

# Yucatec Mayan Lexicalization Patterns in Time and Space\*

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## *Abstract*

*This paper investigates links between the lexicalization of temporal and spatial relations in Yucatec Maya. Yucatec displays a striking absence of event order relators in both syntax (connectives, adpositions, etc.) and inflection (tense). Time reference and temporal coherence in discourse instead rely heavily on inferences from aspectual and modal information, discourse structure and world knowledge. In line with this, relations of motion of a spatial figure with respect to a spatial ground ('path') are not lexicalized in Yucatec. Rather than continuous locomotion of an object, Yucatec lexicalizes punctual changes of spatial configurations. Taking the localist hypothesis as vantage point, the paper compares these strategies of spatial and temporal reference and explores possible explanations for their covariation.*

## Exposition of the Problem: Path Relations, Event Order and the Localist Hypothesis

The present paper deals with the expression of spatial and temporal relationships in Yucatec Maya (YM), a Mesoamerican Indian language spoken on the peninsula of Yucatán. In this section, I shall outline what will be understood by these notions, and establish my research question with respect to these issues.

By 'spatial relationships', I am specifically referring to two-place relations that locate a moving **figure** with respect to a **ground** object in space, in the sense these labels were introduced by Talmy (1972, 1985, 1991). Following Talmy (1985: 60-61), I shall deploy the label **path** for the 'course followed by the figure object with respect to the ground object'. In English, such relations are primarily expressed by prepositions and verbal particles, as when we say things like *She went into / out of the office*, *She went up/down the staircase*. To a somewhat lesser extent, English also shows motion verbs sensitive to a particular path relation, as in *She entered/exited/left the office*, *She ascended/descended the staircase* (in these examples, the moving figure is the animate subject referred to as *she*, and the referential ground is an office and a staircase, respectively). We may say that the path relations are **lexicalized** in verbs such as *enter*, *exit*, *leave*, etc. and in the prepositions and verbal particles *into*, *out of*, *up*, *down*, etc.

In §2, a type of YM construction will be investigated which is most likely to serve in translations of the path-denoting constructions discussed by Talmy. It will be demonstrated that none of the typological options of expressing path apply to this construction. The ground object of motion events in YM is generally encoded by a prepositional phrase that specifies a spatial region (the ground object's front, back, top, etc.), but no path relation. The predicate in turn will be shown to express punctual change of spatial configuration (i.e. the being inside/outside/up etc. of the figure object with respect to the ground object) rather than continuous locomotion of the figure object along a trajectory with respect to the ground object.

In the domain of time reference, temporal **ordering relations** locate a **target event** on the time line with respect to a **reference event**. According to the mode of givenness of the reference event, three types of reference acts may be distinguished: deictic reference (the reference event is coding time), calendaric reference (the reference event is the zero point of a conventional calendaric scale) and what has come to be recognized as **anaphoric** time reference since Partee (1973, 1984) and

Hinrichs (1981, 1986). The present paper will focus on the last-mentioned type of temporal reference, i.e. on the relative temporal ordering of two events both of which are given in discourse. The term **event order** will be used to specifically designate this type of time relations obtaining between events in discourse.

As expressions of event order, the so-called 'relative' or 'absolute-relative' tenses have been considered, and aside from these, syntactic relators such as subordinative connectives (e.g. *after*, *before*, *while*), anaphoric connectives (e.g. *afterwards*, *before(hand)*, *meanwhile*) and temporal prepositions (e.g. *after*, *before*, *during*). We may say that *after(wards)* expresses posteriority of the target event with respect to the reference event, (*mean*)*while* and *during* signal simultaneity to obtain between reference and target event and *before(hand)* expresses anterior ordering of the target event with respect to the reference event.

The status of relative tenses is not uncontroversial in present-day time-semantic theory. Klein (1994), for example, proposes a purely aspectual analysis of the non-deictic component of the English complex tenses. Be that as it may, YM is a 'tenseless' language. To the extent that deictic (or 'absolute') tense is concerned, this has long been known among Mayanists (cf., e.g., Andrade 1955: 81, 120, 186, 257; Bricker 1981, 1986: 25). To establish and maintain time reference and temporal coherence in discourse, YM offers a fairly complex (especially by Mayan standards) system of aspect-mood marking. This apparatus of aspect-mood marking is thoroughly analysed in Bohnemeyer (forthcoming), with the upshot that none of the categories involved can be described in terms of either deictic ('absolute') or anaphoric (or 'relative') tense. Put differently, a semantic analysis in terms of ordering relations locating the reference event in time with respect to either coding time or a reference event in discourse can be defeated in all instances. Fragments of this analysis have been published in Bohnemeyer (1997a). §3 gives a summary of the analysis presented in Bohnemeyer (1997a, 1997b and forthcoming) according to which YM does not display *any* expression of temporal ordering relators at all, with some marginal exceptions consisting in particular in a set of deictic adverbs translating 'now', 'formerly', 'yesterday', 'tomorrow' and the like. Above all, YM does not display any connectives, adpositions or adverbs that would encode an event order relation obtaining between two events in discourse.

The principle aim of this paper is a comparison of the lexicalization patterns of YM in the field of path relations and event order relations. What is it that motivates such a comparison? To begin with, there is an obvious homology between the two domains in question, both being constituted by two-place semantic relations that

provide information about one entity (the figure object in space, the target event in time) with respect to another entity of the same ontological type which is given in discourse (the ground object in space, the reference event in time). But much more important, the domains of space and time are related cognitively. Piaget (1969) hypothesized that the development of the time concept in children proceeds precisely along the integration of time and space to grasp motion events. Breaking down the time concept into the supposedly primitive components 'succession' (i.e. the order of events, defined by ordering relations) and duration, Piaget proposed three stages in the ontogenesis of the time concept marked by different degrees of what he calls 'operationalization'. Proceeding through these stages, the child achieves representations of duration and event order as abstractions from distance and trajectory in motion. Piaget devised a series of experiments and in conducting these found himself able to confirm certain predictions he deduced from this order of stages. Most impressive was his discovery of regular confusions of temporal with spatial relations wherever these were dissociated in the stimulus event at the first developmental stage. Note that this outcome is also corroborated by findings in the field of language acquisition: E. Clark (1971) reports that children at a certain age tend to interpret *when*-questions as *where*-questions, and Cromer (1968) observed that linguistic expressions such as *after* and *before* which have both a spatial and a temporal meaning are predictably first acquired in their spatial reading. H. Clark (1973: 57) formulated the hypothesis that 'spatial expressions should appear before time expressions, and in particular, each term that can be used both spatially and temporally should be acquired in its spatial sense first.'

This leads us to our proper field of interest here, language. Many have commented on the fact that a large proportion of the time relators of Indo-European languages actually derive etymologically from spatial expressions. The strongest assertions about the intimacy of the relationship between event order and path expressions in the languages of the world have been made by advocates of the **localism** hypothesis. We will consider this hypothesis in two forms of appearance the difference of which is subtle but of some importance to the interpretation of the YM data. In one version of the argument, localism has it that event order relations are necessarily or at least essentially *expressed* as metaphorical path relations. Alternatively, advocates of a localist framework have claimed that temporal relations *are* semantically a subset of spatial relations. The difference is akin to but not identical with the distinction between a 'localist' and a 'localistic' position drawn in Anderson (1971). The second but not the first approach is rendered as the 'Thematic Relations Hypothesis' in Jackendoff (1983: ch. 10) (cf. also Gruber 1965). As Traugott observes:

'It has been suggested by many linguists that at least some subparts of the temporal system are locative in underlying structure. Anderson 1972, 1973, Jessen 1975 and Bennett 1975 have demonstrated that the whole temporal system, that is tense, sequencing, aspect, and the time adverbials which form part of these categories or establish further, secondary reference points, must be generated as locatives in a semantic base. ... The question to be explored is: 'Given that temporal relations are locative, which semantic features of location are associated with tense, sequencing and aspect?' (Traugott 1978: 371)

This last question has been answered by H. Clark (1973: 49f.) who argues that, given the physical properties of time that are to be represented by temporal relators, the semantic subdomain showing the largest number of homomorph properties with that of linear event order is precisely path. Both path and event order are represented by relations which are uni-dimensional, asymmetric and dynamic. Many if not most expressions of event order in Indo-European languages are based on two related path metaphors. These are the metaphors of time as a trajectory along which the observer proceeds coming from the past and crossing the present, headed toward the future (the **moving ego** metaphor, cf. *ahead of / before noon, coming events, past/bygone events*, etc.) and of time itself as an object moving past a stationary observer (the **moving time** metaphor, cf. *Trouble lies ahead, The worst of it is behind us, We are just coming into troubled times*, etc.). In both instances, time relations are communicated metaphorically as path relations. The terms 'moving-time' and 'moving-ego' were apparently established by Fillmore (1971: 28-37). The examples given in F1 are taken from H. Clark (1973: 48-51) (cf. also Bennett 1975, Hill 1978, Jackendoff 1983: 188-191, Lakoff & Johnson 1980: 41-45, and Miller & Johnson-Laird 1976: 462-464).

