encodes 'lying with limbs outstretched face up' – again the resources of the language seem to make this both natural and efficient to mention. Dutch and English also have unique segments. English mentions the approach of the deer towards the cliff (using the verb *approach* which may be an unusual lexicalization). Only Dutch mentions the source (the cliff edge) in the falling scene – in fact this is the only case in our cross-linguistic sample of 'cliff-scene' descriptions where both source and goal of a motion event are mentioned in the same clause:

gooit	*het*	*jongetje*	*van*	*een*	*klein*	*afgrondje*	*het*	*water*	*in*
throws	the	boy	from	a	small	cliff	the	water	into

As we have seen, many languages (like Yélî Dnye) do not permit the simultaneous mention of source and goal in a single clause, which is partly a function of the type of source/goal coding – where this is coded in the verb, usually only source or goal is subsumed (as in 'enter' vs. 'exit', 'arrive' vs. 'leave'). In addition, as we saw, the semantic construal of motion as a non-durative change of state (as in Yukatek) rather than a translocation (as in Dutch) can also restrict the possibility of having both source and goal encoded (that presuming a durative event). Languages like Yukatek or Yélî Dnye, apparently for rather different reasons, forbid simultaneous mention of both source and goal. Other languages, like Arrernte, permit it, but follow what may be a widespread discourse rule (which we might dub the Preferred Ground Structure) 'mention only one major ground, source or goal, at a time'.

Some languages have strikingly similar distributions of the subevents mentioned, Tamil and Kilivila for example. Both are languages that utilize what one may loosely call verb serialization, that is the concatenating of a string of verbs within a single clause. Thus the first subevent in the sequence, the deer taking the boy away, is rendered in Tamil by a sequence of verb roots, roughly 'raise+hold+run+go', and in Kilivila by 'climb-down+take-away+run'. These resources allow highly compact renderings of many subevents in one clause but require that the grounds for most of these subevents are suppressed and must be inferred.

Another perspective on the differential coding of the event across languages can be had by comparing languages that have very different distributions of subevents that are mentioned, for example Tzeltal and Yélî Dnye. Tzeltal concentrates on the middle subevents, while Yélî Dnye focusses on the initial ones. Why? Tzeltal systematically picks out those scenes where there are complex dispositions in the figure, or the interaction between the figure and the ground, and it codes these in its rich set of dispositional predicates. Thus subevent 2, with the boy on the deer, gets coded as 'boy mounted on deer, wedged between (forked branches)', subevent 8, the falling scene, as 'boy be thrown underhand' where 'throw-underhand' is a single verb, subevent 9 where the fall continues as 'fall_down descending' using the special directional resources of the language, subevent 10 where the boy in mid-air is coded, as already mentioned, as 'boy lying face up limbs outstretched', all of which is likewise packed into a single dispositional root. Two of the scenes are described as static dispositions, from which the motion must be pragmatically inferred, and this is typical of Tzeltal which has unusually rich descriptive resources for static locations. Yélî Dnye has the opposite character – it stresses the action scenes, and allows the resulting states to be inferred – the taking of the boy, the throwing of him, and the landing in the creek. The special portmanteaux tense-aspect-mood-person morphemes, which can alternate to show deixis and associated motion, allow very compact sketches of scenes, complete with a 'camera angle' as it were.

Table 14.3 *Differential loci of encoding for the components of motion description*

	Source	Goal	Manner	Medium, instrument speed	Motion	Path/direction
English, Dutch	PP	PP	V	PP	V	Particles
Arrernte	(Abl NP +V)	Dative NP +V	Subclass of Vs;	Loc NP (medium); associated motion (speed)	V or Associated motion suffix	V
Jaminjung, Warrwa		Allative NP	Coverbs	coverb	V or Coverb	Coverbs
Tzeltal	*(ta NP + V)*	*Ta* NP + V	non-motion V; derivation		V or Directional	Directional
Yukatek	(PP)	PP	non-motion V		V	
Tamil	(Abl NP)	Dative NP	V-serialization		V	V?
Kilivila	(PP)	PP or NP	V-serialization		V	V?
Yélî Dnye	(NP+V)	Unmarked NP + V	V subclass	V/ PP	V or Associated motion proclitic	V
Tiriyó	PP	PP	ideophones, adverbs, nominalizations	Adposition	V	?

Yet another perspective arises if one asks where in the clause specific information is coded. We have discussed many of the details above, but a summary table (Table 14.3) may be helpful here (resources not actually used in the sample stories are in brackets).

14.4 Frames of reference

In the introductory chapter to this volume, we introduced a restricted typology of just three types of frame of reference to be found in language, absolute, relative and intrinsic. Frames of reference are coordinate systems whose function it is to designate angles or directions in which a figure can be found with respect to a ground, where the two are separated in space (in contrast where they are contiguous, the topological system comes into play). As we explained, the absolute frame depends on the antecedent fixing by community consensus of arbitrary bearings, the relative frame depends on mapping the bodily coordinates of the viewer onto the scene, and the intrinsic frame relies on designating facets of a ground object.

As mentioned in Chapter 1, languages sometimes use only a subset of these three kinds of frames of reference. The language sample described in this volume nicely illustrates the kinds of variation to be found. A full summary can be found in Appendix 3, which includes notes of any trace of any of the systems, but to obtain a simplified picture, let us extract the major frames of reference that are used in ordinary discourse without recourse to prosthetic devices like maps and compasses. Note that we then set aside fragments of systems which do not offer a full polar system of coordinates, or full systems which may be coded but not used in daily parlance. We then have the distribution of frames of reference across languages represented in Table 14.4: each of these frames of reference may be instantiated in different ways. Take, for example, the absolute frame of reference, which requires consensus in the community about named, fixed directions. Such directions may be fully abstract notions, as in the fixed bearings used in Warrwa and Arrernte. Systems of this kind, which are not based on compass points or any one meteorological or landscape feature, are triumphs of human abstract reasoning. After all, it matters not at all what directions are fixed and named, only that members of a community can consistently find and name them. Such abstract systems are probably anchored on a complex set of cues, involving a solar compass (i.e. the abstraction of an ideal axis orthogonal to an average of solstitial variation on the east–west axis) supplemented with wind directions, dune axes and such like (see Levinson 1997a, 2003). Other systems are more directly linked to ecological cues, but these can be of quite different kinds. Jaminjung in this volume illustrates a type (also common in Alaska) based on the main river-drainage system – this gives us upstream/downstream and across directions. Again, though, this drainage system merely provides a

Table 14.4 *Distribution of main frames of reference across the sample languages*

Absolute, relative and intrinsic:	Tamil, Yukatek, Tiriyó, Ewe, Kilivila(?)
Absolute and intrinsic:	Warrwa, Arrernte, Jaminjung, Yélî Dnye, Tzeltal
Relative and intrinsic:	Japanese, Dutch

basis for a fully abstract system of directions – most of the river beds are dry for much of the year, and of course wander in all directions, but nevertheless the directions are fixed. Another reasonably common kind of system is illustrated by Tzeltal, which draws the inspiration for its abstract directional system from the major geographical tilt of the country that forms the territory of the Tenejapans who speak the dialect described here. The Tenejapans identify an uphill–downhill axis, with an orthogonal across axis, which can be shown to have fixed compass directions even though every valley of course has its own meandering path in this rugged mountain land. Another kind of system is illustrated by Yélî Dnye, which also has an up–down system, in this case based primarily on the prevailing eastern winds – one sails and poles up against the wind. As a further axis, they use a mountainwards vs. seawards axis. These people live on a relatively small island, with a high central mountain range, so as one goes around the island the two axes change their angle with respect to each other, thus demonstrating that there is nothing essential in orthogonals to the human geometric imagination.

Peoples like these who use absolute directions as their main way of designating figure–ground relations for things separated in space (at least in contexts where deictic systems and pointing will not alone do the job) can be shown to have acquired a distinct cognitive style, involving a constant sense of direction and a conceptual coding scheme based on fixed directions in memory and reasoning (Pederson et al. 1998, Levinson 2003).

