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The grammar of time reference in Yukatek Maya

Jürgen Bohnemeyer

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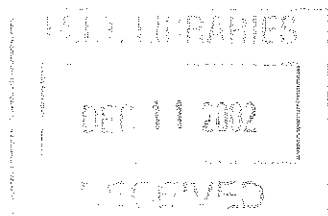
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PREFACE

This book presents revised versions of the descriptive chapters of my unpublished Ph.D. thesis (Bohnmeyer 1998 [d]). §§1, 2, and 5 have been rewritten in large measures. The changes in §5 accommodate the advancements made in Bohnmeyer (2001; ms. [a]) in the understanding of the semantics of the Yukatek system of predicate classes. The framework for time semantics presented in §2 has been revised in view of the new analysis. Beyond that, the presentation of the framework has been abridged and simplified. This in turn has engendered terminological changes throughout §§4-8. Apart from terminology, references to Vapnarsky (1999), another major study of temporality in Yukatek, have been added in §§6-7 wherever this was felt appropriate. §9 is basically a combination of §9 and §12 of Bohnmeyer (1998 [d]). §§10-11 of Bohnmeyer (1998 [d]) are not included in this book. §10 discusses a comparative experimental study of the representation of event order in cognition and referential communication among speakers of Yukatek and German. The results of this study have in the meantime been published in Bohnmeyer (1998 [b]; 2000 [a]). §11 of Bohnmeyer (1998 [d]) proposes an account of temporal inferences from aspectual information (known in the literature as 'temporal anaphora' phenomena) in terms of Gricean generalized conversational implicatures. These ideas are further developed in Bohnmeyer (2000 [b]; accepted; in prep.). The shift of emphasis towards description and typology in the present book are reflected in the new introduction.

Bohnmeyer (1998 [d]) contains no fewer than three and a half pages of acknowledgments. The great majority of these are to representatives of the three institutions that made different stages of the study possible, namely Bielefeld University in Germany, the Max Planck Institute for Psycholinguistics in Nijmegen, The Netherlands, and Tilburg University, also The Netherlands. I would like every one of those colleagues and friends to know that my gratitude for their help and support has not lessened. The people that must be mentioned again here include the advisors of my Ph.D. thesis: Eve Danziger, Steve Levinson, and Leo Noordman. In addition, I would like to extend my thanks to a number of colleagues who read and commented on parts of the thesis: Heike Behrens, Wolfgang Klein, Christian Lehmann, John Lucy, Leonor Overstegen, Barbara Pfeiler, Eva Schultze-Berndt, Roberto Zavala, and above all Penny Brown. Special thanks are due to Menno Jonkers, who helped me greatly with the editing of the present work. Much of the research reported in this book was carried out with the gener-

Group at MPI Nijmegen). One of the field trips was supported by a grant of the German Academic Exchange Service (DAAD). I repeat my heartfelt thanks to the people of Yaxley, especially to my consultants and teachers: to Antonio, Ernesto, Justina, don Maco, Norma, don Ramón, Saturnino, Sebás, and to my two host families, the family of don Valén and the family of don Viz. Finally, I would like to thank a great scholar of temporality (and many other fascinating things) for providing inspiration and support in any number of ways, and above all for being my wife and purpose of life.

LIST OF ABBREVIATIONS

ABBREVIATIONS IN TEXT

AM	- Aspect-Mood marker	T _{egr}	- Egressive principle
BTO	- Boundaries-to-order inferences	T _i	- Imperfective principle
DRT	- Discourse Representation Theory	T _{ing}	- Ingressive principle
E	- Event time/'point'	T _p	- Perfective principle
GCI	- Generalized Conversational Implicature	T _{post}	- Post-state principle
I	- Interval	T _{pre}	- Pre-state principle
MCC	- Modal commitment constraint	TT	- Topic time
MTI	- Modal time index	YM	- Yukatek Maya
R	- Reference time/interval/'point'		

ABBREVIATIONS IN SYNTACTIC TAGGING

AM	- Aspect-Mood marker	CR	- Cross-reference marker
CADV	- Clitic adverb	S	- Clause/sentence
CORE	- Verbal core	STAT	- Stative predicate

ABBREVIATIONS IN INTERLINEAR MORPHEME GLOSSING

A	- Cross-reference set A
ACAUS	- Anticausative (derivation)
ADJ	- Adjectivizer (derivation)
ALT	- Alternative (disjunction, conditional protasis, interrogative focus) (particle)
AN	- Animate (classifier)
APP	- Applicative (derivation)
ASS	- Assurative (AM)
ATP	- Antipassive (derivation)
ATR	- Attributor (Spanish <i>de</i>)
B	- Cross-reference set B
CAUS	- Causative (derivation)
CAUSE	- Causality (preposition/conjunction)
CL	- Classifier (particle)
CMP	- Completive (status)
CON	- (Rhetoric) Consequential (particle)
DEF	- Definite (determiner)
DES	- Desiderative (AM)
DUB	- Dubitative (particle)
D1	- Proximal deixis (clause-final particle)
D2	- Distal deixis (clause-final particle)
D3	- Textual deixis (clause-final particle)
D4	- Location / Negation (clause-final particle)
EMPH	- Emphatic (a variant of the negation marker)

EXIST	- Existential predicate
EXTRA	
FOC	- Extrafocal (status)
F	- Feminine (noun prefix)
FACT	- Factitive (derivation)
FRUST	- Frustrative (particle)
GIV	- Gerundive (derivation)
HESIT	- Hesitation (particle)
ID	- Identity (clitic particle)
IMM	- Immediate past (AM)
IMP	- Imperative (verb suffix)
IMPF	- Imperfective (AM)
IN	- Inanimate (classifier)
INC	- Incomplete (status)
INFER	- Inference (particle)
INT	- Interjection (particle)
INTENS	- Intensification (adjectival suffix)
IRR	- Irrealis (modal category marked by a subordinator)
ISO	- Isotemporal (adverb)
LOC	- Locative (preposition)
M	- Masculine (noun prefix)
NEC	- Necessitive (AM)
NEG	- Negation (particle)
OBL	- Obligative (AM)
PASS	- Passive (verbal inflection)
PEN	- Penative (AM)
PERF	- Perfect (derivation)
PL	- Plural (pronominal category, nominal inflection)
POS	- Positional (predicate class)
QUOT	- Quotative (particle)
PRED	- Predictive (AM)
PROC	- Inchoative (predicate class)
PROG	- Progressive (AM)
PROSP	- Prospective (AM)
PROX	- Proximate future (AM)
PRSV	- Presentative (particle)
PRV	- Perfective (AM)
REC	- Recent past (AM)
RED	- Reduplication
REL	- Relational (derivation)
REM	- Remote past (AM)
REP	- Repetitive/Reversative (particle)
RES	- Resultative (derivation)
SBSTR	- Substantivizer (derivation)
SG	- Singular (pronominal category)
SPONT	- Spontaneous (derivation)
SR	- Subordinator (particle)
SUBJ	- Subjunctive (status)

SUP	- Supposition (particle)
TAG	- Question tag (particle)
TOP	- Topic (clause-final particle)
1	- First person (pronominal category)
2	- Second person (pronominal category)
3	- Third person (pronominal category)

This study provides a comprehensive description of the grammar of time reference in **Yukatek Maya** (YM), a Native Mesoamerican language spoken on the peninsula of Yucatán. Temporality pervades almost every aspect of YM grammar. Like space and causality, it is one of those grand themes along which the structure of this (and perhaps every) language is organized. To the reader of this book, this theme may provide a road map for exploring YM grammar from the point of view of temporality. Here are some of the “sights” (s)he may visit during the journey:

1.1. TEMPORALITY IN THE GRAMMAR OF NOUNS AND VERBS

Time is built deeply into the parts-of-speech system of the language. Where the more familiar languages of the Indo-European family start out with a three-way distinction of nouns, which prototypically denote individuals; adjectives, which prototypically denote properties; and verbs, which prototypically denote events (cf. Croft (1990)), YM makes a two-way distinction between verbs and stative predicates. Nouns and adjectives are but subclasses of the latter - they constitute stative predicates without derivation or the introduction of a copula. The overarching distinction is strictly based on dynamicity: unlike English, YM has almost no stative verbs. For example, the meanings conveyed by English verbs like *to love*, *to hate*, *to like*, and *to know* are lexicalized in relational nouns in YM. In structural terms, the distinction manifests itself in aspect-mood marking: verbs, unless nominalized, are obligatorily inflected for ‘viewpoint’ aspect (Smith 1991) (i.e. distinctions like perfectivity and imperfectivity). In contrast, in order to mark an aspectual viewpoint on a state of affairs denoted by a stative predicate, an inchoative verb form denoting a state change has to be derived first. So this system of lexical categories classifies states of affairs into such that require explicit marking of a temporal perspective and such that do not permit such marking.

Verbs are further differentiated into five subclasses differing in the formal realization of aspect-mood inflection (not unlike Latin or Romance conjugation classes). This classification is semantically motivated in part by temporal properties, namely by the 'event structure' distinction between processes and state changes (cf. von Wright 1963; Dowty 1979), which correlates with the lexical-aspectual (or 'aktionsart') feature of telicity. However, unlike in Indo-European languages, telicity does not manifest itself in structural distinctions of YM grammar. For example, the English distinction between duration adverbials headed by *for*, which only combine with atelic predicates, and time-span adverbials headed by *(with)in*, which are restricted to telic predicates (cf. e.g. Krifka 1992), has no counterpart in YM. The parts-of-speech and predicate classes of YM grammar - summarized in F1 - are discussed in §5.1. Special attention is devoted there to the impact of event structure and lexical aspect on the argument structure and transitivity properties of the predicate classes.

F1. YM predicate classes

Stative predicates			Verbs				
Stative predicate proper	Noun	Adjective	Intransitive				Transitive
			Active	Inactive	Inchoative	Positional	

1.2. ASPECTUAL VIEWPOINTS

Formal distinctions in the domain of aspectual viewpoints are quite elaborate in YM. There are two morphosyntactic slots to be considered here: First, a paradigm of verbal suffixes expressing five different categories that divide modal and aspectual space in a strongly grammaticalized and abstract way, and second, a set of fifteen preverbal markers dealing with more concrete aspectual and modal distinctions. These latter are the **aspect-mood (AM) markers** proper, whereas the suffixal categories, referred to under the label **status** in this book, are at least in part syntactically conditioned. In main clauses, status marking on the verb is determined by selection of the preverbal AM marker. That is, by rule of thumb, each AM marker takes one and only one status category, whereas each status suffix generally combines with various AM markers (but only one at a time).

Since every AM marker co-occurs with one and only one status category, the discussion is organized around the preverbal markers here. The semantic assessment of a given AM marker below naturally holds for the entire combination of AM marker and status suffix, and if only the AM marker is mentioned, this is to be understood as a shorthand to simplify discussion. (For a detailed assessment of the functional value of the status categories as well as their role in syntax cf. §6.1.)

The preverbal markers can be divided into two subclasses on purely formal grounds, according to whether they are morphologically bound (these are prefixes) or unbound. The first mentioned subset comprises two prefixes marking imperfective and perfective aspect, respectively. The remaining thirteen AM markers are morphologically unbound, and as is demonstrated in §4.2.1.4, they constitute the main predicates of their clauses. To this extent, they can be compared to Indo-European auxiliaries. However, auxiliaries behave morphologically like verbs; in fact, it is part of their syntactic function to carry over verbal inflection from the lexical verb, as it were, which remains in an infinite form. The unbound AM markers of YM differ from auxiliaries in that they do not belong to the morphosyntactic category of verbs in YM, but to that of stative predicates. Semantically, these unbound AM markers can be divided into three subclasses (with some borderline cases): **aspectual AM predicates**, **modal AM predicates**, and **distance AM predicates**. F2 gives a schematic overview of this system of status inflection and AM marking. The first column gives the four semantico-syntactic classes of AM markers (AM prefixes, aspectual AM predicates, modal AM predicates and AM predicates of temporal distance). The second column states the individual AM markers belonging to each of the four classes. Notice that all 15 items are mutually exclusive. The third column lists the category of status inflection triggered by each AM marker. The status inflections are in complementary distribution.

The imperfective is mostly used for habitual and generic statements (cf. E1a; the AM marker and the status suffix are printed in boldface). The perfective (E1b) renders the event perfectly, i.e. as 'bounded' - the initial and terminal boundary of the event are entailed by assertion of a perfective clause. The imperfective triggers incompletive status on the verb, whereas the perfective aspect requires completive status marking on the verb.

F2. AM marking and status inflection in YM independent clauses

Class	AM marker	Status category triggered on the verb
AM prefixes	perfective impferective	completive incompletive
Aspectual AM predicates	terminative progressive prospective	incompletive incompletive incompletive with intransitive verbs / subjunctive with transitive verbs
Modal AM predicates	obligative necessitive desiderative assurative penative predictive	incompletive incompletive incompletive incompletive subjunctive subjunctive
AM predicates of temporal distance	proximate future immediate past recent past remote past	incompletive incompletive subjunctive subjunctive

E1 Morphologically bound AM markers

- a. **K-in** xok-ik le periyòodiko-o'.
Imperfective **IMPF-A.1.SG** read-**INC(B.3.SG)** DEF newspaper-D2
'I (used to) read the paper.'
- b. **T-in** xok-ah le periyòodiko-o'.
Perfective **PRV-A.1.SG** read-**CMP(B.3.SG)** DEF newspaper-D2
'I read the paper.'

The aspectual predicates are shown in E2. They include the progressive AM (a), the terminative AM (b) and the prospective AM (c). Progressive and terminative aspect occur with incompletive status on the verb, whereas the prospective triggers incompletive or subjunctive status, depending on the transitivity of the verb. In E2c, the verb is transitive and therefore appears in the subjunctive which is unmarked for transitive verbs.

E2 Aspectual AM predicates

- a. **Táan** in xok-ik le periyòodiko-o'.
Progressive **PROG A.1.SG** read-**INC(B.3.SG)** DEF newspaper-D2
'I /am/was/will be/ reading the paper.'
- b. **Ts'o'k** in xok-ik le periyòodiko-o'.
Terminative **TERM A.1.SG** read-**INC(B.3.SG)** DEF newspaper-D2
'I /have/had/will have/ read the paper.'
- c. **Mukah** in xok-ø le periyòodiko-o'.
Prospective **PROSP(B.3.SG) A.1.SG** read(**SUBJ**)(B.3.SG) DEF newspaper-D2
'I /am/was/will be/ going to read the paper.'

The progressive AM marker renders the event expressed in the verb (henceforth the **target event**) as unbounded, i.e. it does not entail any initial or terminal boundary. It thus represents the immediate counterpart of the perfective aspect. The terminative gives a sense that corresponds functionally to an Indo-European perfect, and the prospective semantically resembles the English *be going to* plus infinitive construction and its equivalents in Romance languages. None of these categories is sensitive to any distinctions of deictic and anaphoric reference. In other words, to the extent that the terminative can be related to the English perfect at all, there would at least be no distinction between a simple perfect, a pluperfect and a future perfect. Likewise, the progressive covers the functions of the English present progressive, past progressive and future progressive forms, and the prospective corresponds to *be going to* just as well as to *was going to* and to *will be going to*. In the description in §6.2.2.1, it is shown that the terminative refers to various kinds of **post-states** of the target event, just as the prospective refers to a certain kind of **pre-state**. Pre- and post-states of an event are introduced in §2 as embracing the event in a 'causal chain' of events: post-states are traces the event leaves behind in the world; the most typical example is the target state produced by a state-change type event. Pre-states represent conditions on what the world has to be like for the event to occur. An example of a pre-state is an agent's intention to carry out the event. Since pre- and post-states are eventualities in their own right, rather than locations in time, by uttering E2b, the speaker asserts that (s)he is in the post-state of reading the paper at the moment of utterance or the moment in time talked about in discourse, while (s)he does not make any assertion about when (s)he actually read the paper. Now, every assertion is made with respect to a **topic time** TT (following Klein 1994) to which its validity is constrained. TT is to be distinguished from the **event time** at which an event is

asserted to be located. The assertion using the terminative AM marker in E2b admits adverbial specifications of the TT at which the post-state of reading the paper obtains, while it does not allow for time-locational adverbs specifying the time at which the paper was actually read. Of course, if (s)he is in the post-state of reading the paper at TT, then it will be understood that (s)he read the paper before TT, but this event order is not part of the semantic representation of E2b, which might be glossed as 'I am in the state of having read the newspaper.'¹

1.3. MODALITY AND FUTURE TIME REFERENCE

The second semantic subset of predicative AM markers is represented by the modal AM markers. This is the largest subset, comprising the six forms indicating 'obligative' (cf. E3a), 'desiderative' (b), 'assurative' (c), 'necessitive' (d), 'predictive' (e), and 'penative' (f) meaning. All of these require incomplete status on the verb, except for the predictive and penative, which trigger subjunctive status marking.

E3 Modal AM predicates

a.	Yan	in	xok-ik	le	periyòdiko-o'.
Obligative	OBL	A.1.SG	read-INC(B.3.SG)	DEF	newspaper-D2
	'I/have/had/will have/ to read the paper', 'I will/would read the paper.'				
b.	Táakin	in	xok-ik	le	periyòdiko-o'.
Desiderative	DES	A.1.SG	read-INC(B.3.SG)	DEF	newspaper-D2
	'I/want/wanted/will want/ to read the paper.'				
c.	He'	in	xok-ik	le	periyòdiko-o'.
Assurative	ASS	A.1.SG	read-INC(B.3.SG)	DEF	newspaper-D2
	'I/promise/promised/will promise/ to read the paper.'				
d.	K'a'náan	in	xok-ik	le	periyòdiko-o'.
Necessitive	NEC	A.1.SG	read-INC(B.3.SG)	DEF	newspaper-D2
	'I/need/needed/will need/ to read the paper.'				

¹ Asserting the post-state of an event *presupposes* the prior realization of the event in the same way as, say, using the noun *house* at TT (with satisfied presupposition of existence) presupposes that the referent was built before TT.

e.	Bfin	in	xok-ø	le	periyòdiko-o'.
Predictive	PRED	A.1.SG	read(SUBJ)(B.3.SG)	DEF	newspaper-D2
	'I will/would read the paper.'				
f.	Óolak	in	xok-ø	le	periyòdiko-o'.
Penative	PEN	A.1.SG	read(SUBJ)(B.3.SG)	DEF	newspaper-D2
	'I (will have) almost read the paper.'				

In main clauses, the obligative AM is the default category for reference to future events. This does not mean that the obligative AM is itself a marker of future time reference (i.e. a future tense), because it can also be used with reference points in the past of coding time. The core function of the obligative AM is reference to 'scheduled' events. It is, however, also used in case none of the modal meanings expressed by the other modal AM markers is intended, i.e. if the realization of the event is not intended by the speaker (which would be indicated by use of prospective AM *mukah*), nor desired (that would require use of the desiderative AM), nor even promised by the speaker (to which end (s)he would use the assurative AM). Nor has the speaker evidence that the target event is in some causal pre-state, or at least (s)he does not want to indicate that (s)he has such evidence, for otherwise (s)he would again use prospective AM *mukah*. And, finally, the speaker does not indicate that (s)he considers the target event to occur under deontic necessity, which (s)he would mark using the necessitive AM. The predictive AM is by and large restricted to certain genres, especially prophecies (cf. Vapnarsky 1995). It can only be used in reference to highly unusual events. The penative AM marker signals failure of realization of the target event, just as the English adverb *almost* in its counterfactual reading.

1.4. DEGREES OF REMOTENESS

The final semantic subclass of unbound AM predicates is used to mark 'degrees of (temporal) remoteness' (cf. Dahl 1984, Comrie 1985: ch. 4). Such temporal distinctions are known in particular from Bantu and Papuan languages. The most salient difference between the markers of temporal distance known from Papuan and Bantu languages and the AM markers of temporal distance in YM is that the former represent absolute (i.e. deictic) tenses, differing from the absolute past or future tenses of English just in that they chop the entire time preceding or following coding time into several subintervals defined by their distance from coding

time. In contrast, there is no condition under which an event located in the past or future of TT would have to be referred to by selecting one of the AM markers of temporal distance obligatorily. These markers are used in order to express the degree of temporal distance in situations very similar to those where a speaker of English would use an adverb such as *just*, *recently* or *long ago*. And as with all AM markers, there is no restriction to deictic reference: with all four AM distance predicates, TT can be located at any time in the past or future of coding time. It would be by no means odd to use the AM marker of remote past for reference to a future time event, as in 'When I have finished my dissertation, you will have married long ago.' Nevertheless, the distance predicates seem to come closest to an instance of tense marking in YM. However, the remoteness markers are still predicates, and what they predicate is not the anterior or posterior order of the target event with respect to TT, but rather the target event's metric distance from TT. This does not actually involve any location in time of the target event itself at all. The event order with respect to TT is demonstrably *presupposed* when a distance AM marker is asserted at TT, and event order is thus not part of the semantics of the AM marker. Ideally, the AM markers of temporal distance would be indiscriminate with respect to the distinction of distance to relative past time events and relative future time events, so one and the same expression would be used for e.g. the recent past and the corresponding future time category. The recent and remote past AM markers actually have lexical counterparts (inchoative verbs derived from the same stems that serve as recent and remote past marker, respectively) which do behave this way. The AM markers themselves are restricted to either relative past time reference or relative future time reference as a consequence of the constructions they occur with (in particular the status inflection they trigger on the verb), but these restrictions can be shown to be motivated by modal and aspectual properties of the constructions, not by specifications of the constructions for event order.

YM can be said to distinguish three degrees of temporal distance in past time reference, namely immediate (cf. E4b), recent (c) and remote past (d), and one degree of future time distance, namely proximity (cf. E4a). The proximate future and immediate past markers occur once again with incompletive status on the verb, whereas recent and remote past require subjunctive status marking.

E4 AM predicates of temporal distance

a.	Ta'itak	in	xok-ik	le	periyòodiko-o'.
Proximate future	PROX	A.1.SG	read-INC(B.3.SG)	DEF	newspaper-D2
	'I /have/had/will have/ almost read the paper', 'I /am/was/will be/ about to read the paper.'				
b.	Táant	in	xok-ik	le	periyòodiko-o'.
Immediate past	IMM	A.1.SG	read-INC(B.3.SG)	DEF	newspaper-D2
	'I /have/had/will have/ just read the paper.'				
c.	Sáam	in	xok-ø	le	periyòodiko-o'.
Recent past	REC	A.1.SG	read(SUBJ)(B.3.SG)	DEF	newspaper-D2
	'I /read/had read/will have read/ the paper a while ago.'				
d.	Úuch	in	xok-ø	le	periyòodiko-o'.
Remote past	REM	A.1.SG	read(SUBJ)(B.3.SG)	DEF	newspaper-D2
	'I /read/had read/will have read/ the paper a long time ago.'				

The proximate future is on a borderline between temporality and aspectuality in that it translates both 'soon' and 'almost'. The first reading is obtained when the AM marker has scope over the event as a whole, whereas the second reading occurs when the AM marker has scope over the terminal boundary of the target event only (so topic time TT is located internal to the event). The AM marker of recent past (cf. E4c) is most typically used for reference to events that happened earlier on the calendrical day that includes TT, although such a 'hodiernal past' is only the most concrete meaning of the lexical source *sáam* when used in other environments. Due to the existence of the formal opposition with the recent past marker, events referred to using the remote past marker *úuch* (cf. E4d) are inferred to be located prior to the day that includes TT. But this inference can be canceled, and the target event can actually be understood to have occurred at any time from shortly before TT up to infinite pasts. Similarly, the same event may be referred to using the immediate past AM marker *táant(ik)* (cf. E4b) or the marker of recent past, depending on whether or not the speaker wants to stress immediacy. The distance predicates are described in detail in §6.2.2.3.

With the exception of the perfective AM, all AM markers are compatible with coding time as the point of reference, as well as with any topic time prior or subsequent to coding time. Thus, in E5a, the terminative occurs with a reference point in the future of coding time, and in E5b, a prospective is employed for reference to an event in the past of coding time.

E5a. Le káa t-uy a'l-ah u ts'o'k-s-ik
 [DEF káa PRV-A.3 say-CMP(B.3.SG)A.3 end-CAUS-INC(B.3.SG)]

le ba'x k-u bèet-ik-e', ts'o'k in kim-il.
 DEF what IMPF-A.3 do-INC(B.3.SG)-TOP TERM A.1.SG die-INC

'By the time (lit. (when) it says that) he finishes what he is doing, I shall be dead.'
 (Andrade 1955: 118)

b. Le mukah chúun-ul le cha'n-o',
 [DEF PROSP(B.3.SG) begin\CAUS-INC DEF spectacle]-D2

ba'x t-uy a'l-ah le chàanràaton-o' (...)?
 what PRV-A.3 say-CMP(B.3.SG)DEF small mouse-D2

'While the movie was going to start, what did the little mouse say?' (Mag_ss/com 1)

1.5. YM AS A TENSELESS LANGUAGE

The perfective aspect does not occur with future time reference in main clauses, but it is compatible with reference to events subsequent to coding time when used in subordinate clauses. However, in order to refer perfectly to some event in the future of coding time (as opposed to what holds for imperfective reference and states referred to by means of the other AM markers), the speaker has to select one of the modal categories introduced in E3. The motivation for this is that events in the future cannot simply be treated as facts, at least not in YM. Rather, the speaker is expected to indicate his or her modal commitment towards the future event. (S)he is to signal whether (s)he considers the target event to occur with necessity, whether (s)he has evidence for its presumed occurrence, whether (s)he wishes the event to happen, has the intention to realize the event, or promises to realize the event. In §6.2.1.1, this rule will be stated as the **modal commitment constraint** (MCC), and a possible explanation will be discussed why it holds for the perfective, but not for the other aspectual markers and for the predicates of temporal distance. The situation described by the MCC may be quite typical for a **tenseless** language. Similar distributions are reported in Comrie 1985: 50-53 for Burmese and Dyirbal, and Shaer 1997 proposes an analysis along the same lines for West Greenlandic. However, note that the modal predicates in their turn are not restricted to future time reference. This means that

while the MCC clearly reveals a cognitive distinction between future and non-future events, it nevertheless represents a regularity of modality rather than one of time reference in linguistic terms.

As the AM markers are means of maintaining temporal coherence in discourse, the possibility has to be considered that they (or part of them) code 'relative tenses', i.e. anaphoric event order relations. Consider, for example, the terminative AM marker in E6a and the prospective AM in E6b.

E6a. Pedro-e', ts'o'k u ts'u'ts'-ik hun-p'éeel chamal-e',
 Pedro-TOP [TERM A.3 suck-INC(B.3.SG) one-CL.IN cigarette]-TOP

káa t-u ts'fīb-t-ah le kàarta-o'.
 káa PRV-A.3 write-APP-CMP(B.3.SG) DEF letter-D2

'Pedro, having smoked a cigarette, he wrote the letter.'

b. Pedro-e' mukah u ts'fīb-t le kàarta-o',
 Pedro-TOP [PROSP(B.3.SG) A.3 write-APP(B.3.SG) DEF letter]-D2

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

'Pedro, going to write the letter, he smoked a cigarette.'

The terminative AM refers to the post-state of the smoking event in E6a. It is inferred that the writing event expressed in the second clause falls into that post-state, and accordingly, it is inferred that the writing event followed the smoking event in time. Conversely, the prospective AM marker in E6b refers to the pre-state of the letter-writing event, and it is inferred that the smoking event expressed in the second clause falls in that pre-state, i.e. precedes the letter-writing. Therefore, it might be argued that the terminative AM codes 'anterior tense', and that the prospective AM codes 'posterior tense'. However, the order of the events in E6 is only *implicated*, not indefeasibly entailed. This is particularly clear in E6b: assertion of the prospective AM marker does not actually entail realization of the writing event, it *only* conveys that Pedro was in the pre-state of writing the letter, without indicating that Pedro subsequently did write the letter. But even in E6a, the speaker might continue saying something like *In fact, he smoked first*, which would make the discourse somewhat incoherent, but would not be a logical contradiction.

But there is a more general way to make the point that the AM markers do not locate the target event (the event to which they are applied) in time, neither deictically nor anaphorically. This evidence comes from the behavior the AM markers display with respect to adverbials specifying locations in time. If, for example, the clause *ts'o'k u ts'u' ts'ik hunp'éeel chamal* 'He has smoked a cigarette' in E6a is combined with a time-locational specification such as *las syèete* '(at) seven', the only regular interpretation this construction will yield is that Pedro was at seven *in the state of having smoked*, whereas the interpretation that Pedro *smoked at seven* is odd. Similarly, if the prospective clause *mukah u ts'tibt le kàartao* in E6b is combined with *las syèete*, the combination will assert that Pedro was at seven *in the state of going to write the letter*, not that he *wrote the letter at seven*, nor that he *would write the letter at seven*. Something similar holds for the progressive AM marker. This unequivocally establishes the markers in question as aspectual, not temporal, operators. They select a certain portion of the event (or a pre- or post-state) for assertion at TT, and if at all, this portion can be located in time, whereas it is not the case that the aspectual AM marker themselves locate the event in time. In broad outline, the other morphologically unbound AM markers behave similarly. The imperfective AM marker, due to its habitual/generic meaning, is not used to express location of a *specific* event as a specific time. The only AM marker regularly used in combination with time-locational specifications is the perfective AM marker, which can safely be established as an aspectual rather than a tense operator on independent grounds (it does not deliver up event order independent of the order of mention; the temporal interpretation of sequences of perfective clauses is subject to iconicity implicatures).

1.6. EVENT ORDER BEYOND TENSE

One of the most striking features, from the perspective of modern Indo-European languages, of the grammar of time reference in YM is the almost complete absence of expressions of ordering relations among events or time intervals - relations of 'anteriority', 'posteriority', 'simultaneity', etc. (cf. §2). In English and other Indo-European languages, such relations are expressed by tense markers, temporal connectives such as *after* and *while*, and adverbials. The analysis of aspect-mood marking sketched above shows that YM is a tenseless language, meaning that there is no grammaticalized expression of absolute time reference,

i.e. reference to a moment in time as defined with respect to coding time. This will by itself not be considered a radical proposal anymore. Absence of tense distinctions has been reported e.g. for Mandarin (probably the best known case, cf. Li & Thompson 1981: 184, 213-215), Burmese and Dyirbal (Comrie 1985: 50-53.), Igbo and Yoruba (Comrie 1976: 82-84), West-Greenlandic (Shaer 1997) and of course Hopi (Whorf 1938, Malotki 1983)²; cf. also Bhat's (1999) proposal of a typology of 'tense-', 'aspect-', and 'mood-prominent' languages. However, it is shown in §6 that YM lacks not only absolute (deictic) tenses, but that the verbal categories of YM can also not be said to code relative (or anaphoric) tenses. In the course of the analysis, the complex inflectional system of YM emerges as dealing exclusively with aspectual and modal distinctions and distinctions of 'temporal distance' or 'remoteness'.

But the absence of expressions of ordering relations among events or time intervals extends even beyond the issue of tenselessness. There are no syntactic (subordinating) or anaphoric ('co-ordinating') temporal connectives in YM that code event order relations between clauses in discourse.³ The functions of such temporal connectives in Indo-European languages are jointly fulfilled in YM by AM marking and by verbs referring to the initial ('begin', 'start') or terminal ('end', 'finish', 'complete') boundary or 'phase' of an event in discourse (cf. e.g. Brinton (1988: 59-94) and Freed (1979) for the phase verbs of English). Phasal operators are still to be appreciated as a means of establishing temporal coher-

² Malotki 1983: 622-627 claims to have found a deictic future vs. non-future tense distinction in Hopi. He concedes manifold modal uses of the alleged future tense, but considers these of secondary status. The validity of this assumption is, however, somewhat put in doubt by examples in Malotki's own study which feature the supposed future marker with past-time reference. As we shall see below, tenseless languages such as YM may very well show a constraint on future time reference that is itself of a modal rather than of a temporal nature. Wetzer 1995: 263-321 works with a sample of 31 tenseless languages which does not include any of the above mentioned ones. Wetzer draws on a quite rigid criterion for 'tensedness', namely the existence of a past-nonpast opposition marked on the verb by bound morphology. Considering the intricacies of a tense-vs.-modality decision with verbal categories of future time reference, this is certainly a plausible restriction. This is of course not to deny that languages with a truly temporal future-nonfuture system may exist. Comrie 1985: 49f. considers Hua a case in point, referring to Haiman 1980: 140-144.

³ This contradicts Goddard & Wierzbicka's (1994: 45-46) claim that temporal connectives equivalent to English *after* and *before* encode semantic universals; cf. Bohnemeyer (1998 [a]), and Goddard (2001) for a reply.

ence even in Indo-European discourse (but see at least ter Meulen (1995: 19-37, 103-107)), but the role they play in YM is particularly pervasive. E7 illustrates the use of the phase verb *ts'o'k* 'end' in establishing the order of events in sentence combination:

E7a. Pedro-e' *káa h* *ts'o'k* u *ts'fib-t-ik* le *kàarta-o'*,
 Pedro-TOP [*káa* PRV *end*(B.3.SG) A.3 write-APP-INC(B.3.SG)DEF letter]-D2

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

'Pedro, having finished writing that letter, he smoked a cigarette.'

b. Pedro-e', *káa t-u* *ts'u'ts'-ah* *hun-p'éelchamal-e'*,
 Pedro-TOP [*káa* PRV-A.3 suck-CMP(B.3.SG) one-CL.IN cigarette]-TOP

káa h *ts'o'k* u *ts'fib-t-ik* le *kàarta-o'*.
káa PRV *end*(B.3.SG) A.3 write-APP-INC(B.3.SG) DEF letter-D2

'Pedro, (when) he smoked a cigarette, he finished writing the letter.'

In E7a, the phase verb *ts'o'k* 'end' serves to select the terminal boundary of the writing event for assertion at topic time TT. The smoking event expressed in the second clause is referred to perfectly by application of the perfective AM marker. The utterance triggers the implicature that the smoking event did not overlap with the termination of the writing event, and taking into account the order of mention, it will be inferred that Pedro smoked the cigarette *after* he wrote the letter. The phase verb *ts'o'k* is used pervasively to establish sequential order in narrative and descriptive discourses, and if a bilingual speaker is asked to translate the Spanish counterpart of *After Pedro wrote a letter, he smoked a cigarette* into YM, and the speaker is aware of event order somehow being more explicit in this utterance, due to the presence of the connective, than in a simple juxtaposition or coordination (*Pedro wrote a letter and smoked a cigarette*), (s)he is likely to produce E7a.

However, E7b differs from E7a only in the order of clauses, and the concomitant change in temporal implicature straightforwardly excludes any possibility of an event order relation as part of the semantic representation of the two utterances in E7. In E7b, first the smoking event is referred to perfectly, and then termination of the writing event is asserted. The most natural interpretation according to my

consultants assumes again iconicity. In addition, as the terminal boundary of the writing event is interpreted with respect to the boundaries of the smoking event, it is inferred that the writing event was going on already when the smoking event occurred. It is thus understood that the writing of the letter was interrupted for a cigarette. The temporal course of the smoking event would be properly included in the interval defined by the outer boundaries of the letter writing.

YM does, however, show some *one-place* connectives (even though this notion seems to be a contradiction in terms).⁴ Semantically, these elements behave like aspectual and modal operators, but they occur in a position different from that of the AM markers and the status suffixes (clause-initially) and they are only used with a topic time determined in discourse, not with reference to the speech situation, just like temporal connectives in Indo-European languages. One of the elements in question is *káa*, illustrated already in E7 above. *Káa* occurs exclusively with perfective aspect; any other combination is straightforwardly ungrammatical. The main function of *káa* seems to consist in the resolution of an ambiguity inherent to the perfective. Without *káa*, the perfective AM can refer both perfectly to a dynamic event in discourse (as in *The car broke*), and, on another interpretation, to the post-state of the event (as in *The car is broken*). The latter reading is excluded with *káa*. By marking the target event as completed within TT, *káa* triggers an implicature to non-overlap, and in line with this, *káa* is frequently used in narrative sequences of events. But the implicature from boundedness to non-overlap is easily canceled or overridden in context.

The following two examples feature another one-place connective, *kap'*, grammaticalized out of a combination of *káa* with the phase verb *ho'p'* 'begin'. *Kap'* occurs with a verbal core in incompletive status, just as *ho'p'* does. In E8a which was elicited as a translation of 'He has been sleeping (ever) since I have been writing this letter', *kap'* refers to the onset of the writing event just as *ho'p'* would, but in E8b, the writing event referred to by the *kap'*-clause is understood to overlap with the state of waiting expressed by the progressive clause. In this

⁴ YM also borrows temporal conjunctions and adverbs from Spanish. These loan connectives are used optionally, the autochthonous system being functionally complete by all means. In the course of adapting the borrowed connectives to the different structure of YM discourse, a considerable amount of calquing occurs, introducing semantics incompatible with the original event order meanings. This illustrates nicely how alien two-place event order relators are to YM discourse representations (cf. §8).

example, another consultant retranslated *kap'* into Spanish as *mientras* 'while'. *Kap'* grammaticalizes the implicature from the onset of an event to its unbounded ongoingness.⁵

E8. a. *Kap'* in ts'fib-t-ik le kàarta he'l-a',
 káa:begin(B.3.SG) A.1.SG write-APP-INC(B.3.SG)DEF letter PRSV-D1

leti' xan, káa h wèen-ih.
 it also káa PRV sleep-B.3.SG

'(When) I started to write this letter here, he fell asleep / (While) I was writing this letter here, he fell asleep.'

b. Ho'l-heak-e' *kap'* túun u ts'fib-t-ik
 yesterday-PAST-TOP káa:begin(B.3.SG) CON A.3 write-APP-INC(B.3.SG)

le kàartah in suku'n-o', tèn-e' táan in pa't-ik (...).
 DEF letter A.1.SG elder.brother-D2 me-TOP PROG A.1.SG await-INC(B.3.SG)

'Yesterday, (while) my brother wrote that letter, I was waiting for him (...).'
 (Tama 28)

These few examples may be sufficient to indicate that YM does not just lack event order relators known from Indo-European languages, but it also shows linguistic devices specialized in temporal reference that are unattested in Indo-European languages. In this vein, the fact that phasal expressions are usable with significantly less semantic restrictions than in Indo-European languages should be mentioned as well. The ingressive phase verbs *ho'p'* 'begin' and *kah* and *chun* (both 'start'), and also one member of the set of terminative phase verbs (again, *ts'o'k* 'end'), are compatible even with punctual target events. In YM, it is by no means odd to say something like 'He started/finished dying', 'He began/completed being killed', 'The bomb started/finished exploding'. This points to the greater power of phasal expressions in the structuring of temporal discourse. The use of phasals in YM discourse will be explored in §7.1.2. The one-place connectives are dealt with in §7.3.

⁵ Since *kap'* combines with a verbal core rather than with a clause (unlike *káa*), and since *kap'*-clauses can occur as formally independent main clauses, *kap'* satisfies the formal criteria stated in §4.2.1.4 as defining the category of AM markers. I nevertheless discuss *kap'* as a connective (in §7.3.4) instead of as an AM marker, in order to capture its functional similarity to *káa* and other aspect- or modality-based connectives of YM.

1.7. TYPOLOGICAL AND THEORETICAL CONSIDERATIONS

From a typological point of view, the fact that absence of absolute or relative tense distinctions in YM cooccurs with absence of two-place event order connectives may be sheer coincidence.⁶ There are languages that show no tense inflections but temporal connectives, such as Mandarin (cf. Li & Thompson 1981: 184, 633-634, 640-643) or West Greenlandic (Shaer p.c.), as well as languages that do not display temporal connectives but do show tense distinctions, such as several Austronesian languages.⁷ In YM, expressions of temporal ordering relations are restricted to two deictic adverbs, which translate, roughly, 'now' and 'formerly', and a set of calendrical terms that denote days as per their distance from and ordering with respect to the day of utterance (comparable to English *yesterday* and *tomorrow*). In addition, there are some complex expressions that serve to track temporal reference points in discourse without expressing an ordering relation with respect to them (like the connective *when* in English). There is also an adverb that refers deictically to the time of day of the utterance and projects this onto another day determined calendrically (so if the adverb is combined with the term for 'Monday' and the utterance is made in the morning, it denotes 'Monday morning').

In Bohnemeyer (1998 [d]), the near-to complete absence of expressions of event order relations is exploited to make a theoretical point about semantic representations in time reference and temporal coherence. It is argued that apart from the marginal exceptions mentioned above, event order is not part of truth-conditional semantic representations in YM, but instead left to pragmatic inferences (cf. also

⁶ This is not to say that either the absence of tense distinctions or the absence of event order connectives represent typological coincidences by themselves. Poorly developed or absent systems of overt tense distinctions, paired with a wealth of overt aspectual and modal distinctions, seem to be quite typical across Native American languages. As for event order connectives, I have argued in Bohnemeyer (1997) that the absence of these in YM aligns with the absence of 'path' relators in motion event expressions. Localists have held these to represent the most important semantic source of event order relators.

⁷ Cf. e.g. Bauer (1993: 59-74, 414-437) for Maori; Dixon (1988: 69-73, 165-169) for Boumaa Fijian - these two languages seem to have *when*-clauses, but no *after/before*-type connectives (as does Acehnese according to Durie, Daud, & Hasan (1994); but Acehnese also appears to be a tenseless language like YM (cf. Durie 1985)); and Mosel (1994) and Mosel & Hovdhaugen (1992: 337-374) for Samoan.

Bohnmeyer 1998 [b]). Evidence from a comparative study with speakers of YM and German (cf. Bohnmeyer 1998 [d]; 2000 [a]) suggests that discourse representations of event order are pragmatically equivalent across speakers of these two languages, despite the fact that event order is part of the truth conditions of the utterances produced by the German speakers, but not of those produced by the YM speakers. Also, no difference in cognitive representations of event order across speakers of the two languages was found. German and YM speakers were presented with the task of distinguishing pairs of video clips that only differed from each other in the order of the events they featured. Both groups of participants solved this task with about equal accuracy. These results point to pragmatics as an overlooked factor in debates about universalism and relativism. Universalists have argued that all languages must encode event order relations, because all human beings must represent event order cognitively (cf. e.g. Alverson 1994; Goddard & Wierzbicka 1994: 45-46; Haspelmath 1997). In contrast, Whorf (Carroll ed. 1956: 57-58, 144-145) claimed that Hopi fails to express event order relations, and speculated that this difference in linguistic representations has far-reaching consequences for the cognitive representation of time in Hopi speakers. Both views are falsified by the YM facts. Both positions underestimate the possibility of disalignment between semantic and cognitive representations. This disalignment is afforded by pragmatic enrichment closing the gap between "what is said" (in Grice's (1975) famous formulation) about some state of affairs in a speaker's utterance and what the speaker intends the utterance to convey about his/her mental representation of the state of affairs. Among the pragmatic inference mechanisms that serve to convey temporal information in discourse, defeasible default interpretations of aspectual operators play a particularly prominent role. Bohnmeyer (1998 [b], [d]; 2000 [a], [b]) develops a theory of inferences from aspectual information to event order in terms of 'generalized conversational implicatures' (cf. Grice 1975; Levinson 2000). These implicatures are pervasive in Indo-European languages as well, but are exploited in YM discourses to an even greater extent, as they allow YM speakers to reliably communicate event order without encoding it.

1.8. OVERVIEW

This book for the first time presents the descriptive chapters of Bohnmeyer (1998 [d]) to a general audience. §§4-7 give a description of the major grammati-

cal and lexical resources involved in time reference in YM discourse (foregrounding, to some extent, the issue of event order relations, at the expense of calendrical reference). These chapters are organized according to purely structural distinctions (put differently, they are organized into categories that are defined purely structurally), and state with each category its formal properties as well as its semantic behavior. A separate chapter (§8) deals with the connectives borrowed from Spanish. These chapters are preceded by two preparatory chapters. §2 introduces the notions used in the analysis of time reference in §§4-8 and states the criteria for their application. §3 gives general information on YM and its speakers, comments on the various sources of evidence from YM used in this book and on the conditions under which these data were obtained, and clarifies the methodological position underlying the analysis in the subsequent chapters. Finally, §9 summarizes the findings and discusses their relevance for different areas of linguistic research.

SOME CONCEPTS OF TIME SEMANTICS

CHAPTER 2

The present chapter explicates, in brief, some key concepts the analysis of the grammar of time reference in YM in §§4-9 draws on, with the aim of clarifying how these notions are used here and what the criteria for their application are. The crucial concepts of the analysis are the event structure distinction among states, processes, and state changes; the lexical-aspectual properties of dynamicity, durativity, and telicity associated with event structures; event boundaries in discourse as focussed or defocussed by aspectual operators; and event order relations (the topological relations of overlap and sequence, and the asymmetric relations of anteriority, posteriority, simultaneity and incidence).

2.1. BASICS: EVENTS, TIME INTERVALS, AND TEMPORAL RELATIONS

2.1.1. Introduction

The approach to time semantics sketched in this chapter assumes a model-theoretic framework, but the discussion remains informal. The approach is event-based (cf. Davidson 1967 [a], [b]; Kamp 1979; Kamp & Reyle 1993; Kamp & Rohrer 1983; Krifka 1989, 1992, 1998), but includes elements of an interval-based semantics (cf. Bennett & Partee 1978; Cresswell 1977; Dowty 1979; Kratzer 1978; Taylor 1977) as well. That is, it is assumed here that linguistic utterances are semantically evaluated for their temporal properties with respect to eventualities which they denote *and* with respect to the properties of the time intervals during which these eventualities occur, according to what is asserted, entailed, presupposed, or implicated about them. A more purely event-based account of lexical-aspectual and viewpoint-aspectual semantics is possible (cf. Krifka 1989, 1992, 1998; Bohnemeyer & Swift ms.) and has the advantage of greater formal elegance. The hybrid approach is favoured here because it offers a more intuitive access to the relevant distinctions. Moreover, the account of viewpoint aspect presented in §2.4, which is based on Klein (1994), aligns quite naturally with an interval semantics. An interval semantics assumes that temporal and aspectual operators prominently serve to constrain the intervals about which assertions and questions are made. And the approach of Klein (1994) draws a critical distinction between 'topic times' - i.e., roughly, intervals for which

propositions are asserted or questioned - and the temporal locations of events referred to by the proposition.

With the so-called 'dynamic' approaches to semantics (e.g. Heim 1982; Kamp & Reyle 1993), it is assumed here that in the course of processing a discourse, speakers and listeners create a semantic representation of the content of the entire discourse - a **discourse representation**.⁸ Discourse representations are "populated" by representations of entities of various types - individuals (objects, animals, and humans), events, places, times, facts, propositions, and others (see e.g. Asher 1993; Lyons 1977; Vendler 1957) - and by representations of relations among these entities. Language users evaluate discourse representations with respect to their cognitive representations of reality. Formal semanticists simulate these evaluation processes with set-theoretical models.

2.1.2. Events

The most important "inhabitants" of discourse representations for time semantics are representations of events, time intervals, and ordering relations among events and time intervals. **Events** are by definition time-bound entities, i.e. entities that can be ascribed **boundaries** in time (beginnings and endings), **locations in time** (e.g. on calendrical scales, as in *at 5.28 pm on May 8, 2002*), **order** in time with respect to time intervals or other events, and **duration**.⁹ Events also occupy

⁸ For the psychological reality of discourse representations, see Sanders, Spooren & Noordman (1993).

⁹ Ordinary English does not offer a generic term for all time-bound entities (nor does any other language, as far as I am aware of). Thus it is no surprise that there is a fair amount of terminological variation in this area among linguists and philosophers as well. For instance, much current work in formal semantics contrasts 'events' and 'states' (e.g. Kamp 1979; Kamp & Reyle 1993; Kamp & Rohrer 1983). In contrast, the term 'event' as used in this study cuts right through 'stage-level' states, which are time-bound and thus 'events' (cf. e.g. *Be hungry/ill/on the table for two hours/on Monday*), and 'individual-level' states, which are atemporal (cf. e.g. *Be tall/pretty/Russian *for two hours/on Monday*); cf. Carlson 1977). Jackendoff 1983, von Wright 1963, and others use 'event' only for state changes. Parsons 1990 alternates between this narrow use and the wider one practiced here. Lyons 1977 and Van Valin & LaPolla 1997 even use 'event' confined to Vendlerian achievements. Other authors prefer 'situation' or 'state-of-affairs' for what is called 'event' here. Note also that assuming time-boundedness as the defining property of events entails that not

locations in space, but this property does not distinguish them from individuals (although it does distinguish individuals *and* events from propositions and facts, which are neither time- nor space-bound). Since the introduction of events to modern linguistics and philosophy in Davidson (1967 [a], [b]), there has been considerable debate about the criteria that individuate events. This problem is ignored here. It is not assumed that events are a part of reality, but only that languages treat reality as if it contained events (and that cognition does, too, at least to the extent that linguistic representations must be supported by non-linguistic cognitive representations (cf. Jackendoff's (1983: 16) 'cognitive constraint')).

Furthermore, events involve **participants**¹⁰ - individuals, but sometimes also facts, propositions, or other events. These are categorized according to their 'thematic roles' in the event, e.g. as agents or 'effectors' instigating the event, themes or patients undergoing a state change during the event, etc. In natural languages, events are lexicalized in predicate lexemes, in particular, in verbs. Event participants are expressed by the arguments and adjuncts of the constructions the lexemes project or occur in, and it is these constructions in their entirety that denote events. The relationship between a verb and the event(s) it designates is like the relation between a common noun and the entity it designates, not like the relation between a proper noun and its referent (cf. Parsons 1990). Just like *dog* denotes a class of animals, or designates the properties defining that class of animals, so a predicate lexeme such as *lose* denotes a class of events, or designates the properties defining this class of events. This class of events - in the case of *lose*, the class of all events that may be referred to using clauses that contain the verb *lose* - constitutes what may be called an 'event type'.¹¹ The information lexemes and constructions convey about event types - such as the roles of the participants involved in an event of the relevant type - constitute the 'event structure' of these lexemes and constructions. Properties of 'lexical aspect', such

individuals, but only their existence is (or may be) time-bound, and that existence is itself a kind of 'event'.

¹⁰ Usually, but not necessarily; events denoted by 'ambient' verbs such as *rain* and *snow* may not involve any participants (but they can, of course, involve participants; e.g. experiencers, goals, and others).

¹¹ Borrowed from Smith's (1991: 27-90) *situation type*.

as durativity and telicity, are partially but typically not completely determined by event structures. Event structure and lexical aspect are dealt with in §2.2.

2.1.3. Time intervals

Time intervals are designated stretches of time, corresponding to regions and places in space. Of particular importance are intervals that "host" events, measuring out their 'run times' (Krifka 1992) or 'situation times' (Klein 1994). Time intervals are modelled by arithmetic intervals. The relevant arithmetic properties of intervals are bounds, order, and magnitude or 'length'. Intervals in the arithmetic sense have a lower and an upper bound. The lower bound of a time interval is called its **initial boundary** and the upper bound its **terminal boundary**. Unbounded time intervals are arithmetically either intervals that have no bound (in which case they equal the set of real numbers) or they are intervals that have only one bound (in which case they equal either the set of real numbers smaller than the bound or the set of real number larger than the bound). Single-bound intervals are of only marginal relevance in time semantics. The magnitude of an interval is the difference between the upper and the lower bound. The magnitude of a time interval is its **duration**. The **distance** between two consecutive time intervals is the magnitude of the difference between those boundaries of the intervals that are closer to each other. Straightforwardly, the initial boundary of the run time interval of an event defines the initial boundary of the event, the terminal boundary of the run time defines the terminal boundary of the event, and the duration of the run time interval defines the duration of the event.

