Chapter 8

Spatial reference in Yukatek Maya: A survey

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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 only marginally used in YM locative predications. 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 co-exist 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 adjuncts 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 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 punctual change of location, not as durative locomotion 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’aan ‘Maya speech’, or simply Maya. YM forms the Yukatekan branch of the Mayan language family together with its sister languages Itzá, Lakandón and Mopán (cf. 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 morpho-phonological differences (cf. 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). 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 1999 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% in 1983, there are actually hardly any monolinguals at all in urban areas (cf. Kummer 1982, Pfeiler 1985, 1988), whereas in the villages where the research reported here was carried out, most children grow up monolingually before they enter school, and most women as well as all people above age 60 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 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 age 50 or younger, and tends to be fairly limited. There is no regular literacy in Maya, although national institutions have made efforts since the 1980’s 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. 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. Due 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 15th and the middle of the 17th century (McQuown 1967: 202), received several pedagogical grammars (Beltrán de Santa Rosa 1746, Coronel 1620, San Buenaventura 1684) and the quite extensive *Diccionario de Motul* written by an anonymous author as early as the last quarter of the 16th 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 Barrera-Vásquez (1946) and Tozzer (1921). There are two extensive structuralist treatments of YM, Andrade (1955) and Blair (1964). A concise sketch of YM morphosyntax is found in Bricker (1986: ch. 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), Bricker (1981) and Owen (1968), but going beyond the scope of these studies, and using original field data for illustration.

Barrera-Vásquez (1980) compiles a dozen older lexicographic sources,
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. \(\text{Section 8.3.2}\) 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. \(\text{Section 8.3.2}\) lays out the formal properties of these predicate classes. The treatment of clause-level dependents in section 8.3.3 focuses on spatial adverbials such as the ground-denoting adjuncts 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).

(1) Uts-ech?
   good-B.2.SG
   ‘Are you alright?’, ‘Do you feel well?’

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 (cf. Bohnemeyer 1998: 153–163, 228–287).

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 (cf. (6), (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 Bohnemeyer (1998: 287–312) and Lucy (1994). 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:
(le x-ch’úupal)-o’
[DEF F-female:child[NPA]core-D2]S
‘She was writing it (the letter) (the girl)’, i.e. ‘The girl was writing the letter’
(tempest antram II 1/2 a2 20–21)

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 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-CRB(-NUMBER[CR_A])

(4) Ts’o’kAM [aPERSON[CRA] ka’CADV ah -STEM -ikSTATUS-encrb -e’xNUMBER[CRA]]
TERM A.2 REP wake.up-CAUS-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\textsubscript{A}] (CADV) STEM-STATUS(-NUMBER[CR\textsubscript{A}])

b. (CADV) STEM-STATUS-CR\textsubscript{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. 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\textsubscript{AM} \{a\textsubscript{PERSON}\textsubscript{[CRA]} ka’\textsubscript{CADV} ah\textsubscript{STEM} -a\textsubscript{STATUS} -e’\textsubscript{XNUMBER}[\textsubscript{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). Compleitive status is zero-marked with this particular class of
intransitive verbs; the allomorphic variation of the status suffixes will be at
issue in a moment. Compleitive status is triggered in (7) by the perfective
AM marker, whose allomorph is $h$ with intransitive verbs.\footnote{Table 8.1}

\begin{center}
\begin{tabular}{llll}
(7) & $H_{AM}$ & [$\text{ka}^{'CADV}$ & $\text{ah}_{STEM}$ & -$\phi$\text{STATUS}$ & -$e$\text{\textsuperscript{\textprime}\textprime}\text{\textacute{CRB}}$]
\end{tabular}
\end{center}

\begin{tabular}{llll}
PRV & REP & wake.up & -CMP & -B.2.PL
\end{tabular}

\begin{center}
\text{‘You all woke up again’}
\end{center}

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.

\textbf{Insert Table 8.1 about here}

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 (1998: Ch. 5), it is argued that the five verb classes are motivated primarily with respect to argument structure. Thus, intransitives of the active class typically lexicalize 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). As is shown in §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’.

**Insert Table 8.2 about here**

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 (cf. 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. As is apparent from Table 8.1 above, positionals share the suffix -tal with inchoative verbs 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 -Vkal. The examples in (8) and (9) are constructed:

(8)  a. Kul-a’n-ech?  b. Ch’uy-a’n te che’-o’
sit-RES-B.2.SG hang-RES(B.3.SG) LOC:DEF tree-D2
‘Are you at home (lit. seated)?’ ‘It is hung from a tree’

(9)  a. Kul-ukbal-ech?  b. Ch’uy-ukbal te che’-o’
sit-POS.RES-B.2.SG hang-POS.RES(B.3.SG) LOC:DEF tree-D2
‘Are you sitting?’ ‘It is hanging from a tree’

Whereas the resultative in -a’n is formed of positional, inchoative, and inactive stems, and of transitive stems after passivization, the positional resultative in -Vkal is exclusively formed from positional roots.

Around 100 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). 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’, káül ‘settle’). Although
the 100 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 1994: 752) and Tzotzil (273 in
Haviland’s 1994 sample). The subset of positionals one encounters in
spontaneous discourse with saliently high frequency contains at least 40
items in Tzeltal (Brown pc). In contrast, the five YM consultants who
produced descriptions of the Topological Relations Picture Series (to be
discussed in the next section) 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 24 root types among three YM consultants, as opposed to stative forms of 33 root types used by three Tzeltal consultants (Brown pc).