Let us turn now to the intrinsic frame of reference. This frame of reference is the only one that may be – at least in rudimentary form, with topological antecedents – universal.[7] Developmental psychologists have long noted that it is the first frame of reference to be used systematically in language and reasoning by children (Piaget and Inhelder 1956, Johnston and Slobin 1979, Tanz 1982). One reason is perhaps because the intrinsic system is based on a simple binary relation between figure and ground (unlike the other two frames which involve ternary relations between figure, ground and viewer or fixed bearing). Another

[7] Guugu Yimithirr is a language where the intrinsic system plays arguably little or no systematic role in spatial description, but even here perhaps rudiments of such a system can be found (see Levinson 1997a). See also Warrwa in this volume.

reason for its fundamental nature is that it is closely linked to topology, where the geometry of the ground object is also relevant – knowing the parts of an object is a precondition to using intrinsic systems. Indeed one can think of the relation between topological part systems and intrinsic systems as forming a cline: for example, between the topological concept where a figure is designated as in contiguity with the back part of the ground, and the corresponding intrinsic projective system, where the figure is conceived of as in the region projected from the back part of the ground (Heine 1997: 44–5). Because of the close relation to topology, it is not always easy to decide whether one is dealing with a topological spatial description using part-names, as in (the gloss) 'The ladder is AT the back part of the house', or an intrinsic description projecting a region of part-names, as in 'The ladder is WITHIN the region at the back of the house'. The description of Warrwa in this volume raises issues of this kind and allows one at least to question the universality of the intrinsic frame of reference.

Given the close relation to topology, the binary simplicity of the relations and the early development of intrinsic notions in childhood, one might expect all intrinsic systems to conform to a single, simple pattern. But this is not the case. As mentioned in Chapter 1, there are different ways to assign parts or facets to objects. The English (and Dutch) systems are remarkably complex. At their heart there is a simple, gravitationally oriented armature, giving us 'top', 'bottom', and 'sides' for any object. But then to obtain named sides – essential for projecting regions on the horizontal plane – we need to take into account a wide range of factors: does the object characteristically move (if so, the side going forward is the 'front', as with trucks), do we primarily use one side of it (if so, that is the 'front', as with clocks), do we enter the object from a particular side (as in the 'front' of buildings), do we mould it to our frame (as in the 'front' of a jacket or a chair)? Despite these varied functional factors, children of two can already line up different objects so that their 'fronts' all face in one direction! In contrast, the system described in the Tzeltal chapter has none of these features. The main body-part system does not use a vertically oriented armature – there is nothing universal about 'top', 'bottom' and 'sides'. Instead, for inanimate objects, the whole system is driven by the internal axial structure of the object. Thus a stone lying down with a flat surface on the ground will have its 'face' upside down, with its 'head' and 'butt' determined by the shapes at the end of its longest axis (see Levinson 1994). Neither vertical orientation nor function play a role in part assignment, which can be shown to be almost entirely a matter of internal geometry.

Finally, we turn to consider variants of the relative frame of reference. Fully developed relative systems have clearly evolved out of intrinsic systems, especially to deal with cases where the ground object lacks unique intrinsic sides (as with a ball, tree, or box). Hence the implication: if a language has a relative system, it has an intrinsic one, usually with shared lexemes. Relative systems

involve the speaker's coordinates (his or her own front/back/left/right), but in addition a secondary coordinate system mapped from the speaker's coordinate system onto the ground object. This is the source of considerable complexity. This secondary system may be a rotation, translation or reflection of the primary coordinates, or even a mixture of these. Thus when I say *in front of the tree* in English, I mean 'between me and the tree' – the tree has acquired a front by mapping my coordinates onto the tree under reflection: *front* and *back* are reversed (as if the tree was someone facing me), but *left* and *right* have stayed constant (imagine writing my coordinates *front/back/left/right* on a transparent sheet and turning it over away from me and now overlaying the assignments onto the tree). In actual fact, the correct analysis of English relative usage is arguably even more complex than this (see Levinson 2003: 86–8), but this will do as a first approximation.

But there are other possible ways to assign the secondary coordinates. Instead of reflecting them onto the ground object, one could rotate them onto it (instead of flipping the transparent sheet, we now rotate it 180°). Now we will have 'front' and 'back' as in English, but 'left' and 'right' will be reversed: 'The ball is to the left of the tree' would mean what in English we express as *The ball is to the right of the tree*, because the tree is like a person with its own front (facing us), and its own left (at our right). Such systems have been reported from, for example, some dialects of mainland Tamil. A third possibility is simpler: the speaker's coordinates are simply translated (shifted across without rotation or reflection) to the ground. Now the tree has a 'front' on the far side away from us, and we are looking at its 'back': 'left' and 'right' remain as in English. Such systems have been reported from Hausa and many other languages. Finally, languages can borrow from these different possibilities and assign some terms in one manner, and others in another, or they may even use terms ambiguously. Many languages make no use at all of relative systems (as in Jaminjung in Chapter 3). Quite often languages with intrinsic terms allow relative uses only in a few marginal cases (as in Tzeltal in Chapter 7), or a bit more systematically just where the ground object lacks intrinsic facets (as in Yélî Dnye in Chapter 5). At the other extreme are languages where relative systems are central, as in Japanese and Dutch (Chapters 12 and 13).

Thus, just as in the intrinsic and absolute frames of reference, there are many distinct variants of the relative system, and varying degrees to which terms which have an intrinsic origin may also have gained relative uses (see Levinson 2003: 84–9 for details). It is important then to bear in mind that when we talk about just three frames of reference in language, we are talking at an abstract level about *types* of coordinate system, not about how these are instantiated in particular languages, which can be quite diverse.

Let us now consider the details about how such systems are used. Since in all the languages, with the possible exception of Warrwa, more than one frame

of reference is available, a first issue is in what kind of context which frame of reference is deployed. The best way to get a firm understanding of this is to look at our comparative task, the Men and Tree Game. As described in Chapter 1, the game involves distinguishing *inter alia* between a set of photos with position and orientation of a tree and a man systematically alternated (now the man is to the left of the tree, now to the right, now he's facing us, now he's looking away, etc.) – each of the numbered photographs is reproduced as a line drawing (Figure 1.3) in Chapter 1.

From the details in the chapters, we can make quite a lot of comparative observations. Consider first three pairs of players of the Men and Tree Game in Dutch. Table 14.5 gives the full propositional coding. We have found it essential to distinguish what we call 'standing' (positional) from 'facing' (orientational) information – in these scenes that amounts to making a distinction about the placement of the man versus the tree in the left/right plane (standing information), versus the direction the man is facing (towards the viewer, away from the viewer, to the left, or to the right). If we look at the three pairs of Dutch players, we get a very consistent picture, with a systematic distribution of standing and facing information:

		Standing information	*Facing information*
Dutch	Pair 1	Relative	Intrinsic
	Pair 2	Relative	Intrinsic
	Pair 3	Relative	Intrinsic*

* (One proposition combined relative and intrinsic for both standing and facing information)

Here we find the coding of facing information done in the intrinsic frame of reference. This is probably because, since a part or orientation of the figure has to be described anyway, this invokes the frame of reference for which this is a precondition. But standing information is consistently given in relative terms. Of course, this all seems natural to us – the larger framework invokes the fixing of a point of observation, and a placing within the visual field, while the detail within the scene invokes a scene-internal, intrinsic description. So the reader will not be surprised to find that Japanese – a language with a very similar frame-of-reference inventory – behaves in exactly the same way: standing information is systematically in the relative frame, facing information in the intrinsic frame.

But now consider three languages, Tzeltal, Arrernte and Yélî Dnye, that do not have full, or much used, relative systems. Instead, each has available both absolute and intrinsic frames of reference as fully coded systems. We can code the linguistic details for the description of each photo as in Table 14.6. By way of background, recollect that Tzeltal has an absolute system in which what is roughly south is coded as 'uphill', north as 'downhill', with an orthogonal 'across' in both directions; Arrernte has a fully abstract cardinal direction system which we

Table 14.5 *Propositions used to distinguish Photos 2.3, 2.4 and 2.5 in the Men and Tree Game in two relative + intrinsic languages*

Dutch	Standing/Facing	Photo 2.3	Photo 2.4	Photo 2.5
Pair 1	Standing	Man stands left of the tree	Man at left next to the tree	Man at right next to the tree
	Facing	Man looks towards the tree	He looks off away from the tree	He looks towards the tree
Pair 2	Standing	Man is standing on the left Tree is standing on the right (you see the stick towards you)	Man is standing to the left of tree	Man standing to the right of tree (with stick to the back)
	Facing	Man is looking at the tree	Man is looking left Man with the back to tree	Man is looking at the tree
Pair 3	Standing	—	Man is standing to the left of tree	Man standing on right near tree
	Facing	Man looking left towards tree	He isn't looking at the tree His back towards the tree	To look . . . with his face towards the tree
Japanese				
Pair 1	Standing	Man is at left side of tree	Man standing at left side of tree	Man is at the right side of tree
	Facing	Man is looking at tree	He is orienting his back to tree	Man is looking at the tree

can gloss directly as 'north', 'south', etc., and Yélî Dnye utilizes two axes, not necessarily orthogonal, although approximately so in the location of the recording – one glosses 'up' (east) vs. 'down' (west), and the other 'hillwards' (here south) vs. 'seawards' (here north).