Suffice these hints to establish a background that lends significance to the simultaneous absence of path lexicalization and event order lexicalization in YM. Several conceivable lines derive from this background along which one might look for an explanation for this covariation. The explanations that will be explored in §4 evolve around the localism hypothesis.

## The Expression of Motion in YM

The central claim of this section is that there is no lexicalization of path in YM. This is, to be sure, a rather bold hypothesis, considering just the huge variety of expressions that need to be investigated in order to prove it. I shall therefore restrict the claim to one particular set of verbs which are most likely to appear in translations of the path-denoting expressions discussed by Talmy. These verbs

prompt for English glosses such as 'go', 'come', 'enter', 'exit', etc. The argumentation proceeds by the following steps: I will inspect the formal properties of the different kinds of predicates that may constitute clauses referring to motion eventualities. This investigation reveals that there is no predicate in YM that would select the ground object of a motion event as an argument. The ground object of a motion event is encoded by an adjunct, most commonly by a prepositional phrase. It is easily shown that the prepositions involved are insensitive to the path relation. This leaves the predicates themselves as the only remaining candidates for path lexicalization. Turning then to the alleged path-denoting verbs mentioned above, I will provide evidence suggesting that what these verbs really express is not path in the sense of durative dislocation of the ground object along a continuous trajectory directed with respect to a ground object, but rather punctual change of spatial configurations which are composed out of figure and ground object and whose evolving or dissolution is lexicalized in the verbs.

Path relations may be subclassified according to the 'directionality' of the figure object with respect to the ground. Three directionality relations will be considered: **Source** (the figure object moves *away from* the ground object), **Goal** (the figure object moves *toward* the ground object), and **Transit** (the figure object moves *past* the ground object, cf. Slobin (ms.)).

Let us begin by examining what types of predicates are involved in the encoding of motion events in YM. YM predicates fall into various formal classes according to their inflectional properties. Transitive verbs differ from intransitive verbs both in their pattern of aspect-mood inflection and by argument marking. YM is a purely 'head-marking' language. Transitive verbs are obligatorily marked for two arguments which I will label the 'A-argument' and the 'O-argument' (cf. Dixon 1979). The A-argument of transitive verbs is cross-referenced by a series of clitic pronouns which also serve to indicate the possessor of a nominal, while the transitive O-argument is marked by a pronominal suffix which also serves to mark the single argument of stative predications. These two paradigms of bound pronouns are customarily labelled 'set A' and 'set B' by Mayanists. The single or 'S-argument' of intransitive verbs is cross-referenced by set A with incomplete status and by set B in all other status categories (on the typology of Silverstein (1976), YM displays an aspectually conditioned 'split-S' pattern). Transitive verbs cover mainly three particular subdomains of motion: transport, insertion/extraction and the caused 'ballistic' (Slobin ms.) motion events of throwing, tossing, kicking, shooting and so on. Verbs of insertion and extraction constitute a large lexical field in YM and other Mayan languages (see e.g. Haviland 1994 on Tzotzil), because

these predicates apparently co-lexicalize shape and substance properties of both figure and ground object.

There are four classes of intransitive verbs as distinguished by aspect-mood inflection: 'active' intransitives, 'inactive' intransitives, positionals and inchoatives. Positionals as a distinct form class are found in many Mayan languages (cf. Kaufman 1990: 68), as well as in other Mesoamerican languages. They mainly express the position of a figure object with respect to a referential ground, i.e. the lying, standing, sitting, hanging etc. of the object (or rather, in their verbal appearance, the state-change that yields this position as its target state), but designate also other qualities. Inactive intransitives overwhelmingly lexicalize state-change, while active intransitives express activities.<sup>2</sup>

Turning now to the inactive and active intransitives, these at first sight seem to display a particularly neat case of the kind of burden sharing in motion lexicalization that Talmy (1985) ascribes to Romance languages. With the exception of *sùut* 'return' (an antipassive of transitive *sut* 'turn'), active motion verbs merely refer to what Talmy calls the 'manner' of the motion event, i.e. whether the trajectory was covered walking, running, swimming, flying, etc. While these 'manner' verbs are completely neutral with respect to path and do not actually entail any change-of-location at all, the inactive motion verbs are on the other hand equally neutral with respect to manner and thus seem to represent pure 'path' verbs. If both path and manner are to be expressed, they either have to be expressed in two independent utterances, or one of the two verbs has to be subordinate to the other. Consider the examples in (1). The manner verb alone (here: *xíiknal* 'flutter, flap, fly') does not express change-of-location. When used in combination with a ground-denoting adverbial as in (1a), it refers to a reiterated motion-plus-manner event that gets localized as a whole with respect to the ground object. To express change-of-location, the manner verb has to be combined with an inactive motion verb such as *na'k* 'ascend' in (1b) or *em* 'descend' in (1c). In these examples, the manner verb is construed as the higher predicate in a manner-focus construction. Alternatively, it gets subordinated to the supposed path verb as in (1d).

(1a) Le ch'íich-o' túun xíiknal y-óok'ol le che'-o'.  
 DEF bird-D2 PROG:A.3 fly A.3-top DEF tree-D2  
 'The bird is flying [i.e. circling!] above the tree.'

(1b) Le ch'íich-o' xíiknal-il h úuch u na'k-al te che'-o'.  
 DEF bird-D2 fly-REL 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].'

- (1c) Le ch'fich'-o' xiiiknal-il h úuch uy em-el te che'-o'.  
 DEF bird-D2 fly-REL PRV happen(B.3.SG) A.3 descend-INC LOC:DEF tree-D2  
 'The bird flew down from the tree [lit. in a flying manner it descended from the tree].'
- (1d) Le ch'fich'-o' h em u xiiiknal 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].'

Table F1 attempts to give an overview over the extension of the two classes. The glosses must not be taken as translations. The active motion verbs differ from their English glosses in that they are not compatible with ground-denoting satellites (at any rate, not with the interpretation of change-of-location of their S-argument with respect to the object designated by the adjunct), and the inactive motion verbs differ from their English glosses in that they do not express path in the sense of continuous directed locomotion, as I will try to demonstrate below. Neither of the two lists is expected to be complete. However, the right column of F1 is expected to contain the majority of inactive motion verbs (possible stems to add here include *liub* 'fall' and *náats* 'put.near\ACAUS 'approach'). As opposed to this, the left column may be continued to almost exhaust the full range of activity verbs, since the constructions exemplified in (1) are in no way limited to the expression of manner-of-motion, but simply encode any kind of what might be called a 'secondary event' co-temporal with the event expressed by the main verb.<sup>3</sup>

Table F1: Assignment of intransitive motion verbs to formal predicate classes

Active intransitives		Inactive intransitives	
<i>péek</i>	'move'	<i>bin</i>	'go'
<i>siut</i>	'turn'	<i>tàal</i>	'come'
<i>xiimbal</i>	'walk'	<i>máan</i>	'pass'
<i>áalkab</i>	'run'	<i>liuk'</i>	'leave'
<i>siit'</i>	'jump'	<i>k'uch</i>	'arrive'
<i>balak'</i>	'roll'	<i>na'k</i>	'ascend'
<i>xiiknal</i>	'flutter, fly'	<i>em</i>	'descend'
<i>báab</i>	'swim'	<i>u'l</i>	'return'
<i>òokot</i>	'dance'	<i>òok</i>	'enter'
...	...	<i>hóok'</i>	'exit'

As partly indicated above, actives and inactives are morphological classes, defined as follows: Active intransitives have marked completive (in *-nah*) and unmarked incompletive inflection and allow for the applicative derivation in *-t*, but not for the morphological causative in *-s*. All motion verbs listed in the left column of F1 fit this pattern, with the exception of *péek* 'move', which allows for the causative.



Inactive intransitives, on the other hand, are marked for the Incomplete (in -*VI*, harmonizing in quality with the final stem syllable) and unmarked in the complete, and they exclude applicative derivation but allow for the morphological causative. The inactive motion verbs in F1 follow this pattern, aside from *bin* 'go', *tàal* 'come', and *máan* 'pass' all having lost incomplete marking in the transition from colonial to modern YM.

Of crucial importance for our purpose is the inaccessibility of the inactive verbs to applicative derivation. Applicativization is the only means in YM to express an otherwise peripheral participant as a morphologically marked argument of the verb, such as the location in (2a) which is treated as an undergoer and encoded as the O-argument of the applicativized verb in (2b).