2.1.4. Ordering relations

Arithmetic intervals are defined as ordered sets of numbers. Accordingly, **ordering relations** can be defined on intervals with reference to the ordering relations among the numbers contained in the intervals. For example, interval I_1 is said to be properly included in interval I_2 if all members of I_1 are also elements of I_2 , but some members of I_2 are not elements of I_1 . Intervals I_1 and I_2 are said to be non-overlapping if no member of I_1 is an element of I_2 . I_1 precedes I_2 if the terminal boundary of I_1 is smaller than the initial boundary of I_2 . And so on. Defining

ordering relations with reference to arithmetic and set-theoretical operators such as 'element of' and 'smaller/larger than' gives primacy to *binary* ordering relations. This seems a fair representation of the linguistic facts as well. Consider E9:

- E9. First, Roberto coded the data. Next, he did some statistics on them. Finally, he contemplated the results.

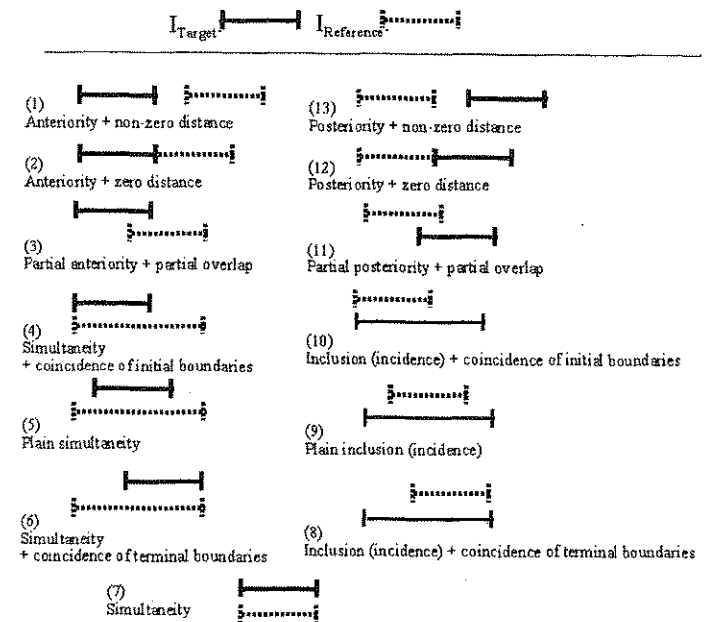
In a way, the three adverbs *first*, *next* and *finally* in E9 together serve to establish a three-place order among time intervals. However, what each of the three adverbs represents semantically is a particular place in a linear order: *first* refers to the first place in such a structure; *last* refers to the place identified by the highest number; and *next* has a recursive definition: take the number of the place in the sequence that was mentioned last and increase it by one. So natural languages do have means of semantically representing event order structures comprising more than two events, but they do not seem to represent them by semantic relations with more than two time interval arguments.

How many types of order relations across time intervals are there in principle? This question has been given an answer by Allen (1983) which has become a widely recognized standard. F5 gives the diagrammatic representation of Kamp & Reyle (1993: 669 (Fn. 76)), modified so that the relations are labelled according to the terminology used in the present study. Each type of relation in F5 captures the order of a **target** interval with respect to a **reference** interval. This gives each type of relation a logical converse, except for simultaneity, which is symmetric and hence it's own converse, as it were. The 13 relations depicted in F5 together demonstrably form an exhaustive classification. However, only a subset of these relations has been attested as lexicalized in the languages of the world. Thus, the contrast between (1) and (2), and likewise the contrast between (13) and (12), is not treated as a difference in order, but as a difference in distance. Similarly, the differentiation among (4)-(6) and (10)-(8) is likely to be expressed using aspectual operators. For example, (4) may be a representation of E10:

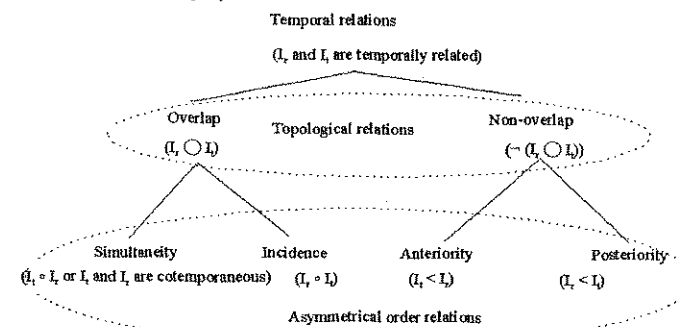
- E10. While Anna was on a field trip, I looked after her flowers. I started to take care of them the day Anna left.

Partial overlap as in (3) and (11) is only very awkwardly conveyed in language. One example might be E11:

F3. An exhaustive classification of event order relations according to Allen (1983)



F4. A taxonomy of event order relations



Key: I_t - target interval; I_r - reference interval; $\cap$ - (total) overlap; $\subset$ - temporal inclusion; $<$ - precedence

- E11. Eva started doing statistics on her data, before Roberto began analysing his. Eva finished first.

It seems that only four of the thirteen relations diagrammed in F5 are *lexicalized* (in the sense of 'coded by single morphemes', independently of whether these morphemes are *grammaticalized*) in natural languages. These are **anteriority** (covering (1) and (2)), **posteriority** (covering (13) and (12)), **simultaneity** (covering (4)-(7)) and **incidence** as in (10)-(8). These four ordering types can be subdivided into two groups, based on the **topological relations** of **overlap** and **sequence** (or non-overlap); cf. F4. The distinction between topological relations and order relations becomes relevant in the discussion of implicatures from aspectual information to event order in §2.4.

What elements of linguistic code express temporal order relations? This question is addressed in greater detail in §2.4. For now, the most important distinction to be drawn here is that between relations that locate an event, via its run time interval or 'situation time', on the time line and relations that determine an aspectual viewpoint on an event. The metaphor of time reference as 'temporal location' is grounded in the fact that events in the discourse representation are identified by establishing ordering relations between them and other events, just like objects are located in space with respect to spatial reference points. In this study by the term **event order relations** *two-place relations* are understood that describe the linear order of (the run time of) a **target event** (i.e. the event located in time) with respect to a **reference interval**. The reference interval may be the run time of another event, or an interval located on a **calendrical scale**, or the reference interval may be determined by **coding time**.¹² These are the three principle types of temporal reference. Accordingly, event order operators are subdivided according to the mode of givenness of the reference interval into **deictic time relators** which take coding time as their reference interval, **anaphoric time relators** which relate to (the run times of) events introduced in discourse, and **calendrical operators** which refer to an interval defined on a calendrical scale. Deictic time relators include 'absolute' tenses. Consider E12:

¹² 'Coding time' is the neutral term suggested by Fillmore (1997) to cover 'encoding time' and 'decoding time', which are typically not formally distinguished in language. The alternative term 'utterance time' (Klein 1994) is used on occasions as well in this study.

- E12 a. She read the paper.
b. She is reading the paper.
c. She will read the paper.

The past tense in E12a marks anteriority to coding time; the deictic component of the present progressive in E12b expresses simultaneity with coding time, and the future tense in E12c encodes posteriority with respect to coding time.¹³ Further examples of deictic time relators are adverbs such as *now* and *formerly*. Anaphoric relators include expressions of 'relative' tense, on a traditional Reichenbachian analysis (see §2.4), but also temporal connectives such as *after* and *before*. Consider E13:

- E13 a. She read the paper **after** she had breakfast.
b. She read the paper **while** she had breakfast.
c. She read the paper **before** she had breakfast.

After in E13a encodes posterior order, *while* in E13b simultaneous order, and *before* in E13c anterior order, all with respect to the reference point defined by the temporal clause. And in E14, the two clauses that constitute each utterance are considered to be connected by a 'relative tense' relation on a classical analysis now widely attributed to Reichenbach (1947):

- E14 a. I reached the institute at 10.30 a.m. She had (already) read the paper.
b. I will reach the institute at 10.30 a.m. tomorrow. She will (already) have read the paper.
c. She read the paper during lunch break. Afterwards we discussed it.

The pluperfect in E14a and the future perfect in E14b have a deictic component (in itself identical with the deictic reference of the simple future and past tense in E12), but in addition, on Reichenbach's analysis, convey relations with respect to reference points provided by the first sentence in E14a and b, signalling anteriority with respect to that reference point. Similarly, the adverb *afterwards* in E14c may be ascribed an anaphoric reference back to the event expressed in E14c. Partee's (1973) seminal paper likened phenomena such as those in E14 to nominal

¹³ The decision of whether forms used for future time reference but deriving from a modal origin, such as English *will*, have temporal or modal semantics is a notorious problem of time-semantic analysis. See Bybee, Pagliuca & Perkins (1991: 22-26) for some evidence that the *will* construction indeed expresses future tense.

anaphora (Partee 1984 qualified this comparison somewhat), and since then, all cases of cross-clausal time relations have come to be referred to as instances of 'temporal anaphora' (see also Hinrichs 1981, 1986; Kamp & Reyle 1993; Kamp & Rohrer 1983; and many others), including in constructions such as in E13, where the 'relatum' is actually expressed by the same construction that contains the relator. The semantics of absolute and relative tenses and temporal connectives are further examined in §2.4.

Calendrical reference basically consists in the indexing of time intervals with respect to some time scale subject to cultural conventions. This in itself does not necessarily involve ordering relations, but merely the topological relation of overlap. Expressions like *on Monday*, *at 5.32 pm*, or *in 2002* are not specified for whether the target interval is included in the calendrical interval (e.g. *On Monday, I found a quarter on the street*) or whether it includes the calendrical reference interval (e.g. *On Monday, I had a headache. It started on Sunday and lasted till Tuesday*). Of course, if a language has order relators, it can use them on calendrical intervals as well (*before March 12, since 1993*).

2.2. EVENT STRUCTURE AND LEXICAL ASPECT

2.2.1. Events in the lexicon and at the syntax-semantics interface

Event structures specify those semantic aspects of natural language predicates that relate to the event type they encode. Following the lead of Dowty (1979), Jackendoff (1976), and their predecessors among the Generative Semantics movement, much contemporary work in lexical semantics assumes a decomposition of complex event representations into atomic **subevent** descriptions represented by a small set of primitive semantic event predicates (cf. Jackendoff 1983, 1990; Goldberg 1995; Grimshaw 1990; Levin & Rappaport-Hovav 1995; Moens 1987; Parsons 1990; Pinker 1989; Pustejovsky 1995; Van Valin & LaPolla 1997; *inter alia*). Most approaches postulate only three primitive semantic event predicates to be sufficient for the analysis of all verb and simple clause meanings. These three predicates represent the primitive event description types **states**, **processes**, and **state changes**, based on von Wright's (1963) 'logic of change'.¹⁴ The event structure of a natural language predicate then represents the decompo-

sition of the predicate's event meaning into state, process, and change subevents, along with the causal relations among them. For example, the event structure of the transitive verb *write* specifies a writing process and a state change caused by this process during which something written comes into existence. Event structures are assumed in this study to be stored with lexical event predicates (e.g. verb lexemes), but also with event-encoding constructions.¹⁵

Event structures are relevant in this study to the extent that they determine the lexical-aspectual properties of predicates and the meaning of viewpoint-aspectual operators when combined with the predicates. Following Comrie (1976), Mourelatos (1981), Smith (1991), and Van Valin & LaPolla (1997), **lexical aspect** ('situation aspect' in Smith 1991) comprises the three parameters dynamicity, durativity, and telicity.¹⁶ Each of these has two values, consisting of the mutually exclusive properties stative vs. dynamic, durative vs. punctual, and atelic vs. telic. Every predicate is assumed to be either stative or dynamic, either durative or punctual, and either atelic or telic. These properties are partially, but not fully, determined by the predicate's event structure. For instance, the telicity parameter interacts in complex ways with the process-change distinction. This interaction plays out differently for different types of state change predicates. Verbs of 'incremental' change may be either atelic or telic, depending on the referentiality and quantification of the argument noun phrase that encodes the 'theme' or 'patient' participant undergoing the state change (*write letters* is atelic, but *write a*

¹⁵ Consider the English resultative construction: *wipe* and *hammer* have process event structures, but *wipe clean* and *hammer flat* encode state changes, regardless of whether they are analyzed syntactically (cf. Goldberg 1995) or lexically, as 'complex predicates' (cf. e.g. Ackerman & Lesourd 1997). If they are analyzed as constructions, then constructions must be associated with their own event structure representations. If they are analyzed as complex lexical formations, then the rules governing these formations in the lexicon must be associated with specific event structure representations. Independent evidence for syntactic constructions being associated with event structure representations comes from English motion event descriptions headed by 'manner' verbs (Talmy 1985): *walk* has a process event structure, but *walk to the monument* has a state change structure (cf. Goldberg (1995: 160) on the 'intransitive motion construction' of English).

¹⁶ In the present study, the term '*aktionsart*' is reserved for operators that *modify* the event structure or lexical-aspectual properties of a predicate. Examples include the terminative particle *up* in English (as in *eat/drink up*) and the 'inchoative' suffix *-sc* of Latin which turns stative verbs into state change verbs (e.g. *ualēre* 'be strong' > *ualēscere* 'grow strong'; cf. Lehmann (1994: 3299)).

¹⁴ A fourth, but apparently more marginal, type is added in §2.2.2.

letter and *write five letters* are telic); cf. Dowty 1991; Krifka 1989, 1992, 1998; Verkuyl 1972, 1992. Hence, unlike event structure, telicity is not a part of word meaning or construction meaning; rather, it is determined compositionally. This is the reason why a distinction between event structure and lexical aspect is drawn here.

In a similar way, the event structure of a predicate partially but not completely determines the **participant structure** of the predicate. Participant structures specify the information related to the event participants entailed or implicated as part of a predicate's meaning. Consider the verb *go*. The event structure of *go* specifies change of location (or 'inherently directed motion' in Levin & Rappaport 1995), a subtype of change of state, of a 'theme' participant with respect to a 'source', 'goal', or 'via' location (cf. Jackendoff 1983). This event structure leaves open the animacy of the theme referent (unlike the event structure of *die*, which requires the theme (or 'patient') to be animate, specifying a change from the state of being alive to the state of not being alive). Only if the referent is animate can it be said to exert control over the event (cf. *Peter* / **The train* / *tried to go to Paris*). Participant structure properties like animacy, control, and intentionality or volitionality may, but need not, be determined by a predicate's event structure.

Participant structures should not be confused with argument structures. Argument structures specify the kinds of morphosyntactic arguments (and sometimes also some of the adjuncts) a predicate lexeme combines with (i.e. the lexeme's 'valence' or 'subcategorization frame') and the thematic roles that are 'linked' to these arguments (see Goldberg 1995; Grimshaw 1990; Levin & Rappaport-Hovav 1995; Van Valin & LaPolla 1997). Participant structures pertain to the sphere of lexical or constructional meaning, while argument structures are part of the syntax-semantics interface. There are morphosyntactic processes that change a predicate's argument structure, but leave its participant and event structures intact (passivization is a case in point, in both English and YM); hence, it is not advisable to conflate these notions. The following subsections discuss event structure and lexical aspect in greater detail.

2.2.2. States, processes, and state changes

In keeping with Davidson's (1967 [a], [b]) event semantics, states, processes, and changes are not considered ontologically distinct types of eventualities here; rather, they are distinguished as denotations of distinct types of event *descriptions*.¹⁷ The distinction between 'state descriptions', 'act descriptions', and 'change descriptions' was introduced by von Wright (1963). Von Wright's 'acts' are called 'processes' in this study. The process-change distinction should not be confused with the Aristotelian *energeia-kinesis* distinction of *Metaphysics* θ 6, which in modern times has been reconstructed as the dichotomy between atelic and telic event descriptions (Garey 1957; Kenny 1963; Taylor 1977; Vendler 1957, 1967). The complex interactions between the process-change distinction at the level of event structure representations and the telicity parameter of lexical aspect are briefly discussed in the following section. The chief innovation of von Wright's state-change calculus is the realization that a certain type of event descriptions entail a change of some property, which can be stated as a transition between states. In Dowty's (1979) reconstruction, it is a particular participant of the event - a participant in a 'theme' or 'patient' role - which undergoes this change. The most simple cases involve transitions from the theme/patient being in a certain state to its not being in that state or vice versa. Dowty provides straightforward interval-semantic definitions of such transitions. Consider E15-E16:

E15 Roberto built a house in two weeks in July.

E16 James left the institute at 5 pm.

E15 entails that there is a certain interval preceding those two weeks in July (or overlapping with the beginning of those two weeks) at which there is no house and another interval following the two weeks (or overlapping with their terminal boundary) at which there is a house. Similarly, E16 entails that James was at the institute during some interval leading up to 5 pm, and that he was not at the institute during some interval beginning at 5 pm (regardless of the fact that the transition could not be instantaneous in extra-linguistic reality).¹⁸ Not all state

¹⁷ Approaches that deal with the issues at hand at the ontological level include Bach 1981 and Moens 1987.

¹⁸ For further discussion of the temporal interpretation of state changes, see Klein (1994: 72-109).

change descriptions are this simple. *Loretta went from Nijmegen to Leiden* entails **source** and **end states** (or 'target states', or 'result states') which, unlike those in E15-E16, are not merely contradictory, but are both positively specified (being in Nijmegen vs. in Leiden). More importantly, not all state change descriptions entail 'discrete' end states which are incompatible with their source states. This topic is taken up in the next section.

Process descriptions may be thought of as change descriptions that just fail to specify the changing property. Processes are *potentials* of change. Consider the difference between E17a (a process description) and b (a state change description):

- E17 a. The ball rolled.
b. The ball rolled into the goal.

E17a implies change of location; but only once a reference point for this change is provided, such as the goal in E17b, can it be evaluated whether some end state distinct from the source state is reached during the event. E17a merely specifies the property of being in motion (in a rolling manner), and this property does not change during the event. (This illustrates nicely why it is misleading to treat the process-change distinction as an ontological one.)

The main test that distinguishes stative predicates from process predicates in English, YM, and many other languages is the applicability of progressive aspect operators to the latter, but not the former. Taylor (1977) suggests that this is due to process descriptions, but not stative ones, requiring evaluation with respect to extended intervals. Dowty (1979: 173-180) makes a persuasive case for this claim, calling up the image of a motion process, such as a ball rolling on a table, on a video clip that is frozen at a single frame. It may be said of this frame that it shows the ball *being on the table*, and possibly that it shows the ball *rolling* (although this assertion could not be evaluated with respect to the frame alone), but it cannot be said that what the frame shows is an entire event of rolling.¹⁹ In interval-semantic terms, then, state descriptions, but not process descriptions, may hold at infinitely small intervals.

¹⁹ This may explain why imperfectivity needs not be overtly marked with process predicates (using progressive markers; cf. §2.3), but it is not immediately obvious to me how it explains why progressives are not applicable to stative predicates.

The problem with the Taylor-Dowty criterion is that state descriptions, just like process descriptions, cannot be punctual. In order to understand this, a fourth, apparently more marginal, but nevertheless primitive, type of event descriptions may be taken into account, called 'points' in Moens 1987 and 'semelfactives' in Smith 1991. These are punctual (combination with duration adverbials yields coercion of 'iterative' interpretations), but do not entail state change. English examples include *blink*, *bounce*, *cough*, *flash*, *honk*, *jump*, *sneeze*, *spin*, and others.²⁰ Hypothetical punctual state descriptions are really such 'point' descriptions. Think about a description that attributes to a light bulb the state of being on, in a manner such that the description meets the criteria for punctuality - what you get is 'flash'! Given that stative descriptions do not actually appear to apply to instantaneous events, it is unclear what exactly it means to say that they may hold at infinitely small intervals. This problem remains to be addressed in future research.

It is assumed in this study that the event meanings of verbs and simple clauses can be decomposed exhaustively into state, process, and change components (and, marginally, 'points'), at least in English and YM. For example, a typical Vendlerian 'accomplishment' entails a 'preparatory' process (Moens 1987) (e.g. E17b, a the process denoted by *roll*) and a state change caused by this process (in the example, the ball's coming to be inside the goal) (cf. Dowty 1979).

2.2.3. Dynamicity, durativity, and telicity

The parameters of lexical aspect ('situation aspect' in Smith 1991) are **dynamicity**, **durativity** and **telicity**.²¹ Dynamicity simply falls out from the distinction of basic event-denoting predicate types: state descriptions are **stative**; non-stative event descriptions are **dynamic**. On the durativity parameter, an event description

²⁰ It is impossible to quantify the duration of a 'point' denoted by a predicate (even *She coughed for 50 milliseconds* is still interpreted iteratively; *She coughed in 50 milliseconds* quantifies a time leading up to the cough). In this sense, points are instantaneous. Only nominalization solves the problem, though in a rather technical manner (*Her cough had a duration of 50 milliseconds*).

²¹ Following Comrie (1976: ch. 2), Mourelatos (1981), Smith (1991: 30) and many others.

is **durative** if a minimal interval at which it holds is extended (has duration, or proper subintervals). It is **punctual** if a minimal interval at which it holds has no proper subintervals and has adjacent intervals at which the description does not hold. On the telicity parameter, an event description is **telic** if a minimal interval at which it holds has no subintervals at which the description holds as well, and **atelic** otherwise.²²

There are implicative relationships across lexical aspectual properties. Punctual descriptions are by necessity telic. Telic descriptions in turn are dynamic. And atelic descriptions are durative. These implications rule out four of the eight possible combinations that result from the three binary-valued parameters. The remaining four combinations yield the four aspectual classes (or 'time schemata of verbs') introduced in Vendler (1957): **states, activities, accomplishments** and **achievements**.

- F5. A reconstruction of Vendler's aspectual classes (cf. Andersen (1990), Mourelatos (1981), Smith (1991: 30), Van Valin & LaPolla (1997: 91-102))

Class	States	Activities	Accomplish-ments	Achievements
Parameter				
Dynamicity	stative	dynamic	dynamic	dynamic
Telicity	atelic	atelic	telic	telic
Durativity	durative	durative	durative	punctual

There is no simple way of mapping the event structure distinction between processes and state changes into Vendler's aspectual classification (notwithstanding Dowty's (1979: 122-125) attempt). Process verbs such as *walk*, *sing*, or *dance* are telic when explicitly 'bounded' (cf. Depraetere 1995), as in *walk a mile*, *sing for 10 minutes*, or *dance a waltz*. State change verbs fall into various subclasses with regard to telicity. Verbs of **incremental** change are telic if their theme/patient argument has a specifically quantified referent (cf. *The soldiers crossed*

²² Bennett & Partee (1978) have it the other way around: they require atelic descriptions to hold at all subintervals (the 'subinterval property'). In the present framework, this would render all atelic descriptions stative and all iterative descriptions telic.

the river in five minutes) and atelic otherwise (cf. *Soldiers crossed the river for five minutes*) (cf. Dowty 1991; Krifka 1989, 1992, 1998; Verkuyl 1972, 1992). Verbs of non-incremental change, like *die* and *burst*, are invariably telic.²³ Verbs of non-discrete incremental change - so-called 'degree achievement' verbs (cf. Abusch 1985; Bertinetto & Squartini 1995; Dowty 1979: 88-91) - are only telic if some 'degree of change' (Kennedy & Levin 2001) is specified and atelic otherwise (e.g. *The water level rose for five days* vs. *The water level rose by two meters in five days*). In this respect, degree achievement verbs resemble process verbs rather closely. This illustrates a point made earlier: the telicity parameter is generally a matter of compositional semantics, not of lexical or constructional meaning alone. The same is true of durativity. For instance, *cross the river* is durative, but *cross the border* can be durative or punctual, depending on the subject (it is punctual if the subject denotes a person; if the subject refers to an army, it may or may not be durative, depending on construal).

Durativity is easily attested according to whether or not the duration of the event is specifiable. However, punctual event expressions are not simply incompatible with duration specifications; instead, they yield interpretations that do not refer to the duration of a single instance of the punctual event itself. The most widely recognized structural correlate of the stative-dynamic distinction in English is the applicability of the progressive tenses: stative verbs such as *be*, *have*, *know*, and *love* do not allow for formation of the progressive forms (with the principled exceptions mentioned below). There are a number of exceptions, such as positional predicates - e.g. *be standing/lying/sitting*; cf. Dowty (1979: 173-180), and behavioural adjectives when used to denote controllable behaviour, as in *He was being polite/obnoxious*.

In the Aristotelian tradition, the hallmark of telicity has always been considered the 'imperfective paradox' (Dowty 1979: 133-135). Consider Kenny's (1963) formulation (similarly Vendler 1967: 106):

²³ Incremental change affects different parts of the theme/patient participant consecutively (with physical change; with location change, the theme covers different parts of a path consecutively; cf. Krifka 1998). Non-incremental change does not affect parts of the theme/patient, but only the theme/patient in its entirety (with location change: no extended path is involved).

"For some (...) verbs, any statement of the form *A is ϕ ing* implies a statement of the form *A has not ϕ ed*; for others it does not. For instance, if a man is building a house, he has not yet built it; if John is deciding whether to join the army, he has not yet decided to; if Mary is cutting the cake, she has not yet cut it. On the other hand, if I am living in Rome it does not follow that I have not lived in Rome; on the contrary, told that I am living in Rome you may at once ask me 'And how long have you lived in Rome?' As with *live in Rome* so with *giggle*, *listen to*, *keep a secret*, *ponder on*: in all these cases, *A is ϕ ing* implies not *A has not ϕ ed* but rather *A has ϕ ed*." (Kenny 1963: 172)

Kenny's characterization of the two classes involves two language-particular verb forms of English, namely the progressive form *A is ϕ ing* and the simple perfect form *A has ϕ ed*. A less form-dependent test can be derived from Kenny's characterization, involving the notion of 'interruption':²⁴

E18. 'If X is interrupted in the course of VERB-ing, has she then VERB-ed?'

If the answer to E18 is 'yes' then VERB is atelic, if it is 'no', VERB is telic. A number of additional tests all make reference to language-specific constructions. The best-known among these is the distinction between duration adverbials (headed by *for* in English), which combine with atelic descriptions, and time-span adverbials (headed by *(with)in* in English), which combine with telic descriptions:

- E19 a. Heidi watched *The X Files* for *(*/in)* two hours.
b. Roberto fixed dinner in *(*/for)* no time *(*/for two hours)*.

This distribution was already noted by Kenny and Vendler. For an explanation, see Krifka 1998. When combined with punctual verbs, *for* induces an iterative interpretation, whereas *(with)in* yields a pre-state reading:

- E20 a. My old computer crashed (every day) for years.
b. My new computer crashed within five minutes after I started it up for the first time.

A parallel distinction is drawn in English and other Indo-European languages between idiomatic formulas used to express duration (*the VERB-ing last X time*; *spend X time VERB-ing*) and such expressing time spans (*take/cost X time to VERB*); again, the former combine only with atelic verb phrases, while the latter are

compatible only with telic verb phrases. In YM, however, the distinction between duration and time-span specifications is not grammaticalized (cf. §5).

Another criterion that attests telicity in English is compatibility with a subset of the egressive 'phase' verbs (see below) which entail the achievement of some target state, in particular *finish*, *complete*, and *end*. These are supposed to be incompatible with atelic predicates, unlike *stop*, *cease*, and *quit*, which in their turn convey an implicature of interruption or abandonment when applied to telic verbs (cf. Dowty 1979: 57-58, Freed 1979: 47-63).

- E21 a. James finished/completed/ended (giving) a lecture on semantics.
b. James stopped/ceased/quit wondering about semantics.
c. *James finished/completed/ended wondering about semantics.

Note that E21c becomes acceptable provided *wonder about semantics* is given a telic interpretation, e.g. in the sense that James eventually came to a conclusion about semantics. YM, however, has no phase verbs that are incompatible with atelic descriptions. A final correlate of telicity is the scope ambiguity of adverbs such as *almost* which arises with telic durative predicates (accomplishments), but with neither atelic nor with punctual predicates (cf. Dowty 1979: 58-59).

- E22 a. Heidi almost watched yesterday's episode of *The X Files* (but her TV broke before the installment started).
b. Heidi almost watched yesterday's episode of *The X Files* (but her TV broke just when Scully was about to be abducted by the aliens).
c. Heidi almost watched TV yesterday (but the fuse burned when she turned it on).
d. Heidi almost switched on her TV yesterday (but then she decided to have a walk instead).

Only accomplishments allow for two alternative interpretations with *almost*, one in which *almost* has scope over the entire event (E22a) and one in which *almost* has scope over the terminal boundary only (E22b). Activities only admit the wide scope reading (E22c), and with achievements the distinction collapses (E22d). Such scope ambiguities due to telicity are attestable in YM as well.

²⁴ This test was apparently first proposed in Klein (1974).

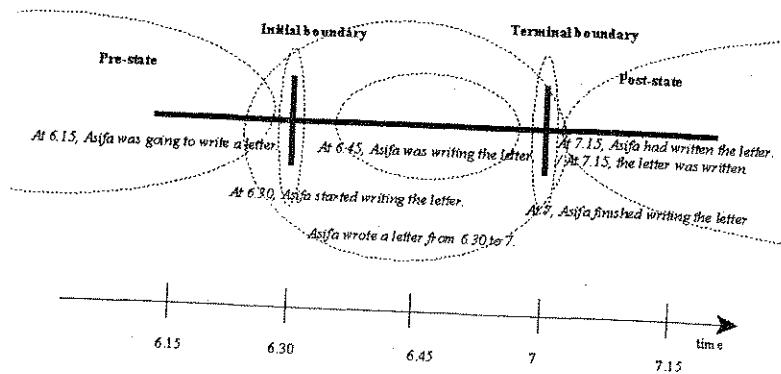
2.3. VIEWPOINT ASPECT

Aspectual viewpoints are "different ways of viewing the internal temporal constituency of a situation" (Comrie 1976: 3). They make a very important contribution to the construction of discourse representations, by selecting a particular *part* of the event denoted in an utterance for inclusion in the representation. Smith (1991: 171) captures this selective function of viewpoint-aspectual operators with the metaphor of a lens:

"The aspectual viewpoint of a sentence functions as an independent lens on the situation talked about. Viewpoint makes visible all or part of a situation, without obscuring the conceptual properties of the situation type." (Smith 1991: 171)

To understand the operation of selection, it is instructive to start from a maximal time-referential projection of what a given event expression *could* denote. This includes all parts of an event of the given type, plus its potential 'pre-states' and 'post-states' in a causal chain (these notions are defined below). F6 illustrates as an example the maximal referential projection of the event denotation of *Asifa wrote a letter*.

F6. Selection of event parts by the six logical viewpoint operators (example)



The event is projected onto the time line at five subsequent times, marked by the adverbials *at 6.15*, *at 6.30* and so on. At these times, five different parts of the event are selected. These are represented by the dotted ellipses. At 6.15, a pre-state of the event is asserted, using the 'prospective' construction *be going to* plus

infinitive. At 6.30, the initial boundary of the event is asserted by application of the ingressive phase verb *start*. At 6.45, the writing of the letter is in progress, as marked by the progressive tense. The progressive forms serve to assert an internal part of the event, without its boundaries being entailed. This instantiates 'imperfective' reference. Crucially, *Asifa was writing the letter* does not entail that Asifa subsequently finished the letter - hence the 'imperfective paradox' (Dowty 1979). At 7, however, Asifa indeed finished writing the letter, as marked by use of the egressive phase verb *finish*. At 7.15, the letter writing event is already in a post-state, which can be referred to using the perfect *Asifa had written the letter* or the resultative *The letter was written*. The letter-writing event in its entirety, including its boundaries but not the pre- or post-state, is rendered as completed, 'perfectively', by use of the simple tenses in English. Perfective reference is presupposed if the event as a whole is calendrically located in time, as is done in the example by use of two adverbials referring to both the initial and the terminal boundary (*from 6.30 to 7*). Alternatively, the event could be located with respect to an embracing calendrical interval (*Asifa wrote the letter in the evening*) or with respect to some salient point in calendrical time, in a context where the precise order of the writing event with respect to this calendrical event is assumed to be irrelevant (for example, *Asifa wrote the letter at seven*, if answering the question *Did she write the letter at five or at seven?*).

These different viewpoints are constituted by the combination of two components: a particular time about which a statement is made, and a particular part of the event (or a pre- or post-state) that overlaps with this time. The reference point is henceforth called the **topic time** (TT), following Klein (1994). Topic time is the time interval an assertion is "about", or more precisely, the temporal component of the "spatial, temporal, or individual framework within which the main predication holds", in Chafe's (1976: 53) characterization of 'topic'. By default, topic time is also the time interval with respect to which a proposition is asserted.²⁵ Consider the example Klein (1994: 39-40) utilizes to introduce this notion:

²⁵ There are, however, cases in which the equation of topic time and 'assertion time' is too simple, e.g. with embedded predications (cf. *Yesterday it seemed likely that by tomorrow, Loreta would have had an Encounter of the Third Kind*). But this problem can safely be neglected in the present study.

- E23 a. What did you notice when you entered the room?
 b. A man was lying on the floor.
 c. He was Chinese or Japanese.
 d. He did not move.
 e. A woman was bending over him.
 f. She was taking a purse from his pocket.
 g. She turned to me.

E23a could be a question a witness in a law court is asked, E23b-g representing the answer of the witness. E23a defines a time interval - the time of the witness's entrance - with respect to which E23b-f are asserted. This is the topic time TT of E23b-f. The time of the woman turning to the witness in E23g may also be included in this topic time, but it may also be 'shifted' with respect to it (depending on whether or not the events of E23f-g are understood to overlap). However, E23b-f all refer to eventualities that are not fully included in TT. TT only covers a certain portion of these eventualities, as it were. This is particularly clear in the case of E23c: the man's being Chinese or Japanese is certainly not claimed by the witness to have begun and ended within TT. But similarly, the man's lying on the floor in E23b, the woman's bending over him in E23e, and her taking the man's purse in E23f are understood to have begun before TT. Finally, the man's not moving is certainly not meant to be asserted for any other time than TT in E23d. E23d can not be interpreted to mean that the man seen lying on the floor was a habitual non-mover, and the witness, by choosing her words carefully, avoids assertions as to whether the man resumed moving after TT or whether he was actually dead at TT.

Based on the notion of TT, six notional viewpoint operators can be defined. These present the event in the discourse representation as **perfective** or **imperfective**, or they select the **initial** or **terminal** boundary of the event for assertion, or focus on a **pre-** or **post-state** of the event. They are 'notional' operators in the sense that they do not necessarily match with the function of language-particular 'aspects'. Language-particular viewpoint operators may combine more than one notional viewpoint operator (such as the perfective aspect marker of YM, which can code both perfective and post-state reference), or merge a viewpoint operator with a non-aspectual function (such as the simple tenses of English, which may be said to combine perfectivity with deictic tense meanings). Also, not all viewpoint operators are grammaticalized in all languages (cf. Dahl 1985 for an overview).

The six notional viewpoint operators receive interval-semantic definitions according to which **part(s)** of the event they entail with respect to TT.²⁶ Only the "portion" of the event that TT overlaps with is truth-conditionally entailed and becomes a part of the discourse representation. A viewpoint operator selects imperfective reference to a target event at topic time TT if neither the initial nor the terminal boundary of the event is included in TT, but some central part of the event is. Conversely, perfective reference to the target event involves inclusion of the initial and terminal boundaries of the event in TT. This explains the 'imperfective paradox'. For illustration, E24b is entailed by E24a, but E25b is not entailed by E25a.

- E24 a. Yesterday, Mary was walking on the Waalkade.
 b. Yesterday, Mary walked on the Waalkade.
 E25 a. Yesterday, Mary was writing a letter.
 b. (Yesterday,) Mary wrote a letter.

In explaining the imperfective paradox, the concept of **event realization** may be helpful. The term is borrowed from Talmy (1991) and Pederson (in press) and formally defined in the sense in which it is used here in Bohnemeyer & Swift (ms.). Realization of an event type denoted by a telic description presupposes realization of *all* parts of this event type. For example, realization of an event denoted by a state-change predicated entails realization of the target state (a letter has been written only provided the letter is completed). In contrast, realization of an event denoted by an atelic predicate merely presupposes realization of *any* part of the event, because all (durative) parts of the event instantiate the event type denoted by the predicate. Any durative part of a walking event instantiates the event type lexicalized by *walk*. Imperfective operators select an internal part of the target event for inclusion in TT, but no initial or terminal part. Hence, they

²⁶ The notion of 'event parts', and the mereological properties of event representations in general, are extensively discussed in Krifka (1989, 1992, 1998). Approaches to view point aspect similar to the one sketched here have been proposed by Bartsch (1986), Breu (1985, 1994), Chung & Timberlake (1985), Dowty (1979), Smith (1991), and in particular Klein 1994. Klein (1994) defines the meanings of aspectual operators in terms of order relations between TT and the run time or 'situation time' TSit of the target event. One disadvantage of this approach is that it fails to accurately capture the semantics of pre- and post-state operators. Also, it is not entirely clear how TSit is defined with imperfective, ingressive, and pre-state operators, since none of these entail realization of the target event. One major difference between the approach sketched in this section and those mentioned above is the inclusion of ingressive and egressive viewpoints.

entail realization when applied to atelic descriptions, but not when applied to telic descriptions. Perfective operators entail realization with both types of predicates. This accounts for the distribution in E24-E25.

The initial or terminal boundary of the event are focussed on by **phasal operators**. Phasal operators narrow the scope of the assertion to a particular **phase** of the target event, in particular (and *exclusively*, as far as they are considered in this study) its initial or terminal boundary. Phasal operators were first recognized as *phasenaktionsarten* in historical linguistics (cf. Hirt 1921-37 VI: 227-231; cf. also Coseriu 1976: 103-106). In the English literature, they have been discussed predominantly as coded by the so-called 'aspectual verbs' such as *start*, *begin*, *continue*, *cease*, *stop*, *quit*, *keep*, *end*, *resume*, *finish*, *complete*, *repeat* etc. (cf. Brinton 1988: 59-94, Freed 1979, Newmeyer 1975, ter Meulen 1995: 19-37).

Strictly speaking, if the phasal expression is a fully-fledged lexical item, its semantic content cannot be exhausted by aspectual reference to the boundary of another event. Phase verbs rather lexicalize the initiation or termination of a higher event as an event in its own right. The phasal expression then is inserted itself into the scope of another aspectual operator. Such combinations can be analyzed compositionally as introducing a complex viewpoint, as in E26a, where the ingressive verb *begin* selects the initial boundary of the event of Friederike's writing a dissertation, and the perfect then shifts reference to the post-state of the phasal event, which referentially yields an equivalent of imperfective reference, as in E26b.

- E26 a. Friederike has begun writing a dissertation.
b. Friederike is writing a dissertation.

The truth conditions for ingressive operators depend on the telicity of the embedded verb, just like the truth conditions of imperfective operators: E27a entails E27b, but E28a does not entail E28b.

- E27 a. James started walking on the Waalkade.
b. James walked on the Waalkade.
E28 a. James started writing a letter.
b. James wrote a letter.

With egressive phase verbs, the difference between phase verbs that entail

completion and those that do not (as introduced in the previous section) has to be taken into account. From E29a, E29b can be derived. From E30a (with *stop* which does not entail completion of the target event), E30b does not follow, and there is actually an implicature to negation of E30b. From E31a, however, with the completion-entailing *finish*, E31b is indefeasibly inferred.

- E29 a. Eve stopped walking on the Waalkade.
b. Eve walked on the Waalkade.
E30 a. Eve stopped writing a letter.
b. Eve wrote a letter.
E31 a. Eve finished writing a letter.
b. Eve wrote a letter.²⁷

Pre- and post-states are not just time intervals that follow or precede the target event in time, but are eventualities in their own right.²⁸ For example, E32 cannot be used in reference to *any* time interval preceding my having dinner at the Chinese place, and E33 cannot be felicitously used in reference to *any* time interval following the breakdown of my car.

- E32. I am going to have dinner at the Chinese place.
E33. My car has broken down.

A likely interpretation of E32 is that it refers to a time at which I entertain the plan of eating at the Chinese place, and E33 may be used to explain why I cannot give you a ride. Post-states are treated as some kind of trace that the occurrence of the target event leaves behind in the world; the most important case in point is the target state of a state-change description (e.g. *dead* refers to the target state of the event encoded by *die*, and *eaten (up)* to the target state of the event designated by *eat*). Post-states are coded by perfects of result, perfects of experience, and the like (cf. Comrie 1976: 56-61). The target event may be the consequence or purpose of the pre-state, or an agent may be said to be in an intentional pre-state with respect to the target event. 'Prospective aspects' such as the *be going to* + infinitive construction of English and its counterparts in Romance languages code

²⁷ It is of course not entailed that the letter was written entirely on the day it was finished, but it is entailed that the letter was written.

²⁸ In this respect, they differ from the 'pretime' and 'posttime' of Klein (1994: 109-117), which are simply time intervals that precede and follow the event, respectively.

pre-states. Pre- and post-states do not form part of the target event, but encompass it in a 'causal chain' (cf. Smith 1991: 33-36 and the literature quoted there), as causal conditions and consequences of the target event. Pre- and post-state operators select semantic components of the causal chain in which the event is embedded, in the same manner in which the other boundary operators select parts of the event itself. Post-state operators entail realization of the target event, while pre-state operators do not, independent of the particular event structure type: From E34a, E34b does not follow, nor can E35b be derived from E35a:

- E34 a. Eve was going to walk on the Waalkade.
 b. Eve walked on the Waalkade.
 E35 a. Eve was going to write a letter.
 b. Eve wrote a letter.

2.4. THE PROBLEM OF THE REFERENCE POINT

2.4.1. Relative tense

Reichenbach (1947) introduced the concept of the 'reference point' to the field of time semantics. Reichenbach proposed an analysis of the English tenses in terms of three-place time relations that locate the target event (or the 'event point' E) with respect to both coding time (or the 'speech point' S) and a reference time given in discourse (R). In Reichenbach's view, the pluperfect and the simple past share anteriority of E with respect to S, while they differ in the position of R: with the simple past, R coincides with E; with the pluperfect, R lies between E and S. This explains why the order of events in E36b, but not in E36a, is interpreted to be the opposite of the order of mention, provided the temporal location of the event referred to in the first clause of E36b is understood to provide the reference point for the interpretation of the pluperfect. In effect, the event point of the second clause is understood to be subsequent to the event point of the first clause in E36a, but prior to it in E36b.

- E36 a. Roberto went to Eva's office. Eva finished her analysis.
 b. Roberto went to Eva's office. Eva had finished her analysis.

Reichenbach's three-place event order structures have been shown to be implausible and inconsistent with the facts by Comrie (1981) and Hornstein (1990: 108-111). Both authors (and likewise Ogihara 1996: 49-55) propose two independent

order relations in the analysis of the complex tenses instead, one which relates E to S and one which relates E to R. These behave compositionally. Comrie (1985: ch. 3), following received usage originating from classical antiquity, calls the **deictic** relation between E and S an **absolute tense** relation and the **non-deictic** relation between E and R a **relative tense** relation. The complex tenses of English and other Indo-European languages, since they combine an absolute and a relative tense relation, are termed 'absolute-relative' tenses.

From Comrie's (1985: 56-64) discussion of relative tense, it becomes clear that the scope of relative tense analysis is not meant to be confined to finite tense inflection. It includes temporal clauses and other adverbial clauses (E37a), complement and relative clauses (E37b and c) and non-finite verb forms such as the participle in E37d.

- E37 a. When Roberto went to Eva's office, Eva had finished her analysis.
 b. Roberto realized that Eva had finished her analysis.
 c. Roberto admired the analysis Eva had finished.
 d. Roberto admired the finished analysis.

2.4.2. Temporal anaphora phenomena

It was Partee (1973, 1984), and following her Hinrichs (1981, 1986), who realized that the phenomena traditionally recognized as instances of relative tense, and in fact perhaps the entire range of event order phenomena in discourse, bears a striking resemblance to phenomena of nominal anaphora. One of Partee's examples is E38, uttered "while driving down the freeway":

- E38. I didn't turn off the stove. (Partee 1984: 244)

In order to make sense of E38, one has to recover from context a particular closed time interval within which the speaker should have turned off the stove, and E38 conveys with respect to precisely this time interval the message that she did *not* turn off the stove during this interval. This time interval presumably immediately precedes the speaker's departure from home. Partee reasons that the time interval in question behaves like an anaphorical antecedent in the temporal interpretation of E38. She then goes on to consider cases such as E39:

- E39 a. Sheila had a party last Friday and Sam got drunk.
 b. When John saw Mary, she crossed the street.
 c. At 3 p.m. June 21st, 1960, Mary had a brilliant idea.
 d. Mary woke up sometime during the night. She turned on the light. (Partee 1984: 245-246)

In all these cases, Partee argues, a clause (in E39c, an adverbial) provides an antecedent time to be recovered in the temporal interpretation of the following clause. Hinrichs (1981, 1986) identifies Partee's antecedent time with Reichenbach's 'reference point' and integrates Partee's approach into a Discourse Representation Theory (DRT) framework, adopting the event-based time semantics of Kamp (1979) (cf. §2.2). An essential innovation at this stage is Hinrichs's introduction of a treatment of aspectuality (which Hinrichs frames in terms of *lexical* aspect, namely the aspectual classes of Vendler (1957)).²⁹ Hinrichs notices that in narrative discourse, event order correlates with aspectual information.

- E40. The man arranged the stiff table linen, filled the two tumblers from a huge cut-glass pitcher, and set them in their proper places. (Hinrichs 1986: 69)
 E41. He went to the window and pulled aside the soft drapes. It was a casement window and both panels were cranked out to let in the night air. The apartment was on the second floor. The window itself was a scant five feet above the roof. (Hinrichs 1986: 69)

In a narrative stretch consisting of perfective clauses (on Hinrichs's account, consisting of accomplishments and achievements) such as E40, the events are interpreted to be ordered sequentially. By contrast, stative descriptions (which include, in Hinrichs's view, progressive constructions) such as those in E41 are interpreted to overlap. Hinrichs accounts for this phenomenon by arguing that perfective aspect **shifts** or **advances** the reference point. Clauses with perfective viewpoint, according to Hinrichs, introduce a new reference point located "just after" the previous one.

²⁹ Kamp & Rohrer (1983) offer an aspect-based analysis of temporal-anaphora phenomena in French that also recasts Reichenbach (1947) in DRT.

2.4.3. From reference point to topic time

The antecedents of Partee's and Hinrichs's temporal anaphora phenomena are in fact better reconstructed as 'topic times', in the sense introduced in the preceding section, than as Reichenbachian reference points.³⁰ Reconsider the examples presented above to introduce Reichenbach's approach:

- E42 a. Roberto went to Eva's office. Eva finished her analysis.
 b. Roberto went to Eva's office. Eva had finished her analysis.

The simple past in the two clauses in E42a induces two TTs that contain the run times of the two events, just as Reichenbach proposes the event points of simple past clauses to overlap with their reference points.³¹ However, if the pluperfect in E42b is interpreted as a post-state operator, then it assumes a TT temporally included in the state of Eva's having finished her analysis, which is not identical to the event point of the first clause. It is only in the context of E42b that this larger interval of the time of Eva having finished her analysis is confined to the time for which it is true that Roberto went to Eva's office, and this is so, simply because other times for which the clause containing the pluperfect *might* be asserted are not relevant in the context of E42b.

Now consider temporal connective constructions:

- E43 a. After Eva left, Roberto bothered me a lot.
 b. Since Eva left, Roberto has been bothering me a lot.
 c. Before Eva left, Roberto bothered me a lot.
 d. Until Eva left, Roberto was bothering me a lot.

In all these examples, the TT of the main clause is *constrained* by the run time of

³⁰ Partee 1984 seems to acknowledge this: "Reference times are not directly *denoted* by any part of the sentence; they are more like a **part of the necessary context for interpreting** tensed sentences (...), akin to the kind of locative **frame of reference** needed to interpret *left* and *right* and other locative expressions. And like the locative case, **they are not bound to the actual context of the utterance but can be 'constructed'** and shifted in the course of interpretation." (pp. 264-265; emphasis in boldface mine)

³¹ The English past is generally believed to have perfective aspect with dynamic verbs and imperfective aspect with stative predicates. Cf. e.g. Brinton (1988: 16), Klein (1994: 9; 102-107), Matthews (1994: 82-85), Smith (1991: 220-222).

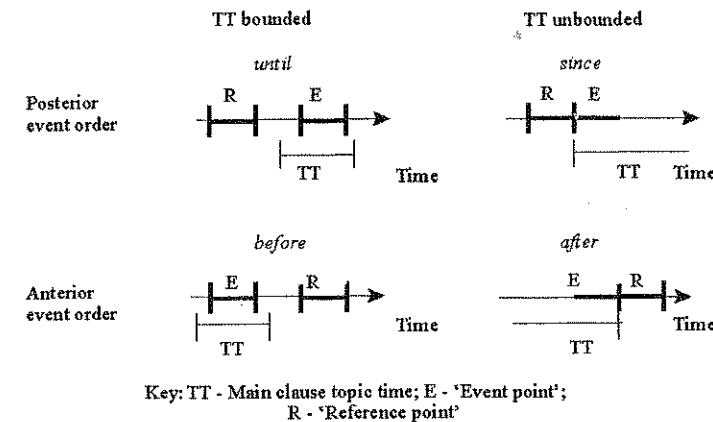
the temporal clause event, but it is not identical with it. The time for which the main clause event is asserted is clearly different from the time for which the temporal clause event is asserted. For example, in E43a and b, the time for which it is true that Roberto bothered me a lot is shifted to the time *after* Eva's departure. And as usual when it comes to an event referred to perfectly by use of a simple English tense, it is understood that Roberto's bothering me a lot happened sometime during this shifted TT. There are thus at least three different time intervals relevant for the interpretation of E43a-d: the temporal location of the main clause event, the time TT for which the main clause event is asserted, and the temporal location of the temporal clause event which serves to constrain the main clause event. These three parameters are represented in the diagrams in F7, using the Reichenbachian labels *E* and *R*. In a Reichenbachian analysis, the time of the temporal clause event would most likely be identified as the 'reference point' *R*, and nothing in a Reichenbachian framework would warrant selection of the main clause TT as the 'reference point'.³²

Now reconsider Partee's introductory example E38, *I didn't turn off the stove*. Partee noted that the correct interpretation of this utterance depends on the recovering of an 'antecedent' time interval to which the proposition is constrained. This is actually a paradigm example of a topic time, much like the examples quoted from Klein (1994) in introducing the concept of 'topic time' in §2.3.