Now a number of important observations can be read off the table. First, in all three communities the absolute frame of reference can be used in this task to make discriminations in what we can call 'tabletop space'. To make this clear: these are linguistic systems in which micro-locations, centimetres apart, may be distinguished in terms of coordinates like north and south. Second, in none of the communities were any discriminations drawn from the relative frame of reference utilized in this task – thus no terms meaning to the visual left or right, or terms meaning in front or behind an object facing the viewer. Arrernte does have 'front', 'back' terms of this relative kind, and so does Yélî Dnye, but they are not often used, and apparently are not appropriate or reliable means of communication in this context. Since all three languages also make available an intrinsic system, it is interesting to see how, within the same tabletop space, the two systems are deployed. We find the following pattern:

	Standing information	*Facing information*
Tzeltal	Absolute and Intrinsic	Absolute
Yélî Dnye	Absolute and Intrinsic	Absolute
Arrernte	Absolute and Intrinsic	Absolute

Thus orientation (facing) is systematically coded in absolute-only terms, although this has to be combined with a body part (e.g. front) or an action (moving, looking) to fix an orientation. This is efficient – no ground needs to be specified to fix an absolute orientation: the man can simply be said to be looking north. But relative position may be coded intrinsically or in absolute terms, or most often both. Here since the relative location of figure and ground is involved, both an intrinsic and an absolute coding are efficient, and both are in fact employed. What is interesting is that we do not find what we might (on an analogy from the European languages) have thought likely – namely that specifying the larger framework will invoke the larger orientational system (here absolute), while specifying the details of the scene will invoke the intrinsic system. The intrinsic systems used in Dutch (and other languages with primary relative frames of reference) and in these three absolute languages are at least in part similar in kind – but it does not follow that the sharing of a frame of reference entails that it will be used for the same functional distinctions.

If we now return to the large table, which includes many details about the contexts of use of each frame of reference, we can add a number of further generalizations. First, here are some generalizations about the relative deployment of the absolute frame of reference in languages with such systems. We can say that the absolute frame is more likely to be used:

Table 14.6 *Propositions used to distinguish Photos 2.3, 2.4 and 2.5 in the Men and Tree Game in three absolute+intrinsic languages*

Language	Standing/Facing	Photo 2.3	Photo 2.4	Photo 2.5
Tzeltal	Standing	Man standing uphillwards Tree is downhillwards	Tree is at his back	Man is downhillwards Tree standing uphillwards
	Facing	Man looking downhillwards	He's looking uphillwards	He is looking uphillwards
Arrernte	Standing	He is standing in the east Tree in region west from him	He's standing on the east-side He puts the tree at his back Tree is behind from him	Man is standing on the west-side Tree is in eastern region
	Facing	He's standing facing westwards	He is standing facing eastwards	He is facing towards the tree
Yélî Dnye (pair Y-L)	Standing	—	Tree at man's back	Tree standing seawards
	Facing	Man facing hillwards Man facing shrub (deduce standing relations)	Man facing seawards	Man approaching tree

1. To provide facing (orientation) rather than standing (placement) information (as we have seen exemplified in the Men and Tree data; see also notes on Kilivila).
2. To describe motion rather than static location (see notes on Jaminjung, Arrernte, Yukatek).
3. To describe static figure–ground as the separation between them increases (see notes on Tzeltal, Arrernte).
4. To describe large-scale space rather than 'tabletop' space (see notes on Jaminjung, Yukatek, Japanese).

Each of these generalizations can be stated as implicational scales: if a language uses the absolute frame for standing information, it will use it for facing information; if it uses it for static description, it will use it for motion; if it uses it when figure and ground are close to one another, it will use it when they are distant; if it uses it for small-scale spatial discrimination, it will use it for large-scale description. Incidentally, one might expect there to be implications from the use of the absolute frame in small-scale space, to its utility in describing the position or parts of the body – but this is an independent variable. Warrwa uses the absolute frame at all scales, but one cannot talk about 'my eastern leg' in Warrwa as one can in Arrernte.

Similar observations are no doubt possible for languages where the relative frame of reference is predominant, but in our sample we have only Japanese and Dutch. Still, a number of languages show small rudiments of a relative frame of reference, and this is very telling from the point of view of cognitive universals – it suggests that the relative frame of reference is always incipiently available, if not fully used in many languages. For example, Tzeltal is a language where the relative frame of reference does not exist as a systematic system, but there are marginal interpretations of terms which are relative in character. If we look at these kinds of cases it is clear that 'front'/'back' terms with relative interpretations are present even where there is no corresponding left/right axis linguistically coded. This suggests a corresponding implicational generalization: if a language has relative 'left', 'right' expressions (as in 'The man is to the left of the tree') then it certainly has relative 'front', 'back' ones (as in 'The man is in front of the tree'). However, Yukatek is a counterexample: it does have clear relative uses of 'left' and 'right' terms, more restricted relative use of 'back' and no relative use of 'front'. This is in line with the suggestion in Levinson (1996b) that left/right oppositions are often different in kind from front/back ones – the former may have to do with place in visual field, the latter with occlusion. The implicational generalization may then be restricted to:

> relative 'back' > relative 'front'
> (intrinsic 'back' terms are more likely to generalize to relative 'back' terms than 'front' terms – evidence from Yukatek, Tzeltal).

What the observations in this section show is that in this fundamental area of spatial language and cognition, which psychologists have imagined to be conceptually uniform across the species, we find once again significant variation at almost every level. First, although there are only three global frames of reference, not all languages utilize them all. Second, the way in which each selected frame of reference is conceptually constructed can vary in a fundamental way – in the way in which fixed bearings are abstracted, the way in which designated sides are assigned to objects, or the way in which body-axes are mapped to spatial scenes. Third, where more than one frame of reference is deployed, the contextual conditions under which one is used rather than another can be quite various, and it doesn't follow that because a language has, for example, an intrinsic system, that it will employ it for the same purposes that another does. Nevertheless, behind all this cultural, cognitive and linguistic variation there are underlying universals and uniformities. First, all coordinate systems are polar, and only three major classes exist, with different logical and rotational properties (see also Levinson 2003 for geometric primitives shared across the systems). Second, there are constraints on the selection from this set – a relative frame of reference, for instance, implies the use of an intrinsic one. Third, there are many detailed implicational tendencies about the usage of such systems, of the kind illustrated by 'If a language uses an absolute system for the description of stasis, then it certainly uses the same system for the description of motion, but not necessarily vice versa', and the many other examples given above. Once again, then, the picture that emerges is of considerable variation under abstract universal constraints.

14.5 Conclusions

In this chapter, we have tried to extract some of the major underlying patterns arising from a comparison of the coding of spatial distinctions in a dozen languages. The findings are likely to come as a surprise to the reader. The literature, and our own preconceptions, have led us to expect a dominant pattern, in which topological distinctions are coded in rich adpositions, motion in verbs and particles (following the satellite-framing patterns in Germanic), and frames-of-reference issues are exhausted by noting ambiguities between 'intrinsic' and 'deictic' *front* and *back*. In fact, this pattern is in every feature a minority profile in our sample, where the majority of languages do not code topological distinctions in adpositions, do not have satellite-framed motion systems, and do not have an intrinsic plus relative frame-of-reference inventory.

The first impression is one of overwhelming diversity, and apparently endless mismatches between any two languages in both the formal coding of distinctions, and the semantical basis for them. Closer examination, made possible by the use of the same stimulus materials across languages, shows, however,

that there are significant constraints on the diversity. The constraints appear to be of essentially two types. First, there seem to be underlying dimensions of universal relevance for the structuring of spatial sub-domains. Sometimes, as in frames of reference, these amount to a finite set of very abstract types from which languages select. In other cases, as in the topological sub-domain, we seem to have a shared space of possibilities structured on half a dozen universal parameters. And in the motion sub-domain, we have seen that even the semantic construal of the brute fact of motion has to be deconstructed into its underlying components – from these underlying components, distinct types of construal are built up which are reflected in different languages. The second major set of constraints are implicational, rules of the sort 'if a language has a relative frame of reference, it also has an intrinsic one'. These generalizations may have rather different sources, the one just mentioned, for example, probably having a source in diachronic generalization of intrinsic parts to relative interpretations, in order to cope with grounds that lack inherently distinguishable sides.