(2a) K-in            meyah ich in            kòol.  
 IMPF-A.1.SG work in    A.1.SG clear/ATP  
 'I work in my milpa.'

(2b) K-in            meyah-t-ik                    in            kòol.  
 IMPF-A.1.SG work-APP-INC(B.3.SG) A.1.SG clear/ATP  
 'I work my milpa.'

But since this operation is not available for inactive verbs, there is no way in YM that would allow for the encoding of the ground object of an inactive motion verb as an argument of that verb. The only transitivization that is applicable to inactives is causativization in -*s* which in the case of the inactive motion verbs leads to the causative transport verbs that were mentioned above. In other words, all the apparently path-lexicalizing verbs translating *ascend*, *descend*, *enter*, *exit* etc. are basically intransitive in YM, and their referential ground cannot possibly be treated as an argument of the verb, but can only be expressed by an adjunct.<sup>4</sup> This clearly distinguishes the inactive motion verbs of YM from their English counterparts, which are basically transitive, and from their Romance counterparts, which are intransitive but bivalent, 'governing' prepositional arguments (e.g. Spanish *entrar en* 'enter', *salir de* 'exit', *subir a* 'ascend', *bajar de* 'descend').

Taken together with what was said above about the other predicate types involved in the expression of motion, this amounts to the conclusion that the referential ground in a motion event is never expressed by an argument of the predicate. The referential ground is always referred to by an adjunct, and as we saw above, this adjunct is constituted by a prepositional phrase unless the ground object is a place named by a placename. Another exception are 'generic' grounds such as *lu'm*

'earth, ground, floor'. With these minor exceptions, all ground objects in the expression of motion events are encoded by prepositional phrases. The most important of the prepositions that appear in this context are listed in F2 (compiled from Goldap 1992 and Lehmann 1992)

**Table F2:** *The most frequent relators in the expression of spatial reference points (key: CORE - verbal core,  $N_{rel}$  - relational noun,  $NP_{ground}$  - ground-denoting noun phrase, Prep - Preposition, Poss - pronominal clitic cross-referencing possessor)*

Construction	Relator	Region referred to	Gloss	Translation
basic preposition (CORE [Prep $NP_{ground}$ ])	<i>ti'</i> <i>ich(il)</i>	(general) interior	LOC in	'with respect to' 'in(to)', 'out of'
relational noun (CORE [Poss'- $N_{rel}$ $NP_{ground}$ '])	<i>iknal</i> <i>ook'ol</i> <i>aanal</i>	proximate  superior inferior	at  on under	'at' (cf. French <i>chez</i> ) 'on (top of)', 'onto', 'down from' '(from) under(neath)'
complex preposition (CORE [ <i>ti'</i> [Poss'- $N_{rel}$ $NP_{ground}$ ']]) OR CORE [ $N_{rel}$ - <i>il</i> [ <i>ti'</i> $NP_{ground}$ ]])	<i>táan</i>  <i>pàach</i>  <i>tséel</i> <i>ts'u'</i> ...	anterior  posterior + ulterior lateral interior	front back  side int- erior	'(from) in front of', '(to) before'.. '(from/to) behind/around' 'to/from/at the side of' '(to(wards))/from' inside'

The general preposition *ti'*, somewhat elusively glossed 'locative' in the examples, is a semantically almost empty linker which does not distinguish between a spatial point of reference, a recipient, beneficiary, or experiencer, a purpose and a number of other readings. The function of *ti'* 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' (cf. Kaufman (1990: 78) on the occurrence of semantically pale 'general purpose' prepositions in Mayan languages in general). Aside from *ti'* and *ich(il)* 'in', all relators listed in F2 are basically relational nouns inflected for possession. As was mentioned in note 6, like other Mayan languages, YM lacks an elaborate set of genuine prepositions. The reason justifying the categorization of the adjunct referring to a referential ground object as a prepositional phrase merely resides in the fact that with a reference point other than a named place or a generic ground, the genuine preposition *ti'* has to be used if no other member of the set listed in table F2 is chosen. However, as the last row

of F2 shows, some of the relational nouns actually have to be combined with *ti'* before they even can be construed as adverbial adjuncts.

It is easily demonstrated that the preposition or relational noun encoding a ground object in a motion event does not actually express a path relation. Consider the examples in (3). Both *òok* 'enter' and *hóok* 'exit' are equally possible with both *ich* 'in' and *ti'* (glossed as 'locative'). The same holds for the existential predicate *yàan* employed in (3c) to express *stative* location. Hence, the preposition is neither sensitive to the source-goal distinction nor even to the dynamicity of the event core (cf. also Goldap 1992 and Lehmann 1992).

- (3a) 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)
- (3b) Le kàaro-o' h hóok' ich / ti' le kàaha-o'.  
 DEF cart-D2 PRV exit(B.3.SG) in / LOC DEF box-D2  
 'The cart, it exited [lit. in] the box.' (or rather: it exited with respect to the box's inside)
- (3c) 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)

The preposition or relational noun deployed to adjoin a spatial ground object to a verbal core merely serves (aside from the purely syntactic function of establishing a grammatical relation *vis-à-vis* the predicate) to specify a spatial region of the ground object, such as the inside of the cardboard box in the examples in (3) 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.

I have established that the ground object of a motion event is only referred to by adjuncts in YM which in turn behave completely neutrally with respect to the path relation. This leaves us with the option that path might be lexicalized exclusively in the predicate itself. Considering that the ground object is never expressed as an argument of the motion predicate, this would mean a grave mismatch between lexical semantics and morphosyntactic pattern, but I am not aware of any principle of linguistic theory that would rule out such a systematic mismatch. Moreover, the assumption that it is the predicate which expresses the path relation is lent some

initial plausibility by the examples in (1) which show that the active manner verbs can be used to designate change-of-location only when combined with inactive motion verbs. However, concentrating primarily on these inactive verbs, I will now proceed to argue against the encoding or entailment of path in such verbs.

The most crucial counterevidence to the analysis of 'verb-framed' lexicalization of path in YM comes from a series of elicitation tasks I conducted specifically on enter/exit-type events, using as stimuli various objects of everyday use (the outcomes of the experiment are currently being prepared for publication). Thus, the utterances reproduced in the following were all recorded discussing motion events illustrated with a toy car and a cardboard box. First, I moved the car into the box. The consultant commented:

- (4) H ðok le chan kàaro te'l ich le kàaha-o'.  
 PRV enter(B.3.SG) DEF small cart there in DEF box-D2  
 'The little cart went into the box (lit. entered there in the box).'

Now I removed the car from the box again. The consultant explained:

- (5) H hóok' le chan kàaro te'l ich le kàaha-o'.  
 PRV exit(B.3.SG) DEF small cart there in DEF box-D2  
 'The little cart exited out of the box (lit. exited there in the box).'

However, now I pushed the box, so that the car ended up inside. When I asked the consultant to tell me what I did, he said:

- (6) T-aw ðok-s-ah le kàaha te chan kàaro-o'.  
 PRV-A.2 enter-CAUS-CMP(B.3.SG) DEF box LOC:DEF small cart-D2  
 'You made the box enter with respect to the little cart.'

In (6) it is the container rather than the contained object which is expressed as the O-argument of the causativized motion verb.<sup>5</sup> This may invite the hypothesis that the object selected as the O-argument of the verb is always that object which undergoes change-of-location. However, as we shall see in a moment, this is not the case. But most important, when I asked the consultant what happened to the car, the consultant replied:

- (7) Le chan kàaro-o' h ðok xan te'l ich le kàaha-o'.  
 DEF small cart-D2 PRV enter(B.3.SG) also there in DEF box-D2  
 'The little cart. it entered the box (lit. entered there in the box). too.'

Here, the alleged 'enter' predicate is asserted of the contained object, i.e. the toy car, even though it had not actually moved at all. Similarly, when I removed the box from the car so that the car ended up outside the box, the consultant replied (8a) to the question as to what I did, and stated (8b) in reference to what happened to the toy car.

(8a) T-a            hók'-s-ah                            le    chan kàaro    ichil le    kàaha-o'.  
 PRV-A.2    exit-CAUS-CMP(B.3.SG)    DEF small cart    in    DEF box-D2  
 'You made the little cart leave the box (lit. exit in the box).'

(8b) Le    kàaro    xan-o' h    hók'            xan ich le    kàaha-o'.  
 DEF cart    also-D2 PRV exit(B.3.SG) also in    DEF box-D2  
 'The cart as well, it left the box (lit. exited in the box), too.'