Hinrichs's (1981, 1986) approach to referential shift entails that the reference point of a perfective clause in a narrative sequence of perfective clauses is *not* identical to either the 'event point' or the 'reference point' of the preceding clause, but is *advanced* with respect to both. On Hinrichs's account, every clause has its own reference point, and only in the case of imperfective reference is this

³² The case in which the temporal clause 'situation time' (*E* in F7) constrains the main clause TT is actually only one of the possible construals of temporal-connective constructions. Consider the example *Frank had written the letter while he was in Lyon*. The pluperfect in the main clause gives a TT following the letter writing event. So if the temporal clause accesses this TT, then Frank most likely wrote the letter before arriving in Lyon. But the more prominent reading is that the letter was written in Lyon - in which case it is the main clause event time that is accessed by the temporal clause. The analysis presented here seems largely in line with Hinrichs (1981: 81-82) and Partee (1984: 262-265). Other studies of temporal connectives in Indo-European languages include Durrell & Brée 1993, König 1972, Kroch 1972, Heinämäki 1972, 1974, Lutzeier 1984, Marq 1988, Oversteegen 1988, and Sandström 1993.

F7. Topic times vs. reference points in temporal-clause constructions



reference point understood to be identical to the one of a clause in adjacent discourse. But this is a matter of *inference*. In Hinrichs's approach, events in the discourse representation are never *directly* related by event order relations, but only *indirectly*, via the 'reference points' - or, in the framework of the present study, the *topic times* - for which they are asserted. This is exactly the stand Klein (1994) takes on the issue of tense. In Klein's program, neither absolute nor relative tenses directly affect the target event's location in time. Absolute (i.e. deictic) tenses code an event order between coding time and *topic time*. Thus, in Klein's introductory example quoted in §2.3 and reproduced below, the victim's being Chinese or Japanese is not asserted to be temporally *located* in the past of coding time in E44c - this would entail that the victim is not Chinese or Japanese anymore at coding time. Rather, the *assertion* of E44c is restricted to a TT prior to coding time (and further constrained by the initial question E44a to which the following utterances respond).

- E44 a. What did you notice when you entered the room?
 b. A man was lying on the floor.
 c. He was Chinese or Japanese.

2.4.4. Relative tense revisited

For the notion of 'relative tense', there is no place at all in Klein's framework. Relative tenses are reconstructed as *aspects*. Instead of assuming that the pluperfect in E45 codes anterior event order to obtain between Eva's finishing her analysis and Roberto's going to her office, Klein analyzes the pluperfect as asserting the post-state of Eva's finishing her analysis at the second clause's TT. Since the post-state is itself interpreted imperfectively, no 'referential shift' is inferred, and the topic time of the second clause is inferred to be identical with the TT of the first clause. The first clause is semantically perfective, and accordingly, it is inferred that the event of Roberto's going to Eva's office is completely included in the time for which it is asserted that Eva's finishing her analysis was in a post-state.

E45. Roberto went to Eva's office. Eva had finished her analysis.

But whether relative tenses really exist is an empirical question. No property of any theory can *a priori* preclude the existence of tense morphemes in some languages which semantically behave like temporal connectives, determining the TT of their clause with respect to an event time anaphorically tracked in discourse. So what are the empirical criteria that determine whether something is an aspectual (or modal) marker or rather a relative tense? Two such criteria are assumed in this study. First, the interpretation of relative tense operators should be independent of the order of mention, like the temporal-clause construction in E46, and unlike the simple tenses in E47, and it should be restricted to a position following its antecedent, like the anaphorical connective afterwards in E48:

- E46 a. Roberto went to Eva's office after Eva finished her analysis.
 b. After Eva finished her analysis, Roberto went to Eva's office.
- E47 a. Roberto went to Eva's office. Eva finished her analysis.
 b. Eva finished her analysis. Roberto went to Eva's office.
- E48 a. Roberto went to Eva's office. Afterwards, Eva finished her analysis.
 b. *Afterwards, Eva finished her analysis. Roberto went to Eva's office.

The second criterion presupposes that a given operator cannot encode *both* an aspectual (or modal) function *and* relative tense. Accordingly, a relative tense analysis is defeated by showing that the operator has a modal or aspectual meaning. The rationale behind this can be illustrated with respect to the construc-

tion *be* + perfect participle, which does not allow for time-locational adverbials that specify the event time of the target event. *On Wednesday* in E49 cannot be read as referring to the day of the dismissal (except if the construction is interpreted as passive).

E49. On Wednesday, Henry was (in the state of being) fired. He slept until the afternoon.

The post-state reading cannot be accounted for by a traditional tense analysis, because it does not entail a location of the target event in time. This safely establishes an aspectual function of *be* + perfect participle. But suppose it is argued that *be* + perfect participle has a relative tense meaning *in addition* to its aspectual function. It might be argued that *be* + perfect participle codes an 'anterior past' with respect to the reference event of sleeping until the afternoon. But which event is located in the past of the sleeping event, the dismissal or the state of being dismissed? It cannot be the latter, because the state of being dismissed *overlaps* with the sleeping event. But it cannot be the former, either, because the firing event is not accessible to time-positional specifications, as shown by the interpretation of *on Wednesday*.³³ The general point illustrated by this example is that it is infelicitous to *combine* an aspectual (or modal) analysis with a relative tense analysis (unless under strong polysemy), because a conflict between the relative tense's reference interval and the aspect's viewpoint will result.³⁴

2.4.5. A Gricean approach to temporal anaphora phenomena

In the framework assumed in this study, the description of the time-referential properties of any given utterance boils down to two questions: First, how is the event encoded in the utterance related to the TT for which the utterance is

³³ A candidate for a real 'anterior tense' may be Japanese *-ta* according to Ogihara (1996, 1999), at least on the basis of the second criterion (*-ta* combines with aspectual operators and admits by itself only event-time specifications).

³⁴ It is assumed here that the argument can be extended to modal operators without much difficulty. Modal operators are generally asserted for topic times which deviate from the time of the event inside the scope of the modal operator, and this deviation creates 'viewpoint' phenomena similar to those that occur with aspectual operators. For illustration, the reader is referred to the analysis of YM modal markers in §6.2.2.2.

asserted (or questioned)? And second, how is the TT of this utterance determined in context? The first question is answered essentially by an aspectual analysis. The answer to the second question may involve various analytical resources. Semantic analysis is concerned to the extent that tenses (or sometimes temporal adverbs) determine TT with respect to coding time, or in case TT is determined with respect to an event introduced in discourse by the use of temporal connectives.

But tracking TT in discourse is also dependent on *pragmatic* factors. It is above all a matter of inferences in context. Viewpoint operators play an important part in such inferences. Events are *presented* imperfectively or perfectly, or in a pre- or post-state, or as beginning or terminating, *with respect to other events* in the discourse representation. Aspectual viewpoints align with relevant topic times to create discourse coherence. And perfectivity aligns with event order, in the sense that sequentiality presupposes boundedness. This is illustrated in E50.

- E50 a. James moved to Leiden. He was in good health.
 b. James moved to Leiden. He was preparing a class.
 c. James moved to Leiden. He bought a new TV set.

The events in E50a and b will be interpreted by default to overlap, because the stative clause in second position in E50a and the progressive clause in second position in E50c do not provide information about boundaries, but such information is required to establish sequential order with respect to the event of James's moving. By contrast, the second clause in E50c is interpreted perfectly (indefeasibly, to the extent that the English simple past tense really includes a perfective operator), and accordingly, the two clauses are by default interpreted to refer to events in sequential order.

Logically, sequential order depends on perfectivity, because in order for two events to be ordered sequentially, they both have to be bounded in time, in such a way that the terminal boundary of the first event precedes the initial boundary of the second event. This logical relationship underlies a core part of the inferences to event order that can be derived from information concerning event boundaries. An interval-semantic interpretation of events in the discourse representation with their boundaries, as selected by viewpoint operators, and their mutual order yields a very dense information structure. In this information structure, event boundaries

and event order cannot be dealt with independently of each other. Asserting information about the order of events has repercussions for what is known about the boundaries of the events and vice versa. If an event is presented imperfectively, one is led to assume that it overlaps with some other event, and if it is presented perfectly, one is led to assume that it does not overlap with some other event in the discourse representation, but is ordered sequentially with respect to it. If two subsequently coded events are presented perfectly, one is led to assume that they are asserted for distinct TTs, and hence infers a shift of TT. Such inferences have been termed **boundary-to-order (BTO) inferences** in Bohnemeyer (1998 [d]; 2000 [a], [b]).

It is crucial to realize that a core part of BTO inferences are **defeasible** (or **non-monotonic**).³⁵ Here is an example:

- E51. Jameson entered the room, shut the door carefully and switched off the light. It was pitch-dark around him because the Venetian blinds were closed. (Hinrichs 1986: 68)

Stative clauses in the simple past tense are interpreted imperfectively. Accordingly, they invite an inference to overlap. In E51, this inference is canceled, because the state of it being pitch-dark in the room is causally related to the preceding event of turning off the light. BTO inferences are weak enough to get predictably overridden by causal inferences rooted in world knowledge (cf. Lascarides & Asher 1992, 1993). Another example, also based on Hinrichs (1986: 74):

- E52 a. John built a sailboat and wrote a detective story.
 b. John built a sailboat and Bill wrote a detective story.

³⁵ Although the non-monotonic nature of BTO inferences is generally acknowledged in Formal Semantics treatments of time reference and temporal coherence in discourse (such as Hinrichs 1981, 1986; Kamp 1979; Kamp & Rohrer 1983; or ter Meulen 1995), it is assumed that discourse representations of event order based on BTOs have truth-conditional status once the inferences have been made. That is, the defeasibility of BTOs is treated on a par with the problem of recovering anaphoric antecedents, as opposed to the problem of representing the truth-conditional *meaning* of the anaphor once the antecedent has been recovered. But treating event order inferred from aspectual operators according to BTO inferences like anaphora resolution means effectively treating aspectual operators as anaphoric tenses, and such an approach is inadequate.

In both utterances, two dynamic events are coded by simple past clauses. Hence, sequence is expected, which is indeed the case in E52a, but not in E52b. One may still assume, as Hinrichs apparently does, a shift in TT in E52 (although nothing allows us to determine whether or not such a shift has occurred), but it is evident that the most likely interpretation of the order of *events* in E52b is overlap. Again, this inference may be ultimately traced to causality: events are less likely to overlap when involving the same core participant. Another example of this type is E53:

E53. Anna was inflating the balloon, when it suddenly burst.

Bohnenmeyer (1998 [d]; 2000 [a], [b]) proposes a treatment of BTO inferences as **generalized conversational implicatures** (GCIs) in the sense of Grice (1975) (cf. also Levinson 2000). The six principled BTO GCIs, one for every notional viewpoint operator, are presented below. The inferences are phrased as directives issued to the addressee. For the speaker, these directives spell out default interpretations that s/he can rely on the addressee to derive, provided the addressee has no reason to assume that the default interpretation does not apply to the particular utterance.

- T_p:** (the **perfective principle**) If the target event is referred to perfectly, assume the existence of another event in adjacent discourse such that this event does not overlap with the target event, *unless there is evidence to the contrary*.
- T_i:** (the **imperfective principle**) If the target event is referred to be imperfectively, assume the existence of another event in adjacent discourse such that this event overlaps with the target event, *unless there is evidence to the contrary*.
- T_{pre}:** (the **pre-state principle**) If a pre-state of the target event is referred to, assume the existence of another event in adjacent discourse such that this event overlaps with the pre-state (and hence precedes the target event) *unless there is evidence to the contrary*.
- T_{post}:** (the **post-state principle**) If a post-state of the target event is referred to, assume the existence of another event in adjacent discourse such that this event overlaps with the post-state (and hence follows the target event) *unless there is evidence to the contrary*.
- T_{ing}:** (the **ingressive principle**, enriched by iconicity inferences) If the initial boundary of the target event is referred to, assume the existence of another event in preceding discourse such that this event does not overlap with the target event, *unless there is evidence to the contrary*. Alternatively, assume the existence of another event in subsequent discourse such that this event overlaps with the target event, *unless there is evidence to the contrary*.

T_{egr}: (the **egressive principle**, enriched by iconicity inferences) If the terminal boundary of the target event is referred to, assume the existence of another event in preceding discourse such that this event overlaps with the target event, *unless there is evidence to the contrary*. Alternatively, assume the existence of another event in subsequent discourse such that this event does not overlap with the target event, *unless there is evidence to the contrary*.

Projection rule: Any implicature to overlap *overrides* any implicature to sequence.

T_{ing} and T_{egr} branch into two alternatives which are selected according to context. Both alternatives call upon iconicity inferences. T_b, T_{ing}, and T_{egr} can be said to be commonly *enriched* by iconicity inferences. These have a source different from that of BTO inferences. The projection rule accounts for the fact that *every* sentence in discourse has a notional viewpoint operator as part of its meaning, (i.e. has perfective or imperfective reference, or pre-state reference, etc.) and that consequently, the implicatures triggered by adjacent sentences in discourse may clash. A conflict only arises when an implicature to overlap meets an implicature to non-overlap; in this situation, the projection rule ensures precedence of the implicature to overlap.

2.5. SUMMARY

This chapter has introduced some key notions that feature prominently in the analysis of the grammar of temporality in YM: event structure, lexical aspect, viewpoint aspect, absolute and relative tense, temporal connectives, and temporal anaphora phenomena. To recapitulate the basic assumptions: Event structure information is encoded in predicate lexemes and in constructions headed by them. It represents event type meanings in terms of a decomposition into subevents of the primitive event predicate types state, process, and state change and also encodes the causal relations across these subevents. Lexical-aspectual meaning encompasses the parameters of dynamicity, durativity, and telicity. Lexical aspect is compositional and only partly determined by lexical or constructional event structure. Viewpoint aspect is a relation between the topic time of an utterance and the part of the event denoted by the utterance that overlaps with the topic time. Six notional viewpoint operators may be distinguished, defining perfective, imperfective, pre- and post-state, ingressive, and egressive viewpoints.

Absolute and relative tenses and temporal connectives primarily serve to relate the topic time of an utterance to some other time, e.g. coding time in the case of absolute tenses. The bulk of phenomena that have traditionally been subsumed under the notion of relative tense are more appropriately treated as viewpoint-aspectual operators. The role of aspectual operators in temporal-anaphora phenomena can be captured in terms of Gricean generalized conversational implicatures that determine defeasible default interpretations of event order on the basis of the use of viewpoint operators in context.

METHODOLOGICAL ISSUES

CHAPTER 3

The previous chapter has laid out a theoretical framework for the description of the grammar and lexicon of temporality to be presented in §§4-8. The present chapter deals with methodological preliminaries that demand clarification before the proper aims of this study can be tackled. §3.1 provides essential background information on YM and its speakers, the orthographic conventions followed in this study, and the relevant background of research on YM. §3.2 provides a protocol of the research procedures used to obtain the data presented in this study and gives an overview of the corpus the study is based on. §3.3 comments on the general methodological position adopted here: truth-conditional semantic analyses are performed in order to enable distinctions of entailments from defeasible inferences, and in line with that, monosemous instead of polysemous semantic analyses are attempted wherever possible.

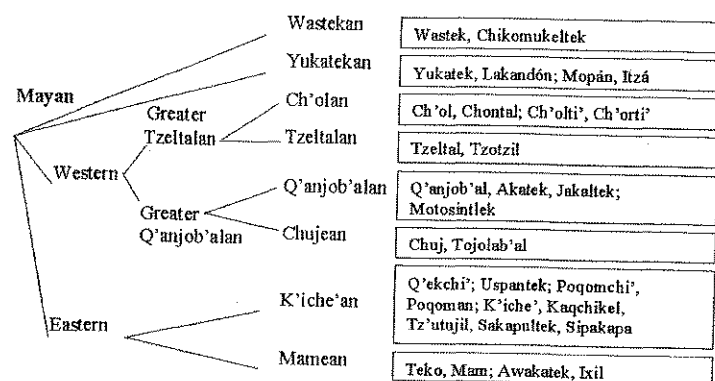
3.1. THE LANGUAGE AND ITS SPEAKERS

3.1.1. Geographical distribution and genetic affiliation

There are about thirty different languages still spoken today which uncontroversially belong to the Mayan family. A subgrouping into five branches is now widely accepted, cf. F8.³⁶ The first two of these branches are sometimes referred to as isolated, for reasons which are both diachronic (they are said to have split from the common language earlier than the others) and geographic: while the lower three subgroupings are located in a more or less homogeneous area covering the southern Mexican states of Tabasco and Chiapas and the whole territory of Guatemala, Huastec is found as far away as the central Mexican states of Veracruz and St. Luis Potosí (about 600 kilometers north of the main Mayan area). Of the four languages that constitute the Yucatekan branch, only Lakandón, spoken in the center of Chiapas, and Mopán, spoken in southern Belize and the adjacent Petén area of Guatemala, have significant contact with other Mayan languages.

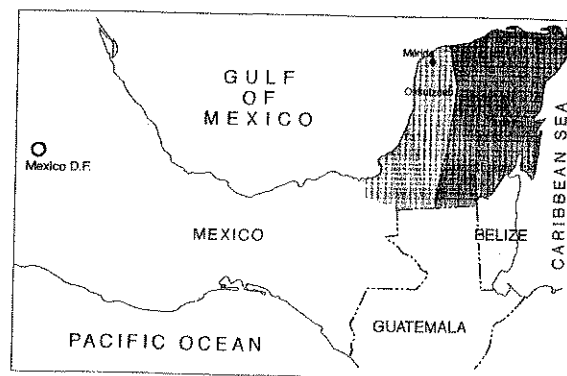
³⁶ Chicomuceltec is now extinct. The status of Chorti' and Choliti' with respect to each other is controversial, as well as the grouping of Chuj. A more broadly divergent view on the structure of the family tree is articulated in Robertson 1992.

F8. Genetic structure of the Mayan family (according to Campbell & Kaufman 1990: 52)



Itzá is isolated in some villages in the Petén province of Guatemala. Yukatek Maya,³⁷ the language the present study is concerned with, is spoken all across the peninsula of Yucatán; more precisely, its speakers live in the Mexican states of Yucatán, Campeche, and Quintana Roo, in the Belizean districts of Corozal and Orange Walk, and in some bordering villages of the Petén province of Guatemala.

F9. The YM area



³⁷ The autodenomination of YM is *Maya t'áan* 'Maya speech', or simply *Maya*.

The four languages of the Yukatekan branch are generally considered to be mutually intelligible (cf. e.g. Edmonson 1986: 2). However, attempts I have made to translate Mopán texts (Ulrich & Ulrich 1982) with YM native speakers failed, whereas Lakandón (Bruce 1976) and Itzá (Hofling 1991) texts pose hardly any understanding problem to native speakers of YM, due to a great amount of lexical convergence. There are, however, some phonological and morphosyntactic traits which Mopán and Itzá share³⁸ and which distinguish these two languages from Lakandón and YM, which may explain the subgrouping represented by the semicolon in F8.

YM speakers currently have no regular contact with speakers of any of YM's sister languages, or indeed with any other languages aside from Spanish (and, in Corozal and Orange Walk, with English). With approximately 800,000 speakers age five or older in 1995,³⁹ YM is one of the largest indigenous languages of the Mesoamerican area. Considering the numbers of speakers, and the size of the territory, YM displays a striking amount of dialectal homogeneity. Native speakers from any part of the peninsula find no difficulty communicating with each other. If dialectal homogeneity is taken into account, YM is perhaps *the* largest language of Mesoamerica (cf. Suárez 1983: 169-70). The absence of strong diversification is probably due to the largely uniform topography of the peninsula, and to the fact that large parts of the centre and the east were almost uninhabited during the first three centuries after the conquest. Nevertheless, there are some regular lexical and morpho-phonological differences (cf. Pfeiler 1995) that allow one to distinguish between 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). In F9, the estimated distribution of the two varieties is represented by the differently shaded parts of the YM area. These two varieties are referred to as *western YM* vs. *eastern YM* in this study. The western dialect displays considerably more influence from Spanish, but, at the same time, greater conservatism in

³⁸ I conclude this from the sources mentioned.

³⁹ According to the 1995 census (*Conteo de Población y Vivienda 1995 de los Estados Unidos Mexicanos*), as published by the *Instituto Nacional de Estadística, Geografía e Informática (INEGI)*; cf. http://www.inegi.gob.mx/home/homepara/conteo/rep_mex.html.

both lexicon and morphosyntax. According to Edmonson (1986: 2-7), the differentiation of these dialects may date back to prehispanic times. The present study is exclusively based on the eastern variety. Crosscutting this geographical variation there is a differentiation of sociolectal patterns that deserves further study, but is not considered in this study.

Bilingualism varies drastically across the YM territory. Although Suárez (1983: 171) estimates the total number of monolinguals at just 15% of all speakers (and this figure has certainly diminished since 1983), there are actually hardly any monolinguals at all in urban areas, whereas in the village where the research reported here was carried out, most children grow up monolingually before they enter school, and most woman and virtually all people above age 60 have very little command of Spanish. Spanish is acquired at school, diffused through mass media, and used in church. In conversation, Spanish is used only talking to non-Maya-speakers.⁴⁰ The research presented here has been conducted first and foremost in YM. Aside from the direct elicitation work commented on in §3.2.2, which relied to a large extent on translations of Spanish stimulus utterances, Spanish has been used only occasionally, predominantly to provide technological and metalinguistic vocabulary.

Modern YM is the descendant of Classical YM, more often, though somewhat inappropriately, called 'Colonial YM'; the term is nevertheless adopted here, due to its greater diffusion. Colonial YM is considered to have been in use between the middle of the 15th and the middle of the 17th century (McQuown 1967: 202), the Spanish invasion cutting right through the middle of this era. Spanish missionaries developed a writing system based on the Spanish orthography; a small number of texts (chronicles, prophecies, letters and more) written in this orthography have been preserved through the centuries.⁴¹ In the transition from Colonial to Modern YM, the language has experienced considerable morphosyntactic restruc-

⁴⁰ See Kummer (1982) and Pfeiler (1985, 1988) on bilingualism in other areas of the peninsula.

⁴¹ Colonial YM 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 Colonial YM include McQuown (1967) and Smailus (1989).

turing (cf. Lehmann ms.). To speakers of Modern YM, Colonial texts are of rather low intelligibility.

3.1.2. Social and ethnographic situation

In this section, some ethnographic background on the people whose language is investigated in this study is provided. The first part of this does not directly bear on the issues of the study, but may help understand many examples from spontaneous discourse. The second part comments on what is known about the conceptual representation of time among the speakers of YM.

This study presents the results of fieldwork conducted between 1991 and 1997 in the village of Yaxley, a community of about 550 inhabitants (virtually all households practice corn farming). Yaxley is located in the municipal district (*municipio*) of Felipe Carrillo Puerto in the center of the state of Quintana Roo, at about 88.2° western longitude and 19.8° northern latitude.

F10. The field site



The ancestors of the present-day native population of central Quintana Roo arrived in this area in the middle of the 19th century as refugees from the Caste War, an uprising of the Mayan population of Yucatán and Campeche against the ruling classes (or *castes*) formed of whites and mestizos (*ladinos*), with ethnic thrust but social and economical motivations. When the rebellion collapsed under the onslaught of local and federal troops in late 1848, tens of thousands fled into the then largely uninhabited rainforests of what is now Quintana Roo. They reorganized their lives, based on a religious cult that evolved around the revelations and prophecies of a speaking cross, which has given rise to the scientific name of this ethnic group, *Cruzo'b* (with the YM plural marker *-o'b*).⁴² The first ethnographic field work on the *Cruzo'b* was published in Villa Rojas (1945, 1987). Today, Yaxley (founded in 1948) is one of eleven villages whose inhabitants preserve the cult of the Cross in the center of Tixcacal Guardia.

The economic basis of *Cruzo'b* society is cyclic slash-and-burn corn agriculture on a subsistence scale (*milpa* farming), as it is in most parts of the peninsula.⁴³ Due to ecological conditions (sparseness of soils, susceptibility to erosion, scarcity of surface water, low predictability of rainfalls) which preempt more intensive forms of agriculture, the techniques of *milpa* agriculture deployed by present-day *Cruzo'b* peasants are by and large the same as those their ancestors applied for thousands of years (cf. Wilson 1980). As the population supportable by this form of agriculture is limited, but population has increased constantly ever since the *Cruzo'b* began to become integrated into Mexican society, 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.⁴⁴

⁴² A detailed journalistic presentation of the Caste War and the *Cruzo'b* rebellion is found in Reed (1964). Cf. also Bricker (1981 [b]) and Sullivan (1989). On a smaller scale, and apparently partly stimulated by the events on the peninsula, parallel events occurred in other parts of the Mayan area; cf. e.g. Gossen (1974: 2-3) on Chamula, Chiapas.

⁴³ A seminal ethnographic study of life in a Mayan village of Yucatán is Redfield & Villa Rojas 1934.

⁴⁴ Additional regular sources of income are the selling of tropical wood, the recollection of *chicle*, beekeeping, small-scale livestock and small-scale cultivation of fruit and vegetables (cf. Hostettler 1992). All land is community property and can neither be sold nor inherited; right of use is assigned by co-operatives (*ejidos*) among whose members the returns of the wood trade is also redistributed. *Cruzo'b* society is patrilineal but shows some

There are two pieces of "folk knowledge" that non-Mayanists rarely ever fail to produce when conversation touches upon the issue of time among the Maya: the calendars of ancient Mayan civilization, and the cyclicity of the time concept in this culture. Classical Mayan cultures, like most Mesoamerican cultures (see Edmonson 1988 for a comparison), used intricate systems of calendrical reference. Among the Mayan peoples, various versions of two intersecting cyclic calendars (a 365-day solar year and a 260-day year not based on celestial bodies) combining with a non-cyclic count of 360-day units were in use. Based on this system, astronomical calculations of baffling accuracy were carried out (see Aveni 1992). The naming of days conveyed associations with cosmic coordinates and deities (León-Portilla 1968). Hieroglyphic chronologies dated historical or prophesied events and established patterns of meaning for the community recurring across the instances of particular cyclic intervals (perhaps not unlike Western horoscopes). It is generally believed that precise dating based on the calendars and the interpretations of calendrical units had a great impact on the life of Mayan societies. Some Mayanists have suggested that ancient Mayan culture was *obsessed* with a "philosophy" of time as such (Thompson 1954, 1960). Like among all Lowland Maya (Tedlock 1982: 1), among the *Cruzo'b* the ancient calendars are obsolete. The religious *fiestas*, regardless whether of catholic or *Cruzo'b* provenance, and the phases of the *milpa* cycle⁴⁵ are scheduled according to the Gregorian calendar.

It seems not unlikely that some Mayanists (especially if they are of the Thompsonian persuasion) may object to one of the central claims of this study - that event order is virtually unlexicalized in YM - pointing to the great importance of calendrical dating in Mayan culture. It should be stressed that there is absolutely no contradiction here. First of all, this study concerns the linguistic expression of time reference, not the cognitive representation of time. In fact, the experimental evidence presented in Bohnemeyer (1998 [b], [d]; 2000 [a]) shows

matrilocal features; households now consist predominantly of nuclear families, while the traditional extended-family household is constantly losing importance (cf. Villa Rojas 1987: 235-245).

⁴⁵ Throughout much of the Mayan area, and probably in other parts of Mesoamerica as well, *milpa* work is scheduled according to precise dates. For example, on the Yucatán peninsula, the sowing of maize is supposed to start either at the *Día de la Santa Cruz*, on May 3, or else (if the rains have not yet set in by May 3) on May 15.

that the absence of event order relations in YM code has no attestable effects on the cognitive representation of time. But secondly, as argued in §2.1.4, calendrical reference does not (or not necessarily) specify a particular *order* between the target event and a calendrical reference interval, but only indicates that the target event (or the topic time for which it is asserted) is determined *at all* with respect to the particular calendrical index. The expression of calendrical reference in YM is dealt with in §7.2.

It has often been claimed (e.g. Arzápalo 1984, Farriss 1995, Gossen 1974: 15, León-Portilla 1968) that Mayan cultures entertain a predominantly *cyclical* view of time. This is a somewhat misleading representation of the fact that, for all that is known, classical Mayan cosmology considered there to be much more necessary repetition in the course of events than does Judeo-Christian cosmology, or the most widely accepted cosmological model of modern astrophysics, with its concept of a linear development from beginning to end. The way ancient Mayan chroniclers captured the periodic repetition of events in terms of the interpretation of calendrical units does not contradict, but actually presupposes a structure of time which is itself linear. What is referred to by saying that time has a linear structure is simply that events and time intervals either overlap or are ordered so that one unambiguously precedes the other. A cyclical time structure, then, would be one in which an event A both follows and precedes one and the same event B. This is actually excluded in the ancient calendar, by the fact that subsequent instances of the same calendrical interval are successively counted. The view that history keeps repeating itself, though at ever changing levels, is still held among the *Cruzo'b* Maya of today. I do not think that this cosmological conception has any direct impact on the linguistic representation of time in YM, and it is largely neglected in this study.

3.1.3. Orthographical conventions

F11 presents the phoneme inventory of YM according to Blair (1964: 1) and Straight (1976 [a]: 22-23), with some simplifications that are commented on below, in the orthography used throughout this study.

F11. YM consonant phonemes according to Blair (1964: 1) and Straight (1976 [a]: 22)

Consonants	Bilabial	Apico-Alveo-Dental	Lamino-Alveolar	Centro-Palato-Velar	Dorso-Palato-Velar	Laryngeal
Plain	p	t	ts	ch	k	{ ' }
Ejective	p'	t'	ts'	ch'	k'	
Prevoiced	{b'}					
Voiced	(b)	(d)			(g)	
Voiceless Spirant	(f)		s	x		h
Nasal	m		n			
Semi-vowel				y	w	
Lateral			l			
Flap		(r)				

Phonemes in plain brackets (/b/, /d/, /g/, /f/, /r/) only occur in loan words. Allophonic variants (e.g. velarization of /n/ before velars) are omitted. The flap-trill distinction with Spanish /r/ is not represented. The same holds for the distinction of the voiced fricative plosives in loanwords (IPA β, ð, γ). The prevoiced glottalized stop /b'/ may be realized with or without glottalization in onset position, in particular intervocalically, so that it merges with Spanish /b/, whereas in coda it is realized by glottal and bilabial closure and lack of plosive release. The orthography used in this study levels out these allophonic distinctions and conflates YM /b'/ and Spanish /b/ in the representation *b*. Except when in onset position, the plain glottal stop (/'/) is analyzed as forming a phonemic combination with the preceding vowel (see below). The glottal stop in onset position is not orthographically represented, as it is generated by phonotactic and morpho-phonemic rules. YM syllables only admit consonants and semivowels in the onset. If the onset is not lexically occupied by a consonant phoneme, then it is taken by the semivowels (or 'onglides') after most of the set-A cross-reference clitics (cf. §4.1) and by the glottal stop elsewhere. So *àalak'* 'domestic animal' represents /'àalak'/ in *le àalak'-o* 'the domestic animal' but /àalak'/ in *inw àalak'* 'my domestic animal' (with the onglide /w/ following the cross-reference marker *in* for 1.SG possessor).

F12. YM vowel phonemes according to Blair (1964: 1) and Straight (1976 [a]: 23)

Basic vowel qualities			Other phonemic features	
	Front	Back	Long	ii, uu, ee, oo, aa
High	i	u	High-Tone	fi, úu, ée, óo, áa
Mid	e	o	Low-Tone	ii, ùu, èe, òo, àa
Low		a	Laryngealized	i', u', e', o', a'

The structure of the tonal system is not entirely clear. I assume a tripartite system (high-low-medium/neutral) and, following Lehmann (1998), only represent the phonemic pitch of long vowels.⁴⁶ The orthographic standards followed here are those of Lehmann (1998). These conventions are compatible with the orthography "codified" for Mayan studies by the *Academia de las Lenguas Mayas de Guatemala*, except for the affricates /ts/ and /ts'/ which are spelled *tz* and *tz'* in the Guatemalan system.

There are certain processes operative in YM discourse that adapt the shape of a given morpheme to its morpho-phonemic and phonotactic environment, to an extent that morphological segmentability of phonological units is seriously reduced. One rule reduces central syllables by vowel deletion, thereby creating consonant clusters. There is also a whole family of productive rules that reduce consonant clusters by weakening or eliding the first consonant (both in a word-

⁴⁶ The high-tone is really rising - the particular contour varying with the phonotactic environment - whereas the low-tone has a steady pitch; cf. Straight 1976 [a]: 39-40). The sequence /V'/ can be realized either by post-vocalic glottal constriction, in which case release of the constriction produces an echo vowel of lesser quantity, or else by laryngealization of the vowel, which produces the sound known as 'creaky voice' (cf. Blair 1964: 25; Straight 1976 [a]: 35-36). The two realizations are in free variation (and actually seem to represent the end-points of a continuum, rather than two distinct articulations). It is assumed here that there is no phonemic contrast between /V'/ and /V' V/, or put differently, that every sequence /V₁ V₂/ in which V₁ and V₂ have the same quality is in fact a realization of /V₁/ (contra Blair (1964: 25), who mentions one counter example). Following the conventions of Lehmann (1998), the echo vowel is not written. So /lu'ub'u/ 'fall' is spelled *lu'bul*, *a'l* 'say' represents /'a'al/, and so on.

internal coda cluster produced by vowel elision as well as at the onset of morphological words). The following examples illustrate the interaction of both types of processes:

- E54 a. K-uy il-ik-en. realized: /kuyiliken/ > /kuyilken/ > /kuyiken/
 IMPF-A.3 see-INC-B.1.SG or /kyiliken/ > /kyilken/ > /kyiken/
 'He sees me.' and eventually /kiken/ (Blair 1964: 36)
- b. le inw otoh-o' realized: /le'inwotcho'/
 DEF A.1.SG home-D2 and eventually /le'inwohcho'/
 'my home' (Straight 1976 [a]: 55f.)
- c. Bik lúub-uk-ech! realized: /bik lúub'ukech/ > /bik lúub'kech/
 lest fall-SUBJ-B.2.SG and eventually /bik lu'kech/
 '(Watch your step) lest you fall!' (Christian Lehmann p.c.)

Other rules obscuring segmental junctures include frequent processes of morpheme blending which create portmanteaus. In this study, a normalized representation is used which omits all phonological and morpho-phonological processes triggered by phonotactic conditions, giving instead allomorphs sensitive to the morphosyntactic properties of the particular construction but environment-neutral in phonotactic terms.

3.1.4. History of description of YM

Like many of the larger languages of the Third and Fourth Worlds, YM has not received a modern reference grammar to date. The first descriptive sketches of YM according to contemporary linguistic standards are Barrera-Vásquez (1946) and Tozzer (1921). Both are far from comprehensive, and both are based partly on obsolete data (of 19th century or even colonial sources). There are two extensive structuralist treatments of YM, Andrade (1955) and Blair (1964). Blair (1964) gives a comprehensive account of the morphology in a taxonomic framework. The work of Andrade, carried out in the tradition of Boas and Sapir, has been of great value for the present study. Based on a huge corpus of spontaneous discourse recorded in various locations across the peninsula in the early 1930's, Andrade apparently attempted what would be recognized as a *discourse* or *text grammar* in our days (such as Heath (1980)). The part of this larger enterprise that was about to be achieved by the time of Andrade's untimely death in 1941 concerns

specifically the temporal interpretation of the many aspectual and modal markers of YM grammar. What Andrade had managed to carry out was published on microfilm as edited field notes by Norman McQuown in 1955. A concise sketch of YM morphosyntax written by one of its most outstanding students is found in Bricker (1986: ch.2).

There are also some text collections and lexicographic work. The group of researchers directed by Alfredo Barrera-Vásquez has provided a cornerstone in the lexicographic representation of YM. Barrera-Vásquez (1980) compiles a dozen older lexicographic sources, dating back as far as the *Diccionario de Motul*, and including most notably the dictionary of Pío Pérez (1866-1877). To this, an equal number of unpublished modern sources is added, including field notes of renowned Mayanists such as Robert Blair, Munro Edmonson and Norman McQuown. Being a compilation of mostly older work of pedagogical provenance, the Barrera-Vásquez volume does not attempt to meet the standards of current reference work in linguistic lexicography. These standards are, however, now met by Bricker *et al.* 1998, a seminal achievement in Yukatekan studies.

Andrade's large corpus is published on microfilm in Andrade & Vermont-Salas 1971, and part of it has appeared in print in Andrade & Máas Collí (1991). Many students of YM (including me) have made their first acquaintance with the language through a course accompanied by tape recordings specifically designed for the university classroom (Blair & Vermont-Salas 1965-1967). This course, however, does not represent natural speech, but imitates conversations tailor-fashioned for its pedagogical purpose. Other collections include Smailus (1975) and Burns (1983), although unfortunately most of Burns's texts are only represented in translation. Since the 1980's, local institutions increasingly encourage and promote literacy in YM, including the publication of literature written in YM by contemporary authors. Two publications exploited in this study are Domínguez Aké 1992 and Dzul Poot 1985.

Turning now to focal areas of research in YM linguistics, there are a number of studies upon which this thesis rests and without which it could not have been written, as they pave the way into the complex morphosyntax of the YM predicate. The way the study takes through the grammatical maze of the YM predicate classes in §§4 and 5 has been cleared by Bricker (1981 [a]), Krämer & Wunderlich (1999), Lehmann (1993 [a]), Lucy (1994), Owen (1968), and Steffire (1972).

Ayres & Pfeiler (1997) published a manual of the morphology of the YM verb, based in particular on the work by Blair (1964), Bricker (1981 [a]) and Owen (1968), but going beyond the scope of these studies, and using original field data for illustration. A related issue is the YM pattern of argument-marking, dealt with in some detail in §4. Most Mayan languages display ergative or split-ergative systems, and this is considered by many Mayanists to be true with respect to the languages of the Yukatekan branch as well.⁴⁷ But in fact the Yukatekan languages show a 'fluid-S' (Dixon 1994) pattern of argument marking, as has been shown for YM by Dayley (1981, 1990) and Straight (1976 [b]). Lucy (1994) does not commit himself terminologically to a 'fluid-S' pattern, but confirms the analysis of Straight. Krämer & Wunderlich (1999) propose an ergative analysis of the underlying mechanism of argument 'linking'. This analysis is argued against in Bohnemeyer (2001; ms. [a]). Danziger (1996) argues that Mopán is developing a lexically-conditioned active-*stative* split.⁴⁸

As already indicated above, the first detailed and faithful account the semantics of the various aspectual and modal markers of YM is Andrade (1955). A different analysis has been proposed by Arzápalo (1984) (adopted in Monforte y Madera 1994). A detailed study of one particular modal marker (the 'predictive' marker discussed in §6.2.2.2.5) is Vapnarsky (1995). Since the completion of Bohnemeyer (1998 [d]), Vapnarsky (1999) has submitted another, and independent, comprehensive treatment of temporality in YM. Lehmann (ms.) attempts to trace and motivate the changes in the aspect-mood system from Colonial to Modern YM.⁴⁹

⁴⁷ Cf., e.g., Bricker (1981 [c]), Hofling (1991: 18), Robertson (1992: 53-55). Kaufman (1990: 90-91) refers to the Yukatekan system as 'mixed ergativity'.

⁴⁸ Overviews of argument-marking in the Mayan family are presented in Dayley (1981, 1990), Kaufman (1990) and Robertson (1980, 1992).

⁴⁹ Concerning aspectual and modal semantics in other Mayan languages, the most important sources are the reference grammars that exist for several members of the family, e.g. Craig 1977 (Jakaltek), Dayley 1985 (Tzotzil), B. Edmonson 1988 (Huastec), England 1983 (Mam), Furbie-Losee 1976 (Tojolab'al), Haviland 1991 (Tzotzil). The only study focusing on the aspect-mood system of one particular Mayan language that I am aware of is Stewart (1990) (on K'ekchi'). Robertson (1992) traces the recurrence of some aspect-mood categories across the family, in connection with the typology of argument-marking patterns, but is not primarily concerned with the semantics of the categories in question. Martin (1978) gives a survey of lexical or auxiliary-like expressions of deontic modality across the Mayan family.

A heavily under-researched area of YM grammar is syntax. Durbin & Ojeda (1978) discuss the constituent order patterns of YM clauses and sentences. Bricker (1979) establishes the existence of most of the many focus constructions of YM and the specialized patterns of aspect-mood marking and argument marking that occur in these constructions. Bricker (1981 [c]) discusses embedding of verbal cores with the 'motion-cum-purpose' and 'gerundial' constructions (cf. §§4.2.1.2, 4.2.1.3), and Bohnemeyer (1998 [c]) gives a treatment of the topicalization of clauses. Lehmann (1993 [b]) deals with the formal properties of auxiliary-like aspect-mood markers.

Outside the domain of this study, one particular focus of interest has been spatial reference. Goldap (1991, 1992) investigates the semantics of locative constructions. Hanks (1990) gives a comprehensive account of the use of demonstratives according to the communicative needs of people in culture-specific speech situations (cf. also Bohnemeyer (ms. [b])). Stolz (1995) discusses exhaustively the semantics and pragmatics of dimensional and orientational terms. Lucy (1994) and Bohnemeyer (1997, in press [b]) deal with the formal and semantic properties of motion-event expressions. A survey of the expression of spatial reference in YM is provided by Bohnemeyer & Stolz (ms.). Outside the domain of spatial orientation, intensive research has been carried out on possessive constructions by Lehmann (1998) and on number marking and numeral classification (Lucy 1992; Miram 1983).

3.2. THE DATA

The YM data underlying this study, unless taken from any of the published sources mentioned in the previous section, have been collected in six subsequent field stays in the village of Yaxley between 1991 and 1997, of a total length of about ten months. F13 (overleaf) provides information about the eight principal consultants. All eight are bilingual to some degree, having acquired Spanish primarily at school (cf. §3.1.1 on bilingualism among YM speakers).

F13. *The main YM consultants of this study*

Name	Sex	Age (1998)	Education	Literacy (Spanish)
SBM	m	33	6 grades (primary school)	low
MEP	m	51	3 grades (primary school)	low
EMB	m	42	8 grades (primary and secondary school)	fluent
RMC	m	51	3 grades (primary school)	low
AME	m	24	8 grades (primary and secondary school)	low
SME	m	29	9 grades (primary and secondary school)	high
NMP	f	25	9 grades (primary and secondary school)	high
JPM	f	26	8 grades (primary and secondary school)	?

3.2.1. Recorded texts

The field work that has produced this study included recording a corpus of interactive discourse specifically for the purpose of the study of temporality in YM. These recordings were chosen in genre and topic so as to provide a maximum of temporal complexity in content and a maximum of explicitness in the expression of temporal information. Five interviews, of altogether about 40 minutes's time (quoted in examples as [Rox]), addressed the experiences people had made during a hurricane that had recently struck the area. With each of the five interviewees of these recordings, an interview about the annual cycle of *milpa* work was conducted immediately afterwards. The total length of these recordings is about 40 minutes (quoted as [Milpa]). Five biographic interviews of a total duration of about 35 minutes (quoted [Bio]) were also recorded. In this series, consultants interviewed each other about their life. Next, pairs of consultants were asked to engage in negotiating fictive schedules for the joint construction of a house. Four sessions were recorded, with a total duration of 35 minutes (quoted [Casa]). In other sessions of the same structure, consultants conversed about their activities during every hour of the previous day, about the main activities on each day of the previous week, about their plans for the following seven days, and about their assessment as to what their lives might be like in five

years from the time of the interview. These recordings are of a total duration of 150 minutes (quoted as [Entrevis]).

The transcripts from these recordings form the computerized corpus of interactive speech the study is based on, together with the corpus of the research project on YM at the University of Erfurt in Germany. The Erfurt corpus consists of the first 18 lessons of Blair & Vermont-Salas (1965-67), three texts from the collection Andrade & Vermont-Salas (1971) (two procedural descriptions, one on the cycle of *milpa* work and one on the *Ch'a'cháak* rain ceremony, a historical narrative of the changes in the village of Chan Kom (studied by Redfield & Villa Rojas 1934) during the years after the Revolution), and several texts recorded and transcribed by members of the Erfurt project (including two procedural descriptions on the construction of a traditional Mayan house, a fairy tale, a Mayan version of the biblical narrative of the Prodigal Son, and a historic narrative). In this study, the following of these texts are quoted from:

- *Bix u meta'l hump'él k'axbil nah* (cited [K'axbil]). By José May Ek, recorded by Christian Lehmann and transcribed by Frank Muschke and Jürgen Bohnemeyer with the aid of Vicente May Peña.
- *Bix u meta'l hump'él k'axbil nah* (cited [Nah]). By Estéban Ppol Kaaw. Recorded and transcribed by Christian Lehmann with the aid of Ramón May Cupul.
- *El hijo prodigo* (the prodigal son), cited [Hijo]. By Gregorio Vivas Cámara. Recorded and transcribed by Christian Lehmann with the aid of Julio Ek May.
- *U tsikbalil u kuxtal Don Felipe Carrillo Puerto* (the story of Don Felipe Carrillo Puerto's life), cited [Fcp]. By Gregorio Vivas Cámara. Recorded and transcribed by Christian Lehmann with the aid of Ramón May Cupul.
- *Xùunáan mùuch* (the frog princess), cited [Much]. By Estéban Ppol Kaaw. Recorded and transcribed by Christian Lehmann with the aid of Ramón May Cupul.

The structure of the computerized corpus of non-stimulated interactive speech is summarized in F14.⁵⁰

⁵⁰ Further texts of a total duration of c. 4 hours are not represented in F14 because they are not yet fully transcribed, although they are quoted from here occasionally.

F14. Computerized corpus of non-stimulated interactive speech

Subcorpus	Number of words	Number of sentences	Mean number of words per sentence
Entrevis	14741	2365	6
Rox	3629	660	5
Milpa	4248	671	6
Casa	3895	554	7
Bio	3795	561	6
Bielefeld corpus	18575	2773	6
Total	48883	7584	6

3.2.2. Direct elicitation

By 'direct elicitation', I am referring to the elicitation of utterances in the target language via translation of stimulus utterances given in a contact language (in this case, Spanish). Of much benefit to this study has been the *Tense-Mood-Aspect Questionnaire* of Dahl (1985). Dahl's questionnaire comprises 156 utterances and nine short narratives specifically designed for the elicitation of tense-mood-aspect markers through translation. Each utterance/narrative is provided with an explicit context that attempts to guarantee that the translation represents the intended interpretation. The verb forms supposed to carry the target markers are given to the consultant in citation forms, in order to avoid interferences between the target language and the contact language used to represent the stimulus utterances. The original questionnaire as published in Dahl 1985 was extended by members of the EUROtyp project of the European Science Foundation (Theme Group Tense-Aspect Systems, coordinator Östen Dahl) by three additional questionnaires dedicated to specific tense-mood-aspect categories: one on future time reference, with 110 stimulus utterances, edited by Östen Dahl; one for the elicitation of progressive-like markers, with 83 stimulus utterances, edited by Pier Marco Bertinetto; and one for the elicitation of perfect-like categories, with 87 stimulus utterances, edited by Jouko Lindstedt. These additional questionnaires are currently being prepared for publication by members of the project. All additional questionnaires follow the methodology of Dahl (1985). I added one questionnaire

I designed myself, with contextualized stimulus utterances featuring temporal connectives, focus constructions, expressions of deontic and epistemic modality and sequence-of-tenses conditions, following again Dahl's format, of 100 stimulus utterances. I translated Dahl's original questionnaire and the EUROTYP questionnaires with two consultants and my own questionnaire with three consultants.

3.2.3. Stimulated discourse

The main non-verbal stimulus used in research presented here was the TEMPEST videos. These were used to compare the communication of event order in YM and German.⁵¹ TEMPEST consists of 28 pairs of short video clips. The films of each pair are minimally distinct, differing only in the order of events. On this stimulus, an interactive 'matching' task was defined in which consultants were to distinguish the films of each pair by their event orders, and to communicate the difference to each other.⁵² The primary motivation for doing a matching task was to minimize the influence of the researcher on the data elicited while at the same time maximizing the control over the representational content, thereby assuring comparability across languages, as outlined in the previous section. Another benefit of the matching design was that it forced the consultants to focus on the temporal information in the videos. This was achieved by contrasting the order of events in two complementary videos. In each session, consultants described two videos contrastively, so as to be able to determine through a question-answer routine which of these two their fellow consultants had seen. The TEMPEST task as conducted with a total of five pairs each of adult native speakers of YM and German. The YM TEMPEST corpus comprises c. 2200 sentences, or, very roughly, about 6500 clause-like units. For further details, see Bohnemeyer (1998 [b], [d]; 2000 [a]).

Aside from the TEMPEST films, various other non-verbal stimuli were employed.

⁵¹ German was chosen for comparison with YM, because it is known to be especially poor in aspectual distinctions even for an Indo-European language, and thus seems suitable to provide a maximum contrast with YM in semantic representations of temporality.

⁵² Cf. Clark & Wilkes-Gibbs (1990). See also de León (1991: 2-3) and Senft (1993) on the 'Space Games' matching tasks developed by the Cognitive Anthropology Research Group at MPI Nijmegen for research on spatial reference.

One stimulus consisted in four sets of pictures representing one character per set engaged in typical everyday activities (by Western and Mayan standards), along with specifications of the duration or relative distance of these activities. This was used to elicit expressions of calendrical reference. About ten pictures out of each set were placed in an array, and the consultants were to narrate the various activities of the participants first in iconical order (e.g. 'María fed the baby in ten minutes, then swept the floor half an hour later and then played the piano for an hour') and then in anti-iconical order ('María played the piano for one hour. Before that, she swept the floor. Half an hour earlier, she fed the baby, which took her ten minutes'). Answers showed a great amount of diversity, and solutions often seemed quite unnatural (to the consultants!) whenever it came to narrations in anti-iconical order. About 80 minutes of material was recorded.

The Event Realization Stimulus (EVEREST) developed by Angelika Wittek for research in language acquisition was used to test for each of a range of aspect-mood operators whether it entails event realization (cf. §2.3). The particulars of the stimulus and the design of the sessions are discussed in §6.2.1.1. Strictly speaking, the EVEREST study does not belong to the same category of task as the other stimuli mentioned here, because its objective was to produce judgements of semantic interpretation, not utterances. The 28 films of the EVEREST set were shown to five consultants.

I also had access to a corpus of five narratives collected by Christel Stolz in 1992 in X-Hazil Sur, located in the same area as my field site Yaxley. These narratives were stimulated by the picture book *Frog where are you?* according to the procedures described in Berman & Slobin 1994: 20-28. The five 'frog story' narratives together comprise 400 sentences (3946 words).

3.2.4. Testing

A considerable amount of the data was collected by various techniques of eliciting consultants's assessment of the morphosyntactic wellformedness, semantic interpretation, and pragmatic felicity of utterances produced by me. In all instances, the target constructions were modelled after utterances taken from interactive or stimulated discourse, and the pragmatics of the target construction, to the extent that it was not relevant to the particular research question, was

negotiated in advance with native speakers. These sessions were primarily conducted in YM; Spanish was only occasionally used in an auxiliary way. The tests for specific purposes will be described as relevant below.

3.3. THE ANALYSIS OF THE DATA: TWO THEORETICAL COMMITMENTS

The preceding sections of this chapter have commented on the sources of the YM data used in this book, and provided some background on the language. This section attempts to clarify the methodological perspective that is adopted in §§4-8. This concerns basic strategies of semantic analysis essential assumptions about the nature of semantic and pragmatic representations that underlie these strategies.