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 only take animate figures, e.g. ch'il ‘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. bút’ ‘fill, stuff’, híday ‘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 3-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 Tzotzil, positional verb forms are 
exploited for the latter purpose. As is shown in §4 below, this is not the case 
in YM.
8.3.3. Clause-level dependents

Within the grammar of spatial orientation, clause-level dependents 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). And secondly, ground-denoting expressions in YM are completely insensitive to path distinctions (cf. Jackendoff 1983: Ch. 9, 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 transit location 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’xyàän-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?’ (BVS 1.1.10)

   c. *Tu’x a t`aal-e’x?*
   where A.2 come-2.PL
   ‘Where are you coming from?’ (BVS 2.1.9)

Exclusion from argumenthood and path-neutrality apply to ground-denoting expressions in YM independently of their internal construction. Ground-denoting expressions may be constituted by the interrogative pro-form *tu’x* 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. (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).\(^\text{15}\)

(12) \(\text{Hw`eebes-e’ yan k bin-o’n, estée,}\)
\(\text{Thursday-TOP OBL A.1.PL go-1.PL HESIT}\)
\(\text{w`aats’ t-in chan k`ool y`aan te’l nohol-a’}\)
\(\text{bend}\text{-ATP LOC-A.1.SG DIM clear}\text{-ATP EXIST(B.3.SG) there south-D1}\)
‘Thursday we got to go bending (i.e. corn cobs) on my milpa (lit. clearing) there in the
south’ (Entrevis RMC and SBM 162–163)

There are a number of further ‘generic’ grounds, including those expressed
by \(\text{ka’n ‘sky’}, \text{k`áax ‘jungle’}, \text{and lu’m ‘earth’}, which occur in both
constructions. Example (13) shows lu’m ‘earth’ used as a bare adverbial
noun.

(13) \(\text{( . . . ) u che’-il, mehen che’-il-o’b bèey-a’},\)
\(\text{A.3 wood-REL small wood-REL-PL thus-D1}\)
\(\text{k-u Ĺàub-ul lu’m}\)
\(\text{IMPF-A.3 fall-INC earth}\)
‘(. . . ) the trees, like the small trees, they fall to the ground (in a hurricane)’ (Rox ant 44)

All regular common nouns referring to spatial ground objects are preceded
by a determiner and governed by a preposition or by an \textit{inalienable} (or
\textit{relational}) noun. Nouns in YM are divided into several subclasses
according to their behaviour under possession. Thus, ‘inalienable’ noun
stems either do not occur unpossessed at all (e.g. *ich* ‘face’, *otoch* ‘home’),
or they require the ‘absolutivizing’ suffix *-tsil* when unpossessed (the latter
class includes most kinship terms). 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:

**Insert Table 8.3 about here**

As is apparent from Table 8.3, these relational nouns are subdivided
into two sets according to the construction they require when constituting
an adverbial. *Àanad* ‘underside’, *iknaa* ‘proximity’ and *öök’ol* ‘top’ may
head an adverbial without further modification (although they occasionally
occur reinforced by the preposition *ti’*). Example (14) illustrates this for
*öök’ol* ‘top’.

(14)  *Le liuch-o’* ti’=*yàaan* y-öök’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’*
when constituting adverbials. (15) illustrates this construction for *pàach*
‘back, outside’.

(15)  *Te’l kul-ukbal u pèek’-il t-u pàach le nah-o’*
      there sit-POS.RES(B.3.SG) A.3 dog-REL LOC-A.3 back DEF house-D2
Occasionally, alternative constructions occur. (16) shows the unpossessed adverbial variant aktáan of táan ‘front’; in this case, the ground object whose spatial region is to be specified constitutes itself an adverbial 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’
?+front LOC one-CL.IN house-TOP
yàan hun-p’éel màata-il che’ wa’l-akbal-i’
EXIST(B.3.SG) 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 picture 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. It’s 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 láub-ul-o’b ichle ha’-o’
    straight PRV happen(B.3.SG) A.3 fall-INC-3.PL in DEF water-D2
    ‘Straight they fell into the water’ (Frog.4 43)

(18) Le chan pèek’-o’ k-uy il-ik ti’ hun-p’éel chan pòomo,
    DEFDIM dog-D2 IMPF-A.3 see-INC(B.3.SG) LOC one-CL.IN DIM jar
    estèe, yàan hun-tául 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.12)

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 adverbials denoting spatial regions
of a ground object have been described exhaustively in Goldap (1992) and

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’iin k-uy üuch-ul lel-o’?
    what sun IMPF-A.3 happen-INC DEM-D2
    ‘What day does that usually happen?’ (Milpa ram 48)

(20) shows the demonstrative adverb te’l ... -a’ ‘here/there’, and (21)
illustrates the presentative he’l ... -o’ ‘there’s’:

(20) U høol+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’ (Nah 107)

(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
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 \textit{way...-\textit{e}} ‘here’), i.e. any place that includes the speaker’s
location, with an ‘exclusive’ ‘elsewhere’, expressed by \textit{tol...-\textit{o}} ‘there,
yonder’, and (ii) a ‘socio-centric’ opposition that contrasts the speaker’s
location (‘immediate’, expressed by the adverb \textit{te\textendash{l}}...-\textit{a}) with the
adnominal demonstrative \textit{lela’/le...-\textit{a}) with the addressee’s location
(‘non-immediate’, expressed by the adverb \textit{te\textendash{l}}...-\textit{o} and the
adnominal demonstrative \textit{lelo’/le...-\textit{o}}). This system may be schematically
represented as in Table 8.4:

\begin{center}
\textbf{Insert Table 8.4 about here}
\end{center}

The semantics of the presentative forms follow a different rationale.
The form \textit{he\textendash{l}}...-\textit{a} ‘here’s, \textit{voil\textendash{a}} is used when the denotatum is
touchable by both speaker and addressee. \textit{He\textendash{l}}...-\textit{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.