The intransitive construction (8b) confirms the observation made with respect to (7) that the single argument of the intransitive motion verb needs not to have moved in order for the motion verb to be applicable. In other words, what *òok* and *hók'* lexicalize is not actually motion into or out of a ground object, but only **change-of-configuration**<sup>6</sup> with respect to a ground object. Moreover, (8a) shows the causativized transitive form of the (supposed) 'exit' verb *hók'*, and this time the object construed as the O-argument of the verb is not the object that has undergone change-of-location. This falsifies the hypothesis developed with respect to (6) that though the transitive motion verbs are sensitive to configuration only, but not to path, it is still the moving object, the figure in Talmy's sense, which is encoded as the argument of the motion verb, whereas the stationary object is expressed as an adjunct, just as in all the intransitive examples we have seen so far. For at least three out of four of the consultants that participated in the sessions (the fourth consultants gave varying answers), both objects involved in an enter/exit-type event can be expressed as the single argument of the intransitive motion verb or the O-argument of the causativized motion verb, and in neither case is locomotion of the object construed this way entailed.<sup>7</sup>

So far, it seems justified to agree with Lucy (1994) who arrived at the following conclusion from an analysis of the systematic place inactive motion verbs occupy in the overall schema of YM predicate classes:

'These Yucatec 'motion' roots in their unmarked use do not focus on 'motion' in the sense of a process of changing location or position, or of defining a spatial trajectory, but only in the sense of the fact of having achieved changed location or position at a certain instant. And there is no necessary implication of dynamic activity: given the patient-salient status of the root class as a whole, there is rather the suggestion that the activity of the argument is not salient in the root (or unmarked stem) semantics.' (Lucy 1994: 641)

However, if Lucy concludes the following representation of the semantics of the inactive motion verbs:

'Inclusion of all these verbs denoting motion in this state-change class [i.e. the inactive predicate class, *JB*] ... suggests that a change in location or spatial arrangement is treated as undergoing a change of state ... The English inchoative would provide a better, if still flawed, gloss in terms of carrying some of the inherent case and aspect information implied by the morphosyntax: so 'ok 'enter' might better be glossed as 'to become inside', *k'uch* 'arrive' as 'to become at', etc.' (Lucy 1994: 641-642)

there is one crucial refinement due here: the use of the Yucatec inactive motion verbs (in their basic intransitive construal or in their causativized transitive appearance) does effectively entail that one of the two objects involved in the spatial configuration undergoes change-of-location. Thus, when I drew a circle around a figure object and asked the consultants whether the figure object could be said to have 'entered' the circle, all consultants consistently denied this.<sup>8</sup> More generally, both objects that form a spatial configuration whose change is asserted deploying the inactive motion verbs are presupposed to exist at both the source and the target state of the configuration-change. Violations of this condition yield infelicitous usage. Therefore, the kind of change-of-configuration that is expressed by the inactive motion verbs can only be brought about by one of the objects constituting the configuration actually undergoing change-of-location. The semantics of the verb just do not determine whether it is the figure object or the ground object that moves, because locomotion is not what these verb lexicalize, anyway. They lexicalize an aspect of the motion event related to but different from continuous locomotion of an object along a directed trajectory, namely the change in the spatial configuration constituted by the figure and the ground object that is caused by one of these objects undergoing dislocation.

In order to obtain a proper understanding of the semantic representation of inactive motion verbs in YM and the linking of this semantic structure to the constructions inactive motion verbs occur in, it is indispensable to consider the event structure of these predicates. The inactive motion verbs are strictly punctual. Durativity vs. punctuality of YM verbs is tested by compatibility with the egressive phase verbs

*ch'en* 'stop', *p'at* 'quit, abandon' and *xúul* 'end', or their derived anticausative forms. These verbs do not entail realization of a target state when combined with state-change verbs, and hence the combination invites an implicature of interruption or abandonment. This implicature would naturally be excluded with punctual verbs (cf. Bohmeyer 1997b). Therefore, the only likely interpretation a construction of these phasals with a true punctual receives will imply iterativity or habituality of the event the punctual verb refers to (a 'generic' reading in the sense of Freed 1979: 152-156). Compare for instance the construction of *ch'éen* or *xúul* with the durative *ch'íih* in (9a), where an interpretation 'the tree stopped growing' poses no problems at all, to the combination of the same phasals with the punctual verb *bin* 'go' in (9b), where the only interpretation my consultants could come up with has it that what terminated was not an individual motion event, but the children's regularly going to school in the town of Señor. The same kind of non-specific interpretation results from combinations of any of the inactive motion verbs with the phase verbs *ch'en*, *p'at* or *xúul* or their anticausative derivatives.

- (9a) Káa h ch'éen / xúul u ch'íih-il le  
 káa PRV stop\ACAUS(B.3.SG) / end\ACAUS(B.3.SG) A.3 grow-INC DEF

che'-o', káa h p'áat polok-tal.  
 tree-D2 káa PRV leave\ACAUS(B.3.SG) fat-PROC.INC

'(When) the tree stopped growing (i.e. taller), it ended up growing wider (lit. fattening).'

- (9b) Káa h ch'éen / p'áat / xúul  
 káa PRV stop\ACAUS(B.3.SG) / leave\ACAUS(B.3.SG) / end\ACAUS(B.3.SG)

u bin le pàal-al-o'b te'l Señor-o' ts'o'k-ol t-u  
 A.3 go DEF child-DISTR-PL there Señor-D2 end-INC PRV-A.3

mèet-ah u xòok-o'b.  
 make-CMP(B.3.SG) A.3 read\ATP-PL

'(When) the children stopped / quit going to (the town of) Señor, their schooling had finished.'

Incompatibility of path-entailing motion verbs with phase verbs may seem unobtrusive from an English perspective. In English, there are special motion verbs designating the initial or terminal phase of higher-order motion events, and the phase verbs *start* and *stop* can themselves be used without an additional motion verb in reference to motion events (*stop* may even be argued to be primarily a

motion rather than a phase verb). In YM, however, motion verbs are freely compatible with all ingressive phase verbs (e.g. *chun* 'start', *kah* 'begin', *ho'p* 'begin, commence'), and in addition, with the egressive phase verb *ts'o'k* 'end' which unlike the before-mentioned egressive phasals does entail event-realization when combined with telic verbs and therefore does not convey an implicature of interruption. (10) illustrates *ts'o'k* with *bin* 'go'.

- (10) Káa h ts'o'k u bin Carrillo Juan-e', káa h k'uch  
 káa PRV end(B.3.SG) A.3 go Carrillo Juan-TOP káa PRV arrive(B.3.SG)  
 Señor-e', káa t-uy il-ah Pablo-i'. Káa t-y  
 Señor-TOP káa PRV-A.3 see-CMP(B.3.SG) Pablo-D4 káa PRV-A.3  
 a'l-ah-o' ma' k'uch-uk Carrillo-i'.  
 say-CMP(B.3.SG)-D2 NEG arrive-SUBJ(B.3.SG) Carrillo-D4

'(When) Juan finished going to Carrillo, (then) he reached Señor, (then) he met Pablo. At that moment (lit. (when) it said that), (Juan) had not arrived Carrillo (yet).'

There are two rather puzzling aspects about this example from an Indo-European point of view. First, the use of *ts'o'k* with punctual verbs. Indo-European languages do not show phasal operators capable of such behaviour, at least not to my knowledge (English certainly does not). A more adequate gloss for *ts'o'k* may be 'be(come) over', 'pass by in time'. But secondly, the example also strikingly illustrates the punctuality of *bin* 'go'. Unlike *òok* 'enter' or *hóok* 'exit' which, as we saw, co-occur with ground-denoting adjuncts, *bin* takes an implicit ground object which may be recovered anaphorically from context, or deictically identified with the location of the speech situation, or simply be left unspecified as in the example. In (10), *bin* has to be understood to refer to the village where the elicitation session was recorded. In addition, *bin* can also combine with a ground-denoting adjunct which expresses, however, 'directional' rather than 'bounded path' in Jackendoff's (1983: ch. 9) terminology. Put differently, the town of (Felipe) Carrillo (Puerto) is mentioned in the first clause of (10) as a goal towards which Juan was headed when leaving the speaker's village, not as a goal that was actually reached by Juan. The neighbouring village of Señor is located on the way from the speaker's village to Felipe Carrillo Puerto. In Señor, Juan is stalled in (10), which nicely illuminates that *bin* designates only the punctual departure from the implicit ground object, not any part of the locomotion following this departure, and neither the eventual arrival which in (10) is referred to by the verb *k'uch*.