3.3.1. Radical Pragmatics and truth-conditional semantics

It is argued in this study that with some minor exceptions, event order is not expressed in YM, but only defeasibly inferred from the application of aspectual and modal operators in context. The kind of theory that is presupposed in order to make this point is one that permits distinctions between two kinds of meaning: one that is *coded* by morpheme or constructions, and one that is *inferred from the use of the morphemes or constructions in particular contexts*, but is not a semantic property of the morphemes or constructions *independently of context*. The theoretical position adopted to this end is Grice's Radical Pragmatics program.

Grice (1975, 1981, 1989) distinguishes between two kinds of meaning (and in fact many more) which he labels *what is said* and *what is implicated*. Grice distinguished various varieties of implicature. Skipping for the time being the problem of 'conventional implicatures', implicatures may be characterized as meanings that a) arise from the use of a morpheme or construction in a given context, b) are triggered by certain general principles of communication (which Grice framed as *Conversational Maxims*), and c) can be *defeated* or *canceled* in the sense that the implicated meaning may evaporate if the context is changed (there are also contexts which 'block' implicatures so that they do not arise in the first place), or if it should turn out that the coder is violating the underlying principles of communication. In this sense, implicatures are not part of *what is said*, i.e. they do not form part of the semantic representation of the morpheme or construction in

question, to the extent that the literal meaning of the morpheme or construction can be described in isolation (independent of context).

What is said can in first approximation be equated with the truth-conditional meaning of a morpheme or construction (but ultimately the sentence containing it).⁵³ One of the traditionally recognized problems with the equation 'total meaning of an utterance = truth-conditional representation + implicatures' has been noted by Grice himself. This problem is posed by what Grice called 'conventional implicatures', i.e. meanings which are not context-dependent and not cancellable and yet do not appear to contribute to the truth conditions of the sentence that conveys them (e.g. the meaning of *even though* in *Gloria is back on the job, even though she has not yet fully recovered from her cold*). The inferences to event order from aspectual and modal information are crucially defeasible, so they are treated as *conversational implicatures*. Another type of meaning that is arguably not part of the truth-conditional representation of a sentence and nonetheless not defeasible in the same way as implicatures are is formed by a sentence's *presuppositions*. Presuppositions derive from sources different from those of implicatures, they are canceled due to different (though perhaps related) mechanisms, and the cancellation of presuppositions has at least potentially a different impact on the interpretation of the sentence or utterance that conveys the presupposition.⁵⁴

Another potential obstacle are what has been called 'intrusive' implicatures, i.e. implicatures that must be derived *before* the truth-conditions of a sentence /utterance can be evaluated. Here is an example, from Carston (1988):

- E55. He didn't steal some money and go to the bank; he went to the bank and stole some money. (Carston 1988: 172)

Carston argues that the negation in the first sentence can only be truth-functionally evaluated once the implicature from order of clauses to order of events is derived,

⁵³ Following Gazdar (1979), Horn (1989: 144-153), Levinson (1983: 122-132), Posner (1980), and many others.

⁵⁴ Cf. Gazdar 1979: ch. 5; Levinson 1983: ch. 4. If the utterance makes an affirmative statement, then cancellation of its presuppositions creates a truth-value gap, a phenomenon that does not arise with the cancellation of implicatures. An alternative view has been argued for by Karttunen & Peters (1975); see Levinson (1979) for a reaction.

because it is precisely this order that is denied.⁵⁵ If truth-conditions cannot be computed independently of implicatures, then the Gricean view that implicatures can be identified by subtracting from the meaning of an utterance everything that is truth-conditional cannot be defended. However, argued in Levinson (2000), truth-conditions and implicatures can be *ascribed* to an utterance independently, and receive each by themselves non-circular definitions, despite the fact that the *derivation* of an utterance's implicatures and the *evaluation* of an utterance's truth conditions may have to be conducted more than once each, each on potentially more than one level of interpretation which takes into account the result of the previous computation.

3.3.2. The monosemy bias

The most important choice in lexical-semantic analyses is that between **polysemous** and **monosemous** representations. The position adopted throughout this study is the *monosemy bias* advocated in Ruhl (1989). This approach does not deny the existence of polysemy, but simply urges the researcher to always start from the assumption that a morpheme or construction has a monosemous meaning, and to attempt a monosemous analysis unless and until it becomes incompatible with the facts. As observed clearly by (Ruhl 1989) and Levinson (1997; 2000), the monosemy bias aligns naturally with the Gricean program. For example, it is uncontroversially the Radical Pragmaticist's intention to reduce the interpretation of *take* in E56 as 'steal' to pragmatic enrichment, and not to attribute it to the lexical semantic representation of *take*.

E56. The thief took the jewels. (Ruhl 1989: 6)

From the Radical Pragmaticist's point of view, semantic representations are *impoverished*. Adopting a Gricean perspective lifts the burden of representing the

⁵⁵ Horn (1984) and Levinson (2000: 251-256) argue that this type of denial of implicatures is essentially *metalinguistic*, referring back to a previous statement inviting the implicature, and that the negation denies precisely and only the *implicated* proposition. Levinson (2000: ch. 3) devotes a whole chapter to this and other kinds of 'pragmatic intrusion', including lexical disambiguation and the resolution of deictic and anaphoric elements, both of which have to proceed before truth-conditions can be evaluated, and which are, on his account, implicature-driven.

entire meaning conveyed by an utterance off the utterance's semantic representation and thereby frees the analyst to appreciate the variety of different semantic representations with which the same (or a comparable) pragmatic meaning can be conveyed. This is precisely the aim of §§4-8: an understanding is attempted of how speakers of YM manage to maintain temporal coherence in discourse just as speakers of Indo-European languages do and yet do not use semantic representations of event order, unlike speakers of Indo-European languages. This ambition implies strong motivation not to assume rich polysemous semantic representations unless forced by the evidence.

There is also a more strategic reason to assume the monosemy bias in this study. Ambiguity of a temporal operator having both a modal reading and a tense reading, or both an aspectual reading and a tense reading, is ubiquitous in time-semantic analyses of natural languages. Take for illustration the case of the German *werden* plus infinitive construction:

- E57 a. Roberto wird morgen zu Hause arbeiten.
 Roberto *werden* tomorrow at home work(INF)
 'Roberto will work at home tomorrow.'
- b. Roberto wird jetzt zu Hause arbeiten.
 Roberto *werden* now at home work(INF)
 'Roberto will be working at home right now.'
- c. Roberto arbeitet morgen zu Hause.
 Roberto works(PRS) tomorrow at home
 'Roberto will work at home tomorrow.'

In traditional grammars of German, the construction *werden* + infinitive is treated as a future tense. However, a comparison of E57a and b reveals that this construction does not actually yield future time reference out of context. It is compatible with present time reference, under a modal interpretation which assigns to *werden* essentially an epistemic or evidential function (marking an inference, just like English *will*), as in E57b. On the other hand, the default construction for future time reference in German is not actually *werden* + infinitive, but rather the so-called present tense, as in E57c. And arguably, E57a compared to E57c conveys a modal meaning as well, in addition to future time reference, although not necessarily *exactly* the same as in E57b (in E57a, the speaker gives an assessment, a guess, or even a prediction, but does not necessarily infer the

asserted proposition). So the set of data presented in E57 is compatible with a monosemous analysis of *werden* + infinitive as a modal rather than a tense marker.

This example illustrates a strategy that is of crucial importance in §§4-8. In analyzing an aspectual or modal marker of YM, one often discovers that the element in question seems to convey an event order in one context, but an aspectual or modal meaning in another context. In a situation like this, the following is always attempted to be shown:

- the event order (e.g. tense) interpretation is incompatible (or, at any rate, defeasible) with the context in which the modal or aspectual interpretation obtains,
- the modal or aspectual reading is compatible with all contexts,
- the event order interpretation can be derived as an implicature from the modal or aspectual reading.

Provided these three steps have been successful, a monosemous representation of the marker in question in terms of the aspectual or modal reading is assumed, instead of a polysemous representation (which might still be compatible with the facts), according to the principle of the monosemy bias.

The aims of the study and the course in which the investigation proceeds have been laid out; the framework of the analysis has been established; the nature of the data used in the investigation has been discussed; and the methodological premises have been clarified. Let us now turn to the description of the grammar and lexicon of temporality in YM.

THE ENVIRONMENT OF TEMPORALITY GRAMMAR

CHAPTER 4

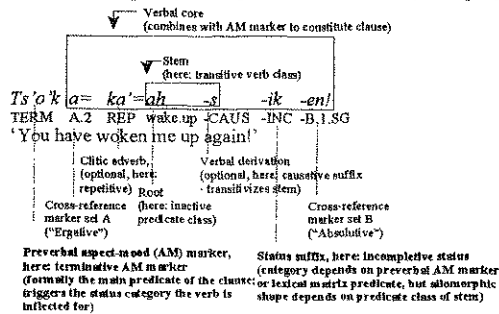
4.1. SOME BASICS OF YM GRAMMAR

The present section introduces the grammatical levels that are most relevant to the description of the expression of time reference in YM, i.e. the **clause**, the **verbal core**, and the **verbal complex**. Furthermore, the two grammatical positions that convey the bulk of aspectual and modal information in the YM clause are established. These are the preverbal **aspect-mood markers** and the **status inflections**. And in connection with the issue of status inflection, the YM system of formal predicate classes is outlined.

But let us start with some basic typological facts about the language. YM may be characterized as a mildly polysynthetic language. Although the predominant morphological technique is agglutination, the morphology of the verbal complex displays a considerable amount of fusion. All the typical traits of polysynthesis are realized to some extent. There is extensive incorporation of nouns and adverbs. All grammatical relations attestable in the language, including those of verbal arguments, nominal possessors, complements of prepositions, and themes of stative predicates, are exclusively signaled by 'head marking', i.e. through bound pronominal indices that have the capacity to indexically represent a referent introduced in discourse or given in the speech situation. Noun phrases co-indexed by such pronominal indices or 'cross-reference markers' are syntactically optional. Word order is relatively fixed, but to some extent functionally determined (see below). All constructions are head-initial (and verbal clauses are therefore verb-initial), except for simple attributive adjectives, which tend to assume pre- rather than post-nominal position. The issue of the overall organization of grammatical relations in YM (as well as in other Mayan languages) has no obvious solution and is as yet unsettled. Therefore, I refrain from using labels such as 'subject', 'object', 'ergative', or 'absolutive' in this thesis, and instead refer to the clause-internal morphological functions indexed by the cross-reference markers, using 'S' for the single argument of intransitive verbs and the theme of stative predicates and 'A' and 'U' for transitive arguments receiving an 'actor' and 'undergoer' 'macro-role', respectively, following Van Valin & LaPolla 1997.

It is time to take a look at some examples. Let us begin by making a first acquaintance with the structure of a fully-fleshed YM clause.

F15. *Basics of the morphosyntax of the verbal clause (example)*



Without derivation, the verbal root *ah* 'wake up' constitutes an intransitive predicate. In F15, however, *ah* combines with the causative suffix *-s* to make a stem belonging to the transitive predicate class. In all, YM grammar distinguishes eight different predicate classes in terms of their formal properties. Three of these classes contain **stative predicates** (i.e. nouns, adjectives and stative predicates proper), the five remaining classes hosting **verbs**. Only verbs are marked for aspect and mood. The distinction between verbs and stative predicates is one of the most fundamental distinctions of YM grammar. Verbs are distinguished on grounds of their argument marking properties into **transitive** and **intransitive verbs**. Intransitive verbs are inflected by cross-reference marking for their S-argument, transitive verbs are inflected by cross-reference marking for their A-argument and their U-argument. The A-argument of the transitive stem *ahs* in F15 is marked by the **set-A** cross-reference marker of second person *a*. The U-argument of *ahs* is marked in F15 by the **set-B** cross-reference marker *-en* for first person singular. The 'set-A' cross-reference markers are preverbal clitics, while the 'set-B' cross-reference markers are suffixes. Temporarily, 'set A' may be understood as 'ergative' and 'set B' as 'absolutive', but, as is shown below, these labels are problematic and should be abandoned once the traditional Mayanist labels 'set A' and 'set B' have been properly introduced. Intransitive verbs are further distinguished on grounds of other inflectional properties into **active**, **inactive**, **inchoative**, and **positional** classes (see chart at the beginning of §5.1). There is a rather dense network of derivational relationships that transform members of one predicate class into members of a different predicate class. One

example is the causative suffix *-s* in F15, which derives transitive verbs from inactive intransitives.

Aspect and mood are marked simultaneously in two different positions in YM, by a preverbal marker and at the same time by a verbal suffix which depends on the pre-verbal marker in a way to be clarified below. Every independent verbal clause contains exactly one out of fifteen different preverbal aspect-mood (AM) markers. In F15, this slot is filled by the terminative AM marker *ts'o'k* whose function corresponds in first approximation to that of the English perfect. Other AM markers express e.g. progressive or habitual aspect, obligative modality, or degrees of temporal distance such as 'recent' or 'remote past' (however, as is shown in §6.2.2.3, these expressions of 'temporal distance' must not be equated with tenses, contrary to what their customary labels such as 'recent *past*' suggest). In F15, the AM marker *ts'o'k* is set apart from the rest of the clause which is labeled a **verbal core**.⁵⁶ The major concern of §4.2.1.4 is to show that most AM markers constitute predicates that take the verbal core as an argument. This holds for all AM markers which are like *ts'o'k* morphologically unbound. Thus, a more literal translation of F15 would be 'Your waking me up again is achieved' or 'Your waking me up is achieved again', where 'is achieved' corresponds to the meaning of the terminative AM marker and 'your waking me up' renders the meaning of the verbal core. All AM markers are morphologically unbound (and, as I argue in §4.2.1.4, they are *predicates*), except for the imperfective and perfective AM markers which are prefixes. These prefixes are nevertheless not syntactic constituents of the verbal core under the analysis proposed here; this represents a mismatch between morphological and syntactic constituency.

Just like auxiliaries and modal verbs in Indo-European languages, the AM markers are on a grammaticalization cline with respect to lexical predicates with propositional arguments (both verbs and stative predicates): the AM markers share certain properties with lexical 'complement-taking' predicates, while they are set apart from the latter by other properties (and some of these properties are shared to differing degrees across the members of the AM set). The full set of

⁵⁶ The terms 'verbal core' and 'verbal complex' are borrowed from Lehmann (1993 [b]). The analysis proposed here of the internal structure of these units in YM, and of the verbal clause constituted by a verbal core in combination with an AM marker, is essentially Lehmann's. I deviate from Lehmann's proposal mainly in the analysis of the morphosyntactic properties of the AM markers.

AM markers is presented, and the criteria that serve to delimit this set vis-à-vis lexical complement-taking predicates are developed, in §4.2.1.4.

In the second slot, aspectual and modal distinctions are marked by an inflectional suffix immediately following the verb stem. The superordinate category marked in this position is labeled **status** in the present study, following Kaufman (1990: 71). Status inflection distinguishes the five subcategories **incompletive**, **completive**, **subjunctive**, **imperative**, and **extrafocal** status. Every verb form in YM is inflected for exactly one of these five categories. The selection of the status category depends on the syntactic environment of the verbal core. Verbal cores in YM do not constitute clauses by themselves. Main clauses, relative clauses and 'topic clauses' (cf. §4.2.2) are constituted by a combination of the verbal core with an AM marker. The selection of the status category is then triggered by the AM marker. Every AM marker triggers exactly one of three status categories: incompletive, completive, or subjunctive (except for the 'prospective' AM marker which assigns incompletive or subjunctive status, depending on the transitivity of the verbal core). The terminative AM *ts'o'k* in F15 triggers incompletive status, marked on the verb *ahs* by the incompletive suffix *-ik*. Verbal cores are also embedded as arguments or adjuncts of lexical predicates. In this case, the status category depends on the lexical matrix predicate and the construction. The semantics of the status categories are dealt with in §6.1 in terms of the aspectual distinction of bounded vs. unbounded time reference and, in broad outline, the modal distinction of 'assertive' vs. 'non-assertive' modality. The combinations of the status inflections with the AM markers are highly motivated, but not fully compositional. The AM markers further specify (but sometimes also simply override) the meaning of the status suffixes; the status pattern of some of the AM markers has to be understood as a relic of the lexical source from which the particular AM marker has originated.

The status suffixes display a pattern of allomorphic variation which distinguishes among the different verbal predicate classes. For example, incompletive status is marked by *-ik* on the transitive verb in F15. On inactive verbs, the incompletive is realized as *-VI* (the vowel echoing the final stem vowel). On positional and inchoative verbs, the incompletive is realized as *-tal*, and on active verbs, the incompletive is morphologically unmarked. The full status paradigm is thus fairly complex, and I postpone its discussion to §4.2.3. The five classes of active, inactive, inchoative, positional, and transitive verbs are primarily distinguished by

argument marking and status allomorphy.

The bulk of the description of the expression of time reference in YM is devoted to the AM markers, as they carry the bulk of temporality-related information in the YM clause. Status inflection is naturally of concern as well. However, it is treated as informationally subordinate to AM marking, and the central question pursued in the description of status inflection in §6.1 is the contribution of status inflection to AM marking. The predicate classes are dealt with in §5.1. The main concern in the discussion of the system of predicate classes is the contribution of lexical event structure information to time reference in discourse.

Having assembled some background information about predicate classes and aspect-mood marking, the issue of argument marking can now be tackled. The terms 'ergative' and 'absolutive', respectively, were offered above as make-shift replacements for the more arbitrary labels 'set A' and 'set B', respectively. The two paradigms of bound pronouns are listed in the following tables.⁵⁷

⁵⁷ Tozzer 1974: 39 has a system considerably richer, including an additional number (dual) as well as an additional person distinction (inclusive vs. exclusive in 1.PL and dual). However, these additional distinctions are absent in my data. Bricker 1986: 21 attributes them to Colonial YM (even though they are not documented in the descriptions of that era), but still states a dual-plural opposition for first person in the contemporary language. Owen 1968: 56 and Hanks 1984: 166, on the other hand, confirm the inclusive-exclusive opposition (where inclusion of the addressee is marked by combination of the first person and second person plural suffixes *-o'n-e'x* of set B) but do not mention dual number. It may be inferred from table F16 that number in the set-A series gets marked discontinuously by a suffix that is homophonous with the plural suffix of the corresponding person in the B-series; this curious phenomenon is very likely a reflex of some historical reanalysis, the details of which are unknown. The preverbal set-A markers trigger a morpho-phonemic onglide that replaces the glottal stop in stems with the sequence 'V in the onset (where ' represents the glottal stop, as usually; as put forth in §3.1.3, the initial glottal stop that precedes every native YM stem in case no other consonant takes this position is omitted in the normalized representation followed in the present study.) These onglides are actually the original set-A pronouns, leading back to Proto-Mayan in the case of first and second person (cf. Kaufman 1990: 71) and to Colonial YM in the case of third person *u(y)* (cf. Smailus 1989: 12). *Y* still optionally acts as the full pronoun in certain phonotactic environments. B.3.SG *-ih* occurs exclusively with intransitive verbs, where it has been reanalyzed from an older marker of completive status.

F16. Bound pronouns set A

Person	Number	Singular	Plural
First		in(w)	k (...-o'n)
Second		a(w)	a(w) ...-e'x
Third		u(y) / y	u(y) ...-o'b

F17. Bound pronouns set B

Person	Number	Singular	Plural
First		-en	-o'n
Second		-ech	-e'x
Third		-o / -ih	-o'b

F18 and F19 below give a formulaic account of the morphological structure of the inflected verb in YM. On account of the variation in argument marking to be laid out below, three different schemas have to be presented: one for transitive verbs (F18), one for intransitive verbs inflected for incomplete status (F19a) and one for intransitive verbs in one of the remaining three status categories (F19b). The structure represented in F18 is instantiated in F15 and has been fully discussed above.

F18. Structure of the transitive verbal complex

PERSON[CR_A] (CADV) STEM-STATUS-CR_B(-NUMBER[CR_A])

(Key: CR_{A/B} - cross-reference marker set A/B, CADV - clitic adverb)

F19. Structure of the intransitive verbal complex for incomplete (a) and for other status categories (b)

a. PERSON[CR_A] (CADV) STEM-STATUS(-NUMBER[CR_A])

b. (CADV) STEM-STATUS-CR_B

(Key: CR_{A/B} - cross-reference marker set A/B, CADV - clitic adverb)

While the transitive A-argument is always marked by a set-A clitic and the transitive U-argument by a set-B suffix, the intransitive S-argument is cross-referenced by a set-A clitic in incomplete status and by a set-B suffix in complete, subjunctive, and extrafocal status. Thus, the S-argument patterns like a 'nominative' (grouped with the transitive A) in incomplete status, but like an 'ergative' (grouped with the transitive U) in complete, subjunctive and extrafocal status. Kaufman (1990: 86-91) refers to this pattern as 'mixed ergativity'. On the typology of Dixon (1994), the YM pattern of argument marking instantiates 'fluid-S' marking, and in terms of Sapir (1917), YM shows 'active-inactive' marking. YM does *not*, however, show the kind of *lexically conditioned* pattern that Klimov (1974) has described as 'active-stative' marking.⁵⁸

Note that the term for the structural unit in question in the headings of F18 and F19 is **verbal complex** rather than 'inflected verb form', due to the fact that some of the constituents of this unit are clitics. The formulas account for the discontinuous marking of person and number in the set-A series: while person is always marked by the clitic pronouns, number is marked separately in second and third person by a suffix which is phonologically identical to the set-B suffix of 2.PL and 3.PL.⁵⁹ The 'clitic adverbs' that appear optionally before the verb stem form

⁵⁸ The fluid-S pattern of YM has been established by Dayley (1981, 1990) and Straight (1976 [b]). Lucy (1994) avoids a terminological commitment, but essentially supports Straight's analysis. Fluid-S patterns similar to the one of YM are also found at least in Lakandon and Itzá of the Yukatekan branch, Poqomam of the K'iche'an branch, and all languages of the Ch'olan branch. The fourth language of the Yukatekan branch, Mopán, shows the fluid-S pattern with most, but not all, subsets of intransitive verbs (Danziger 1996). These Mayan languages are the only languages in evidence, to the best of my knowledge, with an aspect-controlled fluid-S pattern. There has been much controversy around this phenomenon. Most Mayanists (e.g. Bricker 1981 [c]; Hofling 2000; Robertson 1992) consider the pattern a form of split ergativity, ignoring the fact that the split only occurs with intransitive verbs. In contrast, Kaufman 1990 stresses the restriction to intransitive verbs. He terms the pattern 'mixed-ergative'. Krämer & Wunderlich (1999) point out that the YM pattern falls under Dixon's (1994) 'fluid-S' category; however, they argue that YM should be considered a morphologically ergative language, since on their analysis it has an ergative linking mechanism. Bohnemeyer (ms. [a]) rejects this analysis, arguing instead that the YM linking mechanism is the same as in split-ergative languages like Hindi (Bhat 1991) and Georgian (Harris 1981). The reason that this linking mechanism produces a fluid-S pattern in YM and other Mayan languages is that these languages, unlike Hindi or Georgian, have only two sets of argument markers.

⁵⁹ The phonological identity of the discontinuous set-A plural suffixes with the set-B plural pronouns may well be accounted for as polysemy rather than homonymy. However,

a closed class. The members of this set express e.g. intensification and its converse operation ('attenuation'). Another example is the repetitive/reversative marker *ka'* featured in F15.

Apart from the function of indexing verbal arguments, the two sets of bound cross-reference markers occur in the following contexts: the set-B suffixes are used to mark the theme of stative predicates. The set-A clitics serve to indicate the possessor of nominals; this includes relational nouns corresponding to prepositions in Indo-European languages that express spatial, causal, instrumental, commitative, and purpose relations, among others.⁶⁰ YM has only two genuine simplex prepositions (cf. Kaufman 1990: 78 on Mayan in general in this respect), namely *ti'* and *ich(il)*. The general preposition *ti'* heads ground-denoting adjuncts in locative and motion descriptions (without a relation of source, goal, or location being distinguished), as well as adjuncts denoting recipients, experiencers, beneficiaries, etc. Its functional core may be stated simply as conveying an unspecific adjunct relation. The preposition *ich(il)* refers to the inside of a spatial ground object, again without specifying the latter as source, goal or location. Both *ich(il)* and *ti'*, and also the innovated complex prepositions, combine with set-B markers.

E58. Ki'mak óol-al h yàan-chah **ti'-o'b.**
 happy mind-REL PRV EXIST-PROC.CMP(B.3.SG) LOC-B.3.PL
 'Happiness befell them.' (Fcp 123)

If the complement of *ti'* is a speech act participant, the agglutinative combination with the set-B pronominal suffix is obligatorily replaced by a portmanteau form. The resulting forms act as morphologically unbound and in this sense 'emphatic' pronouns. The paradigm of the free pronouns is given in F20.

in the interlinear glosses, I treat the plural suffixes of set-A as distinct morphemes, to avoid confusion.

⁶⁰ These relational nouns may be reinforced by the general preposition *ti'*, and sometimes the possessor inflection 'freezes' with A.3.SG. Both processes jointly give rise to the creation of new complex prepositions such as *tuméen* 'because' (originally *ti' u méen* for A.3.SG and e.g. *ti' in méen* for A.1.SG which is now obsolete and has been replaced by *tuméen téen* 'by me', 'because of me'). These do not inflect for set-A and cannot be considered relational nouns anymore.

F20. Independent ('emphatic') pronouns

Person	Number	Singular	Plural
First		tèen < *ti'-en LOC-B.1.SG	to'n < *ti'-o'n LOC-B.1.PL
Second		tèech < *ti'-ech LOC-B.2.SG	te'x < *ti'-e'x LOC-B.2.PL
Third		leti' < *le ti' DEF LOC-B.3.SG	leti'o'b < *le ti'-o'b DEF LOC-B.3.PL

Emphatic pronoun are coreferent with core arguments only across clause boundaries (e.g. when appearing in topic position). Inside the verbal core, emphatic pronouns only marginally get coindexed with one of the verbal cross-reference markers, whereas they mostly function to encode recipients, experiencers, benefactives, etc, which are *not* cross-referenced as verbal arguments.

Turning to the syntactic structure inside the verbal core, this essentially consists of the inflected verb form, optionally expanded by noun phrases, prepositional phrases, and embedded verbal cores functioning as arguments or adjuncts. Adjuncts may also be constituted by adverbs. By rule of thumb, adjuncts and all embedded verbal cores (irrespective of their syntactic status) appear in clause-final position. The embedding of verbal cores is briefly treated in the following section. As for argument noun phrases, the basic order in transitive clauses is V-U-A:

E59. Táan u ts'íib-t-ik (le kàarta)
 [PROG [[A.3 write-APP-INC(B.3.SG)]_{complex} [DEF letter]_{NP,O}

(le x-ch'úpal)-o'.
 [DEF F-female:child]_{NP,A}core-D2]_S⁶¹

'She was writing it (the letter) (the girl)', i.e. 'The girl was writing the letter.'
 (Tempest antram II 1/2 a2 20-21)

Notice, however, that if there are two lexical noun phrases, one referring to a

⁶¹ Abbreviations used in syntactic tagging include *AM* for the preverbal aspect-mood markers, *COMPLEX* for the verbal complex, *CORE* for the verbal core, *NP_{AO/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.

human and one referring to a non-human participant, the noun phrase referring to the human participant will always be interpreted as the A-argument, independently of the order of noun phrases.⁶² Thus, in order to express 'The snake killed the man', the noun phrase referring to the snake will be topicalized or focused or the verb will be passivized (see Aissen 1997, 1999 on similar phenomena in Tzotzil).

In this section, a skeleton of YM grammar has been established. The following section §4.2 is mainly concerned with fleshing out details as relevant for the discussion of time reference.

4.2. THE LEVELS OF TEMPORALITY GRAMMAR

This section takes a closer look at those areas of YM grammar that centrally figure in the further discussion. Clause structure is taken up in §4.2.1. Some clause-level constructions are introduced, the AM markers receive a formal definition, and the entire paradigm of AM markers is established. §4.2.2 deals with sentence and discourse structure, and §4.2.3 returns to verbal morphology.

4.2.1. Clause structure

The major aim of the present section is the introduction of the paradigm of AM markers and the clarification of their formal properties. In preparation, I establish a number of clause-level constructions which are relevant for the definition of AM markers. Finally, I introduce some constructions which give rise to exceptional patterns of AM marking, namely focus constructions and negation.

⁶² This phenomenon has already been pointed out in Durbin & Ojeda (1978), although their analysis of word order patterns in YM on the whole falls short of recognizing clefts and topicalizations and thus assigns much more variability to intraclausal constituent order than seems actually justified.

4.2.1.1. Embedded verbal cores as arguments of lexical predicates

Below, a novel analysis of the morphologically unbound AM markers (i.e. all except for the bound perfective and imperfective AM markers) as belonging to the YM form class of *stative predicates* is proposed. That the morphologically unbound AM markers are in fact predicates is demonstrated in §4.2.1.4. On this account, the verbal core is subordinate to the AM marker and has the properties of an argument or adjunct. A discussion of the grammar of embedding is therefore of crucial relevance. On the one hand, it introduces properties of complement embedding which are shared across AM markers and lexical complement-taking predicates, and on the other hand, it establishes those properties that distinguish the AM markers from lexical matrix predicates and thus serve to delimit the set of AM markers in §4.2.1.4. Therefore, the embedding of verbal cores in argument position (this section) and, with respect to two particularly relevant constructions, in adjunct position (the following two sections) is discussed in preparation of the treatment of AM markers in §4.2.1.4.

Complement-taking predicates in YM may be distinguished into two classes, according to realization of the propositional complement as a clause vs. as a verbal core. (It is argued below that 'complement clauses' are not actually embedded in YM, and consequently, they do not represent 'complements' in a syntactic sense.) Since clauses differ from verbal cores precisely in the presence of a preverbal AM marker, the distinction between presence and absence of an AM marker may be compared to the distinction of finite and non-finite complement clauses in Indo-European languages. In broad outline, the functional motivation of the distinction between clauses and verbal cores cross-referenced as arguments in YM is similar to the functional motivation of the distinction between finite and non-finite complement clauses in Indo-European. In both cases, the crucial parameter seems to be the distinction between 'determined time reference' (DTR) and 'independent time reference' (ITR; cf. Noonan 1985) of the complement with respect to the complement-taking predicate.⁶³ Perception verbs provide a nice illustration of the distinction, since they can have either construal, depend-

⁶³ 'Finiteness' is used as a structural term in present theories of syntax. Since the designation of this term does not match with the distinction of clause and verbal core in YM, 'finiteness' is not used in this study, despite the functional similarity of the distinction between clause and verbal core in YM and the distinction between finite and non-finite clauses in Indo-European.

ing on whether they are used to express perception of an *event* or perception of a *fact* (cf. Schüle 1996). The perception of an event (as in E60a) is necessarily co-temporal with the event (at least with *sensory* modes of perception) and hence implies DTR construal. In contrast, the metaphorical 'perception of a fact' is commonly an inference from present observation to past or present events causing what is actually perceived, or to future events caused by what is perceived. The realization of these events is asserted as the 'perceived fact'. Thus, in E60b, people concluded from auditory evidence to what was going on outside. The expression of the 'perceived fact' has ITR with respect to the perception predicate.

E60 a. T-uy u'b-ah ø aw uk'-ik ha'.
 PRV-A.3 hear-CMP(B.3.SG) (AM) [A.2 drink-INC(B.3.SG) water]CORE
 'He heard you drinking water.' (BVS 15.1.23)

b. Chéen káa t u'y-ah-e' túun (...)
 only káa PRV:A.1.PL hear-CMP(B.3.SG)-D3 [[PROG]AM:A.3

pul-ik tak u gáaho-s che'-o'b.
 throw-INC(B.3.SG) even A.3 branch-PL tree-PL]CORE]s

'(And then) we heard (that) it (the hurricane) was even ripping the branches off the trees.' (lit.: We heard it, it was even ripping the branches off the trees) (Roxern 43-44)

As the examples show, a fact inferred from perception is expressed by a fully-fleshed clause under ITR construal (E60b), but a perceived event by an embedded verbal core under DTR construal (E60a). The structural difference is apparent from the presence of an AM marker in the clause (in E60b progressive AM *táan*, fused with the set-A marker *u* of the embedded verbal core), but not with the verbal core in E60a. Now, only verbal cores, but not clauses (except for relative clauses), are *embedded* as constituents of clauses in YM. Thus, the clause expressing the inferred event in E60b is not embedded into the clause containing the propositional predicate, but is in juxtaposition to it. This holds despite the fact that the juxtaposed clause is coreferent with the U-argument of the perception verb in E60b.⁶⁴ One syntactic criterion ruling out embedding is the placement of the clause-final particle *-e'* in E60b: *-e'* and the other three particles belonging to the same paradigm represent an absolute barrier for embedding in YM. Whatever

follows this barrier is not a syntactic constituent of the clause preceding it. In YM, the only construction that regularly admits embedding of clauses, as opposed to verbal cores, is the relative clause construction. Complement *clauses* (as opposed to verbal cores) are of no further concern in this study; for details of their treatment in YM, see Bohnemeyer (1998 [c]).⁶⁵ The clause-final particles and their role in sentence structure are taken up in the following section §4.2.2. The fact that clauses and verbal cores are in complementary distribution plays a crucial role in determining the categorial properties of the AM markers in §4.2.1.4.

Three further properties of the embedding of verbal cores as arguments are relevant for the discussion of AM marking: First of all, embedded verbal cores are not in a paradigmatic relationship with stative predicates, or in other words, stative predicates are not embedded. Put differently, stative predications constitute clauses rather than verbal cores, and therefore, stative predications expressing arguments of verbs are not embedded. This aligns with AM marking being restricted to verbs and not occurring with stative predicates: AM markers only combine with verbal cores, not with clauses. Secondly, verbal cores that semantic roles of higher predicates are linked to are morphosyntactically treated as arguments of these higher predicates. That is, there is no 'raising' in YM, and consequently, embedded verbal cores functioning as arguments of higher predicates are indexed on these predicates by 3.SG cross-reference markers. This is relevant to the discussion of AM marking, because it represents a cornerstone of the analysis that the verbal core is an argument with most of the AM markers, even though cross-reference marking on the AM marker does not surface (since B.3.SG is not phonologically realized). And thirdly, verbal cores embedded as arguments are inflected for either incomplete or subjunctive status, depending on the higher predicate and the construction. This motivates distribution of all AM markers that originate in propositional predicates with a verbal core inflected for either incomplete or subjunctive status. These three features of argument embedding are now briefly addressed in turn.

⁶⁴ See Noonan (1992: 194-210) on 'paratactic complements'.

⁶⁵ YM predicates that take embedded verbal cores - as opposed to *clauses* - as arguments are 'phase verbs' (or 'aspectual verbs'; see below), predicates that express ability, and predicates of desire, provided that the animate argument of the desiderative predicate is coreferent with the S- or A-argument of the embedded core. The propositional argument of predicates of cognition and communication, in contrast, is expressed by clauses. Causative predicates and attitude predicates (translating 'appreciate', 'regret' and the like) occur with both construals.

Stative clauses are not embedded as complements in YM. Thus, in the following example, the state of being a man or a woman is replaced by the corresponding event of becoming one, as the stative predicate has to be turned into a verb (by means of the inchoative suffix *-tal*) in order to be embedded under the desiderative matrix verb *ts'ûbóolt*:

E61.	Bfin	u	ts'fib+6ol-t	x-ch'ûup-tal	xib-o'b,
	PRED	A.3	write+soul-APP(B.3.SG)	[F-female-PROC.INC]CORE	male-PL
	bfin	u	ts'fib+6ol-t	xib-tal	x-ch'ûup-o'b.
	PRED	A.3	write+soul-APP(B.3.SG)	[male-PROC.INC]CORE	F-female-PL

'The men shall wish to become women, the women shall wish to become men.'
(Vapnarsky 1995: 89)

Embedding of the stative expression itself (**Bfin u ts'ûbóolt xch'ûup* 'they shall want to be women') is ungrammatical.

The second feature of argument embedding in YM to be addressed here is the absence of raising. By 'raising', I am referring to the linking of a semantic role of the embedded verb to a morphosyntactic argument of the matrix clause. Thus, in the English translation of E60a, *He heard you drinking water*, the notional subject of the embedded clause is construed as an object of the higher predicate. In the YM original, however, the embedded verbal core itself is realized as the U-argument of the perception verb. This remains phonologically unmarked, since the 3.SG member of the set-B paradigm of cross-reference markers is phonologically zero. However, the verbal core being the U-argument is the only possible analysis on grounds of the following evidence: Firstly, the perception verb is identifiable as morphologically transitive by its transitive status inflection (in E60a, the transitive completive suffix *-ah*). There is no morphologically transitive verb in YM that does not select for a U-argument. Accordingly, the perception verb in E60a must have a U-argument. And secondly, it is not possible to have a first or second person set-B cross-reference marker on the perception verb ('He heard *me/you* drinking water'), and it is not possible to have an argument noun phrase coreferent with the U-argument of the perception verb in addition to the embedded verbal core ('He heard *Mary* drinking water'). Accordingly, it is not possible to express an argument of the embedded verbal core as the U-argument of the perception verb. By exclusion, the only remaining option is that the U-argument of the perception verb is the embedded verbal core.

A similar argument applies if a verbal core is embedded as the S-argument of a stative predicate, as in E62.

E62.	Uts	t-in	t'àan
	good(B.3.SG)	LOC-A.1.SG	call/ATP
	in	ts'u'ts'-ik	chamal.
	[A.1.SG	suck-INC(B.3.SG)	cigarette]CORE

'I liked smoking cigarettes.', lit. 'It is good in my speech my smoking cigarettes'
(Hijo 34)

In E62, the embedded verbal core *in ts'u'ts'ik chamal* 'my smoking cigarettes' is construed as the S argument of the stative predicate *uts* 'good', cross-referenced on *uts* by B.3.SG which is phonologically zero. Stative predicates in YM never occur without an S-argument.

- E63 a. Uts.
good(B.3.SG)
'It is good.'
- b. Uts-ech?
good-B.2.SG
'Are you alright?', 'Do you feel well?'

The 3.SG S-argument in E63a is not phonologically marked. However, it is in complementary distribution with the marked 2.SG S-argument in E63b, and whenever a stative predicate carries no overt set-B marker, the referent of the S-argument is understood to be 3.SG. This holds in E62 as well. And, just as holds for the U-argument of the perception verb in E60a, it is not possible to keep the embedded verbal core in E62 and at the same add either a non-3.SG set-B marker or a noun phrase in the function of the S-argument of *uts*. Consequently, it has to be concluded that the embedded verbal core is the S-argument of *uts* in E62.

The co-indexing of the embedded verbal core as the U-argument of the perception verb in E60a and the S-argument of the stative predicate in E62 is not directly observable, due to the phonologically unrealized B.3.SG marker. However, YM also shows intransitive verbs which take an embedded verbal core as their S-argument. As mentioned in the previous section, the S-argument of intransitive verbs is marked by the set-A paradigm when the verb is inflected for incomplete status, and A.3.SG is phonologically realized (as *u*). E64 illustrates one important

type of intransitive propositional verb: **phase verbs** (also known as ‘aspectual verbs’), i.e. verbs that express the initiation or termination of the event referred to by the embedded verbal core. Most phase verbs are basically transitive, taking the embedded verbal core as U-argument. From these, ‘anticausative’ intransitives derive which are more frequently used than the transitive basis. An example is *káah* in E64a (derived from transitive *kah* ‘start’; the anticausative is marked by raising the tone). *Ts’o’k* ‘end’ in E64b is a root-intransitive phase verb. *Ts’o’k* is actually the lexical source of the homophone terminative AM marker. Phase verbs are dealt with in detail in §7.1.2.

- E64 a. K-u káah-al in bin eskwéela.
 IMPF-A.3 startACAUS-INC [A.1.SG go school]CORE
 ‘I begin to go to school.’, lit. ‘It begins my going to school’
- b. K-u ts’o’k-ol in xòok.
 IMPF-A.3 end-INC [A.1.SG readATP]CORE
 ‘I finish reading.’, lit. ‘It ends my reading’

Other intransitive propositional verbs include the light verb *úuch* ‘happen’ and modal verbs expressing possibility.

The final feature of argument embedding to be illustrated here is the dependence of the status category the embedded verb is inflected for on the main predicate and on the construction. All verbal cores in argument function in YM appear either in incomplete status (as in all the examples seen so far) or in subjunctive status. For example, phase verbs such as those illustrated in E64 assign exclusively incomplete status to the embedded verbal core. On the embedded verbs in E64, incomplete status is unmarked; with *xòok* ‘read’ in E64b, this is a property of the predicate class (*xòok* belongs to the active intransitive class), whereas *bin* ‘go’ in E64a belongs to a small subset of the inactive predicate class whose members receive unmarked incomplete, as opposed to the rest of the inactive class. There is no lexical predicate in YM that would exclusively take embedded verbal cores in subjunctive status as arguments, but there is a class of complement-taking predicates, namely desiderative predicates, which assign incomplete or subjunctive status to the verbal core, depending on the transitivity of the embedded verb. E65 illustrates this with the stative desiderative predicate *k’áat* ‘wish’. The intransitive *p’áat* ‘stay’ in E65a appears in incomplete status, while the set-A marker that otherwise cross-references its S-argument with

incomplete status is deleted under ‘control’ (or ‘equi(-NP)-deletion’; cf. Comrie 1984) by the matrix verb. The same phenomenon occurs in E21 above with the desiderative verb *ts’íibóolt* ‘wish’, so it may be concluded that it is characteristic of desiderative semantics. However, only intransitive verbs are controllable in YM, and hence transitive *a’l* ‘say’ in the otherwise parallel E65b shows a different pattern: its argument marking is fully retained, while the verb appears in subjunctive status. Yet a different pattern is shown in E65c where both transitive *áant* ‘help’ as well as intransitive *tàal* ‘come’ appear in subjunctive status (unmarked on transitive *áant* since transitives only have marked subjunctive when occurring in clause-final position), neither verb is controlled, and both embedded cores occur with the subjunctive subordinator *káa*. This structure is conditioned by the referential disjunctiveness between the possessor of *k’áat* and the S and A arguments of *áant* and *tàal*, respectively. The construction exemplified by E65a and b, then, is tied to referential identity of arguments.

- E65 a. Kexi’-e’ in k’áat p’áat-al.
 would.that-TOP A.1.SG wish(B.3.SG) [leaveACAUS-INC]CORE
 ‘I would like (lit. my wish is) to stay (lit. to end up (here)) (but I can’t).’ (BVS 8.1.27)
- b. Ba’x u k’áat y-a’l-eh?
 what A.3 wish(B.3.SG) [A.3-say-SUBJ(B.3.SG)]CORE-D2
 ‘What does it mean?’, lit. ‘what is its wish to say?’ (BVS 7.1.20)
- c. In k’áat káa aw áant-en-e’x,
 A.1.SG wish(B.3.SG) [SR] A.2 help-B.1.SG-2.PL]s
 in k’áat káa tàal-ak-e’x t-inw éetel (...).
 A.1.SG wish(B.3.SG) [SR] come-SUBJ-B.2.PL LOC-A.1.SG with]s
 ‘I want you guys to help me, I want you to come along with me (...).’ (Romero Castillo 1964: 307-308)

The construction introduced by the subjunctive subordinator *káa* in E65c is tagged as a clause rather than as a verbal core, because this construction occurs preceded by clause-final particles, just like the clause co-referent with the U-argument of the perception verb in E60b. In E66, the particle *-e’* already familiar from E60b occurs in the function of a topic marker between the clause containing the desiderative predicate *k’áat* and the clause coreferent with its S-argument.

E66. Tèen-e' in k'áat-e'
me-TOP A.1.SG wish(B.3.SG)-TOP

káa a tàas-e'x a màantel.
SR A.2 come:CAUS(B.3.SG)-2.PL A.2 table.cloth

'As for me, I want you to bring your table cloths.', lit. 'Me, my wish, that you bring your table cloths.' (Muuch 305)

The fact that the construction introduced by the subjunctive subordinator *káa* has the distribution of a clause rather than that of a verbal core is used as a criterion in §4.2.1.4 to exclude predicates such as *k'áat* from the set of AM markers.

In sum, it has been shown in this section that verbal cores, but not clauses, are regularly embedded as arguments in YM. Stative predications cannot be embedded, they rather constitute fully-fleshed clauses themselves. Verbal cores in argument function are cross-referenced by 3.SG markers throughout YM grammar; there is no raising. Embedded verbal cores in argument function appear either in incomplete or in subjunctive status, depending on the matrix predicate and the construction (in particular, the transitivity of the embedded verb).

4.2.1.2. The motion-cum-purpose construction

Many, if not all, Mayan languages have special constructions for the expression of what has been called **motion-cum-purpose**, i.e. a motion event with a subsequent secondary event the realization of which is not entailed, but which functions as a kind of non-spatial goal of the motion event (cf. Aissen 1987 for Tzotzil, and Zavala 1993 for an overview including other members of the Mayan family). In the YM motion-cum-purpose construction, the secondary event is expressed by an embedded verbal core which, unlike the verbal cores in the function of expressing arguments, which were discussed in the previous section, are not cross-referenced as arguments on the motion verb. The pattern of the embedded verbal core is the one that was attested with desiderative matrix predicates above (cf. *k'áat* in E65): if the embedded verb is intransitive, it is inflected for incomplete status (marked by the positional inchoative incomplete suffix *-tal* on the positional verb *kul* in E67a), and cross-referencing of its S-argument is deleted under control. If, however, the embedded verb is transitive, it is inflected for subjunctive status (unmarked on transitives such as *xímbat* 'visit' in E67b except when appearing in

clause-final position); and no 'equi-deletion' occurs.

E67 a. Tèen-e' k-in bin kul-tal
me-TOP IMPF-A.1.SG go [sit-PROC.INC]

t-u xùul le bèeh-o'.
LOC-A.3 endVATP DEF way]s-D2

'Me, I'll go sit(ting) down at the end of the road.' (Romero Castillo 1964: 308)

b. Chéen h tàal-en in xímbat-ech.
just PRV come-B.1.SG [A.1.SG walk:APP-B.2.SG]s
'I only came to visit you.' (BVS 7.1.7)

Notice also that the motion verbs *bin* 'go' in E67a and *tàal* 'come' in E67b are unambiguously identifiable as intransitives by their status pattern. Their S-argument has a 1.SG referent in both cases. Hence, the embedded verbal core cannot be an argument of these motion verbs. The YM motion-cum-purpose construction is restricted to motion verbs whose S-argument is coreferent with the S- or A-argument of the embedded verbal core. The relevance of the motion-cum-purpose construction for the aims of the present study consists in the following three issues: Firstly, there is one AM marker, namely prospective *mukah*, which directly derives from a motion-cum-purpose construction with *bin* 'go' as the main predicate, such as in E67a. The construction of the prospective AM *mukah* (functionally roughly equivalent to the English *be going to*-construction) preserves the pattern of the embedded verbal core in the motion-cum-purpose construction and thus behaves differently from the construction of the other morphologically unbound (and hence predicative) AM markers. Secondly, there is another AM marker, namely predictive AM *bíin* (used to assert predictions mainly in the context of prophecies and other highly marked discourse types), which also relates to the motion verb *bin* 'go', but which does not show the pattern of the motion-cum-purpose construction. Accordingly, it is argued that predictive *bíin* takes the embedded verbal core as its S-argument, unlike prospective *mukah*, but like all remaining predicative AM markers. And thirdly, the distribution of the subjunctive with transitive embedded cores in the motion-cum-purpose construction contributes to the analysis of the subjunctive in §6.1.

4.2.1.3. The gerundial construction

The gerundial construction consists essentially in an embedded verbal core which is not marked as an argument of the main predicate, just as with the motion-cum-purpose construction. However, unlike the embedded verbal core of the motion-cum-purpose construction, the embedded verbal core in the gerundial construction appears in incomplete status regardless of its transitivity, and no argument of it is deleted under control. E68a illustrates the gerundial construction with the intransitive embedded verb *pàax* 'play music' (which belongs to the active predicate class, so incomplete status is unmarked with this verb), while E68b features the transitive verb *sfĩh* '(give as a) present'. Note the retention of the A.3 marker *u* signaling the S-argument of *pàax* and the A-argument of *sfĩh*. Compare this to the motion-cum-purpose examples in E67 above. The structural and semantic difference between the motion-cum-purpose construction and the gerundial construction was first noticed by Bricker (1981 [c]: 97-98).

- E68 a. Pedro-e' h tàal u pàax.
 Pedro-TOP PRV come(B.3.SG) [A.3 make.music\ATP]CORE
 'Pedro came playing.' (i.e. he came, playing music on the way)
- b. Pedro-e' h tàal u sfĩh-ik chúuhuk (...).
 Pedro-TOP PRV come(B.3.SG) [A.3 present-INC(B.3.SG) sweet]CORE
 'Pedro came presenting sweets to the kids.' (i.e. he came, presenting the sweets on the way)

The distribution of the gerundial construction is fairly limited. It occurs with motion verbs such as in E68, and apart from that, it occurs sometimes with stative predicates expressing emotions. In this case, the gerundial construction refers to the cause of the emotional state designated by the stative predicate.

- E69. Hach ki'mak inw óol inw il-ik-ech.
 really happy(B.3.SG) A.1.SG soul [A.1.SG see-INC-B.2.SG]CORE
 'I am really glad to see you.', lit. 'Really happy is my heart seeing you' (BVS 1.1.6)

In all instances, the event referred to by the gerundial construction is co-temporal with the eventuality expressed by the main predicate, as opposed to the event expressed by the embedded verbal core in the motion-cum-purpose construction, which occurs subsequent to the motion event. The relevance of the gerundial construction to the present study lies in its providing evidence supporting the

analysis of the incomplete status inflection as a dependent verb form specialized on imperfective reference (similar to an Indo-European gerund such as the English *-ing*-form) in §6.1.

4.2.1.4. The morphosyntax of AM-marking

The present section pursues four aims: Firstly, the paradigm of preverbal AM markers is introduced. The AM markers represent one of the major concerns of the description of temporality in YM. Secondly, the formal properties of AM marking as a grammatical operation are discussed. Thirdly, the syntactic analysis of the morphologically unbound AM markers as stative predicates is established (these are all AM markers except for the prefixal imperfective and perfective AMs). Below, this syntactic analysis is used in the semantic analysis of some of the individual AM markers. And fourthly, a criterion is provided that permits the distinction of AM markers from lexical stative predicates.

The full paradigm of AM markers is given in F21 below. There, the unbound AM markers are classified as predicates, on account of the analysis just alluded to. The further subdivision into 'aspectual', 'modal' and 'distance predicates' is discussed in §6.2.2. The verbal core depends on the AM marker for its status inflection; the status category triggered by each AM marker is represented in F21. Status inflection is taken up further below. F21 also lists the portmanteau forms some of the AM markers enter into with the set-A cross-reference clitics of the verbal core.⁶⁶

There is a considerable amount of terminological variation across Mayanists in the denomination of the AM categories; F21 below compares the labels chosen

⁶⁶ Briceño Chel (1997: ch. 4) takes the existence of these portmanteau forms as evidence for the ongoing grammaticalization of the AM markers. However, the same process of fusion of the set-A clitics with a preceding morphologically unbound form also occurs with lexical stems, e.g. *chuk-u'n xa'n-il* < *chuk-a'n u xa'n-il* catch-RES A.3 palm-REL 'sufficient palm straw'. I therefore assume that the process at stake is of a purely phonotactic nature and operates independently of grammaticalization. The phonotactic constraints of this process remain to be investigated.

here to those employed in other studies on YM.⁶⁷ The partly tense-oriented terms used in Blair (1964), Bricker (1981 [a]), and in particular Lehmann (1993 [b]) are in none of the cases provided with a claim by the authors about the semantics of the denominated categories; I therefore refrain from discussing these labels. The analysis in §6.2 shows that none of the AM markers does in fact code a tense.