As far as we know, this book contains the first careful cross-linguistic comparison of this kind outside well-defined, more restricted domains like colour, kinship or ethnobotany. In the absence of this information, many theorists have assumed a strong universal structuring of the spatial domain. Our intuitions about the way space is conceptually structured seem so strong, and children learn at least some of these concepts so easily and early, that we have been led to assume that notions like ON (superadjacent with direct horizontal support) or LEFT as in 'to the left of the tree' are universal primitives in language and cognition. Moreover, it seems to us natural and perhaps therefore unavoidable that motion coding should be in verbs and static locations coded in adpositions. But the picture that comes out of this comparative exercise is altogether more varied and complex. There really is no room at all for the Fodorean view that universal concepts are macro-packages, unanalysable wholes, which now has such a following in linguistics (see Lyons 1995) or psycholinguistics (see Levelt, Roelofs and Meyer 1999). The evidence points to much more abstract underlying parameters as the common root of human conceptualization – old-fashioned componential analysis seems a necessary mode of analysis in comparative semantics, even if for processing purposes speakers treat complex semantic macro-molecules as chunks.

The implications are that the child language learner is a constructivist – he or she is not just mapping local forms onto pre-existing innate concepts but building those concepts as he or she learns the language. Those constructive processes are channelled by universal structuring in the different sub-domains of space, but constructing meanings for spatial words, morphemes and constructions constitutes a significant intellectual achievement – and indeed we know that spatial language is not fully mastered until late childhood (see, e.g., Berman and Slobin, 1994, Brown and Levinson 2000). The task is harder because neither

the meanings nor the forms are antecedently given – the child must construct both domain and range and then the mappings between them. Philosophers (like Quine) and psychologists (like Gleitman) have thought this task impossible and have argued from this to the innate structuring of concepts. But children are better detectives than presumed, and they abduct their way into the system, on the assumption (it seems) that languages have consistent patterns of meaning and coding within them – one solved clue can reveal the patterning of the whole subsystem (see Levinson 2000b). It is this that perhaps explains the divergent styles of motion representation, best reflected above in the Frog Story tellings.

The generalizations we have made in this chapter over the dozen languages should be taken merely as an example of the kinds of comparative observation that can be extracted from controlled comparison. Readers alerted to the potential will be able to find many other points of comparison and contrast between the languages described in the chapters. The point we would like to emphasize here is that such comparison is made possible only by carefully designed elicitation tools. In this domain, as in most others, these tools are in their infancy, and we hope that readers will be inspired to develop such methods further, and through doing so, help to construct a field that today still hardly exists, namely semantic typology. This field has enormous implications for all the disciplines that study language, cognition and their interaction.

Appendix 1: Topolocial ‘maps’ for each language in the sample

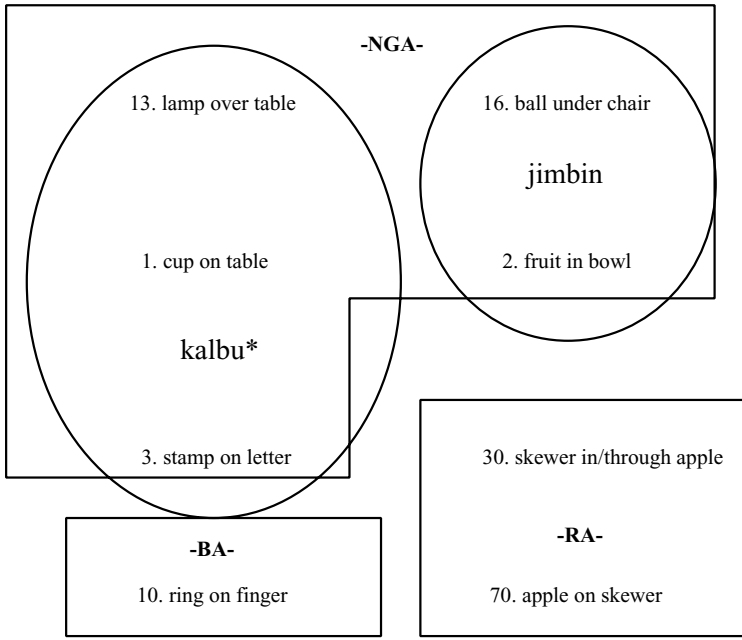


Figure A1 Warrwa

* While **kalbu** is the spatial adverbial used for these three scenes, #1 and #13 were in fact described with the ablative-marked form **kalb-ankaw**, and 13 is a particular regional sense of the form [Note scenes 1, 16, 2 and 10 can all be described in a construction with a locative PP]