The clause-final clitic particles cannot be stacked. Instead, maximally
one such particle per clause is selected according to a hierarchy \textit{-a’ > -o’}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|}
\hline
\textbf{Table 8.4} & \\
\hline
\end{tabular}
\end{table}
> -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’óora ‘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’ée1 nah yàan hun-p’ée1 mèesa, LOC-A.3 plant-REL one-CL.IN house exist(B.3.SG) one-CL.IN table ti’ yàan hun-p’ée1 bìul’to-i’ 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 picture 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 adjuncts 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 adjunct be understood to refer to the location of the figure at a particular 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 liuuch-o’, ti’=yàn y-óok’ol le mëesa-o’*  
DEF cup-D2 LOC=EXIST(B.3.SG) A.3-on DEF table-D2  
‘The cup, it’s there on the table’ (TRPS Picture 1 JYU)

(24) *(.) kruz’aar-nah-a’n le flèvecha ti’ hun-p’éeel màansana*  
cross-CMP-RES(B.3.SG) DEF arrow LOC one-CL.IN apple  
‘(.) the arrow is crossed in/at/with an apple’ (TRPS Picture 30 JCM)

(25) *Le máak-o’ chen u ts’a’-mah u aniyo*  
DEF man-D2 only A.3 give/put-PERF(B.3.SG) A.3 ring  
t-uy a’I u k’ab bée-y-a’  
LOC-A.3 offspring A.3 arm/hand thus-D1  
‘The man, he’s just put the ring on his finger’ (TRPS Picture 10 JCM)

(26) *Te’l kul-ukbal u pëek’-il t-u pàach le nah-o’*  
there sit-POS.RES(B.3.SG) A.3 dog-REL LOC-A.3 back DEF house-D2  
‘There the dog is sitting outside the house’ (TRPS Picture 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 that responded to the  
Topological-Relations-Pictures-Series 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. (27) shows a
description of picture 2, instantiating the same type of scene (and picture
16 is another case in point):

(27) Le màansana-‘ ti’=yàan ichil <le> chan liuch-a’
DEF apple-D1 LOC=EXIST(B.3.SG) in DEF DIM cup-D1
‘The apple, there it is in the little cup’ (TRPS Picture 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 sëeyo-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 Picture 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 that 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.

(24) and (25) above show configurations that are construed as the result of
caused-motion events (pictures 10 and 30, respectively). 15 out of the 71
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 responses to the Topological-Relations-Pictures
Series, 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
Topological-Relations-Picture Series 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
Topological-Relations Pictures is always expressed by an adverbial formed with a semantically nearly empty preposition, optionally reinforced by a relational noun specifying a spatial region. Based on the Tzeltal data alone, one might be 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, 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 only use them 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.
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 Topological-Relations 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)  
\[ \text{Te } \text{hóol-o', } \text{yàan } \text{hun-p'él } \text{gàancho-i',} \]  
\[ \text{LOC:DEF aperture-D2 EXIST(B.3.SG) one-CL.IN hook-D4} \]  
\[ \text{tu'x } k-u \text{ ma'ch-al } \text{le } \text{hóol-o'} \]  
\[ \text{where IMPF-A.3 seize \PASS-INC DEF aperture-D2} \]  
\[ \text{‘The door, there is / it has / a hook, where the door is gripped [handle]’} \]  
\[ \text{(TRPS Picture 61 FYK)} \]

(30)  
\[ \text{U } \text{táab-al } \text{le } \text{chan } \text{ba'l-a',} \]  
\[ \text{A.3 band-REL DEF DIM thing-D1} \]  
\[ \text{ti'=yàan, } \text{de=k'ùan} \]  
\[ \text{LOC=EXIST(B.3.SG) of=yellow(B.3.SG).} \]  
\[ \text{‘That little thing [handbag]’s strap, there it is, it’s yellow’} \]  
\[ \text{(TRPS Picture 66 JYU)} \]

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

(31) is a rendition of the cliff scene of Frog Where Are You in YM (by a
30-year-old female bilingual speaker exposed to a considerable amount of
Spanish):

(31) a. Ḵa h ho’ p’ u bin uy áalkab le kêeh-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’ ḵaa h ho’ p’
   DEF dog-D2 CON PRV begin(B.3.SG)
   uy áalkab-ens-ik le kêeh-o’
   A.3 run-CAUS-INC(B.3.SG) DEF deer-D2
   ‘The dog, it started chasing the deer’

d. Ḵaa h chi’îk le kêeh ti’ hun-p’él tûnich-o’
   CON PRV stick\ACAUS(B.3.SG) DEF deer LOC one-CL.IN stone-D2
   ‘The deer stopped abruptly (lit. got stuck) at (the edge of) a cliff’

e. Ḵaa 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 páal-o’
   CON PRV fall(B.3.SG) DEF child-D2
   ‘(and) the child fell off’

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’

k. 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 Talmey (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 (k). Active motion verbs do not themselves express change of location, and when they are combined with a ground-denoting adverbial, this adverbial 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 (k), 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.