Bricker has necessitive *k'abéet* instead of *k'a'náan*. This constitutes a difference between the western and the eastern dialect of YM (cf. §3.1.1) according to my consultants. They are familiar with both forms, but use *k'a'náan* with much higher frequency than *k'abéet*. A difference in meaning was not attested. Ayres & Pfeiler (1997) and Monforte (1994) follow Bricker, except that Ayres & Pfeiler have an additional 'habitual' *sùuk*. In the construction accounted for by Ayres & Pfeiler, *sùuk* fits the formal definition of the AM markers to be developed below. However, this use of *sùuk* seems to be restricted to the western dialect. In my data, *sùuk* is a stative lexical predicate reading 'be customary', 'be accustomed'. Habituality is conveyed by imperfective AM *k-* with which *sùuk* does not compete in any way (see, however, Vapnarsky 1999: 146, based on the same dialect area as the present study!).

I have generally attempted to resolve the predicament posed by the problematic distinction between AM markers and lexical stative predicates by including every expression in the category which formally behaves like an AM marker and at the same time seems to be relevant to the discussion of temporality. Bricker (1981 [a]) lists the portmanteau forms of the irrealis subordinator *kéen* among the AM-markers, Vapnarsky (1999) the bare form *kéen* itself, and Blair (1964) the combined as well as the bare version. See §4.2.1.5 for the reasons why I have decided not to follow them in this respect.

F21. Preverbal aspect-mood (AM) markers

Particle		Form	Portmanteau allomorphs	Status category triggered
Type	Category			
Bound	Perfective	t-/h-	-	Completive
	Imperfective	k-	-	
Aspectual predicates	Progressive	táan	tfin / táan ...(-e'x) / túun ...(-o'b)	Incompletive
	Terminative	ts'o'k	ts'in / ts'a ...(-e'x) / ts'u ...(-o'b)	
	Prospective	bikah-ABS / mikah-ABS / mukah-ABS	-	Incompletive (V _{ir}) / Subjunctive (V _{ir})
Modal predicates	Predictive	bfin	-	Subjunctive
	Penative	óolak	-	
	Obligative	yan	-	
	Necessitive	k'a'náan	k'a'nfin / k'a'náan ...(-e'x) / k'a'núun ...(-o'b)	
	Desiderative	táak	-	Incompletive
	Assurative	he' ...-e'	hi'n ...-e' / ha' ...(-e'x)-e' / hu' ...(-o'b)-e'	
Distance predicates	Proximate future	ta'itak	ta'itin / ta'ita ...(-e'x) / ta'itu ...(-o'b)	
	Immediate past	táant(ik) ...-e'	-	
	Recent past	sáam	-	Subjunctive
	Remote past	úuch	-	

⁶⁷ Vapnarsky's (1999) terms are translated here from French. Vapnarsky (1999: 78-79) presents a similar overview, covering Tozzer 1921, Blair 1964, Steffle 1972, Bricker 1981 [a], Ayres 1991, and Briceño Chel 1997.

- c. K-u ka' òk-ol y-òk'ol u kòol.
 [IMPF_{AM}[-A.3 REP enter-INC A.3-on A.3 clear\ATP\CORE]s
 'He enters his milpa (i.e. the slash-and-burn cornfield, lit. 'the clearing') again.'
 (Trab 68)

E70b differs from E70c in that the former shows a morphologically unbound AM marker (the progressive AM marker *táan*), while the latter has a bound one (the imperfective prefix *k-*). In the case of E70c, the AM marker is prefixed to the set-A cross-reference clitic *u* which itself is a constituent of the verbal core. However, notwithstanding the morphological differences, both bound and unbound AM markers represent co-constituents, rather than constituents, of the verbal core. This has to be concluded from the facts of embedding presented in the previous sections: like the morphologically unbound AM markers, so are the AM prefixes excluded from units embedded as arguments of propositional predicates (§4.2.1.1) or as adjuncts in the motion-cum-purpose construction (cf. §4.2.1.2) and in the gerundial construction (§4.2.1.3). Units formed by combinations of an AM marker and a verbal core constitute potentially independent clauses, which show a clearly different distribution with respect to verbal cores, regardless of whether the AM marker is an independent word or a prefix. Therefore, the prefixation of the perfective and imperfective AM markers to constituents of the verbal core has to be analyzed as a *mismatch* between syntactic and morphological structure. In a categorial grammar format, the syntactic category that has to be ascribed to bound and unbound AM markers alike is S/CORE (a category which in combination with a verbal core constitutes a clause).

It has been established that AM markers and verbal cores are co-constituents which combine to form verbal clauses. Now the analysis of the internal structure of the combination of an AM marker with a verbal core is presented. This analysis posits that the morphologically unbound AM markers are *stative predicates* which *take the verbal core as an argument* (this holds for most AM markers) *or adjunct* (this holds at least for the prospective AM marker). In a similar fashion, aspectual and modal markers in Mayan languages have been described as complement-taking predicates by Craig (1977) for Jakaltek, Dayley (1985) for Tz'utujil, and Furbee-Losee (1976) for Tojolab'al.⁶⁹ With respect to YM, Bricker

⁶⁹ Aissen (1994) has made a persuasive case for certain function verbs (which she labels 'auxiliaries') in Tzotzil not to show any argument structure, but rather to fuse with the verbal core (or, on her account, the 'verb phrase') into a construction whose argument

(1981 [c]) and Lehmann (1993 [b]) have proposed analyses of the AM markers in terms of *auxiliaries*. Both authors acknowledge the *origin* of the AM constructions from constructions of embedded verbal cores with lexical matrix predicates. Lehmann argues for a grammaticalization continuum leading from lexical matrix predicates with aspectual or modal functions (such as the 'phase verbs' and the predicates of ability and desire discussed in §7.1) up to the perfective and imperfective AM prefixes. He does not attempt to draw a line anywhere along this continuum and thus refrains from establishing criteria that delimit AM markers against lexical matrix predicates, and likewise from committing himself to a particular analysis of the morphosyntactic relationship between AM marker and verbal core. Bricker (1981 [c]) holds that the morphologically unbound AM markers are matrix predicates, but treats them as grammaticalized *verbs*, just as Lehmann (1993 [b]) does, in addressing the AM markers as *auxiliaries*.⁷⁰ The analysis I propose below goes beyond Lehmann's analysis, in that I argue that *all* unbound AM markers can be clearly established as matrix predicates, and my analysis deviates from both Bricker's and Lehmann's proposal, in that I argue that the unbound AM markers are clearly not *verbs* - and hence not *auxiliaries* either - but *stative* predicates (i.e. members of the YM *form class* of stative predicates).

structure is identical to that of the verbal core. However, the Tzotzil 'auxiliaries' can be shown to actually retain a personal argument semantically which is just not expressed in the fused construction, but has to be inferred from context. The semantics of AM marking in YM is entirely different in this respect; there is no indication of an unexpressed personal argument of any of the AM markers.

⁷⁰ Several of the AM markers do beyond doubt originate in verbs. This holds clearly for the terminative AM marker *ts'o'k* (from the phase verb *ts'o'k* 'end') and the prospective AM marker *mukah* (from a complex construction involving the motion verb *bin* 'go'). The predictive AM marker *bün* stems either from the same *bin* 'go' or from the homophonous hearsay evidential marker (which may, however, relate itself to *bin* 'go'). The recent and remote past AM markers *sáam* and *úuch* relate to the inchoative verbs *sáantal* 'take some time, become a while ago' and *úuchtal* 'take a long time, become long ago', but the latter seem analyzable as synchronic derivations from the stems that serve as AM markers. The relationship between remote past AM *úuch*, inchoative *úuchtal* and the inactive verb *úuch* 'happen' is unclear. The immediate past AM marker *táantik...-e* may stem from an obsolete egressive phase verb. In the case of *ts'o'k*, the simultaneous existence of the lexical verb stem and the AM marker poses a potential problem in the distinction of tokens of the two items. This problem is addressed in §6.2.2.1.2. Notice, however, that the simultaneous existence of two variants of the same origin which differ in their degree of grammaticalization is also common among Indo-European auxiliaries and modal verbs (consider e.g. English *go*).

This is so, because AM markers, unlike Indo-European auxiliaries, do not share the morphological properties of verbs - in particular, they are not inflected for status, and they do not combine with AM markers - and hence are not *carriers* of verbal inflectional categories, as Indo-European auxiliaries are.⁷¹

The analysis proceeds as follows: first, it is demonstrated that the AM markers are stative matrix predicates. Then it is argued that the verbal core is an argument of the AM marker with most AM markers, but an adjunct with at least one (prospective AM *mukah*), based on what was established in the previous sections about embedding in YM.

First, consider the evidence suggesting that the morphologically unbound AM markers are stative predicates. The argumentation proceeds according to the following reasoning: first of all, AM markers are not verbs, since they themselves are not inflected for status and do not themselves receive AM marking. So to this extent, AM markers are formally stative. Secondly, all morphologically unbound stative expressions can occur as stative predicates in YM, regardless of their content. E71 shows a simple noun (a), a relational noun (b), an interrogative pro-form (b), an adjective (c), and a numeral (d) acting as stative predicates.

- E71 a. *Mix+ba'i-o'n* t-aw ich.
 NEG.EMPH+thing-B.1.PL LOC-A.2 eye
 'We are nothing in your opinion.' (said in a bar, in reaction to my reluctance to buy another round)
- b. A *k'ahóol-en*. aw ohel máax-en?
 A.2 acquaintance-B.1.SG A.2 knowledge who-B.1.SG
 'Do you know me, do you know who I am?' (BVS 13.01.10.)
- c. Chan áak, *óotsil-ech!*
 little turtle poor-B.2.SG
 'Little turtle, you are a poor one!' (Romero Castillo 1964: 307)
- d. *Sĩinko-o'n!*
 five-B.1.PL
 'There are five of us!' (BVS 3.1.13)

⁷¹ Lehmann (1993 [b]: 314), although arguing that the AM-markers are impersonal auxiliaries, concedes that "the very notion of auxiliary seems to be falsified by the YM facts, since the function of an auxiliary is to serve as the carrier of verbal categories".

There is thus nothing that could prevent the morphologically unbound AM markers to assume the predicate function, except in case the main predication is not asserted by them, but rather by the verbal core, to which the AM marker would then have to be assumed to be subordinate. In other words, given that the AM markers are potentially predicative, and that they are not constituents of the verbal core, the decisive question is: which of the two assumes the function of the main predicate, the verbal core or the unbound AM marker? This issue is settled conclusively by two criteria which are now presented in the third step of the argumentation. Both pieces of evidence are related to the use of polar questions in discourse. The formation of such questions in YM frequently involves a special question focus marker *wáah* that cliticizes to the constituent "highlighted" in the question for reasons to do with presupposition and expectation. The constituent marked by *wáah* is outside presupposition, and the information conveyed by it tends to be unexpected, put in doubt or the like. This constituent, then, is either a focus fronted to clause-initial position, or it is the predicate. (As shown below, these two possibilities may again be treated as instances of one single structure.)⁷² In the latter case, the following distribution is found:

- E72 a. *K'ah-a'n* **wáah** tèech ba'x àanyo-i'?'
 recall-RES(B.3.SG) ALT you what year-D4
 'Do you recall what year it was?' (Bio Ern 61)
- b. H lúub **wáah** túun le nuxib lòobo-o'?'
 PRV fall(B.3.SG) ALT CON DEF old:male wolfe-D2
 'So, did that mean old wolf fall?' (Bad_ss 79)
- c. Ts'o'k **wáah** u máan le ha'-o'?' - Ts'o'k-ih!
 TERM ALT A.3 pass DEF water-D2 TERM-B.3.SG
 'Has the rain already gone by? - Yes it has!' (BVS 16.1.4)
- d. Táan/yan/ta'itak... **wáah** u máan le ha'-o'?'
 PROG/OBL/PROX ALT A.3 pass DEF water-D2
 - Táan/yan/ta'itak...!
 /PROG/OBL/PROX(B.3.SG)
 'Is the rain going by? / Will the rain go by? / Will the rain soon be gone by? - Yes

⁷² *Wáah* does not necessarily attach to the first clitic host in the clause ('Wackernagel's position'). This can be demonstrated in case an adverb or conjunction precedes the predicate or focused constituent. Given the interrogative type of sentences with *wáah*, such examples are of course rare. One instance is E94 below.

it is/will!'

In the case of a stative clause (E72a), *wáah* immediately follows the predicate. In a verbal clause with a bound AM marker (E72b), *wáah* cliticizes to the lexical verb. However, if the clause is formed with one of the unbound AM markers, as in E72c and d, *wáah* attaches to the AM marker itself, rather than to the lexical verb. Question-focus marker attachment treats the unbound AM markers as the main predicates of the clause, whereas it treats the two AM prefixes not as independent predicates, but rather as predicates in combination with the lexical verb.

The second piece of evidence for the predicativity of the morphologically free AM markers comes from the strategy used in YM when polar questions are answered affirmatively. There is no segmental expression for this function; instead, either the whole proposition that was questioned or the predicate is repeated. Thus, the most natural way to confirm the question asked in E72a above would be *K'aha'n!* 'I remember'. E72b would be corroborated saying *H láub-ih* PRV fall-B.3.SG 'It fell', and in E72c and c', the predicate resumption strategy would most likely operate on the AM marker, producing *Ts'o'k-ih!* TERM-B.3.SG 'It has!' in E72c⁷³ and *Táan!* 'It is!', *Yan!* 'It has to / will be!' or *Ta'itak!* 'It will be soon!', respectively, in E72d. This phenomenon clearly supports an analysis according to which the unbound AM markers constitute themselves the predicate, just as statives do, whereas the bound imperfective and perfective are not by themselves predicative, but only form predicates in combination with the verbal core.⁷⁴

The fact that morphologically independent markers of aspect and mood may be the main predictors in the clause in syntactic respects and accordingly assume the segmental locus of assertion is by itself by no means alien to the typologist, as it holds just as well for the auxiliary constructions known from languages all

⁷³ *-ih* in E72c is the marked B.3.SG of intransitive verbs. Aside from terminative AM *ts'o'k*, *-ih* also occurs with the recent past AM marker *sáam* and remote past AM *úuch*. *-ih* cannot be taken as evidence that the terminative AM marker in fact still belongs to the inflectional paradigm of the lexical verb *ts'o'k* 'end', since recent past *sáam* did not originate from a verb.

⁷⁴ The second test has been applied by Lehmann (1993 [b]: 314). For similar criteria in a parallel argumentation on Tojolab'al Maya, cf. Furbee-Losee (1976: 200-214).

across the globe, among them Indo-European. What makes the case under discussion so radically different from the strategy of auxiliary inflection is that auxiliaries are "grammatical verbs" that carry the load of finite verb inflection instead of the lexical verb, which appears itself in some non-finite form (e.g. an infinitive). Thus, the traditional analysis of *She did go* would have it that the auxiliary *did* is inflected for past tense and subject agreement just like the finite lexical verb in *She went*. This is clearly not the case with the AM markers in YM, as they are inflected neither for aspect or mood themselves nor for arguments other than the embedded verbal core itself (with one exception, commented on below). They actually belong to a parts-of-speech category different from that of verbs, namely to the class of stative predicates. For those AM marker that have originated in verbs (cf. Fn70 above), the loss of verb inflection marks a clear-cut transition in the putative grammaticalization process.

It has been shown that the morphologically unbound AM markers in fact represent the main predictors of the clause. This result holds independently of the fourth and final step of the analysis, which is supposed to clarify the nature of the relation between the unbound AM marker and the verbal core. The analysis proposed here is that with the exception of the prospective AM marker *mukah* (roughly translating the English *be going to* plus infinitive construction), the unbound AM markers take the embedded verbal core as their S-argument. In other words, *Táan u hàan-al* PROG A.3 eat-INC means literally something like 'It is going on his eating', *K'a'náan u hàan-al* NEC A.3 eat-INC is best rendered as 'It is necessary his eating' and *Úuch hàan-ak* REM eat-SUBJ(B.3.SG) is most appropriately translated as 'It is long ago that he ate'. This analysis is supported by the argument structure analysis of YM stative predicates in general that was presented in §4.2.1.1. This general analysis says that all stative predicates in YM have S-arguments, and if there is a verbal core subordinate to a stative predicate, it has to be assumed to be the S-argument of the stative predicate, unless the S-argument slot is already filled by a different referent. The latter is the case with the prospective AM marker *mukah*. *Mukah* is the only AM marker which is itself inflected with set-B suffixes for an animate argument. The pattern of the verbal core equals exactly the pattern of the embedded verbal core in the motion-cum-purpose construction (cf. §4.2.1.2): the intransitive verb *chiun* 'begin' in E73a appears in the incomplete and the set-A marker that would otherwise cross-reference its single argument in this status category is deleted under control by the S-argument of *mukah*, whereas in E73b, transitive *tsikbat* 'tell' is in the subjunc-

tive (unmarked since the verb is not in clause-final position) and the set-A marker cross-referencing the A argument is retained.

E73 a. *Le mukah chúun-ul le cha'n-o',*
DEF PROSP(B.3.SG) begin-INC DEF spectacle-D2

ba'x t-uy a'l-ah le chan ràaton-o' (...)?
what PRV-A.3 say-CMP(B.3.SG)DEF small mouse-D2

'(When) the movie was going to start, what did the little mouse say?'
(Mag_ss/com 1)

b. *Mukah-en in tsikbat tèech, (...).*
PROSP-B.1.SG A.1.SG chat:APP(B.3.SG)you
I am going to tell it you (...).' (Yax18-19)

Mukah is in fact a stative predicate; however, the verbal core with *mukah* does not follow the pattern of the argument embedding construction, but rather the pattern of the embedded core in the motion-cum-purpose construction. The S-argument of *mukah* is not the verbal core, as with the other unbound AM markers, but a non-sentential argument coreferent with the S-argument of the intransitive verbal core (the movie) in E73a and coreferent with the A-argument of the transitive verbal core in E73b (recall that coreference of the S-argument of the motion verb with the S-or A-argument of the embedded core is a condition of the motion-cum-purpose construction). *Mukah* diachronically relates to a motion verb construction with *bin* 'go' (cf. §6.2.2.1.3.) and is actually used as a motion verb in isolation in the formula *Mukah-en!* PROSP-B.1.SG 'I gotta go now!', 'I must be on my way!', 'I'm off!'.

There is another morphologically unbound AM marker, namely predictive AM *bīin*, which possibly also relates to *bin* 'go' (alternatively, *bīin* may derive from the hearsay evidential marker *bin*, which may however itself be descendant of *bin* 'go'), but which takes a verbal core patterning not like the verbal core in the motion-cum-purpose construction, but rather appearing in subjunctive status (unmarked on the transitive verb in E74b) independently of the transitivity of the verb, and not allowing for equi-deletion of an argument of the verb.

E74 a. *Bīin máan-ak máak te x-tsīimin+k'áak'-o'.*
PRED pass-SUBJ(B.3.SG) person LOC:DEF F-horse+fire-D2
'People will be moving around in automobiles.' (Inferno 108)

b. *Bīin u ts'fib+óol-t x-ch'úup-tal xib-o'b, (...).*
PRED A.3 write+soul-APP(B.3.SG) [F-female-PROC.INC]CORE male-PL
'The men shall wish to become women, (...).' (Vapnarsky 1995: 89)

Unlike prospective AM *mukah*, predictive AM *bīin* does not occur with non-sentential arguments. Hence, the S-argument of *bīin* is the embedded verbal core, which represents a reanalysis with respect to the motion verb *bin* 'go' as the possible lexical source of *bīin*. Thus, a more literal rendition of E74 is 'It will be the case (or, closer to the lexical source, *It is going to be the case*) that people will move around in automobiles'.

It has been established that the morphologically unbound AM markers function as stative predicates, mostly taking the verbal core as their S-argument. The morphological properties of stative predicates distinguish AM markers relatively sharply from verbs. What remains to be done now is to distinguish the category of AM markers from that of lexical stative predicates which also satisfy the criterion of predicating over verbal cores functioning as their S-arguments. Notice that the paradigm of AM markers represented in F22 is quite large and relatively heterogeneous. There is no immediately obvious reason to include the markers listed in F22 in the set, but to exclude other stative complement-taking predicates. What, for instance, rules out the stative desiderative predicate *k'áat* 'wish' from membership in the class of AM markers? Just like the desiderative AM marker *táak*, *k'áat* predicates over a proposition or an event, and the meaning of *k'áat* and desiderative AM *táak* are not too different. And it is not obvious that any difference in the degree of grammaticalization (cf. Lehmann 1995: ch. 4) can be easily established between *k'áat* and desiderative AM *táak*. So why is it that *táak* but not *k'áat* has been included in F22? Because, as has been shown in §4.2.1.1, *k'áat* does not solely occur with embedded verbal cores, but also with S-arguments coreferent with juxtaposed clauses introduced by the subjunctive subordinator *káa*. The crucial example is repeated here for convenience:

E75. *Tèen-e' in k'áat-e'*
me-TOP A.1.SG wish(B.3.SG)-TOP

káa a tàas-e'x a màantel.
SR A.2 come:CAUS(B.3.SG)-2.PL A.2 table.cloth

'As for me, I want you to bring your table cloths.', lit. 'Me, my wish, that you bring your table cloths.' (Muuch 305)

This distribution may serve as a criterion to distinguish AM markers from other stative propositional predicates: AM markers may combine with a verbal core in completive, incomplete, or subjunctive status, but never with a clause marked by the subjunctive subordinator *káa*. This criterion is also sufficient to exclude *uts* 'good' that was given as another example of a stative predicate whose S-argument can be realized by an embedded verbal core, for *uts* as well occurs with paratactic *káa*-clauses:

E76.	Uts	ti'	k	t'àan
	good(B.3.SG) LOC		A.1.PL	call/ATP
	káa	t'àan-nak-ech	k	u'y-eh.
	SR	call/ATP-SUBJ-B.2.SG	A.1.PL	hear-SUBJ(B.3.SG)

'We appreciate that you talk to us.', lit. 'It is good in our speech that you talk for us to hear.' (Fcp 25)

The *káa*-construction has been established as a clause rather than a verbal core in §4.2.1.1. The true meaning of the *káa*-clause criterion, then, is the exclusion of constructions which are clearly biclausal. Thus, the following categorial definition may be concluded:

- D1. AM markers combine with verbal cores marked for completive, incomplete, or subjunctive status to constitute a potentially independent verbal clause, while remaining themselves uninflected for status.

In a categorial grammar format, AM is by this definition restricted to the category S/CORE, while any other stative predicate has at least one possible construction S/S.

It should be emphasized that D1 is a syntactic criterion and does not in any immediately obvious way capture a *grammaticalization* difference between AM markers and lexical stative complement-taking predicates. As Lehmann (1993 [b]) argues, the AM markers of YM can be organized along a grammaticalization continuum that leads from the the perfective and imperfective AM prefixes via those AM markers that are descendant from verbs (and to this extent clearly grammaticalized) to lexical stative complement-taking predicates (cf. also Briceño-Chel 1997). D1 is intended as a *distributional* criterion that groups the evidently grammaticalized AM markers together with as *large* a set of potential

candidates for membership in the AM class as possible, while still excluding those constructions that are clearly biclausal (such as the construction with *k'áat* 'wish') and which one hence would not want to consider instantiations of aspectual or modal *operators* on verbal cores. Such a criterion is a prerequisite to establishing which of the elements is included in the set (and hence considered in the discussion in §6.2), and if a line has to be drawn somewhere along the continuum, it will be safest to draw it inclusively.

Aside from the criteria discussed so far (no bearing of status inflection and exclusive combination with COREs rather than with clauses), D1 further restricts AM markers to clauses that are "potentially independent", in other words, those that may constitute sentences. This move has its motivation in the replacement of AM marking by different inflectional systems in certain clauses embedded under higher predicates. These constructions include negation, clefting, content questions, and relativization. They are addressed in the following section.⁷⁵

To sum up, in this section, the paradigm of AM markers has been introduced and their formal properties have been discussed. In particular, a syntactic analysis of the morphologically unbound AM markers as stative predicates has been proposed. AM markers combine with verbal cores either in the function of S-argument, or, in the case of the prospective AM marker *mukah*, as adjuncts patterning like the embedded verbal cores in the motion-cum-purpose construction. This syntactic analysis plays a role in the semantic analysis of the AM markers proposed in §6.2. Finally, a criterion to distinguish AM markers from lexical stative predicates that take embedded verbal cores as arguments has been established.

⁷⁵ One item that satisfies the definition of AM markers in D1 and yet has not been included in the list presented in F22 is *kap'*, a fused form of the phase verb construction *káa h ho'p' káa* PRV begin(B.3.SG) 'it started'. *Ho'p'* is treated as an 'inceptive' aspect marker in Bricker (1981 [a]) and Vapnarsky (1999). *Kap'* is discussed as a *connective* in §7.3. YM has a small set of formally and semantically one-place connectives that express aspectual and modal meanings. The inclusion of *kap'* in this set is both diachronically and semantically motivated. Notice, though, that these connectives do not constitute a clearly-defined form class, while the AM markers do (at any rate with respect to D1), and to the extent they do, *kap'* should be included among them. *Kap'* is not discussed as an AM marker in §6.2 exclusively for the presentational reasons just mentioned.

4.2.1.5. Further higher-order predicates

There are several constructions which display special patterns of AM marking different from those discussed so far for plain main clauses, partly in terms of the form of marking, but mostly in terms of the number of categories distinguished (which is smaller than in simple main clauses) and the merging of subcategories expressed by different markers in main clauses in one marker. These constructions include **negation**, and apart from that, three structures which are closely interrelated in formal and semantic respect, namely **focus constructions**, **relative clause constructions**, and **content questions** (or 'information questions', or 'question-word questions'). All four constructions are subsumed here under the label of **higher-order predicates** because, as is shown in the discussion, focus constructions including information questions are clefts in YM, with the focus as the main predicate and the 'extrafocal' clause subordinate to it in the form of a relative clause (which is why relativization is treated here, too), and in clausal negation, the negative marker is construed as the main predicate of the clause. The purpose of the present section is to introduce the constructions in question and to point to the different patterns of AM marking that occur in them. A detailed description of these systems of AM marking cannot be given here. Instead, AM marking under higher predicates is explained largely with reference to the pragmatically corresponding main clause categories, assuming that the semantics are roughly the same. The only marker occurring in higher-order predicate constructions whose semantics are investigated in some detail is the irrealis subordinator *kéen* (cf. §7.3.5).

First, the structural similarities among relative clause constructions, focus constructions, and content questions are considered. These similarities are explained by analyzing content questions as focus constructions (with the question pro-form in focus) and focus constructions as clefts, with the focused constituent construed as a stative predicate and the remainder of the construction subordinate to this predicate as a relative clause. This analysis is justified by the application of the criterion of question-focus marker attraction (established for the demonstration of the predicativity of the morphologically unbound AM markers in §4.2.1.4) which shows that the focused constituent in a focus construction does in fact behave as the main predicate of the construction. The remainder of the discussion is restricted to focus constructions, skipping relativization and question formation which behave identically in the relevant respects. The main point of the discus-

sion is to establish that focus-like constructions in YM show patterns of AM marking different from those of plain independent main clauses. Finally, negation is treated, showing that the negation marker again assumes the function of a stative predicate, and outlining the pattern of AM marking that occurs with negation.

The structural unity of relative clause constructions, focus constructions, and information questions in YM as well as in many other Mayan languages is most apparent when the A-argument of the transitive clause is coreferent with the focus of a cleft sentence, the target of information questions, or the head of relative clause constructions. In each case, the cross-reference marker coreferent with the argument focused, questioned, or relativized gets deleted on the verb heading the extrafocal or relative clause or the main clause in the case of the content question (but see below) if it marks the transitive A of that clause, but not if it marks the transitive U or intransitive S. Many Mayan languages have special verb morphology for this **A-focus form** of the transitive verb.⁷⁶ YM does not show such an A-focus marker; but the A-focus form is identifiable through deletion of the set-A cross-reference marker, as well through a special AM pattern different from that displayed by constructions that target the transitive U or the intransitive S in relativization, focustion, or question-formation.

Bricker 1978 documents the distribution in YM; below, I reproduce her examples for argument focus constructions (E77; E77a was added by me for the sake of completeness), content questions (E78), and relative clauses (E79) in incompleti-

E77 Argument focus constructions

- a. Leti' k-u bin k'fiwik.
 target: S it IMPF-A.3 go market
 'It is he who goes to the market.'
- b. Leti' k-in hats'-ik.
 target: U it IMPF-A.1.SG beat-INC(B.3.SG)
 'It is he whom I beat.'

⁷⁶ For an overview of A-focus forms in the Mayan family, see Robertson (1992). The most recent account of the phenomenon in an individual language is Aissen (1997, 1999) for Tzotzil.

- c. **Leti'** hats'-ik-en.
target: A it beat-INC-B.1.SG
'It is he who beats me.' (Bricker 1978)

E78 Content questions

- a. **Máax k-u** bin k'fiwik?
target: S who IMPF-A.3 go market
'Who is it that goes to the market?'
- b. **Máax k-aw** il-ik?
target: U who IMPF-A.2 see-INC(B.3.SG)
'Who is it that you see?'
- c. **Máax** il-ik-en?
target: A who see-INC-B.1.SG
'Who is it that sees me?' (Bricker 1978)

E79 Relative clause constructions

- a. le **máax k-u** bin k'fiwik-o'
target: S DEF who IMPF-A.3 go market-D2
'that person who goes to the market'
- b. le **ba'x k-u** xot-ik Juán-o'
target: U DEF what IMPF-A.3 cut-INC(B.3.SG) Juán-D2
'that thing that Juán cuts'
- c. le **ba'x** xot-ik Juán-o'
target: A DEF what cut-INC(B.3.SG) Juán-D2
'that thing that cuts Juán' (Bricker 1978)

The examples show that both the set-A cross-reference marker as well as the imperfective prefix are deleted if the transitive A is the target of focusation, question formation, or relativization. If, on the other hand, the transitive U or intransitive S is the target in the otherwise identical construction, both the set-A marker and the imperfective prefix are retained. These examples establish the structural similarity of focus constructions, content questions, and relative clause constructions, and also point to the pattern of AM marking different from that of simple main clauses. The explanation of the structural similarity of the three types of constructions proceeds as follows: a) content questions *are* a subtype of focus constructions in YM: they are focus constructions in which the focus position is occupied by an interrogative pro-form; b) focus constructions are clefts in YM: the focused constituent is construed as a stative predicate; and c) in YM clefts,

the clause that is not in focus (the 'extrafocal clause') is realized as a relative clause. Steps a and c of the argumentation are straightforward and need no justification. The validity of step b is demonstrated by the same criterion that was used in the preceding section to show the predicativity of simple main clause AM markers: predicativity of focused constituents can be demonstrated by their ability of attracting the question focus marker *wáah*. E80 shows *wáah* following a focused A-argument, E81 features *wáah* with a manner adverb in focus position (the manner focus construction is discussed below).

- E80. **Tèech wáah** he' le bèentana-o'?
you ALT open(B.3.SG) DEF window-D2
'Was it you who opened the window?' (Tama 61)

- E81. **Séeban wáah** túun k'a'náan a ts'o'k-s-ik?
fast ALT CON NEC A.2.SG end-CAUS-INC(B.3.SG)
'Is it fast that you have to finish it?' (Casa antram 5)

The following discussion is restricted to focus constructions proper. What is said of focus constructions holds for the corresponding relative clause constructions and content questions as well. E82 - E84 illustrate imperfective (E82), perfective (E83), and prospective AM marking (E84) with argument focus constructions.

E82 Imperfective AM-marking with argument focus constructions

- a. **Kàada domingo-e' hun-p'éel hit k-in hats'-ik.**
target: U every Sunday-TOP one-CL.IN hit IMPF-A.1 beat-INC(B.3.SG)
'Every Sunday, its a hit that I get (lit. beat).'⁷⁷
- b. **Kàada domingo-e' tèn hats'-ik hun-p'éel hit.**
target: A every Sunday-TOP me beat-INC(B.3.SG) one-CL.IN hit
'Every Sunday, it's me who gets (lit. beats) a hit.'
- c. **Kàada domingo-e' tèn k-in hàats' ma'+lóob.**
target: S every Sunday-TOP me IMPF-A.1 beatATP NEG+ bad
'Every Sunday, its me who bats (lit. beat) well.'

⁷⁷ Most examples in this section evolve around the activity of batting in baseball, the favorite sport among the Maya of Quintana Roo.

E83 Perfective AM-marking with argument focus constructions

- a. Domiingo-ak-e' **hun-p'éeel** **hit**
 target: U Sunday-ak-TOP one-CL.IN hit
- t-in** hats'-ah.
 PRV-A.1 beat-CMP(B.3.SG)
- 'Last Sunday,⁷⁸ a hit was what I got (lit. beat).'
- b. Domiingo-ak-e' **tèen** hats' hun-p'éeel hit.
 target: A Sunday-ak-TOP me beat(B.3.SG) one-CL.IN hit
- 'Last Sunday, it was me who got (lit. beat) a hit.'
- c. Domiingo-ak-e' **tèen** **h** hàats'-nah-en ma'+lôob.
 target: S Sunday-ak-TOP me PRV beatATP-CMP-B.1.SG NEG+ bad
- 'Last Sunday, it was me who hit (lit. beat) well.'

E84 Prospective AM-marking with argument-focus constructions

- a. Te domiingo k-u tàal-o'
 target: U LOC:DEF Sunday IMPF-A.3 come-D2
- hun-p'éeel** **hit** **kéen** **in** hats'-eh.
 one-CL.IN hit SR.IRR A.1 beat-SUBJ(B.3.SG)
- 'Next Sunday, a hit is what I will get (lit. beat).'
- b. Te domiingo k-u tàal-o'
 target: A LOC:DEF Sunday IMPF-A.3 come-D2
- tèen** **k/i/en** hats'-ik hun-p'éeel hit.
 me SR.IRR:/-A.1/B.1.SG beat-INC(B.3.SG) one-CL.IN hit
- 'Next Sunday, it's me who will get (lit. beat) a hit.'
- or:
- b'. Te domiingo k-u tàal-o'
 LOC:DEF Sunday IMPF-A.3 come-D2

tèen **kéen** **in** hats' hun-p'éeel hit.
 me SR.IRR A.1 beat(B.3.SG) one-CL.IN hit

'Next Sunday, it's me who will get (lit. beat) a hit.'

c. Te domiingo k-u tàal-o',
 target: S LOC:DEF Sunday IMPF-A.3 come-D2

tèen **ken/kin** **hàats'** ma'+lôob.
 me SR.IRR:B.1.SG/SR.IRR:A.1 beatATP NEG+bad

'Next Sunday, it's me who will bat (lit. beat) well.'

When semantically corresponding to unfocused clauses marked for imperfective or perfective AM, the A-focus construction (E82b and E83b, respectively) is special. In both cases, the AM marker is elided together with the set-A cross-reference index, and in the construction corresponding to unfocused imperfective AM, the verb appears in incomplete status as it would in the unfocused counterpart, whereas in the construction corresponding to plain perfective AM, the verb appears not in completive status as it would with the perfective AM-marker, but rather in the subjunctive (unmarked on transitives except if the verb assumes clause-final position and the status slot is not followed by any other suffix). In focus constructions corresponding in their aspectual and modal meaning to plain prospective AM, a special subordinator *kéen* introduces the extrafocal clause. With A- and S-argument-focus (cf. E84b and c, respectively), this subordinator combines with the cross-reference marker indexing the focused argument, whereas with the U focus in E84a, *kéen* remains separate from the realization of both arguments. However, in the case of the prospective A-focus construction, an alternative realization is possible which equals the one of the U-focus construction (bare *kéen* and cross-reference marking of the verb retained). In either case, *kéen* triggers subjunctive status on the verb in its bare form and incomplete status in the merger form. In the latter construction, *kéen* may combine with both a set-A marker as well as a set-B marker independent of the argument cross-referenced in the corresponding aspectual category in unfocused clauses. According to my consultants, these are variants without a functional difference (but other focus constructions are sensitive to the realization of *kéen* with set A vs. set B, as shown below). The following table lists the two paradigms of *kéen* with set A and

⁷⁸ The suffix *-(he)ak* is combined with calendrical adverbials and serves to indicate that the relevant instance of the calendrical unit in question lies in the past or present of coding time (see §7.2.1).

set B.⁷⁹F23. Combinations of the irrealis subordinator *kéen* with set-A and set-B pronominal indices

Combination of <i>kéen</i> Person/Number	with set A	with set B
1.SG	kin	k(en)-en
2.SG	kan	k(en)-ech
3.SG	kun	ken
1.PL	ken k	k(en)-o'n
2.PL	kan ...-e'x	k(en)-e'x
3.PL	kun ...-o'b	ken-o'b

The focus constructions actually show a separate system of AM-marking, rather than just some impact on the way the AM categories get expressed. Thus, the prospective argument-focus construction exemplified in E84 corresponds not just to an unfocused main clause marked for prospective AM, but also covers most of the main clause categories labeled 'modal predicates' above. For example, E85b shows variations with prospective and obligative AM constructed to test main clause AM categories in the context of E85a. Consultants agreed that both forms in E85b would be equally odd. They are not strictly ungrammatical, but unattested in spontaneous data (Bricker 1978 has examples of this type, though, but again only of elicited sources).

E85 a. Te'x kéen aw a'l-e'x
 you.PL SR.IRR A.2 say-2.PL(B.3.SG)

ba'x k'lin ma'+lo'b a ti'a'l-e'x.
 what sun NEG+bad(B.3.SG) A.2 for-2.PL

'You are the ones who will say what day is convenient for you.' (BVS 9.1.3)

b. ? Te'x / mikah-e'x aw a'l-e'x
 you.PL / PROSP-B.2.PL A.2 say-2.PL(B.3.SG)
 / yan aw a'l-ik-e'x ...
 / OBL A.2 say-INC-2.PL(B.3.SG)

(intended: same as a)

This means, then, there is no opposition between prospective AM (equating in its function, roughly, the English *be going to*-future) and obligative AM (used mostly for predictions, as the English *will*-future) in the argument-focus construction. Instead, there is a separate system which divides (roughly) the same semantic space of aspectuality and modality into fewer subcategories. Similarly, the imperfective focus construction in E82 replaces not just imperfective AM-marking in unfocused clauses, but also covers the function of the progressive AM marker. The perfective argument-focus construction corresponds not just to an unfocused main clause with perfective AM, but also to one featuring the terminative AM *ts'o'k*. These main clause oppositions are neutralized in argument focus constructions. And this phenomenon is not restricted to argument-focus constructions. There are at least three other focus constructions in YM, all differing in the way AM-marking and status inflection is realized in them. The examples below illustrate two of these remaining focus constructions, the **manner-focus** construction (cf. E86) and the **time-focus** (cf. E87) construction. These differ from the argument focus constructions discussed above in that they have an expression of manner or temporal location in focus, not a noun phrase coreferent with one of the arguments of the extrafocal clause.

E86 Manner focus constructions

a. Domiingo-ak-e' ma'+lóob
 Perfective AM Sunday-ak-TOP NEG+bad(B.3.SG)

beatATP-CMP-EXTRAFOC-B.1.SG
 hàats'-nah-ik-en.

'Last Sunday, well is how I hit (lit. beat).'

⁷⁹ Bricker (1981 [a]) lists the "inflected" variant of *kéen* and Blair (1964) the combined as well as the bare version among the AM-markers. This is legitimate. However, in the present study, the set of AM markers is restricted to those occurring in independent main clauses, and *kéen* and its portmanteau allomorphs are treated as parts of special patterns of AM marking that occur in constructions other than independent main clauses.

or:

a'. Domìingo-ak-e' **ma'+lóob**
 Perfective AM Sunday-ak-TOP NEG+bad(B.3.SG)
úuch in hàats'.
 happen(B.3.SG) A.1.SG beat(ATP)
 'Last Sunday, well is how I hit (lit. beat).'

b. Káada domìingo-e' **ma'+lóob**
 Imperfective AM every Sunday-TOP NEG+bad
kin/ken hàats'.
 SR.IRR:A.1.SG/SR.IRR:B.1.SG beat(ATP)
 'Every Sunday, well is how I bat (lit. beat).'

c. Te domìingo k-u tàal-o',
 Prospective AM LOC:DEF Sunday IMPF-A.3 come-TOP
ma'+lóob **kin/ken** hàats'.
 NEG+bad SR.IRR:A.1.SG/SR.IRR:B.1.SG beat(ATP)
 'Next (lit. coming) Sunday, well is how I will bat.'

E87 Time focus constructions

a. Tèen-e' **domìingo-ak in hats'** hun-p'éeel hit
 Perfective AM me-TOP Sunday-ak A.1.SG beat(B.3.SG) one-CL.IN hit
 'Me, it was last Sunday that I got (lit. beat) a hit.'

b. Tèen-e' **kàada domìingo**
 Imperfective AM me-TOP every Sunday
 k-in hats'-ik hun-p'éeel hit.
 IMPF-A.1.SG beat-INC(B.3.SG) one-CL.IN hit

'Me, it is every Sunday that I get (lit. beat) a hit.'

c. Tèen-e' **domìingo in hats'-ik**
 Prospective AM me-TOP Sunday A.1.SG beat-INC(B.3.SG)
 hun-p'éeel hit.
 one-CL.IN hit

'Me, it is on Sunday that I will get (lit. beat) a hit.'

or:

c'. Tèen-e' **domìingo kéen in hats'**
 Prospective AM me-TOP Sunday SR.IRR A.1.SG beat(B.3.SG)
 hun-p'éeel hit.
 one-CL.IN hit

'Me, it is on Sunday that I will get (lit. beat) a hit.'

The manner-focus construction introduces the fifth status category of YM, the extrafocal. In E86, it is restricted to completive status (example a), but again, this construction has a wider functional range than completive status in main clauses, as it replaces by and large all main clause AM categories that render the target situation bounded but do not imply any modal commitment (as conveyed by the modal AM markers). In particular, there is no opposition between completive and terminative AM in focus constructions. The formal relation between extrafocal and completive is discussed in §4.2.3 below. In the variety of YM the present work is based upon, the extrafocal is restricted to the manner-focus construction, while it at least optionally appears in time-focus constructions as well in the western urban varieties.

The time-focus construction illustrated in E87 is particularly relevant for the purpose of this description. It points to a certain preferential occurrence of expressions concerned with time reference as predicates, including even adverbials (cf. §7.2). Both the manner- as well as the time-focus construction are in contrast with unfocused alternatives where the particular adverbial appears either in topic or in clause-final position. E88 below gives the counterparts of E86a and E87a with clause-final modification. As the examples illustrate, the ordinary AM-pattern of unfocused main clauses is retained here.

E88 a. Domìingo-ak-e' h hàats'-**nah-en** **ma'+lóob**.
 Sunday-ak-TOP PRV beat(ATP-CMP-B.1.SG NEG+good
 'Last Sunday, I batted (lit. beat) well.'

b. Tèen-e' t-in hats'-**ah** hun-p'éeel hit **domìingo-ak**.
 me-TOP PRV-A.1.SG beat-CMP(B.3.SG) one-CL.IN hit Sunday-ak
 'Me, I got (lit. beat) a hit last Sunday.'

The final focus construction to be considered here is the predicate-focus construction. The lexical verb itself assumes focus position here, being replaced in the

extrafocal clause by the anaphoric verbs *bèet* 'do' or *mèet* 'make'. Interestingly, the focused verb has to be intransitive in order to enter this construction. It then formally appears in incomplete status, as in E89:

- E89. *Lúub-ul t-u mèet-ah.*
 fall-INC PRV-A.3.SG make-CMP(B.3.SG)
 'Falling is what it did'.

Transitive verbs may be antipassivized as in E89 before they enter this construction, in which case their U-argument may be realized as an adjunct to the extrafocal clause.

- E90. *Hàats' t-in mèet-ah ti' hit.*
 beat\ATP PRV-A.1.SG make-CMP(B.3.SG) LOC hit
 'Batting was what I did to hits.'

Alternatively, the transitive verb is intransitivized by object-incorporation, which is particularly preferred with the imperfective AM:

- E91. *Hats'(-ah)+hit k-in mèet-ik*
 beat(-ATP)+hit IMPF-A.1.SG make-INC(B.3.SG)
 'Getting (lit. beating) hits is what I do (i.e. habitually, all the time).'

E92 illustrates perfective, imperfective and prospective AM marking with the antipassive predicate focus construction.

E92 Predicate-focus constructions

- a. *Domíingo-ak-e' hàats' t-in mèet-ah.*
 Perfective AM Sunday-ak-TOP beat\ATP PRV-A.1.SG make-CMP(B.3.SG)
 'Last Sunday, batting (lit. beating) was what I did.'

- b. *Káada domíingo-e' hàats' k-in mèet-ik.*
 Imperfective AM Every Sunday-TOP beat\ATP IMPF-A.1.SG make-INC(B.3.SG)
 'Every Sunday, batting (lit. beating) is what I do.'

- c. *Te domíingo k-u tàal-o'*
 Prospective AM LOC:DEF Sunday IMPF-A.3 come-D2
hàats' kéen in mèet-eh.
 beat\ATP SR.IRR A.1.SG make-SUBJ(B.3.SG)

'Next (lit. coming) Sunday, batting (lit. beating) will be what I will be doing.'

All constructions considered so far in this section share co-occurrence with a distinctive and somewhat simplified system of AM-marking. This feature is also shared by clausal negation:⁸⁰ the negation marker may again be analyzed as a higher predicate. As E93 shows, the AM system is basically reduced to four categories under negation: perfective (a), subjunctive (replacing affirmative terminative AM; the subjunctive also occurs in this function with time focus) (b), progressive (replacing affirmative progressive AM and imperfective AM) (c), and prospective, replacing affirmative prospective AM, obligative AM and predictive AM (d). Negative prospective is expressed like negative progressive save for the omission of clause-final *-i'* which is otherwise obligatory with negation. The imperfective, terminative, prospective, obligative, and predictive AM-markers of affirmative clauses are not compatible with negation. Negative progressive and prospective have alternative realizations *ma' táan in* > *ma' t-in* > *m'in* (for A.1.SG).

E93 AM-marking under negation

- a. *Domíingo-ak-e' ma' h hàats'-nah-en-i'.*
 Perfective AM Sunday-ak-TOP NEG PRV beat\ATP-CMP-B.1.SG-D4
 'Last Sunday, I did not bat (lit. beat).'
- b. *Tèen-e' tak be'òora-a' ma' hàats'-nak-en-i'.*
 Subjunctive AM me-TOP even now-D1 NEG beat\ATP-SUBJ-B.1.SG-D4
 'Me, up to now, I have not batted (lit. beaten) (i.e. ever).'

⁸⁰ Other types of negation (such as scope-negation, denial or negative quantifiers) are not relevant for the present discussion.

c. Káa t-aw il-ah-en-e',
Progressive AM káa PRV-A.2.SG see-CMP-B.1.SG-TOP

ma' táan in hàats'-i'.
NEG PROG A.1.SG beatATP-D4

'When you saw me, I was not batting (lit. beating).'

d. Te domíingo k-u tàal-o'
Prospective AM LOC:DEF Sunday IMPF-A.3 come-D2

ma' táan in hàats'.
NEG PROG A.1.SG beatATP

'Next Sunday, I am not going to bat (lit. beat).'

Just as with the AM-markers in affirmative main clauses and with focused constituents, predicativity of the negation marker can be demonstrated by reference to its capability of attracting the question-focus marker *wáah*.⁸¹

E94 Pero ma' wáah t-aw a'l-ah téen-e'
but NEG ALT PRV-A.2.SG say-CMP(B.3.SG) me-D3
ch'óop a màama?
blind(B.3.SG) A.2.SG mother

'But didn't you tell me your mother was blind?' (BVS 11.1.6)

In this section, some constructions have been introduced which display patterns of AM-marking different from those that occur in independent main clauses: focus constructions, relative clause constructions, content questions, and clausal negation. The structural similarity of relative clause constructions, content questions, and focus constructions has been established and explained by analyzing content questions as focus constructions and focus constructions as clefts, with the extrafocal clause realized as a relative clause. The analysis was supported by the question-focus marker attraction-test which showed that the focused constituent in a focus construction in fact behaves as the main predicate in the construction. By the same criterion, the negation marker was shown to assume the function of main predicate. All four types of constructions discussed in this

section have in common the fact that they trigger reduced and somewhat simplified AM-marking, distinguishing fewer categories and merging categories in one marker that are expressed by different markers in simple main clauses. At the same time, there also are markers that occur in focus-like constructions but do not occur otherwise. In particular, the irrealis subordinator *kéen* and its allomorphs formed as portmanteau-combinations with the pronominal clitics have been introduced.

4.2.2. Discourse and sentence structure

The present section sketches the structures employed in YM to combine clauses into sentences and sentences into larger units of discourse. This area is crucial to the overall subject of the study: one semantic domain of discourse coherence is temporal coherence.

One of the most significant findings in this investigation of time reference in YM is the absence of connectives expressing event order, such as English *after* and *before*. This is not to deny the existence of any temporal connectives; the language has developed cohesion devices for temporal sentence connection that operate on a different semantic basis. These are discussed at some length in section §7.3. In the current section, **topicalization** is introduced. This construction plays a central role in temporal sentence combination and in other subdomains of time reference, although it is less familiar from Indo-European languages. In YM, both non-sentential noun phrases and subordinate clauses are freely topicalized. Topicalization of clauses carries the bulk of the functional burden of adverbial subordination in Indo-European languages, while adverbial subordination in YM is restricted to purpose clauses and e.g. the gerundial construction introduced in §4.2.1.3. Fully-fleshed clauses are not regularly embedded as adverbials of the main clause, but rather attached to it as topics or 'anti-topics'. But topicalization as such does not convey any particular semantic relation. It does not distinguish between clauses that introduce participants to be taken up in the main clause and clauses that express events understood to be causally or temporally linked to the main clause event. Topicalization by itself only marks backgrounding. It is shown that topicalized clauses functioning as temporal backgrounds do not carry any marker to indicate the temporal interpretation, let alone a particular event order relation.

⁸¹ There is, however, insufficient evidence to decide what the syntactic relation between the negative marker and the rest of the clause might be.

The options of embedding a complete finite verb clause available in YM are rather limited. Relative clauses such as E95a are finite in most cases. In addition, a clause marked for progressive AM can be embedded as a clause-level adjunct referring to an event in temporal overlap with the event encoded in the main clause. Like the English gerund clause used in E95b to translate it, the subordinate progressive clause functions in establishing temporal order without expressing an event order relation. This issue is taken up below.