Locomotions leading from one point in space to another are never expressed as one



event in YM, but rather as a minimum of two events. More precisely, the onset of the locomotion is expressed as a punctual dissolution of the source configuration (in (10), Juan's location in the speaker's village), and the termination of the locomotion is expressed as the punctual evolving of the target configuration (in (10), Juan's location in the village of Señor, and subsequently in the town of Felipe Carrillo Puerto, although it is not asserted in (10) that Juan actually ever arrived there). Any point along the way from the onset location to the terminal location can only be referred to as being intermittently arrived at or as being passed by, in any case asserting a third, intermediary punctual configuration-change.<sup>9</sup> Intermediary points along motion trajectories cannot be referred to with verbs referring to the initial departure or the terminal arrival, even if the verb is marked for progressive or imperfective aspect (contrary to Lucy 1994: 641). Progressives of inactive motion verbs refer regularly to pre-states of the change-of-configuration event, identifiable in the examples below through paraphrase with the prospective aspect marker *mukah* (functionally corresponding to the English *be going to* construction). (11) illustrates *bin* 'go' with progressive aspect marking, (12) *òok* 'enter' and (13) *hóok* 'exit'.

- (11) Túun bin Juan Carrillo-e' káa h k'àas-chah u kòombi.  
 PROG:A.3 go Juan Carrillo-TOP káa PRV bad-PROC.CMP A.3 van

Káa t-y a'l-ah-o' mukah bin.  
 káa PRV-A.3 say-CMP(B.3.SG)-D2 PROSP(B.3.SG) go

'Juan was going to Carrillo, (when) the bus broke. At this moment (lit. (when) it said that), he was going to go.'

- (12) Pedro-e' táan y-òok-ol t-u nah-il-e' káa t-y  
 Pedro-TOP PROG A.3-enter-INC LOC-A.3 house-REL-TOP káa PRV-A.3

il-ah-e' hach süusyo u nah-il. Káa t-y  
 see-CMP(B.3.SG)-D3 really dirty(B.3.SG) A.3 house-REL káa PRV-A.3

a'l-ah-o' ma' òok-ok-i'. Mukah òok-ol.  
 say-CMP(B.3.SG)-D2 NEG enter-SUBJ(B.3.SG)-D4 PROSP(B.3.SG) enter-INC

Pedro, he was entering his house. (when) he saw that his house was very dirty. At this moment (lit. (when) it said that), he had not yet entered. He was going to enter.'

- (13) Hun-túul uy alak' wakax Don Valen-e'.  
 one-CL.AN A.3 CL.domestic.animal cow don Valen-TOP

túun hóok'-ol	te	kóoral-o'	káa h	k'uch	u
PROG:A.3 exit-INC	LOC:DEF	corral-D2	káa PRV	arrive(B.3.SG)	A.3
yúum-ij.	Káa t-y	a'l-ah-o'		mukah	hóok'-ol.
master-REL	káa PRV-A.3	say-CMP(B.3.SG)-D2		PROSP(B.3.SG)	exit-INC

'One of Don Valen's cows, it was **escaping** (lit. **exiting**) from the corral, when its owner came. At this moment (lit. (when) it said that), it was **going to escape** (lit. **exit**).'

Spatially continuous locomotion requires a temporally durative event structure. The punctual event structure of the inactive motion verbs makes it very clear that what these verbs lexicalize is a *binary* change in the *relative* spatial configuration the figure object and the ground object form, not the *continuous* motion in 'absolute' space of either figure or ground which causes this change in configuration. Therefore, it is indeed entailed that either the figure object or the ground object has moved, but it is not entailed which of the two moved, and the coordinates of change in the absolute spatial location that this particular object underwent are left unspecified. Notice also how under this analysis the directionality of the inactive motion verbs becomes a matter of event structure rather than a feature of spatial semantics: directionality comes from the configuration co-lexicalized with the particular event being either conceived of as obtaining at the source state, in case the event describes the dissolution of the configuration (as with *bin* 'go', *líuk* 'leave', *hóok* 'exit' and *èem* 'descend'), or the configuration being conceived of as obtaining at the target state in case the event describes the evolution of the configuration (as with *táal* 'come', *k'uch* 'arrive', *òok* 'enter' and *na'k* 'ascend').<sup>10</sup> I conclude that even though the assertion of an inactive motion verb does entail change-of-location of either the figure or the ground object, *path* in the sense of spatially continuous and temporally durative locomotion of a figure object along a trajectory directed with respect to a ground object is not expressed by any of the inactive motion verbs discussed here. It was established earlier in this section that the ground-denoting adjunct involved in the construction of inactive motion verbs does not encode path relations either. It follows that with these constructions, path relations are implicated, but not asserted or entailed.

## The Expression of Event Order in YM

The focus of interest in the present section are relations of event order, two-place relations that express the relative temporal location (or ordering) of a target event with respect to a reference event in discourse. It was put forth in the introduction

that YM is a 'tenseless' language, not only in the sense that it lacks 'absolute' i.e. deictic tense inflection, but also in the sense that it can be shown not to have 'relative' or anaphoric tenses. The elaborate apparatus of aspect-mood marking in YM is analysed in Bohnermeyer (forthcoming); for a sketch see also Bohnermeyer (1997a). The present section will concentrate on functional equivalents of non-inflectional expressions of event order in Indo-European languages, i.e. on equivalents of temporal connectives, adverbials and adpositions. It will be argued that YM does not have such expressions of event order, and that the means YM does deploy to establish and maintain temporal coherence in discourse do not entail event-order in a non-defeasible way, i.e. independent of contextual information and world knowledge.

At first glance, it might look as if the absence of temporal ordering relators in YM discourse is easier to demonstrate than the lack of path relators. One only has to adduce a construction referring to multiple events and - as may be apparent in context - focussing on the order of these events and then show that this construction does not contain any morpheme that expresses the order of the events. The construction most prone to serve in a comparable demonstration in an Indo-European language would probably be adverbial subordination. A complex sentence expressing the relative temporal order of the events referred to by the main and the subordinate clause would contain an adverbial subordinator of time, such as one of the English connectives *after*, *before* and *while* exemplified in the introduction. YM has no adverbial clauses as such, with the exception of some nominalised purpose clause constructions governed by prepositions. Most commonly, however, adsentential subordination is realized by topicalization of an 'adjoined' (or 'detached'), i.e. non-embedded clause (cf. Bohnermeyer in press). To illustrate this structure, (14) compares a non-sentential topic (a) to a topicalized clause *kin ts'a'ik he'la'* 'I put it here' marked as transformed into a noun phrase by the determiner *le* in (b). (Note that the topic marker *-e'* in (14a) is replaced by the proximal deictic particle *-a'* belonging to the same paradigm in (14b).) The subordinate clause in (14b) is co-referent with a participant of the following clause *u k'áaba'* 'it's name is', namely the possessor of the nominal predicate. In this case, the function of the topic clause is that of a relative clause ('the one I put here'). However, what the construction actually expresses is not this particular semantic function, but rather topicalization and thus backgrounding. Thus, in (14c), a structurally identical topicalized clause (*le*) *ku tàasa'le'* 'it is brought' is shown which might as well function to introduce a referent participating in the main clause event ('what is brought' is paid for', or 'the one that is brought is paid for'), but actually in this particular context serves to answer a question about the customary

order of events in the purchase of goods.

- (14a) To'n-e' Estados Unidos k                      tàal.  
 us-TOP United States IMPF:A.1.PL come  
 'As for us, we are from the US.' (Blair & Vermont-Salas 1965-7: 2.1.10)

- (14b) Le k-in                      ts'a'-ik                      he'l-a',                      u                      k'áaba'-e';  
 [DEF IMPF-A.1.SG put/give-INC(B.3.SG) PRSV]-DI A.3 name-TOP  
 'kàabal+pàach+nah'.  
 low+back+house

'The one I put here [i.e. a rafter of a particular kind, in the construction of the Mayan house], is called 'kabal pach nah'.' (Nah 4)

- (14c) Le k-u                      tàas-a'l-e'                      k-u                      bo'l-t-a'l.  
 [DEF IMPF-A.3 come:CAUS-PASS.INC]-TOP IMPF-A.3 pay-APL-PASS.INC

'(The one) that is brought is paid for / (when) it is brought it is paid for.' (Blair & Vermont-Salas 1965-7: 11.1.25)

A comparison of (14c) with (14b) reveals that the construction contains no morpheme that would indicate the order of events which is at issue in this example. However, on closer inspection, it will become apparent that Indo-European languages not only underspecify temporal order as well in large stretches of discourse, but also occasionally do without explicitly encoding event order even where it is at issue. A speaker of English may very well reply to the question *When do you pay for it?* by saying something like *It's brought, and you pay for it*. What a listener will do in comprehending this utterance is derive the order of events from certain simple implicatures that operate on the order of mention and on the aspectual properties of the verbs and clauses. And this is precisely what a speaker of YM faced with (14c) does. So what really needs to be proven is that unlike English, YM offers no construction alternative to (14c) that actually does make the order of events explicit.