Secondly, from the fact that the same prepositions (such as ich(-il) in (30k)
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 adjuncts in YM: there is no morphological reflex of
path in YM. Thirdly, based on Talmay’s (1972, 1985, 1991) lexicalization
typology, one might expect ‘motion-cum-path’ to be lexicalized in the
etc., or in transitive verbs expressing caused location change of various
kinds, in analogy to the ‘path-conflating’ motion verbs of Romance
languages. However, on closer inspection, this analysis can only be
maintained for one component of Jackendoff’s and Talmay’s notion of ‘path’, not for the entire notion. It has been shown in Bohnemeyer (1997) that inactive and transitive motion verbs have non-durative event structures. This implies that what these verbs lexicalize is merely punctual location change, not durative locomotion along an extended trajectory from source to goal. Translational motion in this latter sense is expressed neither by a morpheme nor by a construction in YM, but left to pragmatic inference. And this analysis is corroborated by the finding that YM clauses never refer to more than one ground of a motion or location event. 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)–(k). 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, submitted).

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:
Insert Table 8.5 about here

Since only inactive intransitives, but not active ones, yield source or goal interpretations of the ground-denoting phrases they are combined with, the members of the motion verb subset of the inactive verb class are straightforwardly identifiable. (33a) shows a combination of a ground-denoting adjunct with an active motion verb (xīknał ‘flutter’, ‘fly’) – the interpretation yielded is not change of location with respect to the ground object, but location of the entire motion event. (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 adverbiaлизed 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 (cf. Bohnemeyer 1998: 173–174). 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’ïich’-o’ t’úun xīknał y-ōok’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’ich’-o’ xāknal-il*
   DEF bird-D2 fly-REL
   *h uuch 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’ich’-o’ xāknal-il h uuch uy em-el*
   DEF bird-D2 fly-REL PRV happen(B.3.SG) A.3 descend-INC
   *te che’-o’*
   LOC:DEF tree-D2
   ‘The bird flew down from the tree [lit. in a flying manner it descended from the tree]’

d. *Le ch’ich’-o’ h em u xāknal te che’-o’*
   DEF bird-D2 PRV descend(B.3.SG) A.3 fly LOC:DEF tree-D2
   ‘The bird flew down from the tree [lit. it descended flying from the tree]’

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’, the causativized counterparts of the inactive motion verbs (e.g. *bis* ‘go:CAUS’ i.e. ‘take’, *tāas* ‘come:CAUS’ i.e. ‘bring’, *òok-s* ‘enter-CAUS’ i.e. ‘insert’, *li’s* ‘rise:CAUS’ i.e. ‘lift’), and several transitive roots lexicalizing in particular caused motion events which imply certain non-spatial properties of the ground object and/or the figure-ground configuration (such as insertion and extraction events) and caused motion
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 direction 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 adjuncts

As said above, ground objects of motion events are expressed by adverbials
in YM.30 The morphosyntactic properties of ground-denoting adjuncts
have been discussed in section 8.3. One of the most surprising aspects of
these ground-denoting adjuncts is that their form does not reflect the ‘path’
of the motion event. Consider the examples in (34). Both ḏok ‘enter’ (34b)
and hōok ‘exit’ (34c) are equally possible with both ich ‘in’ and the
general preposition *ti*. The same holds for the existential predicate *yàan*
employed in (34a) to express stative location. The ground-denoting
adverbial is sensitive neither to the source-goal distinction nor even to the

(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 hòok’ 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: Ch. 9) are also used in reference to ‘directional paths’,
i.e. locations towards which or away from which the figure is moving (cf. 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 that town, as he was stalled in the village of Señor on his way to Carrillo.

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 adjunct the interpretation of source, goal, or stative location (as in the examples (34) above), it may be hypothesized along the lines of Talmy’s (1972, 1985, 1985, 1996, 1999, 2000, 2001)
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 ‘transit’) readings to the ground-denoting adjunct, 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’. 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 transit, as in Table 8.6.

Insert Table 8.6 about here

The referential ground is always referred to by an adjunct, with the exception of tàal ‘come’ and u’l ‘return’, which both colexicalize the deictic centre as their goal, and of bin ‘go’ which colexicalizes 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 only given as a directional specification, without 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 29 k and 30 above) and sources, as apparently in (31g) above and in (36):

(36) Tíin  lúub-ul  t-in  k‘aan!
    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 durative locomotion along an extended spatial trajectory, but only punctual location change. The verbs listed in Table 8.6 do not lexicalize motion along a trajectory oriented towards a source or goal location (which is...
the start or end point of the trajectory, or towards or away from which the
trajectory is directed), but a punctual 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.\footnote{In
Bohnemeyer (1997, submitted), in support of this analysis evidence is
provided from the event structure of inactive motion verbs. 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, and the evidence reviewed to date suggests that this
analysis extends to all motion verbs that entail location change, including
the transitive ones mentioned in section 8.5.1.}