- E95 a. Bix u k'áat-a'l hun-p'éel tũmbre
 how A.3 ask-PASS.INC one-CL.IN stamp
 ti' le máak k-u kòonol-o'?
 LOC DEF person [IMPF-A.3 sell(ATP)]_S-D2

'How is a stamp asked for from the sales person (lit. the person who sells)?' (BVS 11.1.22)

- b. Hay-p'éel ha'b t-a bèet-ah túun
 how.many-CL.IN year PRV-A.2 do-CMP(B.3.SG) CON
 Kanasin táan a xòok?
 Kanasin [PROG A.2 read(ATP)]_S

'How many years did you spend in Kanasin, then, studying?' (BVS 14.1.25)

In both cases, the subordinate clause is identifiable as a constituent of the main clause by two criteria. One is, of course, intonation: the subordinate clause may or may not be preceded by a brief pause, but the intonational contour is continuous in terms of pitch level at both sides of the juncture. Compare this situation with the constructions to follow:

- E96 a. Tèech-e' chen ba'x k-a mèet-ik-e',
 you-TOP [only [what [IMPF-A.2 make-INC(B.3.SG)]]_{NP}]_S-TOP
 chen le k'dol-o'.
 only DEF hit(ATP)-D2

'As for you (the women), all you make (during the Ch'a'cháak ceremony) is the corncake (with chopped or 'hit' meat).' (Santo 58)

- b. Le k-u tàas-a'l-e',
 [(DEF [IMPF-A.3 come:CAUS-PASS.INC]]_S]_{NP}-TOP]_S

k-u bo'l-t-a'l.
 IMPF-A.3 pay-APP-PASS.INC

'(What) is brought is paid for / (when) it is brought, it is paid for.' (BVS 11.1.25)

- E97. U ti'a'l u háal-al-e', k-u tàal
 [A.3 for A.3 dig.out(CAUS-INC)]_S-TOP IMPF-A.3 come
 le mèn-o' y-éetel hun-lùuch balche'
 DEF curer-D2 A.3-with one-cup balche
 u ti'a'l u t'o'h-ol y-óok'ol le wàah-o'
 A.3 for A.3 pour(PASS-INC) A.3-on DEF tortilla-D2
 táan u rèsar.
 [PROG A.3 pray]_S

'In order to dig them out (the holy breads from the ground oven), the priest comes with a gourd of balche to be poured over the tortillas (while) he prays.' (Andrade & Vermont Salas 1971, text no. 35 (*The Ch'a'cháak Ceremony*))

The difference between the relative clause constructions in E96a and b, as well as the semantic ambiguity of E96b, is commented on below. The relative clauses in E96 precede the main clause, and the progressive clause in E97 follows it. Both are regularly separated from the main clause by a break with discontinuous contour, the pitch falling slightly toward the juncture and rising again past it. In addition, the relative clause constructions in E96 are followed by a particle *-e'* glossed as a 'topic marker' which identifies these subordinate clauses as being in one distributional class with the simple nominal topic *tèech-e'* 'as for you' in E96a. The topic marker *-e'* is mutually exclusive with the particle *-o'* preceding the progressive clause in E97. Altogether, there are four such particles in YM, and no more than one of them can follow each independent clause, or a unit with the distribution of an independent clause (in other words, there can be no more than one clause-final particle per clause). As the particles cannot be combined, they are selected according to a dominance hierarchy depicted in F25.⁸²

⁸² The particles are glossed 'D1', 'D2', 'D3' and 'D4'. 'D' is for *deictic*. The 'topic marker' *-e'* and the 'text deictic particle' *-e'*, glossed 'D2', are two different uses of the same monosemous morpheme. This morpheme is glossed 'TOP' for convenience where it has the function of marking a topic and 'D2' everywhere else. See Hanks (1990) and Bohmeyer (ms. [b]) for details. Hanks (1990) has a fifth deictic particle *-be'* which occurs in what he calls 'auditory directive' reference. This particle is not instantiated in the corpus of the present study and may not occur in the eastern dialect of YM (Hanks' study is based

F24. YM clause final particles

D1/D2 -a'/-o' - proximal/distal deixis (in space and time)

> D3 -e' - neutral/textual deixis

> D4 -i' - locational focus; negation

The rules are roughly as follows (cf. Hanks 1990: ch.s 6, 10): If the clause contains a noun phrase that is marked as definite by the determiner *le*, it has to be followed by either the 'proximal' particle -a' or its distal counterpart -o', depending on whether or not the reference object is immediately accessible to the speaker. If the clause shows no definite noun phrase, it may be followed by -e', which expresses 'textual' (i.e. metalinguistic) deixis: it points to a more rhematic part of the utterance following -e' (Christian Lehmann p.c.). The topic marker is but one instance of this function; for example, -e' is also used to link a reproduced utterance to the clause containing the utterance verb:

E98. Tuméen y-a'l-a'l-e' yàan bin uy ìik'-al
 CAUSE A.3-say-PASS.INC-D3 EXIST(B.3.SG) HS A.3 wind-REL
 ma' uts káa háan kàah-lak-ech-i'.
 NEG good SR right.away live-SUBJ-B.2.SG-D4

'For it is said there will be bad winds if you would move in(to a new house) right away (not having performed the traditional prayers and offerings).' (K'axbil 99f.)

E98 also introduces the fourth and last particle, -i'. -i' is triggered by sentence negation in certain aspectual categories (cf. §4.2.1.5) as in E98, or by one of the various types of focus constructions of YM, namely a locative focus. Whether or not these two constructions are related is at present not clear, but one polysemous -i' should be posited until evidence to the contrary is found. Both negation and focus structures are further elaborated on below in this section.

Just like negation in E98 obligatorily co-occurs with the D4 particle, some other elements such as assurative AM *he'* (cf. §6.2.2.2.4) call for D3 -e', while yet others require the deictic markers D1 and D2. An example is *be'òora* 'now' triggering proximal -a' in the following example, proving that the domain of the deictic particles is not restricted to space.

on the western variety).

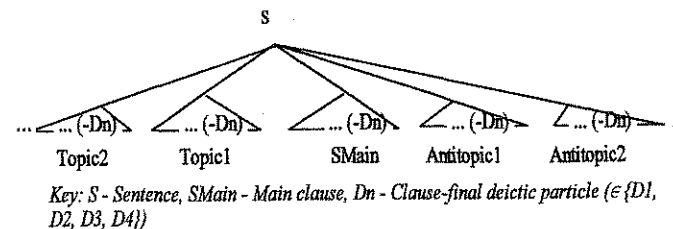
E99. Tak káa h sùut-nah t-u ts'òon-e'
 [even] káa PRV turn\ATP-COMPL(ABS.3.SG) LOC-A.3 shoot\ATP\g-TOP
 tak be'òora ma' wèen-ek-en-a'.
 even now NEG sleep-SUBJ-B.1.SG-D1

'Since he returned from hunting, until now I did not find any sleep.' (Cont 7)

The co-occurrences of the negator, or an adverb such as *be'òora* in E99, independently of the syntactic position of the particular element, with one of the clause-final particles constitutes a morphology-syntax mismatch. If clitics in general are 'phrasal affixes', as suggested by Anderson (1992: ch.8), then the distribution of YM deictic particles reveals the entire YM clause as a unit still accessible to certain morphological operations.

The position occupied by the deictic particles, then, partitions the YM sentence into a topological, i.e. non-hierarchical structure, as diagrammed in F25 (where '-Dn' represents the terminal deictic particles).

F25. Topological sentence structure



Any clause-like unit - in other words, a unit capable of carrying one of the clause-final particles - that precedes the main clause is a topic, whereas any such unit following the main clause is labeled here an 'antitopic' (following Lambrecht 1981).⁸³ Notice, however, that the distinction may not always be determinable on purely structural grounds. Topics and antitopics can be clausal, as in E96, E97

⁸³ The details of topical subordination in YM are described in Bohnemeyer (1998 [c]). There, the term 'afterthought' is used for what is called here 'antitopic'. Bohnemeyer (1998 [c]) also gives references of accounts of clausal topicalization in other languages (the phenomenon does not seem infrequent).

and E99. In that case, they comprise clauses which are subordinate to the main clause, but not embedded into it as a main clause constituent.⁸⁴ They are rather 'adjoined' (Hale 1976) to the main clause or 'detached' (Rappaport 1984) from it. Topics and antitopics may also be nominal. However, as the contrast between E96a and b nicely illustrates, the distinction between noun phrase and clause is not as clear-cut in topic or antitopic position as it is inside the main clause. The relative clause in E96b is headless and constitutes itself the topic, being nominalized, as indicated by the determiner *le*. The relative clause in E96a is a co-constituent of a noun phrase head. However, the presence of the adverb *chen* 'only' indicates that this noun phrase has in fact some sort of propositional nature. It has been argued by Bickel (1993: 50) that topics - and the point may be extended naturally to antitopics - are generally constituted by a special type of 'thetic' predication (i.e. one without a theme-rheme structure; cf. Sasse 1987). The fact that topics and antitopics are marked by the clause-final particles just like main clauses in YM clearly provides evidence in favour of this hypothesis.

Subordinate clauses may be distinguished from the main clause in the topological sentence structure represented in F25 by one or more of the following criteria: the subordinate clauses may be introduced by a subordinative connective (e.g. the irrealis subordinator *kéen* in E101 below, or by a preposition such as *u ti'a'l* 'for' in E97 above), or they may be marked as nominalized by the definite determiner *le* (as in E96b). None of these structures occur in main clauses. Secondly, the subordinate clause may be constituted by a verbal core alone, extended in some cases by a subordinator or nominalizer, but lacking an AM marker, as illustrated again in E97. The main clause has to be constituted by the combination of a verbal core with an AM marker, unless it is either a stative clause or a focus construction. Thirdly, the subordinate clause in topic or antitopic position cannot occur with a topic or with a structurally marked focus of its own. However, none

of these criteria are sufficient to distinguish main and subordinate clauses in *all* instances. Subordinate clauses are not obligatorily introduced by a subordinator or nominalizer; they are likewise not always lacking an AM marker; and, conversely, main clauses do not necessarily have a topic or focus construction. In case none of the other criteria applies, the analyst has to resort to intonation, which is the most reliable way to identify the main clause. Notice furthermore that all topic clauses, antitopic clauses, and main clauses have a *position* for a terminal deictic particle. However, whether this position is actually *filled* depends on the internal structure of the clause (i.e. on the presence of one of the triggers mentioned above, e.g. a definite noun phrase). An example of a topicalized clause not followed by a terminal particle is the second clause in E101 below, repeated in E105a.

Functionally, the topic conveys the "spatial, temporal, or individual framework within which the main predication holds". Chafe's (1976: 53) famous characterization nicely covers the most frequent functions of topics, although the entire functional range is much wider. In principle, any referential expression can assume topic position, and this includes in YM even prepositional phrases (cf. §4.1); an example is the topicalized purpose clause headed by the preposition *u ti'a'l* 'for' in E97. Topics provide a referential framework for the main clause. This operation crucially involves background information. In accordance with this (or, in structural terms, in accordance with their subordinate nature), they do not show illocutionary force independently of the main clause, and the proposition they encode is not asserted, but presupposed. They can be negated, though, but their negation does not affect the main clause (cf. E100), just as negation of the main clause does not affect the topic (cf. E99 above). Negation cannot have scope over both the main clause and the topic.⁸⁵

E100. (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.' (Perfa 76)

Background information does not necessarily amount to given or old information. The referential framework may very well serve to introduce a new referent to be

⁸⁴ The distinction between 'subordination' and 'embedding', which is drawn e.g. already in Hale (1976), is dealt with in some detail in Lehmann (1988). 'Subordination' refers to one clause being *dependent* on another clause, or the sentence the subordinate clause forms part of. 'Embedding', in contrast, refers to clauses that are *constituents* of higher clauses. This includes in particular (in Indo-European languages) embedding in adjunct (adverbial clauses), argument (complement clauses) and attribute (relative clause) position. 'Adjoined' (or 'detached') clauses are subordinate, but not embedded; arguably, the opposite is also possible: non-restrictive relative clauses may be embedded, but may still be argued not (or only weakly) to be subordinate.

⁸⁵ According to Bickel 1991: 43-45, the topic constitutes an 'opaque area' vis-à-vis the assertion of the main clause. Whether this implies more than ordinary presupposition is not clear to me.

dealt with in the main clause. The most common case, however, is that the referent is in fact taken up from preceding context, or that it is accessible in the speech situation, or provided by “generic background knowledge, shared by the speaker and hearer more or less permanently as a result of living in the same universe, partaking in the same culture/community, speaking the same language and commanding the same lexicon” (Givón 1984: 242). In E101 taken from a text 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.

E101.	^A K-a	ts'a'-ik	u	báaloh-il	túun.	^B K-u
	IMPF-A.2	put/give-INC(B.3.SG)	A.3	cross.rafter-REL	CON	[IMPF-A.3]
	ts'o'k-ol	a ts'a'-ik	u	báaloh-il	túun,	
	end-INC	A.2 put/give-INC(B.3.SG)	A.3	cross.rafter-REL	CON] _S	
	k-a	ts'a'-ik	u	kàabalpàachnah-il.	^C Kéen	
	IMPF-A.2	put/give-INC(B.3.SG)	A.3	low+back+house-REL	[SR.IRR]	
	ts'o'k-ok	túun-e',	yan	a	kaxt-ik	u
	end-SUBJ(B.3.SG)	CON] _S -TOP	OBL	A.2	find-INC(B.3.SG)	A.3
						láak'
						other
	u	pàachnah-il-o'b.	^D K-u	ts'o'k-ol	túun	a
	A.3	back+house-REL-PL	[IMPF-A.3]	end-INC	CON	A.2
	ts'a'-ik	u	kàabalpàachnah-il-o'b,	k-a		
	put/give-INC(B.3.SG)	A.3	low+back+house-REL-PL] _S	IMPF-A.2		
	wa'l-kunt-ik	u	tisèerah-il-o'b.	^E K-u	ts'o'k-ol-e'	...
	stand-FACT-INC(B.3.SG)	A.3	rafter-REL-PL	[IMPF-A.3]	end-INC] _S -TOP	

^A(Then) you place the crossbar. ^B(When) you've finished placing the crossbars (then) you place the girder. ^C(Once) this is done, you have to find (the wood for) the other crossbars. ^D(When) you've finished placing the crossbars, you erect the rafters. ^E(When) this is done ...' (K'axbil 18-28)⁸⁶

The amount of redundancy in this passage might astonish a reader unfamiliar with Mayan discourse. This is precisely how topical subordination works: it ties

⁸⁶ The ‘consequential’ (hence the gloss ‘CON’) marker *túun* is sometimes rendered ‘then’ in the translations, but might as well be translated ‘so’. By itself, *túun* gives neither temporal nor causal consequentiality, but rather what might be called ‘rhetorical’ or ‘argumentative consequentiality’. *Túun* refers to the point or upshot of what the speaker or the interlocutor said before. Accordingly, it is actually compatible with temporal overlap.

together two-utterances in discourse by indicating that some portion of the information given in the previous utterance (or in the speech situation, or in “shared background knowledge”, etc.) serves as the referential background of the utterance the topic is subordinate to. What topical subordination does not encode, then, is the semantic relation to be interpreted as obtaining between the two propositions. In the case of E101, the inferrable relations linking the propositions are event order relations: each main clause refers to a situation subsequent in time to the situation the preceding main clause refers to (though not in any specific time, as the discourse as a whole has generic reference).

Not only are these event order relations not expressed by the construction of topical subordination, but neither are they encoded in any segmental expression inside the clauses that form the construction. This might be the right point, then, to introduce one of the most striking empirical findings of this thesis: the almost complete absence of connectives establishing explicit event order relations between adjacent clauses in discourse. In passing, the reader was already confronted with some examples illustrating this phenomenon. They are repeated here in order to elaborate on the implications their temporal properties bear for the understanding of time reference in YM discourse.

First, a nominalized topic clause was shown in E96b that in its actual context was supposed to be interpreted to be in a sequential relationship with the main clause, as indicated by the translation ‘When it is brought, it is paid for’.

E102.	Le	k-u	tàas-a'l-e',
	[IDEF	[IMPF-A.3	come:CAUS-PASS.INC] _S] _{NP} -TOP] _S

k-u bo'l-t-a'l.
IMPF-A.3 pay-APP-PASS.INC

‘(What) is brought is paid for / (when) it is brought, it is paid for.’ (BVS 11.1.25)

It will be noticed, however, that there is no ‘when’ in the interlinear glosses of E102, and as a matter of fact, outside its particular context, E102 could just as well translate ‘What is brought is paid.’ The topic clause in E102 is not marked for any specific interpropositional relation, unlike e.g. the topicalized purpose clause in E97. Topic clauses and relative clauses have the same core functions: they either introduce or take up and further specify referents. Hence, the topic clause in E102 might as well be translated by a headless relative clause in

English. So what does the structure of E102 reveal about the temporal reference of the two clauses combined? Both clauses are marked for imperfective AM, the most frequent usage of which is to signal habituality. This is the case in E102 which was uttered in reply to a question about customary ways of payment. Consequently, the imperfective has no direct impact on the relative temporal ordering of the events the two clauses refer to. The mutual ordering of the two events is not actually expressed at all, it is rather inferred. As worked out in greater detail in the subsequent sections of this chapter, the marking of aspectual, modal or phasal properties of the clause has decisive impact on what inferences speaker and hearer draw about the clause's temporal reference, but nevertheless does not predict these inferences independent of context. Thus, a sequence of clauses marked for either of the two most general aspectual categories (imperfective AM and perfective AM) will always be interpreted to refer to an iconic sequence of events unless (situational or linguistic) context provides indications to the contrary. A reversal of the ordering of clauses in E102 will therefore yield a reversal in the temporal order of events, i.e. 'When it is paid for it is brought'.

In another example passed by in the preceding discussion, the reader might have gotten the impression that an event order relation between topic and main clause actually was indicated by a segmental expression.

E103.	Tak	káa	h	sùut-nah	t-u	ts'don-e'
	[even	káa	PRV	turn\ATP-COMPL(ABS.3.SG)	LOC-A.3	shoot(ATP) _S -TOP
	tak	be'dora	ma'	wèen-ek-en-a'.		
	even	now	NEG	sleep-SUBJ-B.1.SG-D1		

'(Since) he returned from hunting, (until) now I have not slept.' (Cont 7)

E103 is a repetition of E99 above. Here, the adverb *tak* was used by the speaker in direct translation of Spanish *desde* 'since'. However, on closer inspection it turns out that *tak* is used in the very same utterance to translate the converse relation *hasta ahora* 'until now'. *Tak* does not actually convey any particular interpropositional or intrapropositional relation, it is rather a general marker of "extreme points". It can be used to indicate the source or goal location in a motion event (e.g. *H binen tak México* 'I went as far as México'), the maximum extension or quantity of (sets of) objects (*tak syèete mèetros* 'up to seven metres') or, for instance, an unexpected (and in that sense extreme) extension of a set of referents

involved in a particular proposition, or the unexpectedness of that proposition itself (e.g. *Tin kanah tak éespanyol* 'I learned even Spanish', or 'I even learned Spanish'). The latter may actually be considered the core function of *tak*, the more specific readings involving extension or the like being implicatures in specific contexts.

In E100, a structure was illustrated that speakers of YM consider the closest equivalent to an English *before*-construction (or its Spanish counterpart with *antes*), i.e. '(Before) I arrived, she left'. Again, there is no lexicalized expression of posteriority here, no *before*. The combination of negation and subjunctive in the topic clause works as follows: the subjunctive expresses perfectivity of the target event, but also non-assertive modality, with the effect that realization of the target state is understood to be presupposed (cf. §§4.2.1.5; 6.1). Negation then simply serves to deny that this post-state was achieved at 'topic time' (cf. §§2.2, 2.6), leaving intact the presupposition that the event will be realized at *some* time. Outside the context of E104, *Ma' k'uchukeni* simply means 'I have/had not (yet) arrived' or 'I will not have arrived (yet)'; the 'yet' is an implicature from the expectation arising by negation of the post-state rather than the event leading up to it. Topicalization then as usual indicates that the topic time TT of this clause is supposed to be read as the TT of the entire construction, and hence it is understood that the interval for which it is true that 'she' left is included in the interval for which it is true that the speaker had not yet arrived.

E104.	(Le)	ma'	k'uch-uk-en(-e')	káa	h	hóok'	leti'.
	[DEF	NEG	arrive-SUBJ-B.1.SG] _S -TOP	káa	PRV	exit(B.3.SG)	it
							'(When) I had not yet arrived, (and) she left.' (Perfa 76)

Notice that this construction might be said to establish anti-iconic ordering between the arrival event and the departure event on a pragmatic level. However, in purely semantic terms, the construction is perfectly iconic, since the topic clause does not actually refer to the arrival event, but rather to a modal pre-state of the latter. This leads to a striking discovery about temporal coherence in YM discourse in general: due to the absence of explicit event order relations in YM, the representation of event order in YM discourse is strictly iconic in semantic terms, as long as no other coherence relations are specified. Relations of causality, purpose etc. are made explicit, and hence can be used to relate clauses the order of which does not match with the order of events expressed by these

clauses. Otherwise, the discrepancies between event order and the order of coding lead to incoherence in YM (which does not necessarily mean that it would lead to unintelligibility).⁸⁷

Finally, reconsider the lengthy passage in E101 above. This is from an instructional discourse, just like E102. Hence it appears in the imperfective characteristic of this 'genre' (partly in the equally non-time-specific reference signalled by the irrealis subordinator *kéen/chéen* which covers prospective, habitual and generic reference). As always, the order of clauses is taken to iconically mirror the order of events. The connection among the clauses is just made a little more explicit by use of the topic clauses, presumably because 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 achieve is to signal that the TT determined by the resumed clause (i.e. the preceding main clause) is the TT of the main clause to follow. What is employed to the end of establishing explicit temporal sequence is the phase verb *ts'o'k* occurring in each topic clause of E101. *Ts'o'k* asserts the terminal boundary of the event expressed by its complement verb, which is the resumed verb of the preceding main clause. *Ts'o'k* thus shifts the TT 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 an event order relation between topic and main clause, or even between the two sentences it serves to connect. Consider the second sentence of E101, repeated in E105a.

E105 a. K-u *ts'o'k-ol* a *ts'a'-ik* u *báaloh-il* *túun*,
IMPF-A.3 end-INC A.2 put-INC(B.3.SG) A.3 cross.rafter-REL CON

k-a *ts'a'-ik* u *kàabal+pàach+nah-il*.
IMPF-A.2 put-INC(B.3.SG) A.3 low+back+house-REL

'(When) you have finished putting the crossbars (then) you put the girder.'

b. K-a *ts'a'-ik* u *kàabal+pàach+nah-il*,
IMPF-A.2 put-INC(B.3.SG) A.3 low+back+house-REL

⁸⁷ Order of mention is exploited in temporal coherence to an extent that even narrative techniques such as flashbacks and loops that would interrupt semantic iconicity apparently only occur across paragraph boundaries; cf. Bohnemeyer (in press [a]).

k-u *ts'o'k-ol* a *ts'a'-ik* u *báaloh-il* *túun*.
IMPF-A.3 end-INC A.2 put-INC(B.3.SG) A.3 cross.rafter-REL CON

'(When) you put the girders, you finish putting the crossbars (then).'

In the corresponding English sentence *After you (have) put the crossbars you put the girder*, reversal of clause order does not affect the temporal interpretation, as the order of events is fully determined by the anterior relation expressed by the connective *after*: *You put the girders after you (have) put the crossbars* still refers to the same sequence of events, conveying just a different information perspective. The YM sentence behaves quite differently. Its reversal (E105b) yields a reversed iconic interpretation: 'When you put the girders, you finish putting the crossbars', which may mean 'First you put the girders, then you put the crossbars', but the likeliest interpretation will be 'You put the girders and then finish putting the crossbars, which you have started earlier' (both interpretations are weird, because they are at odds with the factual structure of Mayan houses). Phasal and aspectual operators do not express order relations between two events but only serve to assert a boundary of one event or its completion or ongoingness at some TT. That the first event in E105a is supposed to terminate with respect to the second event is a matter of inference, supported by topicalization,⁸⁸ suggesting the first clause is determining the topic (or reference) time of the second clause (as was shown with respect to E102, the relation between the topic and main clause can be interpreted differently, although that is not likely in the case of E105). But even terminating or starting or being referred to perfectly or imperfectively of one event with respect to a second event still does not spell a definite temporal order out of context. That the topic clause in E105a terminates prior to the initial boundary of the event referred to by the main clause and not vice versa is ultimately inferred from the order of clauses.

More illustration of the job which aspectual and phasal modification does in YM time coherence is given in the following example. The consultant was given the situational context 'María starts writing a letter. Pedro falls asleep. Julia comes and asks María, "Since when has Pedro been sleeping?"' María replies: "Pedro has been sleeping since I have been writing this letter". María's reply was supposed to be translated, confronting the consultant with the difficulty of rendering a

⁸⁸ The topic clauses in E105 lack clause-final particles; topicalization can only be inferred from intonation here.

'since'-relation that qualifies TT₂ as both unbounded and posterior to or simultaneous with respect to a reference event that marks the initial boundary of TT.

E106. Káa t-in kah-ah in ts'fíb-t-ik
 káa PRV-A.1.SG begin-CMP(B.3.SG) A.1.SG write-APP-INC(B.3.SG)

le kàarta he'l-a', leti' káa h chíun
 DEF letter PRSV-D1 it káa PRV start(A.1.SG)

u wèen-el xan. Tak be'òora-a' laili' u wèen-el-e'.
 A.3 sleep-INC also even now-D1 still A.3 sleep-INC-D3

'(When) I started to write this letter here, he fell asleep [lit. 'his sleep also began']. He is still sleeping even now.' (Cont 1o2)

Since YM has no connective that could establish the required relation in just one assertion, the consultant chose to first assert the initial boundary of the reference event supposed to determine TT (*Káa tin kahah in ts'fíbik le kàarta he'la'* '(When) I started to write this letter') and then to assert the initial boundary of the target event that is supposed to be located in time with respect to TT (*káah chíun u wèenel xan* lit. '(then) his sleeping also started'). The first clause is topicalized, so the addressee will assume that it determines the topic time of the sentence, which suggests coincidence of the two punctual events. Finally, as the 'since' construction also asserts that Pedro's sleeping is still going on at TT, the consultant adds *Tak be'òoraa' laili' u wèenele'* 'He's still sleeping even now'. The two ingressive phase verbs *kah* 'start' and *chíun* 'begin' carry the bulk of temporal information in this utterance, yet they do not express event order relations that would explicitly determine the order of events.

E106 features twice the morpheme *káa* (also seen in E103 above) whose clause-initial position looks suspiciously like that of a connective, a hypothesis which gets slightly frustrated as soon as one considers that this element occurs in both topic and main clause. Accordingly, *káa* cannot express an event order relation, but it may at least be analysed as a general temporal 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 AM. This would be a temporal anaphor that is available neither with stative descriptions ('When I was a kid...') nor with verbal predication marked for any AM

category other than perfective AM ('When I was walking home...', 'When I had finished the letter...'). In §7.3.2, an account of *káa* as an aspect-sensitive semantically mono-relational connective is proposed whose primary function is to mark perfectivity and which therefore grammaticalizes the implicature that perfective reference, aside from certain peculiar contexts, does not occur in isolation. And *káa* is not unique as an aspectual element grammaticalized to fulfill certain tasks in the structuring of discourse. The anaphoric topic clause with the phase verb *ts'o'k* 'end' that appears in the end of E101 is grammaticalized into a similar marker (occurring in reduced versions such as *ts'o'le'* (< *k-u ts'o'k-ol-e'* 'it ends'), and the same holds for the combination *káa h ho'p'* *káa* PRV begin(B.3.SG) 'it began' fused into a formative *kap'*.

To summarize, this section introduced clausal topicalization as a functional equivalent to adverbial subordination in Indo-European languages. Taking topicalization as the starting point, it was shown that even in constructions whose function would be best described as referring to the order of events, such event order relationships are nevertheless not overtly expressed. As a consequence, event order is represented strictly iconically in YM discourse, as long as no non-temporal coherence relations are specified. In semantic terms, temporality information is presented not in the domain of event order, but rather in aspectual and modal domains. Event order is inferred from these sources, taking into account discourse structure (clause order, backgrounding signalled by topicalization) and world knowledge.

4.2.3. Verb morphology

This final section of the introduction to YM morphosyntax gives a survey of the verb morphology of the language. This crucially includes the formal apparatus of status inflection which is relevant throughout the discussion of aspect-mood (AM) marking in §6, as AM marking triggers status inflection. At the same time, allomorphy of the status suffixes distinguishes among the formal predicate classes to be discussed in §5 with respect to the question as to what extent this formal schema of predicate classes is semantically motivated by event structure properties. The predicate classes are formally related through derivational processes, some of which are described in §5.2. While the semantics of the status categories are at issue in §6.1, and the semantics of the verbal derivational morphology in

§5.2, the focus of interest in the present section is on the purely formal properties of verbal inflection and derivation.

Before status inflection can be tackled, a picture of the morphological structure of the YM verb needs to be established. This includes one inflectional category that has not been mentioned so far but that is formally tightly intertwined with the expression of status in Mayan languages, namely voice. YM shows the elaborate system of voice distinctions typical of Mayan languages, including an antipassive (or 'introversive' (Lehmann 1993 [a], or 'deaffective' (Lucy 1994)), a passive, and an anticausative form (customarily called 'middle voice' among Mayanists; Lehmann 1993 [a] refers to it as 'deagentive', and in Lucy 1994, it receives the label 'decausative'). The antipassive serves to demote the U-Argument of transitive verbs, whereas the passive and the anticausative demote the A of transitives, differing in that the passive form implies and the anticausative form excludes an agent or 'effector' (Van Valin & Wilkins 1996). Thus, in E107a, the opening of the window referred to by the passive verb form *he'-a'l* is understood to be caused by the agent linked as an adjunct by means of the causal preposition *tuméen*, whereas the 'spontaneous' form *he'-k'ah- -al* in E107b expresses an uncontrolled opening event caused by the wind (cf. Owen 1968: 41-43), and similarly, the anticausative form *héek'-lah-al* in E108 refers to the splitting of the branches of a tree caused by a hurricane (the spontaneous derivation has the same function as the anticausative, at least in broad outline, but is more restricted in its application).

E107 a. Le bëntanah-o' túun he'-a'l tuméen tēen.
DEF window-D2 PROG:A.3 open-PASS.INC CAUSE me
'That window, it is being opened by me.'

b. Le bëntanah-o' túun he'-k'ah-al
DEF window-D2 PROG:A.3 open-SPONT-INC

tuméen le iik'-o'.
CAUSE DEF wind-D2

'That window, it is being opened by the wind.'

E108. Ts'o'k u héek'-lah-al u k'ab.
TERM A.3 splitACAUS-TOT-INC A.3 hand
'Its branches had been split off entirely.' (Rox ram 34)

The three voice operations have properties of both inflection and derivation. On the one hand, all three show a derivational character, in that they detransitivize the verb, transposing it into a different category in terms of argument marking and status inflection. The antipassive derives an active intransitive verb, whereas the passive and anticausative operations produce intransitive verbs of the inactive class. On the other hand, all three voices are productive and transparent (in the sense that the meaning of the target verb is by and large predictable). However, whereas the passive is applicable to all transitive verbs, both the antipassive and the anticausative show certain gaps in their input category concerning the distinction between derived and underived transitives. The anticausative is formed exclusively of underived transitives, and the antipassive is accessible for basic and causativized transitives, but not for applicatives, where "the active intransitive verb itself fulfills this semantic task", as Dayley (1990: 377) puts it.

E109 a. K-in hek'-ik.
IMPF-A.1.SG break-INC(B.3.SG)
'I break it.'

b. K-in hēek'.
IMPF-A.1.SG break\ATP
'I break.'

c. K-u he'k'-el.
IMPF-A.3 breakPASS-INC
'It is broken.'

d. K-u héek'-el.
IMPF-A.3 break\ACAUS-INC
'It is breaking.'

E110 a. Táan u lúub-s-ik.
PROG A.3 fall-CAUS-INC(B.3.SG)
'He is felling it.'

b. Táan u lúub-s-ah.
PROG A.3 fall-CAUS-ATP
'He is felling.'

c. Táan u lúub-s-a'l.
PROG A.3 fall-CAUS-PASS.INC
'It is being felled.'

E111 a. Táan in ts'íib-t-ik.
PROG A.1.SG write-APP(B.3.SG)
'I am writing it.'

b. Táan in ts'íib.
PROG A.1.SG write
'I am writing.'

c. Táan u ts'íib-t-a'l.
PROG A.3 write-APP-PASS.INC
'It is being written.'

E109 gives all three voices for the root transitive *hek'* 'break', E110 the antipassive (b) and passive (c) for the causative *lúub-s* 'fell', and E111 the passive (c) for the applicative *ts'íib-t* 'write', where the intransitive active base itself (b) replaces the antipassive. The transitive stem in unmarked voice is represented in

the a-examples; the examples are quoted from Bricker 1981 [a]: xi-xii, with the passive examples in E110 and E111 added by the author.

On account of their limited distribution, the antipassive and anticausative voices are considered exclusively derivations constituting derived stems in the present study, whereas the passive is treated as an inflection-like operation, and passivization as a (*morpho*-)syntactic rather than a (*morpho*-)lexical operation.⁸⁹ This fits with the passive of derived transitives (cf. E110c and E111c) as well as some root transitives (such as *a'l* 'say' and *il* 'see') being marked by a portmanteau suffix which simultaneously indicates status. F26 below, then, states the realization of the five status categories incompletive, completive, subjunctive, extrafocal, and imperative for the five verbal predicate classes distinguished by status allomorphy (transitives and active, inactive, positional and inchoative intransitives), as well as for the two voices of transitive verbs that are formally conflated with status inflection (notwithstanding passivization still implies intransitivization of the transitive base).⁹⁰

Most Mayan languages show status inflection sensitive to transitivity (defined in turn with respect to the inflectional pronouns cross-referencing argument noun phrases), but the Yukatekan languages including YM have an additional distinction between active (or 'agent focus' in terms of Lucy 1994) intransitives on the one hand and inactive, inchoative, and positional intransitives on the other ('patient focus' intransitives in Lucy 1994). This distinction was probably first recognized by Straight (1976 [b]). It is reported in Dayley (1981, 1990), and Lehmann (1993 [a]), Lucy 1994, Krämer & Wunderlich 1999, and Bohnemeyer (2001; ms. [a]) explore the semantic extension of the classes. Lucy (1994: 638-639) associates them with Vendler's (1957: 146) lexical-aspectual classes of 'activities' and 'achievements', while Krämer & Wunderlich (1999) and Bohnemeyer (2001; ms. [a]) argue for a semantic motivation in terms of the distinction between process and state change event structures (with crucial differences in their positions; cf. §5.1.2).

⁸⁹ See Ackerman (1992), Ackerman & Moore (2001), and Sadler & Spencer (1998), *inter alia*, for the distinction between 'morpho-lexical' and 'morpho-syntactic' operations.

⁹⁰ Inchoative and passive stems do not inflect for imperative status. To express the corresponding illocution, the subjunctive is used instead.

F26. YM status inflection according to verb stem classes

Status category	Verb class	Incompletive	Completive	Subjunctive	Imperative	Extrafocal
intransitive	active	- $\emptyset$	- <i>nah</i>	- <i>nak</i>	- <i>nen</i>	- <i>nah-ik</i>
	inactive	- <i>VI</i>	- $\emptyset$	- <i>Vk</i>	- <i>en</i>	- <i>ik</i>
	inchoative	- <i>tal</i>	- <i>chah</i>	- <i>chahak</i>	n.a.	- <i>chah-ik</i>
	positional	- <i>tal</i>	- <i>lah</i>	- <i>l(ah)ak</i>	- <i>len</i>	- <i>lah-ik</i>
transitive	active voice	- <i>ik</i>	- <i>ah</i>	- $\emptyset$ / - <i>eh</i>	- $\emptyset$ / - <i>eh</i>	- <i>ah-il</i>
	passive voice	$\backslash$ / ...- <i>VI</i> / - <i>a'l</i>	$\backslash$ / ...- <i>ab</i> / - <i>a'b</i>	$\backslash$ / ...- <i>Vk</i> / - <i>a'k</i>	n.a.	$\backslash$ / ...- <i>ik</i> / - <i>a'b-ik</i>

Active intransitives correspond semantically to the hypothetical cross-linguistic category of 'unergatives', while inactive, inchoative, and positional intransitives correspond semantically to 'unaccusatives'. However, it is not clear how the 'Unaccusativity Hypothesis' (according to which, roughly, the S of unaccusatives is an underlying U, while the S of unergatives is an underlying A, transformations accounting for the realization as S in both cases; cf. Burzio 1986; Levin & Rappaport 1995; Perlmutter 1978) were to be evaluated in YM, in view of the fluid-S pattern of argument marking and the unclear organization of grammatical relations in this language.

Inchoative stems derive from nouns and adjectives without any morphological trace of that operation other than the status suffixes listed in F26. This situation appears to leave the analyst with two choices: to assume either zero-marked derivation or suppletion of a derivational suffix *-tal/-chah/-chahak/-chahik* for status. The latter option is adopted here. Positional stems are again a form class recurrent across Mayan languages. They inflect primarily like inchoatives, but differ from them by a 'thematic' (i.e. paradigm-identifying) segment */l/* in completive, subjunctive, imperative, and extrafocal status. However, as opposed to inchoatives, positional bases do not occur as stative predicates except when derived, above all, by the positional resultative marker *-Vkbal*, and many roots producing positional stems can assume inactive or transitive inflection instead of or even in alternation with inchoative inflection (cf. Bohnemeyer & Brown (ms.)).

and Bohnemeyer & Stolz (ms.) for details).

It will be noticed that active intransitive verbs show a recurrent segment /n/ in all status categories except for the incomplete. This is a relic of a Proto or Common Mayan antipassive marker.⁹¹ As /n/ is no longer associated with the antipassive function and has become inseparable from the status suffixes of the active class, it should be considered a thematic sign of status marking in this verb class, rather than a distinct morpheme.⁹² The same holds with respect to the apparent internal complexity in the status suffixes of other categories whose prehistory is not known. A different stand has to be taken, however, in the case of the extrafocal status. As is evident from F26, all allomorphs of the extrafocal include segments which are phonologically identical to the completive allomorph of the particular class. The extrafocal is a relic of a Colonial YM inflectional category that mirrored the entire status system in certain types of subordinate clauses or cores. Smailus 1989: 72-81 calls this subordinate system *modo referencial*, to be distinguished from *modo declarativo* found primarily in main clauses. In the transition to Modern YM, the distinction between 'declarative' and 'referential' was given up except for completive status.⁹³ Insofar, the extrafocal might be considered a subcategory of the completive, rather than a status category in its own right. However, the extrafocal is restricted to the manner and (at least in some varieties of YM) time focus construction (cf. §4.2.1.5), and it has a functional range somewhat different from that of the completive in main clauses. It is

therefore treated as a distinct status category in the present study, ignoring its morphological relation to the completive.

Turning now to the internal structure of the stem, the verb classes introduced above are interrelated by a dense network of derivational relations. The most frequent operations are given in F27. Row entries should be read as source categories and column entries as the corresponding target categories of the operations listed in the cells. A number of processes have been omitted from F27 because too little is known about their input restrictions and the properties of the output forms.⁹⁴ The inclusion of inchoatives as an inflectional class in F26 as well as a derivational category in F27 was commented on above.

In a number of respects, the representation in F27 is simpler than facts are, while in other respects, the structure of derivation is clearer than F27 suggests. Both issues concern mainly the recursiveness of the operations depicted in the table.⁹⁵ Derived stems sometimes differ and sometimes do not differ in their privileges of undergoing derivation afresh from underived members of the same class. Thus, while anticausatives and antipassives can be retransitivized any time by applying causative or applicative (labelled 'extroversive' in Lehmann 1993 [a] and 'affective' in Lucy 1994) derivation, respectively, the opposite does not hold. As was mentioned above, applicatives are blocked for detransitivization entirely, and causatives require a special antipassive suffix *-ah* and are incompatible with anticausativization altogether. Similarly, inchoatives or factives derived from stative

⁹¹ Dayley 1990: 383 considers **(V)n* the Proto Mayan antipassive restricted to agent focus constructions (cf. §4.2.1.5), in opposition to **-w* as the general antipassive marker appearing in all contexts except agent focusation. Contrarily, Robertson (1992: 74-76) postulates **-ow* as the Common Mayan expression of 'absolute voice' (i.e. A-focus antipassive) and **-Vn* "for all other kinds of voice".

⁹² Hofling 2000 considers *-n* a synchronic antipassive marker in Itzá (another member of the Yukatekan branch). If this were the case in YM, all active intransitive stems would have to be derived from transitive stems. Active intransitives without root-transitive bases (which constitute the majority of active stems) would have to be derived from nouns via applicativization. But many active stems have neither root-transitive nor applicative counterparts (e.g. *bàab* '(to) swim', *áakan* '(to) groan', *chokwil* '(to) fever', *hàayab* '(to) yawn'). Like all active stems, these feature the /n/ segment in their status suffixes. Hence this segment does not appear to be associated with the antipassive function any longer in YM. The relationship between active intransitive stems and nouns is taken up in §5.1.2.

⁹³ Extrafocal *-il* with transitives is, however, an innovation. See Bricker 1981 [c] on some background of the syntactic changes surrounding the restructuring of the status system.

⁹⁴ For example, Lehmann (1993 [a]: 249-251) mentions a 'potentiality adjective' in *-chalak*, a 'display adjective' in *-kil*, and a 'disposition adjective' in *-k'alak*, all formed of verbs of somewhat uncertain subclassification, and it is not clear whether these forms represent adjectives proper or, as most derived statives, merely stative predicates. Various distributive forms relate to positionals; two of them, *RED-/u/e/n-* and *RED-man-*, are already described in Owen (1968: 45-46); another is formed in *-lemak*. There are also deverbal nouns of more specific semantics, e.g. an instrument nominalization from transitives in *-Vb*. The last mentioned and many even less attested forms are documented in Blair 1964.

⁹⁵ Also not captured in F27 are restrictions concerning the application of derivational operations to individual class members. For instance, there is at least one inactive verb that undergoes applicative rather than causative derivation, namely *hàan* 'eat', and at least one active verb that undergoes causative rather than applicative derivation, namely *péek* 'move' (cf. Bohnemeyer (2001; ms. [a]) and Krämer & Wunderlich 1999).

F27. YM stem derivation

Target stem Source stem		Stative			Intransitive			Transitive
		Noun	Adjective	Stative predicate	Active	Inactive	Inchoative	
Stative	Noun	-	-	-	-	Spontaneous -chah /k'ah /pah	Inchoative -tal	Usative -int
	Adjective	Relational -il	-	-	-			Factive -kint /kins /kunt /kans
Intransitive	Positional	Inchoative incomplete -tal	-	Resultative -a'n Positional resultative -Vkal	Durative -lan-kil	-	-	-
	Active	-ø	-	Resultative -nah -a'n	-	-	-	Applicative -t
	Inactive	Incomplete -VI	-	Resultative -a'n	Durative -lan-kil	Total affectedness -lah	-	Causative -s
Transitive		-	Gerundive -bil	Perfect -mah Gerundive -bil	Anti-passive (low tone) / -ah (with causatives)	Anti-causative (high tone) Spontaneous -chah/ k'ah /pah	-	Distributive -lan-t Spontaneous causative -k'es

expressions may undergo restativization by means of resultative, perfect or gerundive derivation; cf. E112:

E112 a. uts-chah-a'n
good-PROC.CMP-RES
'recovered'

b. kàah-kuns-bil
village-FACT-GIV
'to be populated'

However, in contrast, derived statives are never turned into verbs again. In other cases, two operations are combined, but the combination results in the morpheme indicating the second operation replacing the morpheme marking the first one, rather than to have both segments stacked. This is for instance the case with the gerundive in *-bil* and the perfect in *-mah*, which co-occur exclusively with transitive stems including applicatives and causatives, but in a way that applicative *-t* may optionally be dropped before *-bil* or *-mah*. Thus, E113a and b both mean '(thing) to play with', and E114 a and b both means '(price/recipient) to pay'.

E113 a. bàax(al)-t-bil
play.ATP-APP-GIV
'(thing) to play with'

b. bàax(al)-bil
play.ATP-GIV
'(thing) to play with'

E114 a. bo'(l)-t-bil
pay-APP-GIV
'(price/recipient) to pay'

b. bo'(l)-bil
pay-GIV
'(price/recipient) to pay'

While this deletion rule may be restricted to a certain phonotactic environment, this is clearly not the case with the distribution of spontaneous derivatives vis-à-vis stative and positional roots. Spontaneous derivation might be expected to operate on the underived bases (cf. E115a, E116a) just as well as the verbal derivatives (cf. E115b, E116b), but as a matter of fact, only the former structure appears, while the latter is excluded.

E115 a. chak-pah
red-SPONT
'turn red'

b. *chak-tal-pah
red-PROC.INC-SPONT

E116 a. kul-k'ah
sit-SPONT
'fall into a sitting position'

b. *kul-tal-k'ah
sit-PROC.INC-SPONT

Finally, yet a different solution avoiding the combination of multiple derivative suffixes consists in merging both suffixes into one, as with the combination of spontaneous *-k'ah* and causative *-s* into *-k'es* (cf. Owen 1968: 47-49):

E117 a. bats'-k'es
wrap-SPONT:CAUS
'cause to wrap up'

b. ts'an-k'es
press-SPONT:CAUS
'cause to compress'

On the whole, recursiveness inside the derivational apparatus is clearly limited.

Leaving aside category-preserving operations such as the distributive *-lan-t* of transitives and the cognate 'total affectedness' marker *-lah* of inactive intransitives, third-generation derivatives in immediate succession such as *'lúub-s-ah-t* fall-CAUS-ATP-APP 'fell, clear' are quite exceptional, at most. However, it is a noteworthy fact about this system that aside from inchoatives, there is no inflectional class without underived members. Put differently, the derivational structure sketched hitherto is largely "invisible" to status inflection and argument marking and hence to outer syntax. There is no syntactic structure that would be sensitive to the distinction of roots and stems.⁹⁶

This concludes the discussion of the environment of temporality grammar in YM. The system of predicate classes introduced in this section is taken up in the next chapter, where the temporal properties of the predicate classes are at issue.

⁹⁶ A possible exception may be represented by passive formation which has infixation of a glottal stop into underived stems (alternatively: roots) and infixation of that glottal into the status suffix otherwise (cf. F26). There are very few exceptional root transitives that follow the second strategy (e.g. *a'l* 'say' and *il* 'see'), and some of them are etymologically complex (like *bèet* 'do' and *mèet* 'make' which originated in applicatives of now extinct active intransitives). However, verbs of the root shape CV, which blocks glottal infixation, have a passive suffix in *-b* (formerly a general passive marker) and inflect following the inactive pattern when the latter is applied, e.g. *ch'a'-b-al* let-PASS-INC, *chi'-b-il* bite-PASS-INC, *he'-b-el* open-PASS-INC, *ts'a'-b-al* give-PASS-INC. This last-mentioned fact suggests that the distribution of passive formation strategies is either synchronically or was at some historical stage controlled by phonotactic rather than purely morphological conditions.

PREDICATES

CHAPTER 5

Recall from the framework laid out in §2 that time reference starts from the event type lexicalized in the predicate of a clause and assigns to it an eventuality in discourse that instantiates the particular event type and has a more or less definite location in time with respect to the moment of utterance and/or other events in surrounding discourse. Temporal coherence is but the opposite view on the same function, starting from a set of events in discourse, asking for their mutual location in time as determined by a series of linguistic operations that can be traced down eventually to the encoding of the event types in a chunk of clauses. No matter what way the investigation proceeds, it has to deal with the relations that bridge between a temporally located event in coherent discourse and the temporal properties stored with the event's type in the lexical entry the speaker enacts to refer to this event.

From the skeleton of YM grammar that has been established in the previous sections, it can be inferred that the following stages are involved in YM in the bridging process that maps lexical event types onto time-referential events in discourse: Event types are lexicalized in predicates that fall into a number of formal classes. These differ first of all in their co-occurrence privileges vis-à-vis preverbal markers of aspect and mood (AM), in that dynamic predicates (i.e. verbs) do and stative predicates do not combine with the AM markers. Verbs in turn are divided by the status allomorphs the AM markers trigger on them. It is argued below that status inflection and AM-marking largely neutralize the lexical aspectual information associated with the individual verbal lexeme; in particular, they override any lexical disposition the verb may have for being interpreted as referring perfectly or imperfectly in discourse by virtue of being telic or atelic. Aspectual reference to dynamic events in discourse is strictly controlled by AM-marking.

5.1. THE SYSTEM OF PREDICATE CLASSES

The present section deals with the temporal properties of the formal predicate classes of YM. The central question is the **motivation** of each predicate class with respect to argument structure features and event structure features. For the

present purposes, 'motivation' refers to the *predictability* of the formal properties of a given predicate class from the semantic properties of the predicates in this class, and in particular, to the *predictability* of the membership of a given predicate in its predicate class from certain semantic properties of the predicate. The relevant lexical semantic representations introduced in §2 are event structure, participant structure, and lexical aspect. The formal properties of the predicate classes that are primarily of interest in this study are the patterns of status inflection that distinguish among them, as introduced in the previous chapter. The argument structure properties of the various predicate classes, in particular their privileges of undergoing valence-changing derivation, are not of immediate concern here. Accordingly, the questions this chapter addresses are the following: Firstly, to what extent can the status pattern of a given predicate class be predicted on grounds of the event structure, lexical-aspectual, and participant structure semantics of its members? And secondly, and most importantly, to what extent can the membership of a given predicate in its morphological predicate class as the defined by the status pattern of that class be predicted on grounds of the event structure, lexical-aspectual, and participant structure semantics?

Event structure representations capture the internal structure of events denoted by a predicate in terms of the trichotomy of states, processes, and state changes, and specify the causal structure across subevents. Lexical aspect comprises the parameters of dynamicity, durativity, and telicity. And participants structures specify the information of an event expression that relates to the event participants, in terms of properties such as animacy, sentience, intentionality, agentivity, and control. So the questions at issue in this chapter are of the kind "Is a verb a member of the active class because it denotes a process, or because it is atelic, or because it entails an agentive participant role?" and "Is a verb a member of the inactive class because it denotes a state change, or because it is telic and punctual, or is it member of that class because it entails no agentivity or control on the part of the single event participant?" It is argued below that the status patterns of the Yukatek predicate classes and the membership of verbs in the various classes are primarily motivated in terms of the event structure distinction between states, processes, and state changes. The number of subevents and the causal structure between them motivates the transitive-intransitive distinction.⁹⁷ Neither participant

⁹⁷ As already indicated in §4.2.3, a verb stem's privileges of undergoing transitivity alternations are largely but not entirely determined by its status pattern. Status inflection

structure features such as control and agentivity nor the lexical-aspectual properties of telicity and durativity have an impact. Moreover, not only the morphology of predicate classes, but also the adverbial syntax of YM is indiscriminate with respect to the telicity and durativity of predicates. And since all verbs are available with all status and AM categories, it can be concluded that the lexical aspect of YM predicates is neutralized in YM clauses by status inflection and AM marking and has no impact on the aspectual interpretation of the clause in discourse.