The reader will realize that this is a quite ambitious task, as it would imply making an inventory of all pragmatically appropriate verbal reactions to *When do you pay for it?*. I shall not attempt this, but instead discuss some recurrent and frequent means that speakers of YM actually do utilize when dealing with temporal coherence in discourse. It has been said above that, just as in English discourse, aspectuality plays an important part in establishing temporal coherence in YM. For a simple illustration of what is meant by that, consider (15). (15) shows another

clausal topicalization.<sup>11</sup> The determiner *le* that marked the topic clauses seen so far as subordinate is missing in these examples, but *le* is optional anyway. Again, the two clauses may occur as independent sentences, with no apparent change in temporal reference. This time, both clauses are marked for perfective aspect. The perfective aspect marker has two readings, one presenting the target event itself as **bounded**, i.e. as including its initial and terminal boundary in the referent (the 'situation time'), and one referring to the post-state of the target event (i.e. the target state in the case of a state-change type event, like a resultative). Put differently, the perfective aspect marker is used to express both 'The car broke' and 'The car is broken'. The common denominator of both readings is the realization of the terminal boundary, and with it, the realization of the target state. The interpretation invoked in (15) is the one modelling the target event as bounded. A sequence of two clauses referring to bounded events is "by default" (but see below!) interpreted to express a sequence of events, and the order of the events in that sequence is taken directly from the order of mention, as in (15a). If the order of clauses is reversed, the order of events changes with it, shown in (15b).

- (15a) Pedro-e' káa t-u ts'íib-t-ah hun-p'éel kàarta-e'.  
 Pedro-TOP káa PRV-A.3 write-APP-CMP(B.3.SG) one-CL.IN letter-TOP
- káa t-u ts'u'ts'-ah hun-p'éel chamal.  
 káa PRV-A.3 suck-CMP(B.3.SG) one-CL.IN cigarette

'Pedro, he wrote a letter, and (then) he smoked a cigarette'. 'Pedro, when he /wrote/had written/ a letter, he smoked a cigarette.' (Default interpretation: sequential)

- (15b) Pedro-e' káa t-u ts'u'ts'-ah hun-p'éel chamal-e'.  
 Pedro-TOP káa PRV-A.3 suck-CMP(B.3.SG) one-CL.IN cigarette-TOP
- káa t-u ts'íib-t-ah hun-p'éel kàarta.  
 káa PRV-A.3 write-APP-CMP(B.3.SG) one-CL.IN letter

'Pedro, he smoked a cigarette, and (then) he wrote a letter'. 'Pedro, when he (had) smoked a cigarette, he wrote a letter.' (Default interpretation: sequential)

But notice that both clauses are introduced by the element *káa* adopting the clause-initial position of a connective (at least in YM, a verb-initial language). And if the reader would have the opportunity to inspect larger portions of YM discourse, she would very likely get the impression that wherever *káa* occurs, the order of events is somehow at issue. So is *káa* a temporal connective, after all? Since it occurs in both the topic clause and the main clause in (15), it cannot express a temporal

relation, but it may be analysed as a simple non-relational anaphor covering both an indefinite ('when') and a definite ('then') reading distinguished solely by its appearance in a topic or in a main clause. A possible counterargument comes from the fact that *káa* occurs exclusively with clauses marked for perfective aspect. This would be a temporal anaphor that is available neither with stative descriptions ('When I was a kid...') nor with verbal predications marked for any aspect other than the perfective ('When I was walking home...', 'When I had finished the letter...'). So maybe *káa* is really just another kind of aspect marker? This hypothesis is supported by the fact that if a perfective clause occurs with *káa*, the post-state (or 'resultative') reading is excluded. *Káa h k'as-chah le kamyòon-o'* can only mean 'The car broke down', it cannot be used as description of the state of the car at 'topic time' (i.e. the temporal projection of the reference event, cf. Klein 1994): 'The car is broken'. So maybe *káa* represents an "exotic" type of connective that grammaticalizes the implicature from boundedness to sequentiality, in other words, a sequentializer? (Such expressions have been attested in the languages of the world!) Definitely not, consider (16). The two utterances in (16) equal those in (15) with the sole difference that the A-arguments of the two clauses constituting each utterance in (15) were coreferent, while they are referentially disjunct in (16). This has the effect that according to four of five consultants confronted with the examples, the two clauses in (16)a should be understood as referring to simultaneous events, not to sequentially ordered ones as in (15a). And since simultaneity is immune to iconicity inferences from clause order, the time reference in (16)a and b was judged by those consultants to be identical.

(16a) *Káa t-u ts'íib-t-ah hun-p'éeel kàarta Pedro-e',*  
*káa PRV-A.3 write-APP-CMP(B.3.SG) one-CL.IN letter Pedro-TOP*

*Juan-e' káa t-u ts'u'ts'-ah hun-p'éeel chamal.*  
*Juan-TOP káa PRV-A.3 suck-CMP(B.3.SG) one-CL.IN cigarette*

'Pedro wrote a letter, and Juan, he smoked a cigarette', 'When Pedro wrote a letter, Juan smoked a cigarette.' (Default interpretation for four out of five consultants: simultaneous)

(16b) *Káa t-u ts'u'ts'-ah hun-p'éeel chamal Juan-e',*  
*káa PRV-A.3 suck-CMP(B.3.SG) one-CL.IN cigarette Juan-TOP*

*Pedro-e' káa t-u ts'íib-t-ah hun-p'éeel kàarta.*  
*Pedro-TOP káa PRV-A.3 write-APP-CMP(B.3.SG) one-CL.IN letter*

'Juan smoked a cigarette, and Pedro, he wrote a letter', 'When Juan smoked a cigarette,

Pedro wrote a letter.'

The proper analysis of *káa* is an intricate issue indeed. I would opt for an account of *káa* as an aspect-sensitive semantically mono-relational connective whose primary function is to mark boundedness and which therefore grammaticalizes the implicature that bounded events, aside from certain peculiar contexts, do not occur in isolation. As we shall see in a moment, *káa* is not unique as an aspectual element grammaticalized to fulfill certain tasks in the structuring of discourse.

In the following example taken from an instruction on how to build a traditional Mayan house, the topics are 'resumptive': they not only take up propositions previously asserted, but each topic actually resumes the previous clause, either anaphorically or even by repeating its main verb.

- (17) <sup>A</sup>K-a ts'a'-ik u báaloh-il túun. <sup>B</sup>K-u ts'o'k-ol  
 IMPF-A.2 put/give-INC(B.3.SG) A.3 cross.rafter-REL CON [IMPF-A.3 end-INC
- a ts'a'-ik u báaloh-il túun. k-a  
 A.2 put/give-INC(B.3.SG) A.3 cross.rafter-REL CON]<sub>S</sub> IMPF-A.2
- ts'a'-ik u kàabalpàachnah-il.  
 put/give-INC(B.3.SG) A.3 low+back+house-REL
- <sup>C</sup>Kéen ts'o'k-ok túun-e'. yan a kaxt-ik u  
 [SR.PROSP end-SUBJ(B.3.SG) CON]<sub>S</sub>-TOP OBL A.2 find-INC(B.3.SG) A.3
- láak' u pàachnah-il-o'b. <sup>D</sup>K-u ts'o'k-ol túun a ts'a'-ik  
 other A.3 back+house-REL-PL [IMPF-A.3 end-INCCON A.2 put/give-INC(B.3.SG)
- u kàabalpàachnah-il-o'b. k-a wa'l-kunt-ik u  
 A.3 low+back+house-REL-PL]<sub>S</sub> IMPF-A.2 stand-FACT-INC(B.3.SG) A.3
- tisèerah-il-o'b. <sup>E</sup>K-u ts'o'k-ol-e' ...  
 rafter-REL-PL [IMPF-A.3 end-INC]<sub>S</sub>-TOP

<sup>A</sup> (Then) you place the crossbar. <sup>B</sup> (When) you've finished placing the crossbars (then) you place the girder. <sup>C</sup> (Once) this is done, you have to find (the wood for) the other crossbars. <sup>D</sup> (When) you've finished placing the crossbars, you erect the rafters. Afterwards ...' (K'axbil 18-28)

Due to the generic reference of the discourse, the clauses are marked for the imperfective characteristic of this genre (partly they are marked for the equally non-

time-specific reference signalled by the inactual subordinator *kéentchéen* which covers prospective, habitual and generic reference), and the order of clauses is taken to iconically mirror the order of events. The connection among the clauses is made a little more explicit by deployment of resumptive topic clauses, presumably because the number of propositions is high, and more than just two events are linked the mutual temporal ordering of which is relevant to the felicitous implementation of the instruction. The topic clauses alone would not be of much help in sequentializing the text, all they could achieve would be to signal that the topic time determined by the resumed clause is the topic time of the main clause to follow. What is employed to the end of establishing explicit temporal sequence is the ‘phase verb’ (or ‘aspectual verb’) *ts’o’k* occurring in each topic clause of (17). *Ts’o’k* asserts the terminal boundary of the event expressed in its complement verb, which as we recall is the resumed verb of the preceding main clause. *Ts’o’k* thus shifts the topic time of the topic clause (and therefore the sentence) from the event encoded in the preceding main clause to the terminal boundary of that event and hence introduces a certain progression. Nevertheless, it does not convey a temporal relation between topic and main clause, or even between the two sentences it serves to connect. This can be shown by the same test that was already applied with respect to (15): a simple reversal of the order of clauses in a topicalization construction with *ts’o’k* reveals that the temporal interpretation of the construction is subject to iconicity inferences.