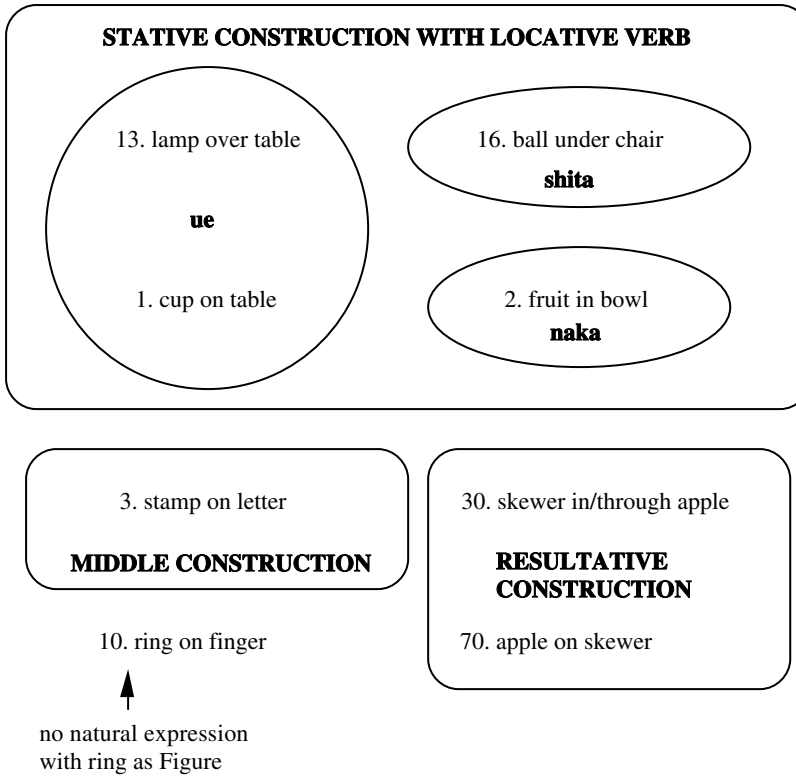


Figure A2 Japanese

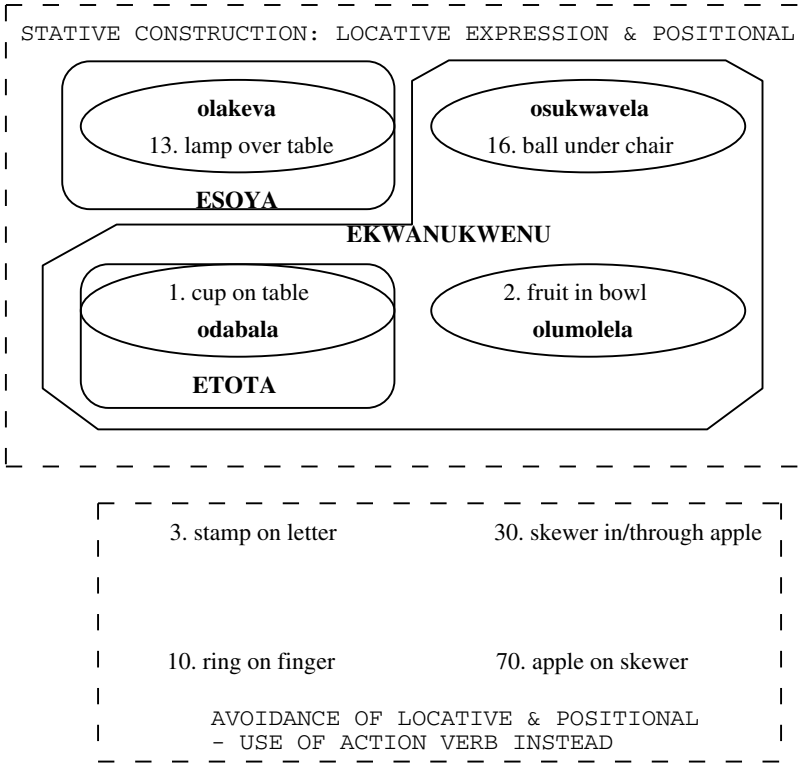


Figure A3 Kilivila

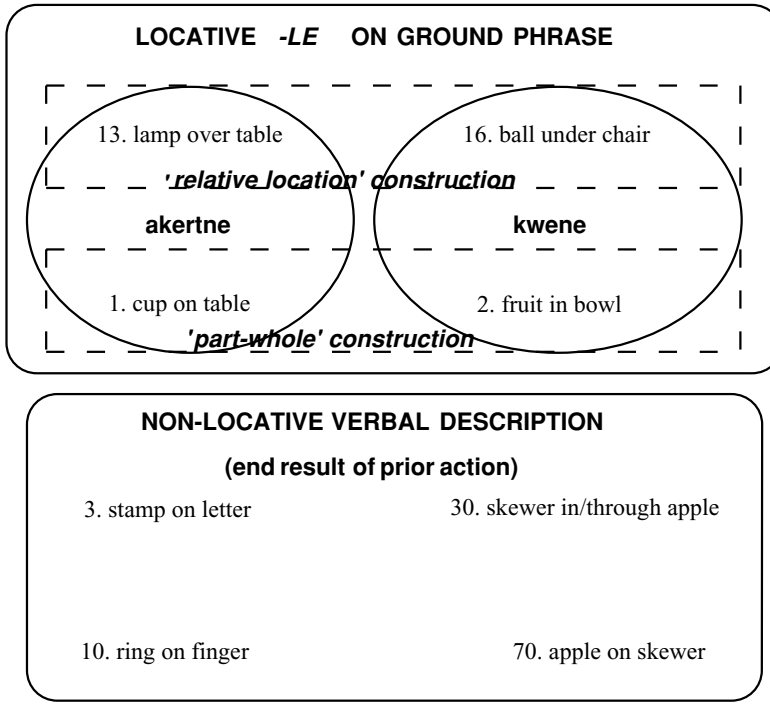


Figure A4 Arrernte

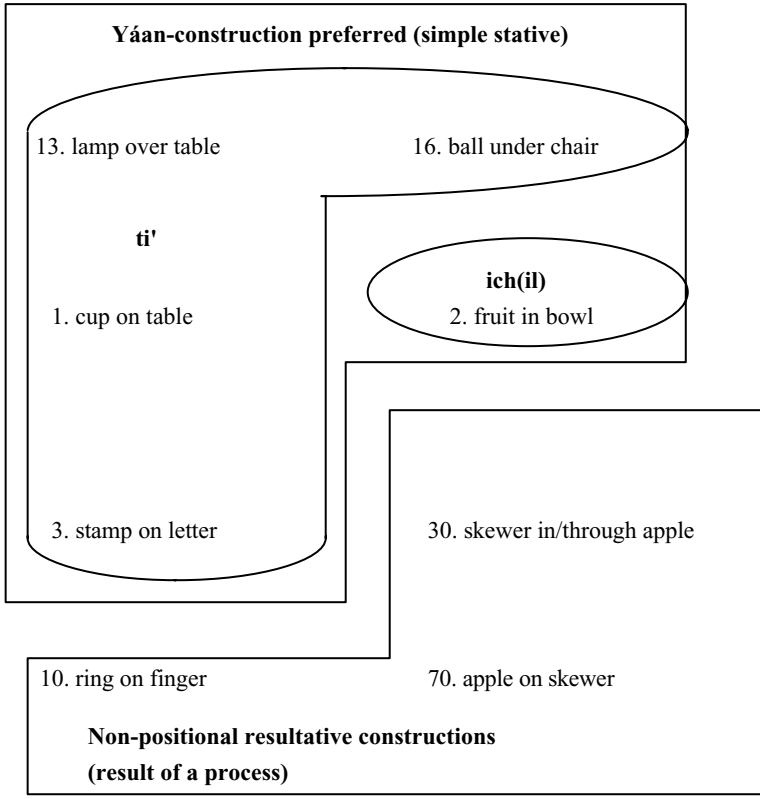


Figure A5 Yukatek Maya

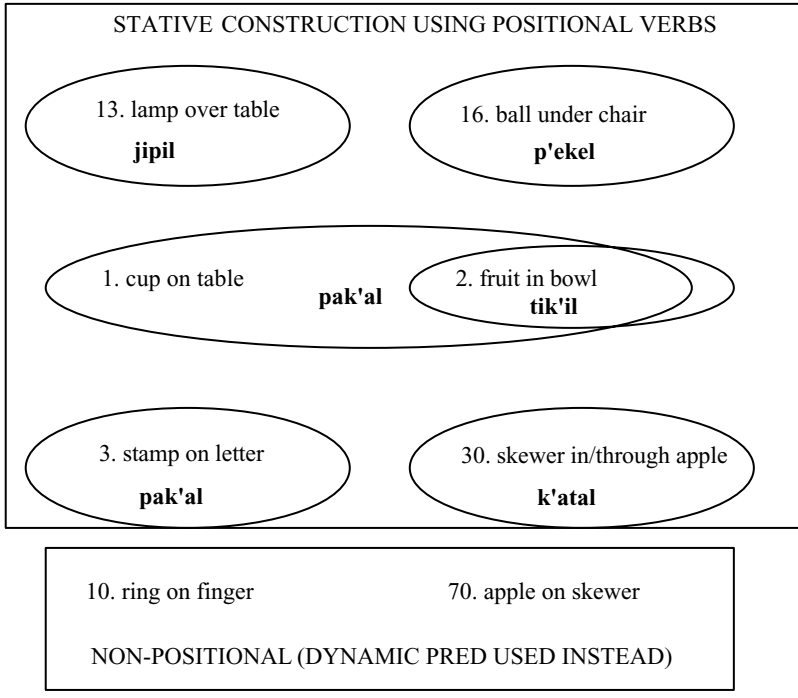


Figure A6 Tzeltal

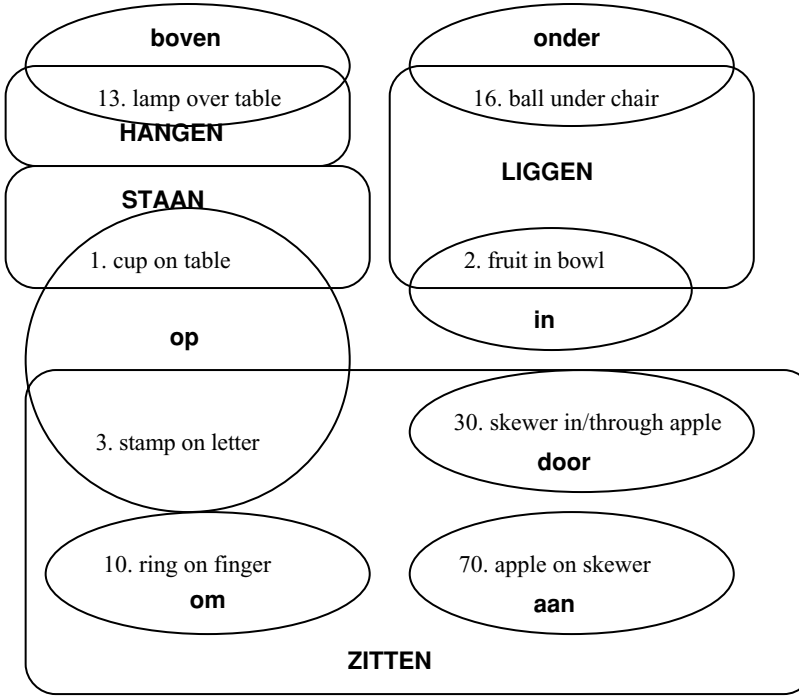


Figure A7 Dutch

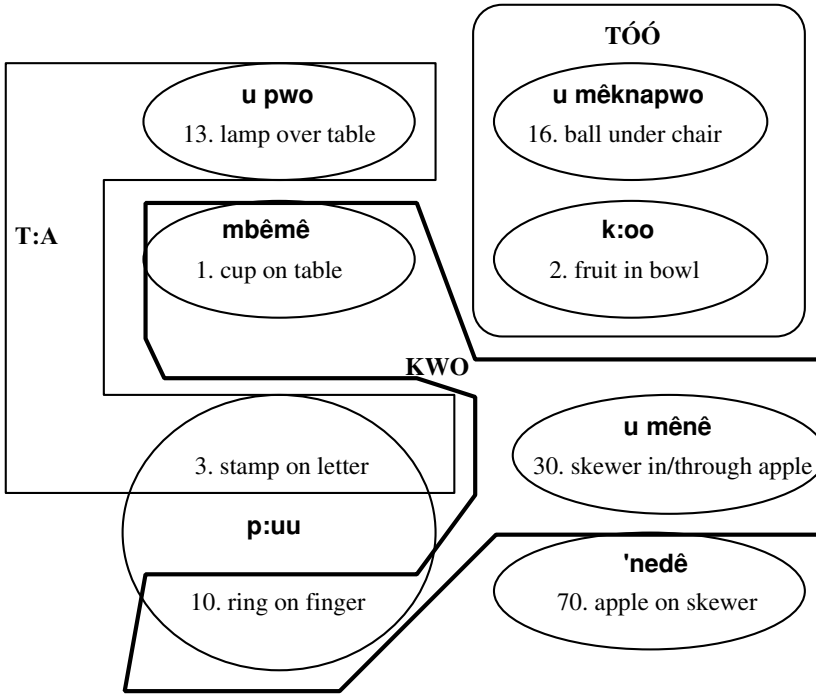


Figure A8 Yélî Dnye

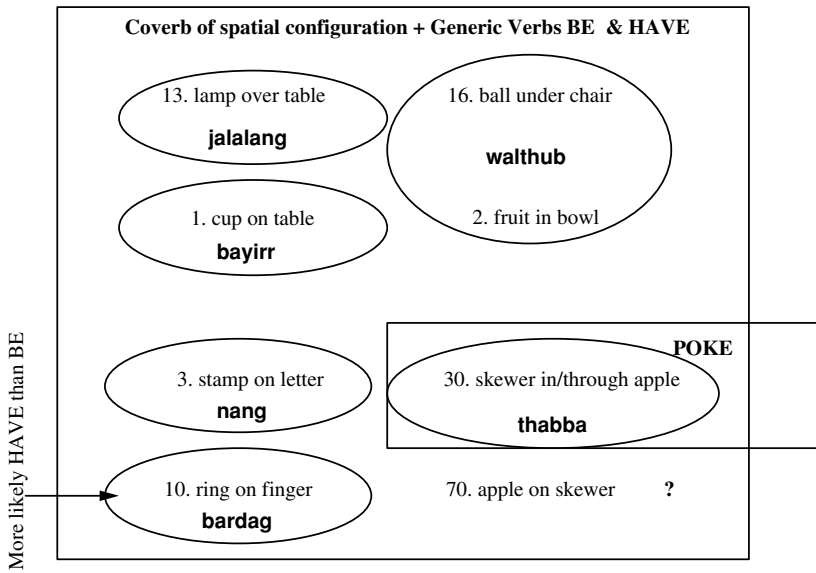


Figure A9 Jaminjung

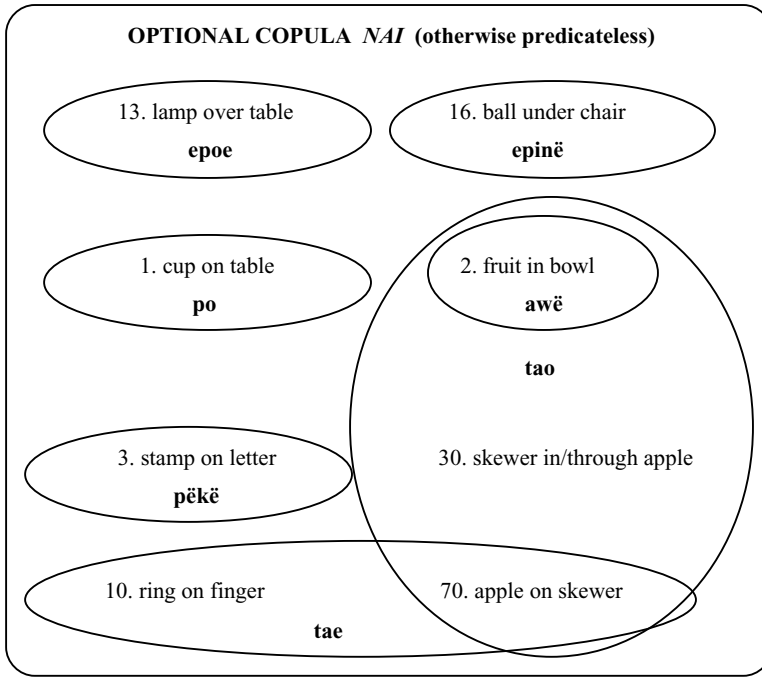


Figure A10 Tiriyó

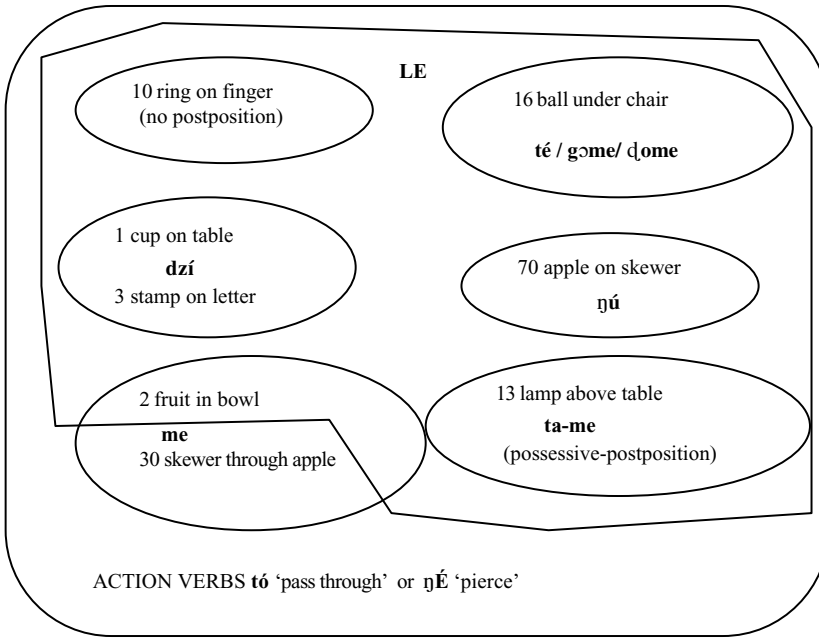


Figure A11 Ewe

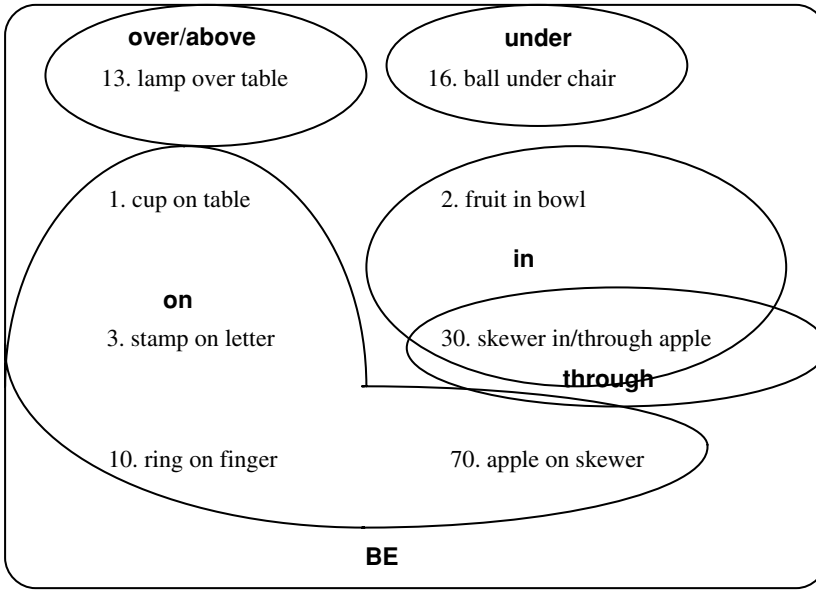


Figure A12 English

Appendix 2: Motion across the languages

Schematic comparison of the boy's journey off the cliff from the Frog Story [B = Boy; D = Deer] (see Figure 1.4)

	Jaminjung	Warrwa	Arrernte	Tzeltal	Yukatek	Tamil	Kilivila	Yélî Dnye	Dutch	English