A broad motivation of the morphological and syntactic distinction between stative predicates and verbs with respect to dynamicity was already anticipated in §4. Stative predicates are divided into nouns, adjectives and statives proper according to syntactic distribution and morphological properties in §5.1.1. Verbs have been subclassified according to their inflectional properties, namely the pattern of status allomorphy occurring with them, in §4.2.3. Table F28 summarizes these distinctions.

F28: *YM predicate classes*

Stative predicates			Verbs				Transitive
Stative predicate proper	Noun	Adjective	Intransitive				
			Active	Inactive	Inchoative	Positional	

Below, first stative predicates are discussed. These require a separate treatment for two reasons: first, they are irrelevant to the question of the motivation of status patterns by durativity and telicity (as they are always durative and atelic, and do not partake in status inflection anyway), and second, their temporal interpretation in discourse does not depend on status inflection and AM marking (since they do not admit either form of marking), unlike the temporal interpretation

classes and argument structure classes are largely but not entirely coextensive - there is a small number of "mismatches". As shown in Bohnemeyer (2001; ms. [a]), the argument 'linking' properties of transitivized verb stems (i.e. the rules governing the mapping of participant roles onto morphosyntactic arguments) depend on whether or not the intransitive base encodes an 'internally caused' event (cf. Levin & Rappaport 1995) - another event structure distinction.

of verbs, and hence has to be addressed in this chapter. Then, verbs are tackled. The formal properties defining each of the five verb classes (active, inactive, inchoative, positional and transitive verbs) are summarized, and subsequently, the evidence concerning the event structure, lexical-aspectual, and participant structure semantics of the members of each class is considered with respect to the question of the semantic motivation of the verb class system.

5.1.1. Stative predicates

The defining feature of stative predicates is their incompatibility with the preverbal aspect-mood (AM) markers and with status inflection. Status inflection was suggested as the decisive criterion in §4.2.1.4, because there are verb forms (typically subordinated ones) which are marked for status but not for AM, while there is no verb form that would be marked for AM but not for status. Verbs combine with AM markers in order to form independent clauses, whereas stative predicates constitute clauses by mere combination with the set-B suffixes cross-referencing their S-argument. Some examples from §4.2.1.4 are repeated in E118 for convenience:

- E118 a. *Mix+ba'l-o'n* t-aw ich.
NEG.EMPH+thing-B.1.PL LOC-A.2 eye
'We are nothing in your opinion.' (said in a bar, in reaction to my reluctance of buying another round)
- b. A *k'ahóol-en,* aw ohel *máax-en?*
A.2 acquaintance-B.1.SG A.2 knowledge who-B.1.SG
'Do you know me, do you know who I am?' (BVS 13.1.10.)
- c. Chan áak, *óotsil-ech!*
little turtle poor-B.2.SG
'Little turtle, you are a poor one!' (Romero Castillo 1964: 307)
- d. *Siinko-o'n!*
five-B.1.PL
'There are five of us!' (BVS 3.1.13)

Statives fall into various subclasses differing in their syntactic privileges of occurrence as well as in their distribution with respect to certain derivational rules. Numerals (cf. E118d), prepositions, and other closed classes are not further considered here. Stative predicates of open classes may be distinguished into

nouns, adjectives and stative predicates proper. Nouns can occur as noun phrase heads without having to be nominalized as adjectives do. Adjectives, in contrast, can be dependents of noun phrase heads without the head having to be marked for possession, as it does with nouns. Actual attributive (non-predicative) use of adjectives is quite rare; one example is the construction of *nohoch* 'big' in E119a. This is to be set apart from the post-nominal occurrence of the adjective as in E119b where it presumably acts as a predicate, constituting a stative relative clause. The same construction is illustrated by *k'oha'n* 'ill' in E120a. E120b shows the same adjective acting as the predicate of a main clause; E120c has nominalization *k'oha'n-il* by means of the relational suffix *-il*, and E120d displays derivation of a verb out of *k'oha'n* by means of the inchoative suffix *-chahak* which simultaneously marks subjunctive status.

E119 a. He'l h tàal-en inw il
PRSV PRV come-B.1.SG A.1.SG see(B.3.SG)

le *nohoch* máak-a'.
DEF big person-D1

'Here I came to see the grand old man.' (BVS 13.1.8)

b. Yáan hun-p'ée! kàah *nohoch* be'òoráah-a'.
EXIST(B.3.SG) one-CL.IN live [big(B.3.SG) now]_{S-D1}
'There is a town which is big now.' (Fcp 343)

E120 a. In k'áat inw u'y ti'-o'b, ba'n
A.1.SG wish(B.3.SG) [A.1.SG hear(B.3.SG) LOC-B.3.PL]_S what

notiisya-s-il yáan y-o'la! in, sea,
news-PL-REL EXIST(B.3.SG) A.3-reason A.1.SG that is

in papa *k'oha'n-o'*.
A.1.SG father [ill(B.3.SG)]_{S-D2}

'I want to hear from them what news they have concerning my, that is, my father who is sick.' (Entrevis EMB & AME 157-158)

b. *K'oha'n-en,* bfin in ka'h kim-il.
ill-B.1.SG PRED A.1.SG do die-INC
'I am ill, I will die.' (Fcp 395)

c. Mina'n tèn u mòdoh-il
NEG.EXIST(B.3.SG) me A.3 way-REL

t-y-o'lal le k'oha'n-il-a'.
LOC-A.3-reason DEF ill-REL-D1

'I have no way of doing it (the speaker's work) because of this illness'. (BVS 17.1.32)

d. H ts'o'k ka'-p'éel k'in sèn k'oha'n-chahak.
PRV end(B.3.SG) two-CL.IN sun very ill-PROC.SUBJ(B.3.SG)
'It's two days ago that he got seriously ill.' (BVS 13.1.3)

Nouns and adjectives share the property of undergoing inchoative derivation which turns them into intransitive verbs. They differ in their accessibility for processes of transitivization. Adjectives have a special 'factitive' transitivization (cf. Lehmann 1993 [a]: 262) in *-kunt* or *-kint* (the vowel "disharmonising" with the (adjacent) stem vowel in front-back distinction), e.g. *uts-kint* good-FACT 'improve, repair', *síis-kunt* cold-FACT 'cool'. Nouns, by contrast - to the extent that this category is distinct from active verbs - are compatible with the 'usative' suffix *-int*, which occurs in the following construction: [C-int A B] meaning 'B acquires/ has/uses A / as a C / in its capacity of being a C / in connection with C', e.g. *xüun-int* wife-USAT 'take in marriage', *táan-int* front-USAT 'prefer, give priority to, bring forward' (cf. Bricker 1970, Lehmann 1998).⁹⁸ Inchoatives are discussed in this thesis as a separate predicate class, on the grounds that they receive distinctive status inflection.

Stative predicates proper neither head noun phrases nor do they occur as attributes. They comprise a small class of propositional predicates (i.e. predicates that take propositional arguments) and all derived statives. Stative propositional predicates have rather limited ways of producing derived verbs. Below, I repeat

⁹⁸ Bricker *et al.* (1998) consider noun roots to produce applicative stems in *-t* as well. However, applicative derivation is otherwise restricted to active intransitive verb stems, and all roots of applicative stems that can be analyzed as nouns can alternatively also be considered active roots. As discussed in below, many active roots produce both noun stems and active intransitive verb stems without overt derivation (e.g. *òòk'ot* 'to dance', 'dance'; *tüukul* 'to think', 'thought'). And among the roots that produce active stems without derivation, those that offer the strongest semantic grounds for classification as nouns do not admit applicative derivation (e.g. *e'l* 'egg', 'testicle' > 'to ovulate', 'to lay eggs'; *ich* 'fruit', 'eye', 'face' > 'to bear fruit'). Thus, an analysis restricting applicativization to active roots or stems seems to be more parsimonious.

one of the two examples illustrating members of this subclass that were discussed in §4.2.1.4 above, *ma'lóob* 'good', the other one being *k'áat* 'wish' illustrated in E120a above.

E121. Mas **ma'lóob** káa kul-lak-o'n y-àanal le che'-o'.
more good(B.3.SG) [SR sit-SUBJ-B.1.PL A.1-beneath DEF tree]s-D2
'It will be better we sit down (to take a rest) under that tree.' (BVS 16.1.11)

Ma'lóob is compatible with inchoative derivation yielding 'become good/nice'. *K'áat*, in contrast, belongs to a small and closed set of about half a dozen items including *k'ahóol* 'acquaintance', *ohel* 'knowledge', *péek* 'hate' and *yakumah* 'love'. These lexemes express emotional or cognitive attitudes. Formally, they have in common the applicative transitivization in *-t* (cf. *k'áat-t* 'ask', *k'ahóol-t* 'get acquainted with sb.', *ohel-t* 'get to know sth., learn sth.', *péek-t* 'hate' and *yakun-t* 'fall in love with somebody'). This relates them closely to active verbs. *K'áat* and *ohel* take propositional complements cross-referenced by B.3.SG, while the remaining members of this subset of propositional predicates proper only occur in the unmarked construction of relational nouns.⁹⁹

The importance of the subclass of stative predicates proper lies in the fact that all derived statives belong to it. This includes resultatives in *-a'n* (from intransitive verbs) as well as the perfect form in *-mah* and the gerundive in *-bil* (both from transitives). With the exception of the gerundive, which has attributive as well as predicative uses (though the former might all be considered lexicalized), derived statives only occur as predicates. The stativizing operations are treated in §5.2.

Lehmann (1993 [a]: 245) argues that all members of the formal class of statives are semantically actually stative, and that apart from a small number of exceptions, semantically stative expressions are found in the formal class of stative predicates only. However, there are evident exceptions to Lehmann's generalization. One important counterexample are deverbal nouns and 'action nouns'. Inactive verbs, positionals, and inchoatives form nominalizations in their incompletive status form; e.g. *kim-il* die-INC 'dead (both abstract and concrete noun)' and *wèen-el* sleep-INC 'sleeper', 'sleep'. Put differently, the incompletive status form is a verbal noun, identified as a kind of gerund in §6.1. Active verb

⁹⁹ Relational nouns are obligatorily possessed in their underived form, and may or may not have derived 'alienable' forms; cf. Lehmann 1998 on possession in YM.

stems, in contrast, including antipassives and noun incorporating verbs, can constitute noun phrase heads in their bare stem form (which is, however, again identical to the incomplete form, as the latter is unmarked with active verbs). Examples: *meyah* 'to work', 'work', worker'; *k'áay* sing\ATP 'to sing', 'singer', song'; *pàax* play.music\ATP 'to play music', 'music', 'musician'. Many active roots should probably be considered nouns on semantic grounds (e.g. *e'l* 'egg', 'testicle' > 'to ovulate', 'to lay eggs'; *ich* 'fruit', 'eye', 'face' > 'to bear fruit'; *múis* 'broom' > 'to sweep'; *oxo'm* 'shelled corn' > 'to shell corn'; *pak'ach* 'tortilla' > 'make tortillas'; *sín* 'mucus' > 'to blow one's nose'), and comparative evidence from other Mayan languages suggests that diachronically, all active roots (i.e. roots producing active intransitive stems without overt derivation) may have originated in a special class of nouns in Common Mayan, called 'action nouns' in Kaufman (1990: 103-104). Deverbal nouns and action nouns can occur as nominal predicates with dynamic readings:

E122 a. Tèen-e **kòonol**-en.
me-TOP sell\ATP-B.1.SG
'Me, I am a salesperson.'

b. Le ba'x k-uy úuch-ul te merkàado-o' **kòonol**.
DEF what IMPF-A.3 happen-INC LOC:DEF market-D2 sell\ATP(B.3.SG)
'What is happening at the market place, selling it is.'

The deverbal noun *kòonol* 'selling', 'seller' has a stative interpretation in E122a, but a dynamic one in E122b. In E122b, *kòonol* is just as dynamic as in *Táan in kòon-ol* PROG A.1.SG sell\ATP-INC 'I am selling'. Hence, while the formal extension of the class called 'stative' in the present study is set apart from the extension of the other predicate classes by a sharp dividing line, the *semantic* extension of the stative class is not as clearly distinguished from that of the remaining classes.

Let us now briefly consider the behavior of stative expressions in discourse. This needs to be done here, as opposed to the practice with all the remaining predicate classes, as the latter have their temporal properties fully determined by status inflection, AM marking and the outer syntax of higher predicates, etc., whereas all these structural means of adapting the temporal properties of the event denotation to the needs of temporal coherence in discourse are not available for the statives. Statives are atelic; they are taken to refer to unbounded situations by default,

which invites an implicature to overlap with respect to a reference point in discourse (cf. §§2.2, 2.6). In the following example, the topic time TT for which the stative main clause is asserted is defined by the topic clause *Le káa tinw u'yah le istòorya Méxíco'a'* '(When) I heard this story in Méxíco City'. The stative predication *mixba'l inw ohel le òorao'* 'I knew nothing (at) that time' is understood to refer to a state overlapping with that TT. (Recall that stative predicates are identified by the absence of status inflection. *Ohel* 'knowledge' is actually a noun.)

E123. Le káa t-inw u'y-ah le istòoryah Méxíco-a',
[DEF káa PRV-A.1.SG hear-CMP DEF story Méxíco]g-D1

tèen-e' **mix+ba'l** inw ohel le òora-o'.
me-TOP EMPH.NEG+thing A.1.SG knowledge DEF hour-D2

'(When) I heard this story in Méxíco, I knew nothing (lit. my knowledge was nothing) (at) that time.' (Hijo 20-21)

As long as it is not turned into a verb, the most likely aspectual interpretation of a stative expression is imperfective. However, this inference can be plainly overridden in context, as in E124:

E124. Ba'x u láak klàase, estée, meyah t-a kaxt-ah
what A.3 other class HESIT work PRV-A.2 find-CMP(B.3.SG)

te Bacalar-o', te **bukah** k'ín-o'b
LOC:DEF Bacalar-D2 LOC:DEF as.much sun-PL

biha'n-ech-o'?
go:RES-B.2.SG-D2

'What other kind of, uhm, work did you find in Bacalar, during the time you were away?' (Bio Seb II 14)

In this example, the atelic stative eventuality signaled by the resultative *biha'n* 'be gone' (recall that resultatives are derived statives, belonging to the subclass of stative predicates proper) is interpreted perfectly, because it is combined with the duration adverbial *te bukah k'íno'b* 'in as many days (lit. suns)', i.e. 'during the time that', which denotes a bounded time interval. Notice also that in E124, the stative expression appears in an antitopic clause (cf. §4.2.2), whereas in E123 above, the main clause is stative and the topic clause provides a bounded TT.

Stative expressions only infrequently appear in topic or afterthought position. This is clearly at issue with a well-known correlation according to which imperfective clauses in narrative discourse have a strong preference for backgrounding (or rather, crucially, the other way round: backgrounded clauses are typically imperfective).¹⁰⁰ The reconciliation of this conflict comes from the fact that in order for a backgrounded clause to provide a suitable temporal reference point for the foreground predication, the background proposition needs to imply a plausible 'TT contrast' (cf. Klein 1994: 5-9). Consider the following example:

E125. Sáan-sáamal-e', komoke te rãancho-o',
RED-tomorrow-TOP [because LOC:DEF ranch(B.3.SG)]_{S-D2}

chéen sáas-ak-e', táan k bin.
only dawn-SUBJ(B.3.SG)-TOP PROG A.1.PL go

'Every day, because it was on a farm, (when) it would dawn, we would be leaving (to start working).' (Bio ram 23)

E125 shows a combination of no less than three topics with one main clause. The first one, *sáansáamal* 'every day' shows a suitable time contrast to provide a temporal reference point because it refers to a reiterated interval and allows for an assertion in the main clause that holds for each instantiation of that interval. The innermost topic clause *chéen sáasake* ' (when) it would dawn' refers to a sharply delimited point in time, albeit with irrealis reference (cf. §7.3.5), which makes it fit with the habituality of *sáansáamal*. However, the second topic clause *komoke te rãanchoo* conveys a stative description referring to the location of the main event, 'it was on a farm'. This does not involve a sensible contrast to some time where the setting was not on a farm, which could help identify the time for which the main proposition is asserted. Therefore this stative predication is not very likely to function in temporal coherence, and as a matter of fact, it bears a causal relationship with the main clause in E125 signalled by the causal conjunction *komoke* of Spanish origin. (Recollect that the function of topicalization is essentially backgrounding. What is backgrounded may be an expression of location or time that serves to restrict the main predication, but also an expression of reason or purpose that explains the main predication.)¹⁰¹ Notice the crucial difference

¹⁰⁰ Cf. Hopper (1982) and Thelin (1990).

¹⁰¹ 'Ranches' in the YM sense provide a reason for getting up early as they are remote outlier places without any appliances where people come to work for a couple of weeks,

between 'it was on a farm' and 'we were on a farm'. The former invokes a type of setting which is simply atemporal, while the latter is a description of a temporary location and hence could be used as a temporal frame of reference in E125, yielding an interpretation 'as long as we were on that farm' similar to the function of the stative antitopic (cf. §4.2.2) in E124 above. So in order for a stative eventuality to be able to appear in a temporal backgrounding function, it has to be at least somewhat dynamic; more precisely, there has to be a certain likeliness of a contrast between an interval where the state holds and one where it does not hold, and this contrast needs to be suitable to serve as TT for the main assertion. Likelihood of change is naturally found with derived statives such as the positional resultative *kulukbal* 'seated' in E126a, as such derivatives are related to bases that express the process yielding the particular state as target of the process (or else, in the case of derived pre-states, the process changes the state as its source).

E126 a. Tèen-e chéen kul-ukbal-en y-àanal le che'-o'
me-TOP only sit-POS.RES-B.1.SG A.3-under DEF tree-D2

káa h lùub hun-p'èel mànsanah t-in ho'l.
káa PRV fall(B.3.SG) one-CL.IN apple LOC-A.1.SG head

'As for me, I was just sitting under that tree, (when) an apple fell on my head.'
(Perfa 13)

b. In tàatah-e' káa t-uy a'l-ah tèen: "úuch
A.1.SG father-TOP káa PRV-A.3 say-CMP(B.3.SG) me formerly

chàan xib+pàal-en-e', le eskwèelah-o'b-e'
little male+child-B.1.SG-TOP DEF school-PL-TOP

máas uts ke't behla'k-e''.
more good(B.3.SG) comparePASS today:ak-D3

'As for my father, he told me: "Formerly, (when) I was a little boy, schools used to be better than they are today."' (Perfa 63)

However, adjectives and even nouns may refer to relatively unstable states too. "Relatively" is of course crucial here, as the time-stability of the state supposed to provide a reference interval or TT is measured against the time-stability of the eventuality supposed to be located in time with respect to that TT. Thus, the state of being a kid, asserted of the speaker's father, provides an appropriate temporal

spending the rest of the year in the village.

background in E126b for the assertion 'the schools used to be better', whereas it would be odd as the only background for something like 'I bought a book on fishing' (unless the accomplishment of buying that book somehow had impact on the person's life up to utterance time).

Their default interpretation of imperfectivity also determines the behavior of stative descriptions with respect to time adverbials. States are not easily located in time. Dynamic eventualities may or may not be located at a given point in calendrical time (depending simply on their factual or probable duration). For illustration, the eating event in E127a may be located at six o'clock.

E127 a. Pedro-e', h hāan las sēeys.
Pedro-TOP PRV eat(B.3.SG) six.o'clock
'Pedro, he ate at six.' (Seb)

b. Pedro-e' las sēeys-e' k'oha'n.
Pedro-TOP six.o'clock-TOP ill(B.3.SG)
'Pedro, at six, he was ill.' (Seb)

c. Pedro-e' t-uts'fib-t-ah hun-p'ēel kàarta lùunes.
Pedro-TOP PRV-A.3 write-APP-CMP(B.3.SG) one-CL.IN letter Monday
'Pedro, he wrote a letter on Monday.' (Seb)

d. Pedro-e' k'oha'n te àanyo h máan-o'.
Pedro-TOP ill(B.3.SG) LOC:DEF year PRV pass(B.3.SG)-D2
'Pedro, he was sick last year.' (Seb)

The interpretation will be that Pedro actually ate somewhere in between, say, half past five and half past six (with an additional likeliness that the initial boundary of the eating event was closer to six o'clock than the terminal boundary was) and that the duration of the event filled a considerable portion of this interval within which the event probably took place. However, the state of illness reported in E127b cannot be located in this way, and hence the specification will be read here as referring to topic time TT rather than to the target state's location in time. For this reason, the adverbial *las sēeys* 'at six' is preferentially topicalized. (Even then, the construction in E127b is pragmatically marked. One has to assume that either the moment of Pedro's becoming ill or the temporal location of his recovery is at issue and that the speaker responds that at a moment reasonably close to this time, Pedro was still or already ill.) Another way of locating a dynamic eventuality in time is by specifying a calendrical interval that includes the time of the

target event. Thus, the writing event in E127c is located on a Monday. This possibility is only somewhat marginally available for stative predications. In E127d, Pedro's illness is located within the year preceding the year that includes coding time, and the most plausible interpretation implies that the average illness lasts no longer than a couple of weeks, and that there are years in which you get sick and years in which you do not.

Finally, in English, states may be located in time just like other eventualities by explicitly specifying the initial and terminal boundary's location in time (e.g. *Pedro was ill from Monday till Thursday*, or *Alaska was a Federal Territory from 1912 until 1959*). As is commented on in §7.2, this option is not available in YM, except for dubious constructions directly translated from Spanish. In YM, there is no way of locating both the initial and the terminal boundary of an event in one and the same predication. This is an immediate consequence of the absence of event order relators. (Of course, the event may be presented perfectly, which entails inclusion of its boundaries in TT; but this does not mean that the boundaries are located in time separately.)

Since states are generally not likely to be temporally located in YM, topic time specification plays a more prominent role with stative descriptions than with dynamic predicates. Of particular importance are the deictic 'topic time shifters' *ka'ch(il)* 'formerly' (TT located anteriorly to coding time) and *be'òora ...-a'/-e'* 'now' (TT located simultaneously to coding time). E128 illustrates both morphemes with stative predications.

E128. T-u estàado Quintana Roo-e' yàan hun-p'ēel kàah
LOC-A.3 state Quintana Roo-TOP EXIST(B.3.SG) one-CL.IN live

nohoch be'òora-a', túun p'áat-al syùudad.
big(B.3.SG) now-D1 PROG:A.3 leave/CAUS-INC city

Ka'ch-e', Santa Cruz de Bravo, tuméen don Ignacio Bravo
formerly-TOP Santa Cruz de Bravo CAUSE don Ignacio Bravo

h tàal u hets'-kunt le màaya-s-o'b way
PRV come(B.3.SG) A.3 quiet-FACT(B.3.SG) DEF Maya-PL-PL here

túun ba'tehil-o'b-a', (...).
PROG:A.3 fight-3.PL-D1

'In the state of Quintana Roo, there is a town which is big right now, it is becom-

ing a city. Formerly, it was (called) Santa Cruz de Bravo, because don Ignacio Bravo came to pacify the Mayan people that were fighting, (...).' (Fcp 342-347).

The topic time shifters are dealt with in more detail in §7.2.2. There, it is shown that just as in E128, *ka'ch(il)* generally conveys an implicature that the state located at some time determined by *ka'ch(il)* does not hold anymore at coding time.

5.1.2. The verb class system

In this section, the semantic motivation underlying the system of the status inflection patterns of the YM verb classes is examined. The evidence for motivation in terms of lexical aspectual vs. event structure representations is considered first. It is established that there are no syntactic processes sensitive to telicity in YM. Several sources of semantic evidence concerning the telicity of verbs in the various classes is examined. These sources sometimes suggest different outcomes for one and the same verb. However, the behavior of any given verb with respect to the telicity criteria seems predictable on the basis of the event structure representation of that verb. And event structure (in particular, the process-change distinction) correlates very closely with the status patterns of the verb classes. Thus, event structure seems a better predictor of the status inflection classes than lexical aspect. Then, it is shown that participant structure properties only co-vary with verb class membership to the extent that they are again predictable from the underlying event structure representations (recall that it was argued in §2.2.1 that event structure partially, but not completely, determines both lexical aspect and participant structure). It is concluded that the YM system of status inflection is directly motivated by event structure distinctions, and only indirectly by lexical aspect and participant structure.

5.1.2.1. Event structure vs. lexical aspect: Setting the stage

It is argued below - following Bohnemeyer (2001; ms. [a]) - that membership in the YM status inflection classes is motivated by event structure properties, not by the lexical-aspectual properties of durativity and telicity, as proposed by Lucy (1994), who analyses the system in terms of Vendler's (1957, 1967) aspectual

classification. Specifically, active intransitive verb stems express processes, while inactive, inchoative, and positional intransitives denote state changes. Inactive and positional roots directly lexicalize state changes, while the stative roots that produce inchoative stems lexicalize the states yielded by the state changes.¹⁰² Transitive stems denote events involving two participants linked in a causal chain of subevents - again a matter of event structure specifications.

The argumentation proceeds as follows: In §§5.1.2.2 - 5.1.2.3, initial evidence for the relevance of the process-change distinction from the extension of the five verb stem classes and from their formal properties is provided. In §5.1.2.4, it is shown that telicity has no formal reflexes in YM. §§5.1.2.5 - 5.1.2.6 consider two semantic tests of telicity, event realization under cessation and scope ambiguity with 'almost'-type operators. These reveal a surprisingly ambiguous and seemingly contradictory behavior of active stems, which in certain contexts invite 'performance object' readings and behave telically under these interpretations. Verbs of the other four classes show the behavior of the three classes of state change predicates predicted in §2.2.5 regarding telicity: while verbs of non-incremental change, like *begin* and *die*, are always telic, verbs of incremental change may be telic or atelic, depending on the referentiality and quantification of their theme or patient arguments - if they entail discrete end states. On the other hand, verbs of gradual change ('degree achievements'), which occur regularly among the members of the inactive and inchoative classes, are never telic, unless some 'degree of change' is specified. Taken together, these facts suggest that the best predictor of verb class membership is the process-change distinction at the level of event structure representation, not telicity. This is supported by an elicitation of the behavior of novel verb stems, briefly reported in §5.1.2.7. Subsequent sections address durativity (§5.1.2.8) and participant structure features (§5.1.2.9) as possible motivating factors for verb class membership. §5.1.2.10 argues that while *membership* in the verb classes is not motivated in terms of telicity, the status *pattern* itself may well be, at least to some extent.

¹⁰² Similarly Krämer & Wunderlich 1999. However, Krämer & Wunderlich argue for a motivation in terms of processes vs. *discrete* state changes, which they consider a lexical-aspectual distinction. But as shown below, this view conflicts with the regular occurrence of 'degree achievement' verbs in the inactive and inchoative classes.

5.1.2.2. The lexical extension of the verb stem classes

There are four classes of roots that produce active stems: transitive roots (via antipassive derivation, e.g. *k'ay* 'to sing sth. (song)' > *k'àay* 'to sing'; *pax* 'to play sth. (instrument)' > *pàax* 'to play music'; *tukl* 'think/worry about sth.' > *tùukul* 'to think'; also, via noun incorporation, e.g. *ch'ak+che* 'cut+wood' 'to chop trees'; *mehen+hàan-al* 'make+eat-INC' 'to cook'; *uts-kint-ah+xanab* 'good-FACT-ATP+show' 'to repair shoes'),¹⁰³ noun roots (without overt derivation, e.g. *e'l* 'egg', 'testicle' > 'to ovulate', 'to lay eggs'; *ich* 'fruit', 'eye', 'face' > 'to bear fruit'; *míis* 'broom' > 'to sweep'), active verb roots (e.g. *áalkab* 'to run'; *hàayab* 'to yawn', *hùink'i* 'to wheeze'), and all intransitive roots borrowed from Spanish (e.g. *áatrasáar* 'to become late'; *duràar* 'to last'; *gáanar* 'to win'). Spanish intransitive roots and stems are incorporated in the active class regardless of their semantics, which significantly reduces the semantic homogeneity of the active class. With this exception, however, the active class clearly is the host in YM of the verbs commonly recognized as 'unergatives' in cross-linguistic research (cf. e.g. Levin & Rappaport-Hovav 1995). Two notional classes typically found among unergatives are manner-of-motion verbs (cf. Talmy 1985, 2000) and emission verbs. Indeed, intransitive verbs expressing such meanings are found without exception in the active stem class in Yukatek. Verbs of manner of motion include *áalkab* 'to run'; *bàab* 'to swim'; *balak* 'to roll'; *harax* 'to slide'; *sùut* 'turn/ATP' 'to turn', 'to spin'; *süt* 'to jump', 'to bounce'; *xíiknal* 'to fly', 'to flutter'; *xíimbal* 'to walk', and many others. These stems are formed overwhelmingly from active or noun roots. Emission verb meanings include mainly sound emission (*áakáan* 'to groan'; *che'h* 'to laugh'; *hàayab* 'to yawn'; *he'sin* 'to sneeze'; *hùink'i* 'to wheeze'; *hùum* 'to make noise'; *ke'b* 'to belch'; *kilin* and *kíilbal*, both 'to thunder'; *nóok* 'to snore'; *òok'ol* 'to cry'; *se'n* 'to cough'; *tòohol* 'to bark'; *tuk'ub* 'to hiccup'; and many others) and excretion (i.e. bodily emission; e.g. *kíis* 'fart/ATP' 'to fart'; *k'íilkab* '(to) sweat'; *ta* 'shit/ATP' 'shit', 'to defecate'; *tu'b* 'spittle', 'to spit'; *xeh* 'vomit/ATP' '(to) vomit'; *wíx* 'urinate/ATP' 'urine', 'to urinate'; and many others). Whereas sound emission stems are mostly formed from active roots, excretion stems are primarily formed from transitive and noun roots.

¹⁰³ Cf. Lehmann & Verhoeven (to appear), Mithun (1984), and Sullivan (1984) on noun incorporation in YM.

There is a set of around 100 roots that produce inactive stems without overt derivation. Apart from these, inactive stems are derived productively from transitive roots by the anticausative and 'spontaneous' derivations and by passivization (cf. §4.2.3). Inactive stems express in particular creation and destruction (e.g. *kim* 'to die'; *la'b* 'to deteriorate'; *ts'u'k* 'to rot'; *síih* 'to be born'; *xíik* 'burst/ACAUS' 'to burst', 'to explode'), change of location (or 'inherently directed motion' (Levin 1993), e.g. *bin* 'to go'; *em* 'to descend'; *hóok* 'to exit'; *k'uch* 'to arrive'; *luk* 'to leave'; *máan* 'to pass'; *na'k* 'to ascend'; *tàal* 'to come'; *òok* 'to enter'), and aspectual phase (e.g. *chíum* and *káah*, both roughly start/ACAUS 'to start'; *ch'éen* and *xíul*, both roughly stop/ACAUS 'to stop', 'to quit', 'to cease'; *ho'p* 'to begin'; *ts'o'k* 'to end', 'to finish'; cf. §2.3; §7.1.2).

There are perhaps between 100 and 150 roots that produce positional stems. The majority of these also produce transitive stems, without overt derivation (in other words, these roots are ambi-categorical, feeding into the positional and the transitive stem classes alike, without one distribution being primary). The class of positional stems (as identifiable by the thematic // segment in their completive, subjunctive, and imperative status suffixes, and by a number of derived stative stems they produce, in particular the positional resultative form in *-Vkkal*) has no (overtly) derived members, unlike all other verb stem classes.¹⁰⁴ Positional roots denote properties like temporary shape (e.g. *mech* 'to curl up', 'to fold up'; *mek* 'to bend', 'to twist', 'to fold up'; *met* 'to bend', 'to arch'; *moch* 'to fold up'; *wak* 'to swell up'; *wol* 'to form a ball', 'to bulge'), posture (e.g. *chil* 'to lie'; *kul* 'to sit on one's butt'; *pek* 'to sit legs stretched out'; *xak* 'to be on all fours'; *xol* 'to kneel'; *wa'l* 'to stand'), orientation (e.g. *jaw* 'to lie face up'; *nok* 'to lie face down'; *ts'éel* 'to lie on side'), disposition (e.g. *hoch* 'to droop'; *lech* 'to hang'; *pach* 'to hang', 'to dangle', 'to swoon'; *t'oy* 'to hang down'), and configuration (e.g. *much*, *mul*, *nik*, *tuk*, and *táup*, all roughly 'to pile up'; *nik* 'to scatter'; *tas* and *tsol*, both 'to line up'; and *ts'ap* 'to stack'). The roots encode these spatial

¹⁰⁴ In view of the formal similarity of the positional status suffixes to the inchoative ones, it may be assumed that the former, like the latter, simultaneously serve to mark derivation. There is, however, no independent evidence supporting a derivational analysis. Moreover, an inchoative-like derivation would be semantically redundant, as positional roots have inherent state-change semantics, not stative meanings (as shown, e.g., by the fact that most positional roots also produce transitive stems without overt derivation).

properties as end states of state changes.¹⁰⁵

Inchoative stems are without exception derived from stative roots. Examples have been discussed in §5.1.1. There are no apparent semantic restrictions on the stative roots that produce inchoative stems; there is only one major formal constraint: inchoatives do not derive from already derived stative stems.

There are at least 500 roots that produce transitive stems without derivation. Apart from that, active roots produce transitive stems via applicative derivation, inactive roots via causative derivation, and stative and positional roots via factitive derivation (cf. §4.2.3). Membership in the transitive stem class seems to be more narrowly motivated with respect to event structure than membership in the transitive classes of English and other Indo-European languages. Just as in Indo-European languages, transitive verbs encode the putative core meanings of caused state-change in the physical world (cf. Hopper & Thompson 1980; e.g. *ch'ak* and *xot*, both roughly 'to cut'; *hàan-t* eat-APP 'to eat sth.'; *hat* 'to tear'; *kach* 'to break'; *kins* die:CAUS 'to kill'; *méet* 'to make', 'to build'; *op* 'to break sth. into pieces'), but also events of caused motion (e.g. *bis* go:CAUS 'to take'; *hul* 'to insert'; *li's* rise:CAUS 'to lift'; *tàas* come: CAUS 'to bring'; *ts'a* 'to put', 'to give'), surface contact (e.g. *hats* 'to hit'; *háax-t* beat\ATP 'to wipe', 'to stroke'; *tsay* 'to hit (target)'; *yet* and *yot*, both roughly 'to massage'); and exchange of possession (e.g. *mahàan-t* loan-APP 'to lend', 'to borrow'; *òok-ol-t* enter-INC-APP 'steal'; *síuh* 'to donate, give as a gift'), which all in one way or another may be said to involve agent-location or agent-theme-location configurations, rather than agent-patient configurations (on localist accounts such as DeLancey 1991; Jackendoff 1983, 1990; or Pinker 1989), and even perception and cognition events, which may involve theme-location argument patterns (e.g. *il* 'to see'; *kan* 'to learn'; *na't* 'to guess', 'to divine', 'to reason', 'to understand'; or *u'y* 'to hear/feel/sense'). However, all YM transitive verbs encode a causal relation across two subevents involving two participants. There are no pseudo-transitive verbs with 'expletive' arguments or the like, as in *It rained cats and dogs* or *She lorded it over him*.¹⁰⁶ There are likewise no 'oblique subject' alterna-

tions of the type discussed for English in Levin 1993: 79-83 (e.g. *1492 saw the beginning of a new era*; *Water filled the pail*). Non-causative experiencer predicates such as *ohel* 'know(ledge)'; *p'èek* 'hatred', 'to hate'; *sahak* 'to be afraid (of)', and *yàakunah* pain:FACT-ATP '(to) love' are stative in Yukatek.

The distribution of verb meanings across classes provides initial evidence for the assumption that verb class membership is motivated either in terms of Vendler's (1957, 1967) aspectual classification (in which case the active intransitive class would host activities, i.e. dynamic atelic verbs, while the inactive, inchoative, and positional classes would contain achievements, i.e. punctual verbs, and the transitive class accomplishments, i.e. durative telic predicates) or in terms of the event structure properties discussed in §2.2 (in which case active intransitives would encode processes; inactive, inchoative, and positional intransitives would denote state changes; and the transitive verb stem class would be motivated in terms of causativity). In order to distinguish between these alternative analyses, structural and semantic evidence is adduced in the following sections.

5.1.2.3. Structural evidence for the relevance of the process-change distinction

There are two sources of structural evidence in support of the analysis that inactive, inchoative, and positional intransitives, but not active intransitives, lexicalize state changes. First, all inchoative stems are actually overtly derived from stative roots that encode the result state of the state change denoted inchoative stem. Secondly, inactive (E129) and inchoative stems (E130) produce derived resultative stems in *-a'n* which denote the end state of the state change:

E129 Òok-a'n-en.
enter-RES-B.1.SG
'I am (in the state of having) entered.'

very likely is a defective intransitive predicate with just the phonological appearance of a transitive verb inflected for incomplete status (it is not attested in any other construction than with imperfective AM *k-u binèetik* IMPF-A.3 need). Lehmann (1993 [a]: 247) also mentions *ichint* as an instance of a verb with an empty U-argument. However, *ichint* does not mean 'to take a bath', as Lehmann suggests, but is an irregular usative meaning 'to use for bathing'. The U-argument may be e.g. a piece of soap.

¹⁰⁵ See Bohnemeyer & Brown (ms.) and Bohnemeyer & Stolz (ms.) for further details.

¹⁰⁶ This goes with the possible exception of *binèet* 'need' whose putative O-argument apparently cannot cross-reference any phrase, clause or verbal core (the A-argument refers to the thing needed, while the experiencer of the need is expressed as an adjunct). *Binèet*

- E130 Chak-**chah-a'n-en**.
red-PROC.CMP-RES-B.1.SG
'I am (in the state of having) become red.'

Positionals also produce this form (E131), but also (and much more frequently) a special positional resultative form in *-Vkbal* (E132):

- E131 Ch'uy-**lah-a'n-en**.
hang-CMP-RES-B.1.SG
'I am (in the state of having been) hung.'

- E132 Ch'uy-**ukbal-en**.
hang-POS.RES-B.1.SG
'I am hanging.'

In contrast, active intransitive stems rarely ever produce resultative forms, and they require prior inflection for completive status for this purpose:

- E133 Xfimb-al-**nah-a'n-en**.
walk-CMP-RES-B.1.SG
'I am (in the state of having) walked.'¹⁰⁷

5.1.2.4. The absence of syntactic processes sensitive to telicity

Given the event structure analysis of the YM verb classes argued for above, and given what has been said in §2.2 on the relation between event structure and lexical aspect, it should be expected that active verbs are predominantly atelic or iterative, whereas transitive verbs and inactive, inchoative and positional intransitives are telic or atelic, depending on the individual verb and on compositional factors. Such an alignment can indeed be confirmed. The question arises then whether the lexical-aspectual features regularly associated with the

¹⁰⁷ Examples E129 - E133 are quoted from Bricker (1981 [a]: xl-xxxix). It will be noted that positionals also require completive status inflection to produce resultative forms (E131). However, recall that the status suffixes of positional stems simultaneously serve to mark derivation (cf. §4.2.3). The resultative forms are taken up in §5.2.1 below. Bohnemeyer (2001; ms. [a]) argues for a third piece of evidence: inactive stems, but not active ones, may incorporate the universal quantifier *láah*, to quantify either the referents of the theme or patient argument undergoing state change or the degree of change (in which case the quantifier expresses 'total affectedness'). However, quantifier incorporation is not attested with inchoative or positional stems.

various verb classes simply *derive* from the event structure semantics of the verbs, or whether the verb classes are *independently motivated* primarily or equally in terms of lexical aspect. Lucy (1994) and Krämer & Wunderlich (1999) indeed advocate the latter view. However, the data to be presented in this and the following subsections suggest that the alignment of lexical-aspectual features with morphological verb classes does not actually exceed the amount of regularity predictable from the event structure semantics associated with the verb classes. That is, none of the five verb stem classes seems to be directly motivated in terms of lexical aspect. This has to be concluded from the fact that the lexical-aspectual properties vary within the verb classes in ways that are predicted on the basis of the event structure analysis. In particular, while verbs of non-incremental change are universally telic, verbs of incremental change with discrete end states are atelic or telic, depending on the referentiality of the theme or patient argument, and 'degree achievement' verbs, which denote changes without discrete end states, are atelic unless some 'degree of change' is specified. Thus, the telicity behavior within the various verb classes provides further support for the motivation of verb class membership in terms of the event structure distinction of processes and state changes, rather than to suggest an independent motivation in terms of lexical aspect. The discussion below mainly focusses on telicity; the other relevant parameter of lexical aspect, durativity, is considered only briefly. In the present subsection, it is shown that there are no syntactic processes in YM that are sensitive to telicity. This means that the syntactic telicity tests regularly deployed in the literature on lexical aspect in English and other Indo-European languages (cf. §2.2.3) are not applicable to YM. In the following subsections, evidence from various other sources is considered that serves to assess the telicity of YM verbs.

Lehmann (1993 [a]) was the first to notice that YM lacks a syntactic distinction between duration adverbials and time-span adverbials, such as English *for X time* (compatible only with atelic predicates) vs. *(with)in X time* (compatible only with telic predicates). Lehmann had considered this opposition to be realized in YM by the presence vs. absence of the interior preposition *ichil* in the adverbial in a way that *ichil* was supposed to delimit a time span and thus require telic predicates to combine with it. He thus constructed the following pair of test frames:

E134 a. H _____ óox-p'éeł minùuto/òora/k'iin.
 PRV _____ three-CL.IN minute/hour/day
 Intended: 'It _____-ed for three minutes/hours/days.'

b. H _____ ichil óox-p'éeł minùuto/òora/k'iin.
 PRV _____ within three-CL.IN minute/hour/day
 Intended: 'It _____-ed within three minutes/hours/days.' (Lehmann 1993 [a]: 213)

Frame E134a was meant to be applicable to atelic verbs only, while frame E134b should have determined telic verbs. However, Lehmann remarks:

"This test has been applied with satisfactory results to various languages, including English and Spanish. It does not seem to work for the dialect of YM that I investigated. Most informants saw no difference between version a and b, one even claimed never to use a. Only one informant could be trained to make the difference the Spanish way, which is obviously methodologically unsatisfactory." (Lehmann 1993 [a]: 213)

As is put forth in more detail in §7.2.4, this outcome has to be seen in connection with the fact that prepositions such as *ichil* do not encode event order relations as their Indo-European counterparts do. YM does not grammaticalize time-span adverbials, because these locate an event within a time interval of a given duration, and YM lacks the relevant resources to express temporal location. Thus, the time adverbials in E135a, which describes discrete state change and is presumably telic, and in E135, which describes an activity and is presumably atelic, are both headed by the complex preposition *ichil ti'*:

E135 a. T-u xot-ah xan hun-kúul che' Pedro
 PRV-A.3 cut-CMP(B.3.SG) also one-CL.PLANT tree Pedro

ich-il ti' ka'-p'éeł òora.
 in-REL LOC two-CL.IN hour

'Pedro also cut a tree in two hours.' <Quant MD SBM>

b. (...) Maria-e' t-u pax-ah piyàano
 Maria-TOP PRV-A.3 play-CMP(B.3.SG) piano

ich-il ti' ka'-p'éeł òora.
 in-REL LOC two-CL.IN hour

'(...) Maria, she played the piano for (lit. 'in') two hours.' <Quant MD SBM>

However, the absence of formal distinctions between time-span and duration

specifications extends beyond the domain of adverbials. YM likewise lacks such a distinction at the level of idioms denoting temporal extension:

E136 a. (...) káa t-u ch'a'-ah trées diiyas u ti'a'l
 káa PRV-A.3 take-CMP(B.3.SG) three days A.3 for

uy em-s-ik u piits'-il le taman-o'b-o'.
 A.3 descend-CAUS-INC(B.3.SG) A.3 cotton-REL DEF sheep-PL-D2

'(...) it took him three days in order to shear (lit. 'pluck the wool of) the sheep / he spent three days shearing the sheep (...).' (Quant Sat)

b. (...) káa t-u ch'a'-ah hun-p'éeł k'iin u ti'a'l
 káa PRV-A.3 take-CMP(B.3.SG) one-CL.IN sun A.3 for

u hi'+nòok' túun, (...).
 A.3 smooth+cloth CON

'(...) it took her one day in order to iron / she spent one day ironing (...).' (Quant Sat)

E136a shows the phrase *ch'a' X [time]* with a discrete state change predicate, which should be interpreted telically in the elicitation context, and E136b features the same phrase with a presumably atelic activity predicate.

Dowty (1979: 57-58) mentions one further formal correlation of telicity. This involves a distinction between egressive phase operators that entail the achievement of some target state, such as English *finish*, and other egressive phasals that do not imply event realization, like *stop*. The latter convey an implicature of interruption or abandonment when applied to telic verbs, whereas the former should not be compatible at all with atelic events. YM shows several basically transitive phase verbs of the type not sensitive to telicity, in particular *ch'en* 'stop', *p'at* 'leave, abandon, quit', and *xul* 'put an end to'. All of these entail no realization of target states with verbs that do lexicalize state-change, whereas this latter property is displayed by the root-inactive verb *ts'o'k* 'end'. E137 shows a nice contrast:

E137. Le meyah ko'n mèet-o',
 DEF work SR.IRR-B.1.PL make(B.3.SG)-D2

las siinko k-ak ch'en-ik, ...
five.o'clock IMPF-A.1.PL stop-INC(B.3.SG)

pero ma' k ts'o'k-s-ik túun-e';
but NEG.PROG A.1.PL end-CAUS-INC(B.3.SG)CON-D3

'The work we are going to do, we will quit at five, but we won't finish it (tomorrow), ...' (Entrevi AME & SME 224)

However, unlike *finish*, *ts'o'k* and its causative counterpart *ts'o'ks* occur with both telic and atelic predicates.

E138. Táan u ts'o'k-ol u bàax-t-ik le bòola-o',
PROG A.3 end-INC A.3 play-APP-INC(B.3.SG) DEF ball-D2

káa h ts'o'k u pàax.
káa PRV end(B.3.SG) A.3 play.music\ATP

'She was about to quit (lit. finish) playing the ball, (when) (the other woman) quit (lit. finished) playing (guitar).' (Tempest antram VI 3/4 ant1 26)

Ts'o'k simply means 'to end', 'to pass by (in time)'. In case the event the verb expresses can only be asserted provided a certain definite change of state has occurred, combination of that verb with *ts'o'k* does entail achievement of that change of state; but *ts'o'k* goes just as well with atelic predicates, simply imposing termination on them. In sum, phase verbs of both types are sensitive to the lexicalization of change-of-state in the verb they combine with (though not in their compatibility with that verb, but only in the interpretation yielded), but they are not sensitive to telicity. As is explored in more detail in §7.1.2, this neutral behaviour of phasals with respect to telicity is greatly exploited in the establishment of discourse coherence.

The origin of the consistent lack of syntactic correlates of telicity in YM remains a topic for future research. Similar observations have been made for other Native American languages (cf. Baker (1996: 290) on Mohawk and Smith 1996 on Navajo).

5.1.2.5. Evidence from event realization under cessation

Lehmann (1993 [a]) replaced the syntactic test quoted in E134 that had proved inapplicable by the following semantic test:

E139. Táantik u _____-e', ba'l-e' mukah séegir u _____.
IMM A.3 _____-TOP thing-TOP PROSP(B.3.SG) continue A.3 _____
'It has just _____-ed, but it will go on to _____.' (Lehmann 1993 [a]: 213)

If a verb can be inserted in both slots simultaneously, it should be atelic (unless the event referred to is understood to be repeated). As is shown below, this test is bound to miss an essential feature of active event structure semantics in YM. But notice that E139 draws on the correlation between telicity and event realization (cf. §2.5): telic predicates only entail event realization once the event denote by the predicate is completed, and in that case the second clause in E139 becomes contradictory. In the present study, a similar test has been applied: the question

E140. 'If X is interrupted in the course of VERB-ing, has (s)he then VERB-ed?'

coined on the 'imperfective paradox'. If this question is to be applied to a given verb, its crucial part, the interruption, has to be adapted to the pragmatics of that verb first. Luckily, the consultants who participated in this study turned out to be quite creative in (co-)inventing appropriate contexts. Some examples:

- E141 a. Pedro was sleeping, when Pablo called. Pedro was waking up, when Pablo went away, and Pedro continued sleeping. Had Pedro woken up when Pablo went away?
b. It was raining, when the wind set in and blew away the clouds. Had it rained when the wind set in?
c. It was dawning in the movie, when the TV set broke. Had it dawned when the TV set broke?

Even with the quite powerful trick applied in E141c, there are verbs which the consultants consistently rejected in the interruption frame; e.g. *xíik* 'to burst', 'to explode'. But then, this outcome has to be taken as significant as well. On the whole, as the realization-under-cessation test is not a wellformedness test, not only is *any* response of a consultant potentially significant (e.g., with respect to the questions listed above, 'Pedro had not woken up yet entirely when Pablo went away', or 'It had only begun to dawn when the TV set broke'), but in fact a bare 'yes' or 'no' may not be informative at all. Consider iterative examples:

- E142. The ball was bouncing on the ground, when Pedro caught it. Had the ball bounced when Pedro caught it?

Here, 'yes' can mean 'It bounced once' or 'It had been bouncing several times',

whereas 'no' could be interpreted as 'It had not even bounced once' or as 'It had already been bouncing, but still had not lost its kinetic energy'. So, whenever a consultant's answer seemed ambiguous, and whenever the answers of different consultants diverged - which they did most of the time, as the assessments at issue are of a semantic, and more often than not of a purely pragmatic nature -, consultants had to be asked to explain their answers, which they often even volunteered, as they felt uneasy with a plain 'yes' or 'no'.

The procedure just outlined was applied to 214 YM verbs, of which 25 belonged to the active class. Among these, only the following six were considered atelic by all five consultants: *che'h* 'to laugh', *meyah* 'to work',¹⁰⁸ *ts'ikil* 'to be angry/ annoyed/ mad', *wayáak* 'to dream', and *léembal*, *lemléem*, both 'to lighten', 'to flicker', 'to flash'. The remaining 19 verbs, however, received interpretations such as in the following example:

- E143. Pedro-e' **táan u** **k'àay**, káa t-u
 Pedro-TOP PROGA.3 sing\ATP káa PRV-A.3
- k'at-ah u báah Pabloh. Pedro-e' t-u
 cross-CMP(B.3.SG) A.3 self Pablo Pedro-TOP PRV-A.3
- p'at-ah u k'àay.
 leave-CMP(B.3.SG) A.3 sing\ATP
- Be'òora-a' **ts'o'k** **wáahu** **k'àay** Pedro?
 now-D1 TERM ALT A.3 sing\ATP Pedro

'Pedro, he was singing (when) Pablo interfered. As for Pedro, he quit singing. Right now, has Pedro sung?'

Here, the answers ranged from *Ts'o'k-ih!* TERM-B.3.SG 'Yes he did!' or *H k'àay-nah-ih!* PRV sing\ATP-CMP-B.3.SG 'He sung' to the judgments reproduced below:

- E144 a. H ts'o'k bèey-o',
 PRV end(B.3.SG) thus-D2

¹⁰⁸ *Meyah* does not necessarily imply any particular aim. It can refer to any kind of activity, meaning more precisely something like 'be active', 'be busy', 'be engaged doing something'.