As far as the question of the expression of ‘path’ in the sense of
Jackendoff (1983) and Talmy (1972, 1985, 1991) is concerned, it is
suggested in Bohnemeyer (submitted) that this notion should be
decomposed into two components which can be expressed separately in
English, but are usually conflated, namely the components of ‘location
change’ and ‘oriented locomotion’. On this account, only location change
is lexicalized in YM, whereas oriented locomotion is left to pragmatic
inferences.\footnote{One of the consequences of the punctuality of YM motion verbs is}
that YM motion event clauses never occur with more than one ground object at a time. This was already 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) Hálib-e’, kāa h bin-ih. K-u k’uch-ul-e’, y-iknal rèey well.then-TOP CON PRV go-B.3.SG IMPF-A.3 arrive-INC-TOP A.3-at king
   ... Kāa h ka’ bin-o’b. K-u k’uch-ul-o’b
   CON PRV REP go-B.3.PL IMPF-A.3 arrive-INC-3.PL
tel’ tu’x yāan uy ñits’in-o’b-o’, ...
   there where EXIST(B.3.SG) A.3 younger.sibling-D2
   ‘Well, so he left. He arrived there, at the king’s. . . . And they left again. They arrived where their younger brother was, . . . ’ (Muuch 142–165).

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 in 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.

### Chapter 8

Spatial reference in Yukatek Maya: A survey

### 8.6. Frames of reference

#### 8.6.1. The intrinsic frame of reference

In the intrinsic frame of reference (FoR), the co-ordinate 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. 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 co-ordinate 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 þach 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)  
Ul’áak’ hun-p’éel-o’, ñréenteh, táníl yáan ti’,  
A.3 other one-CL.IN-D2 front front-REL EXIST(B.3.SG) LOC(B.3.SG)  
ak+táníl yáan ti’?  
?+front-R ELEXIST(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’ïik and no’h, intrinsically:

(40)  
Pero t-u ts’ïik-e’ ti’=yáan,  
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)  
\[Kax-t\ t\ 'uun\ u\ \l'ak\ ' hun-t\ 'uul\ le\ m\ 'aak-o'\]  
\[search-APP(B.3.SG)\ then\ A.3\ other\ one-CL.IN\ DEF\ person-D2\]  
\[wa'l-akbal\ y\ '-o\'ok\ 'ol\ hun-p\ 'eel\ ba'l\]  
\[L\ stand-POS.RES(B.3.SG)\ A.3-top\ one-CL.IN\ thing\]  
\[u\ mach-mah\ hun-p\ 'eel\ che'\ ak+t\ 'aan\ te\ k\ 'aax-o'\]  
\[A.3\ grab-PERF(B.3.SG)\ one-CL.IN\ wood\ ?+front\ LOC:DEF\ bush-D2\]  
\[ti'.\ T\ 'uun\ p\ 'aakat-ik\ le\ k\ 'aax-o'\]  
\[OC(B.3.SG)\ PROG:A.3\ look-INC\ DEF\ bush-D2\]  
‘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 co-ordinate 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’iin ‘east’, chik’iin ‘west’, nohol ‘south’ and xaman ‘north’. The expressions for north and south, xaman and nohol, are lexical stems and cannot be analyzed any further. The expressions for east and west, lak’iin and chik’iin, however, are fossilized compounds. They contain an element k’iin ‘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) \( T'\text{ooh nohol h bin-o'b } \)

\[ \text{ straight \ south \ PRV \ go-B.3.PL} \]

‘They went straight south’ (Gig 29)

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 table-top space. This may be taken to indicate that the use of cardinal directions in table-top localization is derived from their use in geographical localization, which would serve as a model.

(43) \( U \ ts'o'k hun-p'\text{\'{e}el t\u{uun}-a', he'l-a'} \)

\[ \text{ A.3 end \ one-CL.IN \ then-D1 \ PRSV-D1} \]

\[ \text{ hun-t\u{uul} p\text{\'{a}al t\u{uun} p\text{\'{a}akat toh xaman,}} \]

\[ \text{ one-CL.AN child \ PROG:A.3 \ look \ straight \ north} \]

\[ \text{ nohol k-u p\text{\'{a}at-al le k'\text{\'{a}ax ti'-o'}}} \]

\[ \text{ south IMPF-A.3 \ leave/ACAUS-INC \ DEF \ bush \ LOC(B.3.SG)-D2} \]
‘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’áax-o’ ti’=yàan te bàantah
DEF bush-D2 LOC=EXIST(B.3.SG) LOC:DEF direction

where IMPF-A.3 exit-INC sun-D3 there east

bèey-a’, pak-bil u mét-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’áax-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 co-ordinate system is independent of the scene and its viewer(s), this usage resembles absolute FoRs.