1. take boy (away) {e.g. deer gets him and starts to go; the deer takes off with him}	coverb: carry.on. shoulder verb: take	IV arrive IV carry [i.e. deer arrives at boy and says I will carry you]	get + AssocMot [DO then GO]			raise-ConV-Simul-ConV Hold-ConV-Simul Run-ConV-Emph-go	run.with climbdown take.away [serial]	prox Deix on TAMP, verb 'take' [infer deer 'comes' to take boy]	become on head taken	D takes off with B
2. boy be on deer	[coverb: carry.on. shoulder]		lying+ AssocMot	mounted on; wedged between [prep forked branch]	exist LOC bone [be in/on D's antler]	join-ConV-Simul-ConV [i.e. both B and D joined together]	sit Loc neck	sitting	[runs with B] on the head	B strewed across antlers
3. go (towards the cliff) {e.g. the deer carries the boy; the boy rides the deer; the boy sits while going}		preverbs: finish + leave verb: 'say'+APP (say=DO); preverb finish verb 'send' adv.:away	hurry.off carry cliff-ALL-wards		begin go run [began to go running]	go	run.with	creek side preverbal AssocMot GO and V [V= throw] [i.e. go and throw into creek]	runs off from there	
4. move past viewer {e.g. he lies while moving past}			AssocMot do moving past [on verb 'lie']							

(*cont.*)

Appendix 2 (cont.)