- (18a) Pedro-e’      sáansamal-e’      le      k-u      ts’o’k-ol      u  
 Pedro-TOP      RED:tomorrow-TOP      {DEF      IMPF-A.3      end-INC      A.3
- ts’íib-t-ik           hun-p’éel      kàarta-o’,      k-u      ts’u’ts’-ik  
 write-APP-INC(B.3.SG)      one-CL.IN      letter]-D2      IMPF-A.3      suck-INC(B.3.SG)
- hun-p’éel      chamal.  
 one-CL.IN      cigarette

‘Pedro, every day (when) he finishes writing a letter, he smokes a cigarette.’

- (18b) Pedro-e’      sáasamal-e’      le      k-u      ts’u’ts’-ik  
 Pedro-TOP      RED:tomorrow-TOP      {DEF      IMPF-A.3      suck-INC(B.3.SG)
- hun-p’éel      chamal-e’      k-u      ts’o’k-ol      u      ts’íib-t-ik  
 one-CL.IN      cigarette]-TOP      IMPF-A.3      end-INC      A.3      write-APP-INC(B.3.SG)
- hun-p’éel      kàarta.  
 one-CL.IN      letter



'Pedro, everyday (when) he smokes a cigarette, he finishes writing a letter.'

Compare this to the temporal clause constructions *After he writes a letter, he smokes a cigarette* vs. *He smokes a cigarette, after he writes a letter* in which the order of events is immune against iconicity inferences as it is fully determined by the application of *after*.

It will strike the reader that the order of clauses in discourse is of crucial importance in the representation of event order in YM. As a matter of fact, as long as no non-temporal coherence relation is expressed (a relation of purpose, cause, reason, etc.), YM discourse has to be structured strictly iconically in semantic terms, or else it becomes incoherent (which does not necessarily mean unintelligible). What is meant by "in semantic terms", and how the iconicity constraint may be evaded pragmatically is illustrated by the following example.

- (19) (Le) ma' k'uch-uk-en(-e') káa' h hóok' leti'.  
 [DEF NEG arrive-SUBJ-B.1.SG]-TOP káa PRV exit(B.3.SG) it  
 '(When) I had not yet arrived, (and) she left.' (Perfá 76)

In a less literal rendition, this translates 'Before I arrived, she left'. So the order of the speaker's arrival and the departure of the participant referred to in the second clause is represented anti-iconically. But this is only a pragmatic interpretation. Semantically, the construction is perfectly iconic. Notice that the predicate of the topic clause is marked for subjunctive status. The subjunctive acts in this context as a kind of post-state operator, and the post-state is negated yielding a 'not yet' reading. In isolation, *ma' k'uchken(I')* means 'I have not yet arrived', 'I had not yet arrived' or 'I will not yet have arrived'. So what the topic clause refers to semantically is not actually the speaker's arrival, but rather the pre-state of the latter. The event expressed by the main clause will be understood to overlap with this pre-state. The construction as whole reads: "Background: I had not yet arrived; main predication: she left".

To sum up, there is no expression of event order in YM, and as a consequence, the representation of event order in YM discourse is strictly iconic in semantic terms, as long as no other coherence relations are specified. Temporal coherence relies on discourse structure including information perspective, and on various sources of aspectual and modal information.

## The Localist Approach

It has been established that YM lacks expressions of event order in discourse entirely (and that it actually lacks two-place time relations entirely, apart from a small set of deictic adverbs including equivalents of 'now' and 'yesterday') and that path (i.e. the relation between a moving figure and the referential ground object in a motion event) is not lexicalized at all in YM. In light of the physical, cognitive and linguistic interrelatedness of temporal ordering and spatial path as outlined in the introduction, we are now certainly entitled and perhaps even urged to ask whether the simultaneous lack of path relators and time relators in YM code is merely coincidental or whether we can provide possible explanations for this covariation.

I shall confine myself in the present context to searching for the connection between the YM lexicalization patterns of time and space - if there is any - on a purely semantic level. The path metaphor is the only way of verbalizing temporal ordering that we considered so far, apart from 'relative' or anaphoric tense inflections. It was mentioned in the introduction that the nature of 'relative' or anaphoric tenses is still debated in temporality theory. Leaving relative tense inflection aside for the time being, adverbial or adsentential relators of event order seem to be overwhelmingly based on the path metaphor in the languages of the world. There are various conceivable non-spatial sources for birelational event order operators, including expressions of temporal distance (cf. *sooner/later*), duration (cf. *while, during*), sequential position (cf. *first/last*) and aspectual properties. However, I know of no instance in which a language which does not at least *also* display event order expressions derived from path metaphors would have grammaticalized a two-place event order relator out of such a non-spatial source. To this extent, the localism hypothesis according to which expressions of event order have to be based on path relations (or that event order is semantically represented by the same relations that serve to represent path) remains unchallenged.

This hypothesis is corroborated by the YM facts presented in this study, but it is corroborated in a rather unexpected way: path and event order do pattern in a parallel way in YM, but they align only negatively, in that they both remain unlexicalized. Nevertheless, a localist, once she has accepted the scandal of path as a major domain of spatial semantics being unlexicalized in YM, may not require any further explanation for the absence of event order relators in YM, since the latter outcome is precisely what the localist hypothesis would predict for a language which does not lexicalize path.

As indicated in the introduction, localism is considered here in two varieties, to be identified in what follows as the 'metaphorical' and the 'non-metaphorical' approach, with reference to the different angle the two positions take on the concept of metaphor: the metaphorical approach views metaphors crucially as a relation between meanings, whereas the non-metaphorical approach considers metaphor a relation between uses of the same term in different domains which leave the term's meaning essentially unaffected. From this latter point of view, the question whether a particular expression of event order derives diachronically from a path relator is of no crucial concern. An event-order term may well be of a non-spatial source, and yet its meaning would be understood as a path relation. It is in this respect that the second approach is non-metaphorical. I shall address the two positions in turn.

Metaphorical localism reasons that event order is necessarily *expressed* through path metaphors. In order to construe such metaphors, the input category of path relators is required. Since this category is not instantiated in YM, the metaphor cannot be expressed. I see three arguments disfavouring this approach. First and foremost, it makes a very strong and very vulnerable prediction: on a radical stand, it would have to claim that no event order relators appear ever anywhere which are not derived from a path metaphor. Among the rather obvious counterexamples are the simultaneous connectives of many Germanic and Romance languages which are based on duration rather than on any spatial expression (cf. *while*, *during*). Secondly, deploying metaphors in language seems to serve precisely to make up for a certain expressive gap by using whatever material the language offers to convey whatever meaning is aimed at. This is not to say that the relation between the source meaning and the target meaning of a metaphor is just arbitrary - quite the opposite is the case. But consider for example the case of the Icelandic time relator *bak* 'after' grammaticalized out of a path relator (*að*) *bak(i)* 'behind', 'after' which in turn relates to a body part noun *bak* 'back' (according to Heine et al. 1993: 19; cf. also Engl. *back in the olden days*). YM has the body part noun *pàach* 'back' which it also deploys to signal the backside (or the surroundings) of an object in space (cf. F2). YM lacks the putative intermediary link of a path relator derived from *pàach*. But what should keep a time metaphor from bridging this gap, deriving the time relator directly from the body part noun?<sup>12</sup>

And thirdly, the perhaps most important semantic effect of grammaticalization consists in the turning of pragmatic implicatures associated with the use of the source expression in certain contexts into truth-conditional content of the target expression (cf. Hopper & Traugott 1993: ch. 4). If the YM space relators listed in F2 appear in motion-event expressions that implicate path - even if they neither

assert nor entail path - and if among them are the 'front'-'back' terms which according to Clark (as quoted in §1) are most prone cross-linguistically to serve as the source out of which time relators are grammaticalized, then why should the implicature of path not be re-interpreted as a semantic component of the terms in question in the course of the metaphorical process?