(46)  
\[ \textit{U mach-mah t}áun u xolte', te'l bàantah t-e móoy} \]  
\[ \text{A.3 grab-PERF(B.3.SG) then A.3 stick there direction LOC-DEF apse} \]  
\[ \text{te'l t-u bàantah le k=sòolar te'l-a', ti' bàantah} \]  
\[ \text{there LOC-A.3 direction DEF A.1.PL=yard there-D1 there direction} \]  
\[ u \ sáut-ul u xolte' } \]  
\[ \text{A.3 turn\'ACAUS-INC A.3 stick} \]  
‘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)  
\[ \textit{Kax-t u láak' ka'-túul mäak} \]  
\[ \text{search-APP(B.3.SG) A.3 other two-CL.AN person} \]  
\[ \text{Hun-túul-e' Jaime k-u pakt-ik,} \]  
\[ \text{one-CL.AN-TOP Jaime IMPF-A.3 look-INC(B.3.SG)} \]  
\[ \text{hun-túul-e' t-e kàaye k-u påkat-o'} \]  
\[ \text{one-CL.AN LOC-DEF street IMPF-A.3 look-D2} \]  
‘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: Ul `aak’ hun-tial máak-e’, tién k-u pakt-ik-en (...), A.3 other one-CL.IN person-TOP me IMPF-A.3 look-INC-B.1.SG t-u làadoh bèey-a’ hun-p’éel matah k’áax yàan-il LOC-A.3 side thus-D1 one-CL.IN plant bush EXIST-REL(B.3.SG) ‘Another man, he is looking at me, (...), at his side is a bush’

- M: T-e k’áax 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 - tién 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 co-ordinate system in which locations can be determined. Some of the relational spatial nouns introduced in section 8.3.2 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, páach ‘back’ and táan
‘front’ are never used deictically, whereas deictic use of tséel ‘side’ occurs
(cf. 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’áax-o’?
   right-RES(B.3.SG) EXIST-EF(B.3.SG) LOC:DEF bush-D2
   Wáah ts’ák-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 ‘his/its right side’ (intrinsic FoR). In (50), the speaker makes his
choice of FoR excessively clear by adding the emphatic free pronoun téeen
‘I’ and the speaker-centric deictic adverb te’la’ ‘here’.

(50) Le chan k’áax 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 téeen 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)  

\begin{verbatim}
Le chan xib+paal-o', asdekwentah
DEF DIM male+child-D2 notice
  t-in baaantah yaan-o', beey
  LOC-A.1.SG direction EXIST(B.3.SG)-D2 thus
  t-in baaantah yaan-il-e', te chan palmah-o'
  LOC-A.1.SG direction EXIST-REL(B.3.SG)-D3 LOC:DEF DIM 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)
\end{verbatim}
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):

Insert Table 8.7 about here

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 (‘toward the road’, ‘toward 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 12 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: 207 f.). 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 expresses 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 (table-top) 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 table-top 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.

Notes

1. We wish to thank the editors and Penelope Brown for very helpful suggestions and comments.

2. According to Edmonson (1986: 2–7), the differentiation of these dialects may date back to prehispanic times.

3. 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.

4. 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

5. 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.

6. 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.


8. 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 semantic argument 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
9. By ‘positional roots’, we mean roots that produce positional stems. Since positional stems are exclusively derived, no positional root can form a positional stem by itself. Diagnostics of positional stems are the completive status inflection in -lah and the positional resultative derivation in -Vkal. All roots that combine with these morphemes are considered positional roots here, notwithstanding that fact that the majority of these roots also appear either in transitive or in inactive (‘pseudo-anticausatives’) stems.

10. All inchoative verbs are derived from stative predicates.

11. Positional roots also bear a particular affinity to distributive reduplication of the type chūl-en-chūl ‘lying here and there’, ch’eeb-un-ch’eeb ‘tilted here and there’ (although other roots occur in this form as well).

12. Bricker, Po’ot Yah and Dzul de Po’ot (1998: xiv) only count 39 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.

13. See Ameka, de Witte and Wilkins (1999) for details concerning this stimulus.

14. Certain motion verbs such as bin ‘go’ and t`aal ‘come’ take ‘indexical’ (i.e. deictic or anaphoric) ground objects which cannot be specified by phrases in the clause that contains the motion verbs; cf. section 5.

15. It appears that deictic reference to a direction, cardinal or otherwise, excludes selection of the distal space-deictic forms in YM.


17. Possessors are cross-referenced on the possessed nominal by the set-A pronominal clitics. In (14), the possessor of óok’ol ‘top’ is le m`eesa the table, cross-referenced by the 3.SG clitic of set A.

18. Hanks (1990: 406–416) 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 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.

19. Hanks (1990: 275–276) discusses one further form he’l...-be’ which
is not attested in our databases (note that Hanks’ 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.

20. Preposed adverbial ti’ also occurs in the locative focus construction,
but is in this case not accompanied by . . . -i’.

21. The ground-denoting adverbials 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.

22. As mentioned in 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 Topological-Relations-Pictures-Series descriptions were recorded and made available to us by Elisabeth Verhoeven.

24. As mentioned in the previous section, YM does have one semantically more specific spatial preposition, namely ich ‘in’ for containment configurations.

25. In fact, the frequency of combinations of the general preposition with a spatial nominal in the Tzeltal TRPS data (Brown p.c.) is greater than the combined frequency of such combinations and the specific preposition ich in the YM data.

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.

27. Unlike in other Mayan languages (cf. Kaufman (1990: 82–83) 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.

28. This holds with one exception: s`uut the antipassive of sut ‘turn’, when used with the reading ‘return’, may take a goal-denoting phrase.

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, it’s thematic role is that of a ‘theme’ or ‘patient’. Thus, if meyah ‘work’ in Kin meyah ich in k`ool ‘I work on my milpa’ is applicativized, the erstwhile ground object in k`ool ‘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 tik in kòol ‘I work my milpa.’