	Jaminjung	Warrwa	Arrernte	Tzeltal	Yukatek	Tamil	Kilivila	Yélî Dnye	Dutch	English
5. approach cliff {e.g. they're approaching a cliff}										approaching a cliff
6. go be at cliff {e.g. the deer ran to a cliff; the 'demon' arrived at the cliff}						go-ConV riverbank above ['to' not marked]	climbdown take.away Loc street; go.to			
7. deer stop (at cliff) {e.g. the deer just stopped; the deer put the brakes on}	cliff-LOC coverb: halt				stick \ ACAUS LOC stone [D stopped abruptly at a cliff – lit. got stuck]					deer – stops abruptly
8. boy move from deer {e.g. deer leaves boy behind; boy comes off the deer; the deer bucks the boy off; deer throws boy}	coverb: throw verb: say/do	preverb 'throw'; verb: 'say'	push off B	throw_ underhand-PASS-CAUS	D move-CAUS-CMP, (and) B fall [D shook self and B fell]	down push-ConV – leave	run.with come.out; – fall	creek side 'throw';	throws	[stops abruptly] causes the boy to lose his balance and fall

Appendix 2 (*cont.*)

	Jaminjung	Warrwa	Arrernte	Tzeltal	Yukatek	Tamil	Kilivila	Yélî Dnye	Dutch	English
9. boy/dog move downwards {e.g. the boy falls; the deer drops the boy; thrown downwards}	fall		fall down+wards	fall_down + descend	fall	down push-ConV- leave	fall; dive		tumbles	fall down
10. boy moves toward the ground {e.g. deer brings him down to ground; he's been thrown spread-eagled face up to the ground}				[thrown] lying_face_up_arms_ outstretched; prep ground						
11. boy/dog move from cliff {e.g. the deer has thrown the boy over the cliff; the boy and dog fall off the ledge}									from a small cliff	
12. boy/dog move waterwards {e.g. the two of them fell down towards the water; they're heading for a pond}						down water be available [static but infer motion]	go LOC sea			

(*cont.*)

Appendix 2 (cont.)

	Jaminjung	Warrwa	Arrernte	Tzeltal	Yukatek	Tamil	Kilivila	Yélî Dnye	Dutch	English
13. boy/dog move past cliff {e.g. So the child fell past the (body of) the cliff towards the water}		[boy] 'hang' [caught in mid-fall]								
14. boy/dog move to be.in water {e.g. they both fall into some water; the boy and dog land in the water; He was thrown into the middle of the water}	coverb: enter.water verb: fall water-ALL	[finish middle] throw + say water+LOC	fall water-DAT		fell in-REL one waterhole		go inside sea	goal interpretation of 'creek' taken from verb throw + context	[throw] [tumble] water in	[fall down] into the stream

Notes on similarities and differences across languages in the coding of the story

- Jaminjung and Warrwa: Quite specific coverbs/preverbs indicating motion, manner, caused motion, etc.; general verbs; SAY/DO used with coverb/preverb 'throw' – [note specificity of non-verb (coverb/preverb) forms like 'carry on shoulder']
- Jaminjung, Warrwa, Arrernte: All have examples of case marking of ground; note that to indicate ending up in the water all use a different case: Jaminjung uses Allative (with coverb enter.water making interpretation more specific than 'towards'); Warrwa uses Loc; and Arrernte uses Dative (of end-point location – which contrasts with Allative)
- Tzeltal clearly manifests obsession with postural/positional relations – even when describing a motion journey
- Yukatek and Tzeltal clearly contrast in that Yukatek uses a more straightforward motion description
- Yukatek and Tzeltal: note use of (general) prepositions in marking of ground
- Tamil and Kilivila similar in their stacking of verb (verb serialization)
- Yélî Dnye allows goal grounds to be unmarked, and inferred from verb [Tamil seems to do this too]
- Yélî Dnye and Arrernte have associated motion morphemes found in their tellings
- Note similarities between Dutch and English: satellites '*fall down into the water*'; '*gooit het jongetje . . . het water in*': also prepositional phrases
- Dutch is only language with source and goal in same simple clause: '*gooit het jongetje van een klein afgrondje het water in*'.

Appendix 3: Frames of reference in the sample: summary of information on full, partial and trace frames of reference

Language	Frame of reference	Type/Distinctions	Context of use	Other comments
Jaminjung	Absolute	Water-flow-based: upstream, downstream, up, down, across	Predominantly for larger-scale geographic space, really only used in tabletop space for direction orientation of a featured figure, or motion	Local terrain overrides the 'global' direction of drainage; [ad hoc landmarks may also be used]
	Intrinsic	Coverb sets [in front, behind, faceup; etc]; body parts may be used in an ad hoc manner	Predominant in small-scale space; especially used for location of objects relative to one another	Ablative used to indicate projecting region
	Relative	'in front of' and 'behind'	Marginal uses: used with unfeatured grounds, or large grounds which block visibility	[Left and right only used as body-part terms: no spatial uses]
Warrwa	Absolute	Cardinal directions: north, south, east, west	Can be used in reference to location and motion in all scales; but NOT used to distinguish body parts In corpus, overwhelmingly used to specify direction of motion [90%]	Not really of high frequency in any context. In most contexts where other languages use a frame of reference, tendency to rely on deixis and/or the topological resources
	Intrinsic	Unsystematic [perhaps merges with topology?]	Minor use	[Left and right only used as body-part terms: no spatial uses]
Arrernte	Absolute	Cardinal directions: north, south, east, west	Can be used at all scales, including body space (your north arm); in everyday use much more common in motion descriptions than in static location	Unlike some other Australian languages, 'up' and 'down' not part of absolute set; use of system diminishes with visual access and smaller scale
	Intrinsic	Uses system of spatial-part-cum-relational forms used for topological relations; some ad hoc body-part use	Used in smaller-scale space where objects are visually available to both interlocutors; most common when objects are very close to one another	Use of deictic expressions often supplants both intrinsic and absolute frame of reference, when interlocutors share a lot of contextual information

(*cont.*)

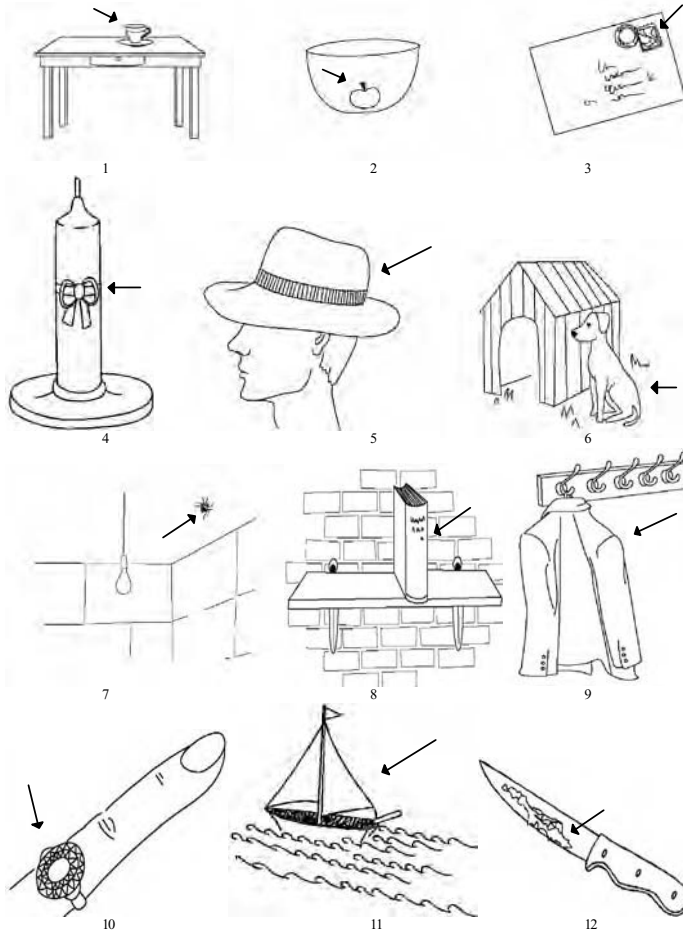
Appendix 3 (cont.)