Those are the reasons that make me consider the metaphorical version of the localist argument not fully satisfying. The alternative, non-metaphorical form, however, yields a much more viable result, or at any rate, one that is very hard to disprove. According to this approach, event order relations are semantically a subset of path relations. On this account, responsible for the absence of event order expressions in YM would be not so much the lack of *expressions* of path, but rather the absence of path *meanings*, of semantic representations of path.

Note that the metaphorical localist and the non-metaphorical localist explanation as sketched above have different suppositions and make different predictions. In order for the metaphorical explanation to apply, path is only required not to be lexicalized in YM. On the other hand, the metaphorical approach predicts that there are no expressions of event order in any language which are not derived diachronically from path relators which is, as we saw, a rather unlikely hypothesis. The non-metaphorical approach makes a quite different prediction: a language which does not express path will not express event order, by whatever means. Both accounts would be falsified (though for different reasons) by the discovery of a language which expresses event order but not path. However, if a typologist encounters a language which does express path but which expresses event order by non-spatial means, the metaphorical localism but not the non-metaphorical localism hypothesis would be falsified.

## Conclusions

Event order remains unlexicalized in YM, and so does path. The absence of path lexicalization represents certainly a most unexpected finding from a localist's point of view, and probably a rather unwelcome one that will be difficult to accommodate within this framework. However, the simultaneous absence of event order relations from YM code may actually be considered a striking confirmation of the localist hypothesis. I discussed localism in two varieties, one insisting and one not insisting in metaphorical expressions of event order, and I provided some arguments supporting the latter position both in terms of greater viability and in terms of

greater significance for linguistic theory.

The vantage point adopted towards lexicalization in this study was a rather negative one: the absence of path lexicalization was discussed as aligning with the absence of event order lexicalization. What was not pursued in this study is a possible explanation accounting for a positive alignment of the strategy YM does deploy to represent temporality, which is by focussing on aspectual properties, with the strategy YM employs to encode motion, namely by semantically portraying motion as change-of-state. Future research will have to reveal whether emphasis on aspectuality in time reference and emphasis on state-change in spatial reference align in terms of general cross-linguistically recurrent lexicalization patterns of language.

## Abbreviations in Interlinear Glosses

A - Cross-reference set A	D3 -Textual deixis	PROG - Progressive
ACAUS - Anticausative	EXIST- Existential pred.	PRSV - Presentative
AN - Animate	FACT - Factitive	PRV - Perfective
APP - Applicative	IMPF - Imperfective	REL - Relational
ATP - Antipassive	IN - Inanimate	RES - Resultative
B - Cross-reference set B	INC - Incomplete	SG - Singular
CAUS - Causative	LOC - Locative	SR - Subordinator
CL - Classifier	NEG - Negation	SUBJ - Subjunctive
CMP - Completive	OBL - Obligative	TAG - Question tag
CON - Consequential	PASS - Passive	TOP - Topic
DEF - Definite	PL - Plural	1 - Speaker
D1 - Proximal deixis	POS - Positional	2 - Addressee
D2 - Distal deixis	PROC - Inchoative	3 - Talked-about

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[K'axbil] *Bix u mèeta'l hump'èel k'axbil nah*. By José May Ek. Recorded by Christian Lehmann, transcribed by Jürgen Bohnemeyer and Frank Muschke.

[Muuch] *Xiunáan Müuch*. By Estéban Ppol Kaaw. Recorded and transcribed by Christian Lehmann.

[Nah] *Bix u mèeta'l hump'èel k'axbil nah*. By Estéban Ppol Kaaw. Recorded and transcribed by Christian Lehmann.

## Notes

\* A preliminary version of this paper has been presented at the Argument Structure project at MPI Nijmegen. Earlier versions of §2 were also presented at the Space project at MPI in March 1997 and at an informal workshop on argument structure in Mesoamerican languages at Bielefeld University in May 1997. On all three occasions, the discussants contributed to the shaping of the line of reasoning pursued here. On top of that, the analyses profited much from individual discussions I had with Penny Brown, Herbert Clark, Eve Danziger, Sotaro Kita, John Lucy, Eva Schultze-Berndt, Christel Stolz, Mary Swift, David Wilkins and Roberto Zavala. I am greatly indebted to Penny Brown for proofreading a draft



## YUCATEC MAYAN LEXICALIZATION

version of the manuscript. Of course, remaining errors and misrepresentations are exclusively my own responsibility. The research the results of which are reported here was supported by Cognitive Anthropology Research Group at MPI Nijmegen.

2 The labels 'active' and 'inactive' are adopted from Dayley (1981, 1990) and Straight (1976). For a more detailed account of the YM system of predicate classes, see Lehmann (1993), Lucy (1994) and Bohnermeyer (forthcoming).

3 Besides, the active verb in the constructions in (1b) and (1c) may be replaced by elements of other form classes, such as resultative derivatives from positionals. I am at present far from being able to give a comprehensive account of the interaction of lexicalization and clause combination in YM.

4 Arguably, YM has neither 'indirect object' nor 'double object' constructions. Put differently, the only arguments that belong to the valence of the verb are those that are cross-referenced by bound pronouns on the verb. This does, however, not exclude the possibility that there are arguments which are selected not by the verb, but rather by a construction the verb forms part of.

5 There is evidence from spontaneous sources suggesting that root-transitive verbs of insertion and extraction display the same kind of indeterminacy with respect to the 'linking' of figure and ground object onto their argument structure (cf., again, Kita (ms.)).

6 The term 'configuration' is borrowed from Brown (1994) and in particular from S. Kita, to whose ongoing research on the expression of motion events in Japanese and Korean (cf. Kita ms.) the semantic analyses presented in this section owe much inspiration. Brown (1994) describes 'figure-ground ambiguity' with intransitive positional predicates in Tenejapan Tzeltal. This phenomenon bears some evident similarity to the behaviour of inactive motion verbs in YM. Notice, though, that the semantic representation of positional predicates bears important differences to those of inactive motion verbs, at least in YM. Positionals do not express locations of the figure object. To the extent that they deal with abstract spatial properties at all, the spatial feature most prominent in their semantics is orientation. This involves a ground object which may, however, remain implicit in many if not most instances, being of a more generic nature than the ground object in the truly locational configurations involved in the semantics of inactive motion verbs and insertion/extraction verbs. I would therefore prefer to keep the use of 'configuration' in the present study, in the sense of the relative location of the figure object with respect to the ground object, apart from the use of 'configuration' in Brown (1994). - Notice also that there are studies on the equivalents of the YM inactive motion verbs in other Mayan languages which do ascribe the lexicalization of path to these verbs. One example is Haviland (1991) for Tzotzil.

7 Notice, incidentally, how the application of the labels 'figure' and 'ground' becomes a problematic issue in the light of these data. Sticking to the definition of figure as moving and ground as stationary, (6) could be taken as evidence that, contrary to the claim made earlier in this section, ground objects in YM do occur encoded as verbal arguments.

But this would severely disfigure the meaning of 'figure' and 'ground' as intended in Talmy's typology, since what is encoded in the predicate is clearly not the dislocation of the "figure" expressed by the adjunct with respect to the "ground" referred to by the verbal argument.

8 This phenomenon has been exploited by S. Kita to demonstrate that the Japanese verbs *hairu* and *deru*, usually glossed 'enter' and 'exit', do not actually imply any dislocation at all.

9 Travel is an important motif in YM folk tales. The transition between two episodes in fictive narration is frequently marked by a spatial transition. Typically, the latter is expressed in two clauses, one deploying *bin* which would implicitly refer to the location of the previous episode, and one deploying *k'uch* to introduce the location of the following episode.

10 In the case of *máan* 'pass', one might assume that the critical configuration is realized neither at the source state nor at the target state, but rather in the transition between both. However, what seems to matter in the use of *máan* in discourse is actually the target state, the configuration obtaining at this target state being similar to that of *táal* 'come' and *k'uch* 'arrive', only with the additional entailment that the motion is continued after this target state has been achieved (cf. German *vorbeikommen* 'come past'). A similarly complex event structure has to be assumed for *u'l* 'return'.

11 I do not wish to give the impression that topicalization would be a means of establishing time reference in YM. Recall that we started out with topicalizations merely as a counterpart to adverbial subordination in Indo-European. The function of topicalization as such is referential (back)grounding.

12 To exclude such "bridging", one would have to stipulate a rule of metaphorical processes according to which every intermediary link in a transitive metaphorical chain would have to be actually instantiated in the language in question. Notice that the verification of this rule would presuppose a definition of all the "links" in a metaphorical chain in an independent metalanguage.