30. There are two exceptions. One is represented by topicalized ground objects and ground objects focussed in cleft sentences. There is evidence suggesting that content questions are clefts in YM (cf. Bohnemeyer 1998: 189–202). If this is the case, then the locative interrogative pro-form tu’x ‘where(to/from)’ can never constitute an adjunct (there are no pro-forms in ‘in-situ’ position). In the following, topicalized ground objects and ground objects isolated by clefting will be neglected; their internal structure – with the possible exception of the interrogative form tu’x just mentioned – does not differ from that of ground-denoting adjuncts. The other exception to the generalization that ground objects are expressed by adjuncts are the ‘indexical’ (i.e. deictic or anaphoric) ground objects of some of the inactive motion verbs, as discussed below.

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 (cf. Aske 1989). These are completely absent in YM.

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 adjuncts. In 25 cases (16%), 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; cf. Bohnemeyer 1998: 171–173 for YM, Aissen 1987 for Tzotzil, and Zavala 1993 for an overview of the Mayan family), and in 51% 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 adjunct is na’k ‘ascend’. 33. In the case of mään ‘pass’, which selects for a ‘transit’ 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 $L_{Transit} \neq L_S$ and $L_{Transit} \neq L_T$, and that the theme is located at $L_{Transit}$ at a time $T_{Transit}$, such that $T_S < T_{Transit} < T_T$. 34. In fact, it is shown in Bohnemeyer (1997; submitted) that dók ‘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).
### Table 8.1 YM status inflection according to verb classes.

<table>
<thead>
<tr>
<th>Status category</th>
<th>Verb class</th>
<th>Incompletive</th>
<th>Completive</th>
<th>Subjunctive</th>
<th>Extra-focal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intransitive</td>
<td>active</td>
<td>-Ø</td>
<td>-nah</td>
<td>-nak</td>
<td>-nah-ik</td>
</tr>
<tr>
<td></td>
<td>inactive</td>
<td>-Vl</td>
<td>-Ø</td>
<td>-Vk</td>
<td>-ik</td>
</tr>
<tr>
<td></td>
<td>inchoactive</td>
<td>-tal</td>
<td>-chah</td>
<td>-chahak</td>
<td>-chah-ik</td>
</tr>
<tr>
<td></td>
<td>positional</td>
<td>-tal</td>
<td>-lah</td>
<td>-(ah)ak</td>
<td>-lah-ik</td>
</tr>
<tr>
<td>Transitive</td>
<td>active voice</td>
<td>-ik</td>
<td>-ah</td>
<td>-Ø / -eh</td>
<td>-ah-il</td>
</tr>
<tr>
<td></td>
<td>passive voice</td>
<td>'/...-Vl</td>
<td>'/...-ah</td>
<td>'/...-Vk</td>
<td>'/...-ik</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'/...-Vl</td>
<td>'/...-ab</td>
<td>'/...-Vk</td>
<td>'/...-ik</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/-a’l</td>
<td>/-a’b</td>
<td>/-a’k</td>
<td>/-a’b-ik</td>
</tr>
</tbody>
</table>

The symbol \'/ denotes an infixed glossal stop.
Table 8.2 Lexical extension of the YM verb classes.

<table>
<thead>
<tr>
<th>Properties</th>
<th>Verb class</th>
<th>Size and productivity</th>
<th>Examples of root members</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>root members</td>
<td>derived stems</td>
<td></td>
</tr>
<tr>
<td>inchoative</td>
<td>–</td>
<td>open</td>
<td></td>
</tr>
</tbody>
</table>
Table 8.3 *YM* relational nouns lexicalizing spatial regions (cf. Lehmann 1998: 84). Key:
CORE – Verbal core, CR – Cross reference marker (Set A), Nrel – relational noun

<table>
<thead>
<tr>
<th>(PREFERRED) ADVERBIAL CONSTRUCTION</th>
<th>NOUN</th>
<th>GLOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>[CORE [CR_i-Nrel NP_i]]</td>
<td><code>aanal</code></td>
<td>bottom,</td>
</tr>
<tr>
<td></td>
<td><code>iknal</code></td>
<td>underside</td>
</tr>
<tr>
<td></td>
<td><code>óok’ol</code></td>
<td>proximity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>top, upper side</td>
</tr>
<tr>
<td>[CORE [ti’ [CR_i-Nrel NP_i]]]</td>
<td><code>chúumuk</code></td>
<td>centre</td>
</tr>
<tr>
<td>(or [CORE [Nrel(-il) ti’ NP_i]])</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><code>háal</code></td>
<td>edge</td>
</tr>
<tr>
<td></td>
<td><code>nak’</code></td>
<td>mid-height</td>
</tr>
<tr>
<td></td>
<td><code>(ba’)pàach</code></td>
<td>back, outside</td>
</tr>
<tr>
<td></td>
<td><code>(ak)táán</code></td>
<td>front</td>
</tr>
<tr>
<td></td>
<td><code>tséel</code></td>
<td>side</td>
</tr>
<tr>
<td></td>
<td><code>ts’u’</code></td>
<td>inside</td>
</tr>
<tr>
<td></td>
<td><code>xna’h</code></td>
<td>right</td>
</tr>
<tr>
<td></td>
<td><code>xts’i’k</code></td>
<td>left</td>
</tr>
<tr>
<td></td>
<td><code>xuul</code></td>
<td>end</td>
</tr>
</tbody>
</table>
Table 8.4 *The semantics of the adverbial and nominal demonstratives, according to Hanks (1990).*