Language	Frame of reference	Type/Distinctions	Context of use	Other comments
	Relative	Front/back	Used in small to intermediate scale space, especially when there is occlusion of one object by another	[Left and right only used as body-part terms: no spatial uses] Relatively infrequent in corpus
Tzeltal	Absolute	Uphill/downhill/across	All scales and contexts [although when figure and ground immediately adjacent, use intrinsic]	Interpretation can be global, local or deictic [usually discernible from context and activity type]
	Intrinsic	Body-part locatives [e.g. at its head]; and relational noun locs [e.g. at its inside]	For situations where figure and ground are immediately adjacent	Tzeltal speakers tend to avoid deictic descriptions alone as the means for locating a figure – same resources used for topology used for Intrinsic FoR
	Relative	Unsystematic	Highly marginal [and really only with 'front'/'back', if at all]	[No left/right spatial distinction]
Yukatek Maya	Intrinsic	Front, back, sides	Used in all contexts, but gender-based differences in use [see comments]	All speakers use this freely [for some females this is their only FoR]
	Pseudo-Absolute	Highly local ad hoc landmarks [e.g. door]	Object orientation, direction	Not restricted to any particular group of consultants [but less systematic]
	Absolute	Cardinal directions: north, south, east, west	Predominantly for geographical scale localization, may be used in tabletop space for motion and gaze direction, and more rarely for location	Used predominantly by adult males
	Relative	Back/front/right/left	Common in tabletop space for localization (standing) information	Most men have a command of this FoR, but only some women have it
Tamil	Intrinsic	Part terms		All speakers use;
	Absolute	Cardinal: north/south/east/west		In rural South India, speakers commonly use absolute FoR

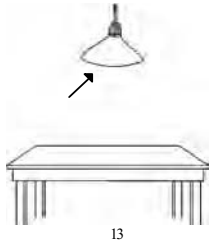
Appendix 3 (*cont.*)

Language	Frame of reference	Type/Distinctions	Context of use	Other comments
	Relative	Front/back/left/right	Used more generally for relation on front-back axis than transverse (L-R)	Urban-dwelling Tamils, and some rural Tamils, typical use relative FoR
Yélî Dnye	Intrinsic	'facing', 'left', 'right', 'front', 'back' etc [no elaborate system of body parts]	Commonly used for standing information	[For spatial description of a static array common to use at least one intrinsic proposition and one absolute proposition]
	Absolute	'up/east'; 'down/west'; orthogonal axis 'hill-wards', 'seawards' etc.	Commonly used for directional (facing) information;	Immensely detailed system of toponyms also used for direction (and localization)
	Relative	front, back, left, right	Marginal [and only some speakers]	
Kilivila	Intrinsic	Left/right/front/back [other???]	Location of objects with respect to one another in a spatial configuration	
	Absolute	Ad hoc landmarks: e.g. 'bush', 'beach', 'sea', 'village', 'topside', etc	(Facing) orientation of an object; directionality; motion routes	
	Relative	Left/right/front/back	Minor use	Intrinsic vs. relative use of left/right/front/back signalled by possessive marking
Japanese	Relative	Left/right/front/back	Used in tabletop space, city-scape descriptions, route directions	
	Intrinsic	Front/back	city-scape descriptions, route directions, with respect to landmarks and buildings	
	Absolute	Cardinal: north/south/east/west	Used in the geographic scale (cities, mountains, countries); description of real estate (living room faces south)	

Appendix 4: 'Topological Relations Picture Series'



Figures 1–12 'Topological Relations Picture Series'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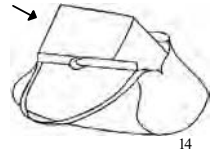
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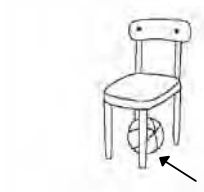
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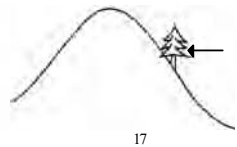
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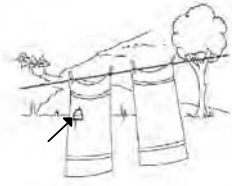
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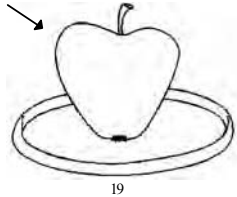
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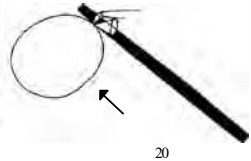
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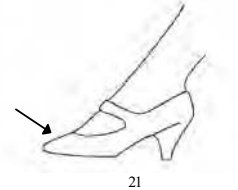
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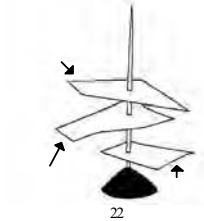
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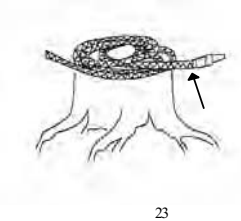
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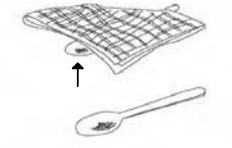
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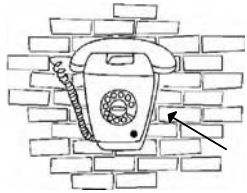
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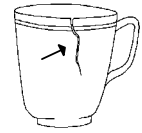
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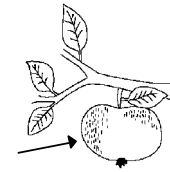
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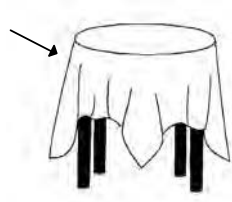
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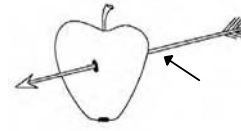
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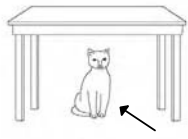
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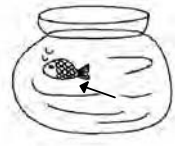
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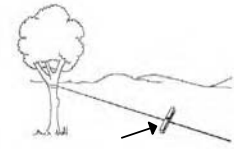
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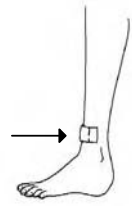
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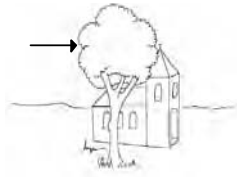
Figures 25–36

Figures 37–48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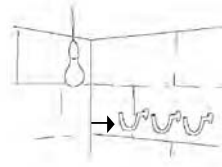
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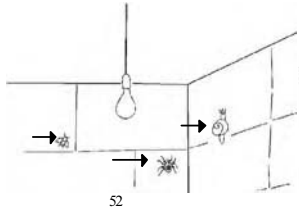
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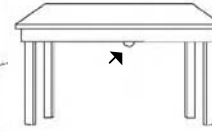
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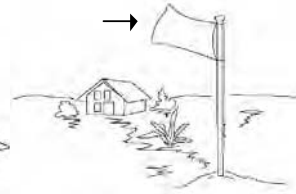
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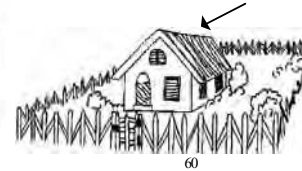
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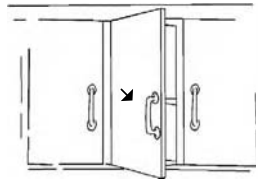
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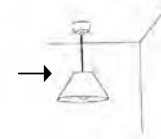
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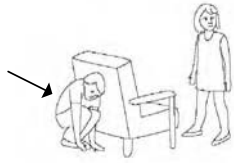
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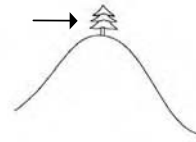
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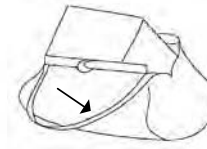
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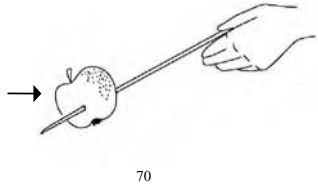
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