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Inclusive</th>
<th>Exclusive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Immediate</td>
<td>Non-Immediate</td>
</tr>
<tr>
<td>Form class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrative adverbs</td>
<td><em>way . . . -e’ ‘here’</em></td>
<td><em>tol . . . -o’ ‘there, yonder’</em></td>
</tr>
<tr>
<td></td>
<td><em>te’l . . . -a’ ‘there’</em></td>
<td><em>te’l . . . -o’ ‘there’</em></td>
</tr>
<tr>
<td>Nominal demonstratives</td>
<td><em>le-l-a’ ‘this one’</em></td>
<td><em>le-l-o’ ‘that one’</em></td>
</tr>
<tr>
<td></td>
<td><em>le . . . -a’ ‘this’</em></td>
<td><em>le . . . -o’ ‘that’</em></td>
</tr>
</tbody>
</table>
Table 8.5 *Motion verbs in the active and inactive verb classes.*

<table>
<thead>
<tr>
<th>Active</th>
<th>Inactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>péek</td>
<td>‘move’</td>
</tr>
<tr>
<td>sùut</td>
<td>‘turn’</td>
</tr>
<tr>
<td>xúmbal</td>
<td>‘walk’</td>
</tr>
<tr>
<td>àalkab</td>
<td>‘run’</td>
</tr>
<tr>
<td>súr’</td>
<td>‘jump’</td>
</tr>
<tr>
<td>balak’</td>
<td>‘roll’</td>
</tr>
<tr>
<td>xúiknal</td>
<td>‘flutter, fly’</td>
</tr>
<tr>
<td>bàaab</td>
<td>‘swim’</td>
</tr>
<tr>
<td>òokot</td>
<td>‘dance’</td>
</tr>
<tr>
<td>. . .</td>
<td>. . .</td>
</tr>
<tr>
<td>b‘ook’</td>
<td>‘exit’</td>
</tr>
<tr>
<td>lúub</td>
<td>‘fall’</td>
</tr>
<tr>
<td>lüik’</td>
<td>‘rise’</td>
</tr>
<tr>
<td>b‘ook’</td>
<td>‘exit’</td>
</tr>
<tr>
<td>lúub</td>
<td>‘fall’</td>
</tr>
<tr>
<td>lüik’</td>
<td>‘rise’</td>
</tr>
</tbody>
</table>

### Table 8.6 Argument structure and argument realization with the inactive motion verbs.

<table>
<thead>
<tr>
<th>Change-of-location verb</th>
<th>Ground argument</th>
<th>Realization of ground argument</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>bin</em> ‘go’</td>
<td>source</td>
<td>indexical (deictic or anaphoric)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>deictic only</td>
</tr>
<tr>
<td><em>tàal</em> ‘come’</td>
<td>goal</td>
<td>deictic only</td>
</tr>
<tr>
<td><em>u’l</em> ‘return’</td>
<td>goal</td>
<td>lexical (weakly indexical)</td>
</tr>
<tr>
<td><em>sùut</em> ‘turn, return’</td>
<td>goal</td>
<td>lexical (weakly indexical)</td>
</tr>
<tr>
<td><em>máan</em> ‘pass’</td>
<td>transit</td>
<td>lexical (weakly indexical)</td>
</tr>
<tr>
<td><em>k’uch</em> ‘arrive’</td>
<td>goal</td>
<td>lexical (weakly indexical)</td>
</tr>
<tr>
<td><em>lùuk</em> ‘leave’</td>
<td>source</td>
<td>lexical (weakly indexical)</td>
</tr>
<tr>
<td><em>na’k</em> ‘ascend’</td>
<td>goal</td>
<td>lexical (weakly indexical)</td>
</tr>
<tr>
<td><em>em</em> ‘descend’</td>
<td>source</td>
<td>lexical (weakly indexical)</td>
</tr>
<tr>
<td><em>láub</em> ‘fall’</td>
<td>goal</td>
<td>lexical (weakly indexical)</td>
</tr>
<tr>
<td><em>lúk</em> ‘rise’</td>
<td>source</td>
<td>lexical (weakly indexical)</td>
</tr>
<tr>
<td><em>òòk</em> ‘enter’</td>
<td>goal</td>
<td>lexical (weakly indexical)</td>
</tr>
<tr>
<td><em>hóok</em> ‘exit’</td>
<td>source</td>
<td></td>
</tr>
</tbody>
</table>
Table 8.7 FoRs and strategies employed during game 2 of Men and Tree.

<table>
<thead>
<tr>
<th>Frame of reference</th>
<th>Strategies</th>
<th>Total number of reference acts</th>
</tr>
</thead>
<tbody>
<tr>
<td>absolute</td>
<td>cardinal directions</td>
<td>2</td>
</tr>
<tr>
<td>pseudo-absolute</td>
<td>speech act</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>participant as ad-hoc</td>
<td></td>
</tr>
<tr>
<td></td>
<td>landmarks external</td>
<td></td>
</tr>
<tr>
<td></td>
<td>landmark: 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>to the picture: 3</td>
<td></td>
</tr>
<tr>
<td>relative</td>
<td>physio-morphic projections</td>
<td>2</td>
</tr>
<tr>
<td>intrinsic</td>
<td>intrinsic FoR anchored in the picture</td>
<td>12</td>
</tr>
</tbody>
</table>