- ma' h ch'a'-b u ts'o'k-s-ik-i'.
 NEG PRV let-PASS.CMP(B.3.SG) A.3 end-CAUS-INC(B.3.SG)-D4

'It ended just like that, he was not allowed to finish it (i.e. singing).'

- b. Ma' h bèey-chah u k'àay-i'.
 NEG PRV thus-PROC.CMP(B.3.SG) A.3 sing\ATP-D4
 'He did not succeed in singing.'

These consultants clearly had a telic view of *k'àay*, according to which it refers to the performance of a song which can only be said to have been instantiated provided the song has been completed. It should be emphasized that this is by no means an accidental property of this particular verb. The morphologically unmarked incompleted form of active verbs in YM regularly serves as an action noun. The existence of this form seems to favor a 'performance object' reading (cf. Dowty 1979: 69-70) in the realization-under-cessation test. Notice that the nominal readings of active verbs are generally quite polysemous. Some examples are listed in E145:

- E145. *bàaxal* 'to play', 'playing', 'game/joke'
kàanbal 'to study', 'studying', 'study'
k'àay 'to sing', 'singing', 'song', 'singer'
meyah 'to work', 'work (both action and cognate object)', 'worker'
nàay 'to dream', 'dreaming', 'dream'
pàax 'to play music', 'music (both action and cognate object)', 'musician'
óok'ot 'to dance', 'dancing', 'dance', 'dancer'
se'n 'to cough', 'coughing', 'catarrh'
tsikbal 'to chat', 'chatting', 'story'
tiukul 'to think', 'thinking', 'thought'
tius 'to lie', 'lying', 'lie'
t'àan 'to speak', 'talking', 'speech/word'

Across Mayan languages, commonly a class of lexical action nouns is found, including lexicalizations of 'work', 'dance', 'play', 'speech', 'song', and many more (Kaufman 1990: 103-104). YM (or the common ancestor of the four Yucatekan languages) has presumably innovated a category of active verb roots, which has led to the situation of categorial indeterminacy reflected in E145. The languages of the Ch'olan branch, for instance, appear to lack verb equivalents of the elements in E145.

Here are some more examples featuring telic interpretations of active verbs:

- E146. Pedro-e' táan u m'ís, káa t-u k'at-ah
 Pedro-TOP PROG A.3 sweep káa PRV-A.3 cross-CMP(B.3.SG)

u báah Pablo. Pedro-e' t-u p'at-ah
 A.3 self Pablo Pedro-TOP PRV-A.3 leave-CMP(B.3.SG)

u m'ís. Ts'-u m'ís Pedro? - H m'ís-nah-ih,
 A.3 sweep TERM-A.3 sweep Pedro PRV sweep-CMP-B.3.SG

ba'l-e' ma' t-u ts'o'k-s-ah-i'.
 thing-TOP NEG PRV-A.3 end-CAUS-CMP(B.3.SG)-D4

'Pedro, he was sweeping, (when) Pablo interfered. As for Pedro, he quit sweep-
 ing. Has Pedro swept? - He swept, however, he didn't finish it.'

- E147. Pedro-e' táan u pak'ach, káa t-u
 Pedro-TOP PROGA.3 make.tortillas káa PRV-A.3

k'at-ah u báah Pablo, káa t-u
 cross-CMP(B.3.SG) A.3 self Pablo káa PRV-A.3

p'at-ah u pak'ach Pedro.
 leave-CMP(B.3.SG) A.3 make.tortillas Pedro

Ts'-u pak'ach Pedro? - Ma'.
 TERM-A.3 make.tortillas Pedro NEG(B.3.SG)

H pak'ach-nah hun-p'ít, pero ma' t-u ts'o'k-s-ah-i'.
 PRV make.tortillas one-hit but NEG PRV-A.3 end-CAUS-CMP(B.3.SG)-D4

'Pedro, he was making tortillas, (when) Pablo interfered (and) Pedro quit
 making tortillas. Has Pedro made tortillas? - No. He engaged a little in making
 tortillas, but he did not finish it.'

In these examples, *m'ís* 'to sweep' is interpreted with respect to a performance completed when the place it is applied to is swept clean, and *pak'ach* 'to make tortillas' (cf. Spanish *tortear*) with respect to a performance finished once the dough is used up. These performances are conceived of as being internally bounded, even though the verbs in question do not entail state change affecting some undergoer such that the event could not be continued unless with a different undergoer. It is precisely this last-mentioned property that Lehmann's test reported above fails to pay sufficient attention to. Notice, though, that in none of these cases did the consultants unanimously consider the particular verb telic. The performance object construal is invited, but not entailed, by the "nouniness" of active stems and by the syntax of the test frame, which employs the likewise

"nouny" incomplete status form:¹⁰⁹

- E148. Ts'o'k wáah u k'àay / m'ís / pak'ach Pedro?
 TERM ALT A.3 sing/ATP / sweep / make.tortillas Pedro
 'Has Pedro sung / swept / made tortillas?'

Turning now to the other four verb classes, these display just the kind of variation in terms of telicity that is predicted based on an analysis according to which class membership is motivated by event structure. All four classes host exclusively (with inactives, inchoatives, and positionals) or mostly (with transitives) state change stems. However, whether or not a given state-change predicate behaves telically depends for example on whether or not it specifies a discernible end state. Inactive verbs like *ka'n* 'to get tired' (cf. E149 below); *la'b* 'to deteriorate'; *lúub* 'to fall'; *na'k* 'to ascend'; *t'íl* 'to last', 'to drag on'; *ts'úum* 'to deflate'; and *ts'u'k* 'to rot' simply do not entail a definite end state; as soon as a living being begins to get tired, it has become tired according to YM semantics. Hence, these verbs are atelic (unless some 'degree of change' is specified; cf. Kennedy & Levin 2001).¹¹⁰ The same holds for the inchoatives *bòox-tal* 'to blacken'; *chichan-tal* 'to shrink'; *káal-tal* 'to get intoxicated'; *kàabal-tal* 'to sink' (cf. E150 below); *xàan-tal* 'to become a long time'; *úuchben-tal* 'to age'; *úuch-tal* 'to become long ago'; and *wi'h-tal* 'to become hungry'. Some positionals display this behavior as well, e.g. *ch'eb* 'to tilt', 'to become inclined'. In Dowty's (1979: 88-91) framework, these are 'degree achievements', as they lexicalize 'gradual' rather than discrete state changes (cf. also Abusch 1985; Bertinetto & Squartini 1995). Source and target state do not clearly contradict each other with these verbs. One can e.g. be tired and still become even more tired. In E149, the consultants were

¹⁰⁹ In addition, terminative AM *ts'o'k* may also impose a telic reading on active verbs. This would be a reflex of its lexical source, the phase verb *ts'o'k* 'end' which, as was shown, does entail completion of a result state when combined with state-change verbs, even though this phase verb also combines with atelic verbs without entailing event realization. The reading of complete realization is not strictly entailed, but certainly favored, whenever an active verb is combined with the terminative AM marker and a performance object reading is possible at all.

¹¹⁰ For example, while *widen* is atelic by itself, *widen by 5 cm* is telic. Note also that degree achievement verbs of directed motion like *lúub* 'fall' and *na'k* 'ascend' become telic when combined with a ground-denoting adjunct (e.g. 'fall to the ground'; 'ascend to the top').

asked whether a person who was "interrupted" in the course of getting tired by being supplied with coffee could be said to have been tired by the time he livened up again, and the consultants' answers revealed that in fact anybody would have gotten tired as soon as the process of tiring had started.

- E149. Pedro-e' táan u ka'n-al, káa h ts'a'b
 Pedro-TOP PROGA.3 tire-INC káa PRV give\PASS (B.3.SG)

kàafe ti', káa h p'fil y-ich.
 coffee LOC(B.3.SG) káa PRV open(B.3.SG) A.3-eye

Ts'-u ka'n-al Pedro? - Ts'-u ka'n-al.
 TERM-A.3 tire-INC Pedro TERM-A.3 tire-INC

'Pedro, he was getting tired (lit. tiring), (when) coffee was given to him and he refreshed (lit. his eyes opened). Had Pedro become tired? - Yes he had.'

- E150. Le mùnyal-o' ts'-u chúun-ul u kàabal-tal,
 DEF cloud-D2 TERM-A.3 start\CAUS-INC A.3 low-PROC.INC

káa h tàal le ìik'-o', káa t-u
 káa PRV come(B.3.SG) DEF wind-D2 káa PRV-A.3

pul-ah le mùnyal-o'. Ts'-u kàabal-tal
 throw-CMP(B.3.SG) DEF cloud-D2 TERM-A.3 low-PROC.INC

le mùnyal-o'? Ts'o'k ka'ch u kàabal-tal
 DEF cloud-D2 TERM formerly A.3 low-PROC.INC

káa h pu'l-ih.
 káa PRV throw\PASS-B.3.SG

'The cloud, it had started getting lower, (when) the wind rose (lit. came) (and) drove (lit. threw) it away. Had the cloud lowered? - It had lowered already, (when) it was driven away.'

Many (perhaps all) of the degree achievement verbs allow for two readings, one that concerns only the first, absolute entrance into the target state and hence is telic, and one that refers to its subsequent incremental extension and hence is evaluated as atelic. One case in point is *xáak* 'to get blisters (from work)':

- E151. ^APedro-e' túun kòol. ^BTs'-u chúun-ul u
 Pedro-TOP PROG\A.3 clear\ATP TERM-A.3 start\CAUS-INC A.3

xáak-al u k'ab, káa t-u k'at-ah
 get.blisters-INC A.3 hand káa PRV-A.3 cross-CMP(B.3.SG)

u báah Pablo, káa t-u p'at-ah u
 A.3 self Pablo káa PRV-A.3 leave-CMP (B.3.SG) A.3

kòol Pedro. ^CTs'-u xáak-al u k'ab Pedro?
 clear\ATP Pedro TERM-A.3 get.blisters-INC A.3 hand Pedro

- ^DMa' láah xáak-ak u k'ab-i'.
 NEG all get.blisters-SUBJ(B.3.SG) A.3 hand-D4

^APedro, he was clearing jungle (in order to make milpa). ^BHis hands had started to get blisters, (when) Pablo interfered (and) Pedro quit clearing. ^CHad Pedro's hands gotten blisters? - ^DThey were not yet all covered with blisters (lit. all blistered).'

Here, the hands of the person talked about obviously had gotten blisters as soon as they started to get blisters (at any rate, once the first blister appeared), and some consultants considered that in their response, while the consultant whose answer is reproduced in E151 chose to focus on the point that the person's hand had gotten blisters but could have gotten still more, as it was not yet all covered with blisters.

The telicity of predicates that denote incremental change (cf. §2.2.1) with a discrete end state depends on the quantification and referentiality of the theme or patient argument. Thus, *k'áax* in the example below can never receive a telic interpretation, as it denotes the falling down of small objects from the sky, which includes besides rain (*ha'* 'water') certain frogs and mosquitos abounding under particular whether conditions and said then to "rain down". I cannot think of any context in which this peculiar theme could ever be of a definite quantity.

- E152. Táanu k'áax-al ha', káa h tàal le ìik'-o',
 PROGA.3 fall-INC water Káa PRV come(B.3.SG) DEF wind-D2

káa t-u pul-ah le mùnyal-o', káa h
 káa PRV-A.3 throw-CMP(B.3.SG) DEF cloud-D2 káa PRV

ch'éen u k'áax-al le ha'-o'. Be'dora-a'
 stop\CAUS(B.3.SG) A.3 fall-INC DEF water-D2 now-D1

ts'o'k wáahu k'áax-al le ha'-o'? - Ts'o'k-ih.
 TERM ALT A.3 fall-INC DEF water-D2 TERM-B.3.SG

'It was raining (lit. the water was falling down), (when) the wind rose (lit. came) (and) drove (lit. threw) away the clouds. Right now, **has it rained?** - **Yes it has.**'

There is no possible interpretation of a definite quantity of water raining down, and hence no possible telic reading. With verbs of this type, achievement of the target state depends on the subsequent affectedness of an indefinite set of referents of the theme/patient argument; the process may apply infinitely without the target state being achieved. Examples of predicates that can be telic or atelic, depending on whether the referentiality and quantification of the theme/patient argument include *báan* 'drizzle', *k'ít* 'ripple, disperse', *níik* 'ripple (from a pile or out of a container)', and *wéek* 'drip, spill' (these are all anticausatives - marked by high tone - of transitive roots meaning 'spread' or the like).

Finally, there are verbs denoting non-incremental state change, i.e. state change that never affects only parts of the theme or patient, but always the theme/patient as a whole. These are always telic. Examples include *kim* 'to die' and *xik* 'to explode', 'to burst':

E153. Pedro-e' táan u kim-il káa h ts'a'-b
 Pedro-TOP PROG A.3 die-INC káa PRV give/put-PASS(CMP)(B.3.SG)

ts'aak ti', káa h uts-chah-ih.
 cure\ATP LOC(B.3.SG) káa PRV good-CMP-B.3.SG.

Ts'-u kim-il Pedro? - Ma'.
 TERM-A.3 die-INC Pedro NEG(B.3.SG)

'Pedro, he was dying, (when) medicine was administered to him (and) he recovered. **Has Pedro died?** - **No.**'

While the available evidence suggests that all inactive, inchoative, and positional stems have state change semantics, this is not true of all transitive stems. One case in point are contact verbs, such as *yet* 'massage' in E154.

E154. Pedro-e' ts'-u chúun-ul u yet'-ik
 Pedro-TOP TERM-A.3 start\CAUS-INC A.3 massage-INC(B.3.SG)

u k'ab uy atan, káa h t'a'n-ih, káa t-u
 A.3 hand A.3 wife káa PRV call\PASS-B.3.SG káa PRV-A.3

p'at-ah. Ts'-u yet'-ik u k'ab
 leave-CMP(B.3.SG) TERM-A.3 massage-INC(B.3.SG) A.3 hand

uy atan Pedro? - Ts'o'ki-h.
 A.3 wife Pedro TERM-B.3.SG

'Pedro, he had started to massage his wife's arm, (when) he was called (and) quit. **Had Pedro (already) massaged his wife's arm?** - **(Yes,) he had.**'

Yet is always interpreted atelically, unless a state change caused by the contact process is 'coerced' (e.g. massaging for healing purposes). A double complication is illustrated by *lox* 'punch' in E155.

E155. Pedro-e' ts'-u chúun-ul u lox-ik
 Pedro-TOP TERM-A.3 start\CAUS-INC A.3 punch-INC(B.3.SG)

Pablo, káa h bin y-áalkab Pablo. Pedro-e'
 Pablo káa PRV go(B.3.SG) A.3-run Pablo Pedro-TOP

ts'-u lox-ik Pablo? - Ts'o'k-ih.
 TERM-A.3 punch-INC(B.3.SG) Pablo TERM-B.3.SG

'Pedro, he had begun to punch Pablo, (when) Pablo ran off. As for Pedro, **had he (already) punched Pablo?** - **(Yes,) he had.**'

Lox is a contact verb and has moreover an iterative event structure, like many other predicates of this semantic subclass.

At least one exception to the generalization that all inactive, inchoative, and positional stems lexicalize state change should be mentioned. Some positionals display ambiguity (or vagueness) between the state change reading and a reading in which they denote the result state of having achieved a particular disposition or spatial configuration, etc. It is not clear to me whether such atelic readings are again motivated as degree achievements in some sense, or whether they should be understood as semantic extensions, possibly under contact influence from Spanish. One case in point is *chil* 'lie'. In the example below, combinations of *chil* with various egressive phase verbs are understood as referring to the terminal boundary of achieving a lying position under one interpretation, in which case the utterance was continued by the consultant with '(and then) he fell asleep', while

under another interpretation, the phasal construction selected the terminal boundary of the state of lying down, in which case the consultant went on saying '(and then) he got up'.

E156. Káa h ts'o'k / ch'éen / xúul
 káa PRV end(B.3.SG) / quit\ACAUS(B.3.SG) / end\ACAUS (B.3.SG)

u chítal Pedro-e', káa h líik'-ih / wéen-ih.
 A.3 lie:PROC.INC Pedro-TOP káa PRV rise-B.3.SG / sleep-B.3.SG

'(When) Pedro finished / quit / stopped / quit lying down, (then) he got up / slept in.'

When questioned, the consultant clarified that he did not entertain the idea that the theme of the positional got up immediately after lying down, but rather conceived of the theme to have taken a nap and only then to have gotten up. A similar ambiguity was attested with *chóoh* 'hang', *kul* 'sit', and *xol* 'kneel'.

With this exception, the evidence from the realization-under-cessation test suggests that the lexical-aspectual property of telicity aligns with YM verb classes not beyond what is predictable from the presumed underlying event structure representation, in particular, the process-change distinction. Active intransitives lexicalize processes and thus are atelic by default. However, due to the systematic ambiguity of active stems between verb stems and action nouns, a considerable portion of active intransitives favor a 'performance object' reading when inserted into the realization-under-cessation test frame and hence yield a telic interpretation. In contrast, inactive, inchoative, and positional intransitives lexicalize state changes, and their telicity behavior depends on the type of state change they denote. Degree achievements are atelic except when combined with specifications of a degree of change. Non-incremental state change verbs are always telic, and verbs of incremental change with discrete result states may be telic or atelic, depending on the referentiality and quantification of the theme/patient argument. This suggests that the primary motivation for inclusion of a verb in these classes is state change semantics, not telicity. Membership in the transitive class, however, is motivated in terms of causativity. While the majority of transitive stems do denote state change, there are process verbs in this class as well, e.g. in the contact domain.

5.1.2.6. Evidence from scope ambiguities

The difference in interpretation that shows up when activities and accomplishments are combined with the adverb *almost* in English is the final criterion Dowty (1979: 57-58) adduces to distinguish telic from atelic predicates: While *John almost walked* entails that John did not even start to walk, *John almost painted a picture* can mean he never started painting the picture, as well as he actually started but did not finish painting it. In YM, both penative AM *óolak* and proximate future AM *ta'itak* translate English *almost*, though in different contexts (*óolak* entails failure of event realization, whereas *ta'itak* implicates (but does not entail) event realization; cf. §6.2.2.2.6 and §6.2.2.3). Both markers do in fact show scope ambiguity with durative telic verbs, but not with active intransitives. Scope ambiguity with these AM markers thus establishes members of the active intransitive class as atelic, even if the realization-under-cessation test discussed above reveals a possible telic construal of the same verbs. E157 and E158 illustrate this phenomenon with proximate future AM *ta'itak*.

E157 a. [^]Pedro-e' las sèeys káa h chúun u
 Pedro-TOP six.o'clock káa PRV start\ACAUS (B.3.SG) A.3

ts'íib-t-ik hun-p'éeel kàarta. ^BLas òcho-e' ta'itak u
 write-APP-INC(B.3.SG) one-CL.IN letter eight.o'clock-TOP PROX A.3

ts'o'k-s-ik le kàarta-o', káa t-u
 end-CAUS-INC(B.3.SG) DEF letter-D2 káa PRV-A.3

k'at-ah u báah Pablo, káa t-u
 cross-CMP(B.3.SG) A.3 self Pablo káa PRV-A.3

p'at-ah u ts'íib Pedro, káa h p'áat
 leave-CMP(B.3.SG) A.3 write Pedro káa PRV leave\ACAUS(B.3.SG)

le kàarta bèey ma' h ts'o'k-o'. ^CLas dòose-e',
 DEF letter thus NEG PRV end(B.3.SG)-D2 twelve.o'clock-TOP

káa t-uy a'l-ah Pedro t-uy atan:
 káa PRV-A.3 say-CMP(B.3.SG) Pedro LOC-A.3 wife

^DLas òcho-e' ta'itak in ts'íib-t-ik
 eight.o'clock-TOP PROX A.1.SG write-APP-INC(B.3.SG)

hun-p'éeel kàarta, káa h tàal Pablo,
 one-CL.IN letter káa PRV come(B.3.SG) Pablo

káa h p'áat ma' h bèey-chah-i'.
 káa PRV leave\ACAUS(B.3.SG) NEG PRV thus-PROC.CMP(B.3.SG)-D4

^A'Pedro, at six he started writing a letter. ^B'At eight, he had almost finished the letter, (when) Pablo interfered (and) Pedro quit writing and the letter remained unfinished. ^C'At twelve, Pedro told his wife: ^D'At eight, I had almost written a letter (more lit. **I almost wrote a letter**), (when) Pablo came (and) I ended up undone (more lit. it remained not having being possible).'

b. ^ALas sèeys-e' mukah u chúun-s
 six.o'clock-TOP PROSP(B.3.SG) A.3 start\ACAUS-CAUS (B.3.SG)

u ts'fib-t-ik hun-p'éei kàarta Pedro-e', káa t-u
 A.3 write-APP-INC(B.3.SG) one-CL.IN letter Pedro-D3 káa PRV-A.3

k'at-ah u báah Pablo, káa h p'áat
 cross-CMP(B.3.SG) A.3 self Pablo káa PRV leave\ACAUS(B.3.SG)

ma' t-u chúun-s-i'. ^BLas dòose-e',
 NEG PRV-A.3 start\ACAUS-CAUS(B.3.SG)-D4 twelve.o'clock-TOP

káa t-uy a'l-ah Pedro t-uy atan:
 káa PRV-A.3 say-CMP(B.3.SG) Pedro PRV-A.3 wife

^CLas sèeys-e' ta'itak in ts'fib-t-ik
 six.o'clock-TOP PROX A.1.SG write-APP-INC(B.3.SG)

hun-p'éei kàarta, káa t-u k'at-ah u báah
 one-CL.IN letter káa PRV-A.3 cross-CMP (B.3.SG) A.3 self

Pablo, káa h p'áat
 Pablo káa PRV leave\ACAUS(B.3.SG)

ma' t-in chúun-s-ah-i'.
 NEG PRV-A.1.SG start\ACAUS-CAUS-CMP(B.3.SG)-D4

^A'At six, Pedro was going to start writing a letter, (when) Pablo interfered (and) (Pedro) ended up not starting (to write it). ^B'At twelve, Pedro told his wife: ^C'At six, **I almost wrote a letter**, (when) Pablo interfered (and) I ended up not starting it.'

In E157a, *ta'itak* has scope over the terminal boundary of the event expressed by telic *ts'fib-t* write-APP in *ta'itak in ts'fibtik hunp'éei kàarta* 'I had almost written a letter'. As the context explains, at the topic time TT for which this statement is asserted, the speaker had already been writing the letter, so *ta'itak* only refers to the completion of the writing event, not to the event as a whole. As opposed to this, the context in E157b defines a TT at which *mukah u chúuns u ts'fibtik*

hunp'éei kàarta Pedro 'Pedro was going to write a letter' holds. If the clause *ta'itak in ts'fibtik hunp'éei kàarta* 'I almost wrote a letter' is asserted with respect to that TT, it follows that *h p'áat ma' tin chúunsi* 'it ended up with me not having started it'. Of the five consultants confronted with these examples, four preferred the clause *ta'itak in ts'fibtik hunp'éei kàarta* in context (a) and found context (b) acceptable though less natural, while the fifth consultant opted for reading (b) as the default and reading (a) as less natural. But compare this outcome to the situation in E158 where the atelic *pàax* 'to play music' is modified by *ta'itak*. This is acceptable to all five consultants asked in a context where *ta'itak* has scope over the entire event as in context (b), but strictly unacceptable to the same consultants in a context such as (a) where it is understood that at the TT of *ta'itak in pàax*, the speaker had already been playing music for two hours.

E158 a. ^APedro-e', las sèeys káa h chúun u
 Pedro-TOP six.o'clock káa PRV start\ACAUS (B.3.SG) A.3

pàax. ^BLas dòcho-e' ta'itak u ts'o'k-s-ik
 play.music\ATP eight.o'clock-TOPPROX A.3 end-CAUS-INC(B.3.SG)

u pàax-o', káa t-u k'at-ah u
 A.3 play.music\ATP-D2 káa PRV-A.3 cross-CMP(B.3.SG) A.3

báah Pablo, káa t-u p'at-ah u pàax
 self Pablo káa PRV-A.3 leave-CMP (B.3.SG) A.3 play.music\ATP

Pedro, ma' t-u ts'o'k-s-ah u pàax-i'.
 Pedro NEG PRV-A.3 end-CAUS-CMP(B.3.SG) A.3 play.music\ATP-D4

^CLas dòose-e', káa t-uy a'l-ah Pedro t-uy
 twelve.o'clock-TOP káa PRV-A.3 say-CMP(B.3.SG) Pedro LOC-A.3

atan: ^D'Las dòcho-e' *ta'itak in pàax, káa h
 wife eight.o'clock-TOP PROX A.1.SG play.music\ATP káa PRV

tàal Pablo, káa h p'áat
 come(B.3.SG)Pablo káa PRV leave\ACAUS(B.3.SG)

ma' t-in ts'o'k-s-ah in pàax-i'.
 NEG PRV-A.1.SG end-CAUS-CMP(B.3.SG) A.1.SG play.music-D4

^A'Pedro, at six he started playing music. ^B'At eight, he had almost finished playing, (when) Pablo interfered (and) Pedro quit playing, he did not finish his play. ^C'At twelve, Pedro told his wife: ^D'At eight, **I almost played music**, (when) Pablo came and it ended up with me not having finished my play.'

b. ^ALas sêeys-e' mukah chûun-ul u pàax
 six.o'clock-TOP PROSP(B.3.SG) start\ACAUS-INC A.3 play.music\ATP

Pedro, káa t-u k'at-ah u báah Pablo,
 Pedro káa PRV-A.3 cross-CMP(B.3.SG) A.3 self Pablo

káa h p'áat mix t-u
 káa PRV leave\ACAUS(B.3.SG) EMPH.NEG PRV-A.3

chûun-s-ah u pàax Pedro-i'.
 start\ACAUS-CAUS-CMP(B.3.SG) A.3 play.music\ATP Pedro-D4

^BLas dōosc-e', káa t-uy a'l-ah Pedro t-uy
 twelve.o'clock-TOP káa PRV-A.3 say-CMP(B.3.SG) Pedro LOC-A3

atan: ^CLas sêeys-e' ta'itak in pàax, káa h
 wife six.o'clock-TOP PROX A.1.SG play.music\ATP káa PRV

tàal Pablo, káa h p'áat
 come(B.3.SG)Pablo káa PRV leave\ACAUS(B.3.SG)

ma' t-in chûun-s-ah-i'."
 NEG PRV-A.1.SG start\ACAUS-CAUS-CMP(B.3.SG)-D4

^AAt six, Pedro was going to play music, (when) Pablo interfered (and) Pedro ended up not even having begun to play. ^BAt twelve, Pedro told his wife: ^CAt six, I almost played music, (when) Pablo came (and) I ended up not having started it."

This result was replicated with other telic and atelic verbs, and with *ta'itak* as well as with the penative AM marker *óolak*. The evidence from scope ambiguity thus points to a more regular alignment of membership in the active class with atelicity. However, the discrepancy between the results of the realization-under-cessation test and the scope ambiguity data also reconfirms that a lexeme's lexical aspect depends to a considerable extent on its syntactic and pragmatic environment. In the realization-under-cessation context, the same active intransitive verb may receive a telic interpretation that with scope operators such as the penative and proximate future AM markers behaves atelically.

5.1.2.7. Evidence from the interpretation of novel verb stems

It has been shown that there is no syntactic construction in YM that is sensitive to telicity, and that semantic evidence for telicity may be divergent within one

predicate class: whereas scope ambiguity with 'almost'-type markers does not apply to active verbs, thereby pointing to the atelicity of these predicates, the realization-under-cessation test tends to reveal active verbs as telic under a performance object interpretation. These results go against the assumption that verbs *qua* members of a given predicate class are telic or atelic. However, in order to get a better grip on the question as to what extent membership of a verb in a given predicate class is motivated by telicity, novel stems with the formal properties of the various verb classes have been tested, a method well-known in research on first language acquisition. The underlying rationale was that the morphological system of predicate classes might be read as a classification according to telicity (and durativity, which is taken up below), to the extent that it is motivated by telicity. It was shown above that the system is actually highly motivated in terms of event structure properties. The question pursued in the study to be discussed now was to what extent the formal predicate taxonomy of YM is also motivated by lexical-aspectual features. Active verbs make the most suitable test case to answer this question, as this class putatively hosts atelic predicates, whereas all four of the other verb classes should host expressions telic predicates (since they all lexicalize state change). To test this hypothesis, the realization-under-cessation criterion was applied to a total of 15 made-up verb stems. These were equally divided among the five verb classes of actives, inactives, inchoatives, positionals, and transitives. All 15 novel verb stems obeyed canonical YM root shapes, and all were ascertained to have no meaning to the consultants. Class assignment was motivated by providing each stem with three examples featuring it in each of the three major status categories completeive, incompleteive, and subjunctive. These examples were tailor-fashioned to avoid pragmatic bias with respect to telicity. Examples:

E159 a. Le chàampal-o', táan u bàas.
 DEF small:child-D2 PROG A.3 bàas
 'The baby, it is bàas-ing.'

b. Le chàampal-o', h bàas-nah-ih.
 DEF small:child-D2 PRV bàas-CMP-B.3.SG
 'The baby, it bàas-ed.'

c. Sáam bàas-nak le chàampal-o'.
 REC bàas-SUBJ(B.3.SG) DEF small:child-D2
 'The baby bàas-ed earlier today.'

Recall that the unmarked incomplete alongside the marked complete in *-nah* and the subjunctive in *-nak* unambiguously identify the novel stem *bàas* as belonging to the active class. Based on this evidence, four out of five consultants judged *bàas* to be telic according to the realization-under-cessation test, and this result was replicated with *tìis* (again four out of five) and *pàal* (three out of four).¹¹¹ Novel verb stems with the morphological properties of the other four verb classes (expected to be interpreted telically by the consultants) were judged with similar variation. This means that the study of novel verb stems did not deliver any convincing evidence that speakers of YM consider a verb to be telic or atelic, just because it shows the morphological properties of one particular verb class. In other words, there is no convincing evidence that the morphological classification of verbs in YM is motivated by telicity.

5.1.2.8. The role of durativity

The aspectual property of durativity is distributed even less regularly across the verb classes than telicity. This is easily illustrated with respect to the class of inactive intransitives. Many inactive verbs are durative (e.g. *ch'fih* 'to grow up'; *he'l* 'to rest'; *kim* 'to die'; and *tih* 'to dry'). However, most inactives are punctual (e.g. *ah* 'to wake up', *háak* 'to become frightened/startled', *k'a'h* 'to be remembered', 'to occur to somebody's mind'; *xíik* 'to burst', 'to explode'). The punctual subset includes all intransitive phase verbs (e.g. *ho'p* 'to begin' and *ts'o'k* 'to end'), most anticausatives (e.g. *káach* *kach*\ACAUS 'to break'; *káah* start\ACAUS 'to begin'; *k'éex* change\ACAUS 'to change'; *páak* plant\ACAUS 'to get stuck') and all spontaneous derivatives that have been tested (e.g. *chuk-pah* catch-SPONT 'to become sufficient'; *chúik-pah* appear-SPONT 'to appear'; *chúun-pah* start\ACAUS-SPONT 'to start'; *he'-k'ah* open-SPONT 'to open'; and *kach-k'ah* break-SPONT 'to break'). As is worked out in greater detail in §7.1.2, durativity may be tested in YM by compatibility with the egressive phase verbs *ch'éen*, *p'áat*, and *xíul*, all roughly 'to stop', and their transitive bases translating 'to stop', 'to quit', 'to abandon' etc. These egressive 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 is naturally excluded with punctual verbs. Therefore, the only likely interpretation a construction of these phasals with a true punctual implies iterativity or habituality of the event the punctual verb refers to. Compare for instance the construction of *ch'éen* or *xíul* with the durative *ch'fih* 'to grow' in E160a, where an interpretation 'the tree stopped growing' poses no problems at all, to the combination of the same phasals with the punctual verb *pùuts* 'to escape' in E160b, where the only interpretation the consultants could come up with is that some pigs escaped repeatedly or habitually during a certain interval, which terminated when the pigsty or pen eventually got repaired.

E160 a. Káa h ch'éen / xíul u ch'fih-il
 káa PRV stop\ACAUS(B.3.SG) / put.an.end.to\ACAUS(B.3.SG) A.3grow-INC

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

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

b. Káa h ch'éen / p'áat / xíul
 káa PRV stop\ACAUS(B.3.SG) / leave\ACAUS(B.3.SG) / put.an.end.to\ACAUS(B.3.SG)

u pùuts-ul le k'e'kèen te k'ax+che'-o',
 A.3 escape-INC DEF pig LOC:DEF tie+wood-D2

t-inw uts-kint-ah u k'ax+che'-il.
 PRV-A.1.SG good-FACT-CMP(B.3.SG) A.3 tie+wood-REL

'(When) the pigs stopped / quit escaping from the pigsty (i.e. escaped no longer), I had fixed the pigsty.'

The consultants were asked to continue an utterance of the following format:

E161. Káa h / ch'éen / p'áat
 káa PRV / quit\ACAUS(B.3.SG) / abandon\ACAUS(B.3.SG)

/ xíul u _____-e'...
 / put.an.end.to\ACAUS(B.3.SG) A.3 _____-TOP

'(When) it stopped _____-ing, ...'

where the verb to be tested for durativity was inserted in the slot marked by "_____".

¹¹¹ It would seem interesting, though, to test novel verb stems also for scope ambiguity with the penative and the proximate future AM markers. This remains for future research.

As for the other verb classes, many active intransitives are ambivalent between a punctual ('point'; cf. §2.2.2) and an iterative reading (e.g. *he'sfin* 'to sneeze'; *kilin* 'to thunder'; *se'n* 'to cough'; *tòohol* 'to bark'; *tu'b* 'to spit'; *ta'* 'to defecate'). Transitive verbs include more or less equal shares of durative (e.g. *p'o'* 'to wash'; *ts'ak* 'to cure'; *xup'* 'to exhaust'; *xok* 'to read') and punctual members (e.g. *il* 'to see'; *kach* 'to break'; *ts'on* 'to shoot at'; *na't* 'to understand', 'to intuit', 'to divine', 'to guess'), and some contact verbs which are ambiguous between a punctual and an iterative reading (e.g. *lox* 'to punch'). Inchoatives show a greater regularity in durativity; most inchoative verbs are durative. This is, however, not to say that punctual inchoatives would not regularly occur (e.g. *sahaktal* 'to become afraid'). The greatest uniformity in durativity appears to be displayed by the members of the positional verb class.

5.1.2.9. The role of participant structure features

This section briefly considers participant structure properties as possible alternative determinants of verb class membership. As outlined in §2.2.1, participant structure, like lexical aspect, is partially, but not fully determined by event structure representations. One important parameter of participant structure that YM verbs have been studied for is control. Lehmann (1993 [a]) tested 450 verbs of all stem classes for admissibility in the frame E162:

E162. T-u pat-ah u báah u ____
 PRV-A.3 dare-CMP(B.3.SG) A.3 self A.3 ____
 '(S)he dared/tried to ____.' (Lehmann 1993 [a]: 217)

A verb that is acceptable in this frame was judged to denote an event controlled by the referent of the A-argument of *pat* 'to dare', 'to try to'. Lehmann found the overwhelming majority of active and transitive stems he tested to be acceptable in E162, and the great majority of inactive, inchoative, and positional stems to be unacceptable. However, there are exceptions. For instance, active stems that select for inanimate participants are anomalous in E162 (e.g. *kiilbal* 'to thunder'; *léemba* 'to shine'). Even some active verb meanings with animate participants are conceptualized as not controllable (e.g. *òok'ol* 'to cry', 'to weep'; *he'sfin* 'to sneeze'). It is clear, then, that all these verbs are in the active class, because they denote processes, not because they denote controlled activities. Similarly, while the great majority of positional stems are excluded from E162, posture verbs like

chil 'to lie down'; *kul* 'to sit down'; and *wa'l* 'to stand up' are fine - obviously, because they require animate participants. Again, what class membership reflects in these cases is state change semantics, not the presence or absence of control.

5.1.2.10. The motivation of the status patterns

It has been argued above, following Bohnemeyer (2001, ms. [a]), that membership in the five verb stem classes of YM is determined, not in terms of lexical-aspectual distinctions, but in terms of event structure properties, in particular, the distinction of processes and state changes, which serves to delimit the extension of the active intransitive class from those of the inactive, inchoative, and positional classes, and the feature of causativity, which serve to define the extension of the transitive stem class. However, even though the formal predicate classes are distinguished by their status inflection patterns, and membership in the classes is then determined by lexical event structure representations, this does not necessarily mean that the status patterns are motivated *themselves* in terms of the event structure semantics of the verb classes.

The relevant facts are in particular (cf. §4.2.3) zero-marked incomplete status with active intransitives, but zero-marked completive status with inactive intransitives. Since completive status obligatorily co-occurs with perfective AM and incomplete status co-occurs e.g. with imperfective and progressive AM, it is only natural to assume that the status suffixes themselves convey aspectual meanings. (This is confirmed in §6.1 - incomplete status encodes imperfectivity, which completive status encodes perfectivity.) Inchoative and positional stems are marked for both status categories, which is only to be expected in the case of inchoatives, since their status suffixes simultaneously serve to mark derivation. This distribution led Lucy 1994 to assume a motivation of active class membership in terms of Vendlerian activities. These predicates have a 'focus' on the ongoing activity of an agent and therefore in the unmarked case are incomplete. Inactive, inchoative, and positional intransitives would on this account primarily encode Vendlerian achievements. These would have a focus on the result state of a patient or theme and therefore show a bias for completive status. The transitive stem class would be motivated in terms of Vendlerian accomplishments, and the fact that transitive stems are likewise overtly marked for both incomplete and completive status finds a natural explanation if it is assumed, following Dowty

1979, Moens 1987, and others, that accomplishments decompose into activity and achievement components.

Following a very similar rationale, Krämer & Wunderlich 1999 argue that active verb class membership is determined by process semantics, while membership in the inactive, inchoative, and positional classes is conditioned by *discrete* state change semantics, i.e. state change with discrete end states, and members of the transitive class would prototypically encode combinations of processes and discrete state changes. Unmarked completive status with inactive follows from these predicates by themselves having result-state denotation (hence the insistence in *discrete* state change as the conditioning property), while unmarked incompleted status with active intransitives again follows from these stems by themselves denoting ongoing processes.

The question arises, then, how the data presented in the previous sections can be reconciled with these analyses. The telicity behavior of a YM verb, and hence its place in Vendler's (1957, 1967) aspectual classification, cannot be predicted from its verb class membership, but only based on its event structure in combination with compositional factors. And an analysis of the denotation of the intransitive classes in terms of processes vs. discrete state changes ignores the regular inclusion of degree achievements especially among inactive and inchoative stems. One solution would be to assume a merely *prototypical* alignment of class membership with the relevant semantic property, and, conversely, acknowledge a certain degree of arbitrariness in the assignment of verb stems to status inflection classes. Indeed, both Krämer & Wunderlich 1999 and Lucy 1994 appear to assume that this is the case.

There is, however, an alternative, which becomes available once it is understood that the status patterns themselves are not necessarily motivated by the same semantic distinctions that determine membership in the verb stem classes. As shown above, an analysis of the semantics of the intransitive classes in terms of the process-change distinction (irrespective of the difference between discrete-end-state verbs and degree achievements) entails a significantly better match of meaning and form class than either Lucy's or Krämer & Wunderlich's analysis. At the same time, Bohnemeyer & Swift (ms.) argue that the status marking patterns - zero-marked incompleted with actives, zero-marked completive with inactives - are indeed motivated in terms of telicity, as assumed by Lucy. Based on cross-

linguistic evidence and evidence from child language research, Bohnemeyer & Swift advance an analysis according to which telic predicates are by default perfective, whereas atelic predicates are by default imperfective. This bias is explained with respect to the imperfective paradox: telic predicates require perfective aspect to entail event realization, while atelic predicates entail event realization already under imperfective aspect. It is assumed that the unmarked aspectual interpretation of any natural language predicate is chosen so as to entail event realization, but nothing more (especially not completion, where this is not necessary for the entailment of realization).

Under this analysis, it is no surprise that the telicity properties motivating the status patterns themselves align only indirectly with the event structure properties motivating membership in the verb classes distinguished by the status patterns. The existence of predicate classes distinguished by formal properties, in particular their status allomorphs, is a fact of the language independent of the particular realization of the status suffixes (the same system of five verb stem classes could easily exist if active and inactive stems were marked for *all* status categories). Hence, it is only to be expected that these two structure phenomena have independent (though related) semantic motivations.

5.1.2.11. Summary and discussion

The main aim of this section was to show that membership in the five verb stem classes of YM is motivated in terms of the event structure properties of state change and causativity, not in terms of lexical-aspectual properties such as telicity and durativity, or in terms of participant structure features such as control. Particular attention was devoted to telicity. As there are no syntactic processes sensitive to the distinction of telic and atelic predicates in YM, several sources of semantic evidence were exploited to investigate the alignment of verb class membership and telicity. In the case of the active stem class, these sources intriguingly contradict each other: the scope-ambiguity test with 'almost'-type operators shows active intransitives to be regularly atelic, while the realization-under-cessation criterion reveals a telic 'performance-object' construal with many active stems, which is apparently rooted in the "nouniness" of this class. With inactive, inchoative, and positional stems, telicity behavior is best predicted on the basis of the event structure of the individual verb. While non-incremental state

change verbs behave always telic, degree achievement verbs are normally atelic, and verbs of incremental change with discrete end states may be telic or atelic depending on compositional factors. It was concluded that the best predictor of class membership in these cases is state change semantics, not telicity. A similar result was arrived at with respect to durativity and control as possible determinants. The conditioning factor behind assignment of a stem to one of the five classes is event structure, then: active intransitives denote processes; inactive, inchoative, and positional intransitives denote state changes (which are not caused by a participant denoted by the intransitive stem), regardless of whether they are increment or not, or whether they yield discrete end states or not, and transitive stems denote events involving a causal relation between two participants (or the subevents these are immediately involved in). However, while membership in the verb stem classes is not motivated in terms of telicity, the status marking patterns of the classes - in particular the fact that active intransitives are zero-marked for incomplete status, while inactive stems are zero-marked for complete status - may well be.

The fact that lexical verb stems in YM are not qua members of a particular class inherently telic or atelic accords with the fact that the members of all predicate classes are fully compatible with the whole range of categories expressed by preverbal AM-markers. The absence of grammatical distinctions of telicity and durativity/punctuality in YM goes hand in hand with an unrestricted compatibility of all dynamic predicates with all aspectual and modal categories marked on outer grammatical layers, especially with the AM markers. The latter, then, carry the full burden of adapting the predicate's event structure to the needs of time structure in discourse, without the predicate itself showing any lexical predisposition. The temporal behavior of events in YM discourse representations is to a lesser extent controlled by event structure information as stored with lexical entries and more freely adapted to the semanto-pragmatic conditions of context by grammatical operations of aspectual and modal marking. This is not, at least not in general, true of Indo-European languages. Slavonic languages, for instance, achieve aspect marking often only through aktionsart morphology which determines and/or changes event structure and lexical aspect. There are also extreme cases such as German whose grammar is largely indifferent to viewpoint-aspectual distinctions. In particular the simple tenses of German are aspectually neutral. For instance, telic verbs in past tense are by default interpreted perfectly, whereas atelic verbs in past tense are by default interpreted

imperfectively. Thus, *Sie schrieb einen Brief und rauchte eine Zigarette* 'She wrote a letter and smoked a cigarette' is understood to express a sequence of events, whereas *Sie schrieb und rauchte* 'She wrote and smoked' is understood to express two simultaneous events. In such cases, the aspectual interpretation of discourses is directly determined by features of event structure and lexical aspect.

5.2. VERBAL DERIVATION

The previous section introduced the formal predicate classes of YM, i.e. stative predicates, active, inactive, inchoative, and positional intransitive verbs, and finally transitive verbs. Statives differ from verbs in that they neither partake in aspectual or modal modification as expressed by the preverbal AM-markers, nor are they subject to status inflection, which in its turn is largely controlled by the AM-apparatus. Thus, stative predicates directly denote states in the discourse representation, whereas the time-referential value of verbal predicates is obligatorily mediated by AM marking and status inflection. In accordance with this, aspectual properties proved to be only loosely associated with the verbal predicate classes investigated in §5.1. The grammatical distinction of predicate classes mainly pays attention to the event structure properties of state change and causativity. And as practically all verbs are compatible with all aspectual and modal categories, it was concluded that it is not the case that a verb's lexical-aspectual properties directly affect its temporal interpretation in discourse. This amounts to saying that the only derivational morphology in YM that directly figures in temporal reference consists in those operations that convert verbs into stative predicates. The stativizing operations establish event structure relationships with respect to their verbal bases that affect the temporal interpretation of the event encoded in the source stem beyond mere shift from dynamic to stative. The resultative in *-Vkbal* of positional verbs and in *-a'n* of other intransitives including passivized transitive verbs, as well as the perfect in *-mah* of transitives, denote the post-state of the event encoded in the verbal source stem, while the gerundive in *-bil*, derived exclusively from transitive bases, serves to refer to the pre-state of the event lexicalized in the source stem. F29 summarizes the function and distribution of the deverbal stative derivations. Pre- and post-states were introduced in §2.4. The present treatment of derivational morphology is therefore restricted to the classes just mentioned, referring the reader to §4.2.3 for cursory discussion of

the remaining derivational processes that are of no immediate relevance to time structure.

F29. *The deverbal stative derivations of YM*

Input category	Deverbal stative derivation with pre-state reference	Deverbal stative derivation with post-state reference
Active; e.g. <i>xĩmbal</i> 'walk'	-	Resultative <i>-a'n</i> ; e.g. <i>xĩmbal-nah-a'n</i> 'walked'
Inchoative; e.g. <i>òok</i> 'enter'	-	Resultative <i>-a'n</i> ; e.g. <i>òok-a'n</i> 'entered'
Inchoative; e.g. <i>chaktal</i> 'become red'	-	Resultative <i>-a'n</i> ; e.g. <i>chak-chah-a'n</i> 'red-dened'
Positional; e.g. <i>ch'uy</i> 'hang'	-	Resultative <i>-a'n</i> ; e.g. <i>ch'uy-lah-a'n</i> 'hung' Positional resultative - <i>Vkbal</i> ; e.g. <i>ch'uy-ukbal</i> 'hanging'
Transitive; e.g. <i>il</i> 'see'	Gerundive <i>-bil</i> ; e.g. <i>il-bil</i> 'to be seen'	Perfect <i>-mah</i> ; e.g. <i>uy il-mah</i> 'he has seen it' (Resultative <i>-a'n</i> from passive; e.g. <i>il-a'n</i> 'seen')

5.2.1. Resultative

This section deals with the resultative formed of active, inactive and inchoative intransitives in *-a'n*, as well as the corresponding category in *-Vkbal* that is used for stativizing positional bases. Some positionals seem accessible to both *-Vkbal* and *-a'n*. The resultative of active and inchoative intransitives presupposes completive status marking in *-nah* or *-chah/-lah*, respectively. E163 illustrates the completive forms (a-e) and the corresponding resultative (a'-d') and positional

resultative (e') forms of the various intransitive classes.¹¹²

E163 a.	H òok-en.	a'. Òok-a'n-en.
Inactive	PRV enter-B.1.SG 'I entered.'	enter-RES-B.1.SG 'I am (in the state of having) entered.'
b.	H xĩmbal-nah-en.	b'. Xĩmbal-nah-a'n-en.
Active	PRV walk-CMP-B.1.SG 'I walked.'	walk-CMP-RES-B.1.SG 'I am (in the state of having) walked.'
c.	H chak-chah-en.	c'. Chak-chah-a'n-en.
Inchoative	PRV red-PROC.CMP-B.1.SG 'I became red.'	red-PROC.CMP-RES-B.1.SG 'I am (in the state of having) become red.'
d.	H ch'uy-lah-en.	d'. Ch'uy-lah-a'n-en.
Positional	PRV hang-CMP-B.1.SG 'I hung.'	hang-CMP-RES-B.1.SG 'I am (in the state of having) hung.'
e.	H ch'uy-lah-en.	e'. Ch'uy-ukbal-en.
Positional	PRV hang-CMP-B.1.SG 'I hung.'	hang-POS-RES-B.1.SG 'I am hanging.' (Bricker 1981 [a]: xl-xxxix)

The resultative almost exclusively occurs as a predicate; exceptional attributive uses such as *òok-a'n k'in* enter-RES sun 'evening' are probably idiomatized. Despite its principled compatibility with active verbs (as attested in elicitation), the resultative has a strong preference for state change verbs, which are found exclusively outside the active class. Even inside the classes typically comprising state change meanings, verbs that permit non-state-change construals (cf. §5.1.2.5) are under these readings unlikely to ever undergo resultative formation. Consider *wèen* 'to (fall a)sleep'. Elicited examples of resultatives with the non-change

¹¹² This application of derivational processes subsequent to presumable inflections is certainly at issue with general assumptions about morphological structure, but it should be kept in mind that morphological theory is still today built primarily upon insights into Indo-European. Taking in mind that the incompletive status forms of intransitive verbs simultaneously serve to form lexical nominalizations (cf. §§5.1.1, 6.1) and that the inchoative suffix *-tal* converts stative predicates into intransitive verbs and simultaneously indicates incompletive status, it does not seem totally out of the question that the whole paradigm of status markers should be unfit for the Procrustean distinction of derivation and inflection tailor-fashioned for Indo-European languages.

readings such as *Wèen(-nah)-a'n-en* sleep(-CMP)-RES-B.1.SG 'I have slept'¹¹³ require suppositions of specific contexts to be interpretable, e.g. *Wèena'nen ti' k'áax* 'I have slept in the jungle'. This reading should be rephrased more accurately as something like 'I once slept in the jungle, so now I'm in the state of having had the experience of sleeping in the jungle'. This interpretation assumes a type of experiential 'post-state' (cf. §2.4), known from Indo-European languages as conveyed by the perfect of experience, like in the English translations just given. 'Post-state' is a cover term for the possible traces an instantiation of a dynamic eventuality leaves behind in the world, and the core instance of such a trace is the target state of a state change. As the target state, and post-states in general, follow the process yielding them in time, application of the resultative with respect to a given reference point or 'topic time' (TT) always implies occurrence of the eventuality encoded in the verbal base prior to TT. For instance, in E164, a certain writing is referred to by nominalization of the resultative of *ts'fiib-t* write-APP.¹¹⁴ It is understood that the act of writing must have preceded the speaker's understanding asserted in the main clause.

- E164. *Le ts'fiib-a'n yàan te kredensyàal-o',*
 DEF write-RES(B.3.SG) EXISTLOC:DEF credentials-D2
tak tèn in chan na't-ah.
 even me A.1.SG little understand-CMP(B.3.SG)

'What was written on the credentials, even I understood some of it.' (Fcp 71f.)

Similarly, in the following example, the state of being surrounded (by guards) is asserted of a theme coreferent with the theme of the main clause. The main clause predicates the theme to be delivered (to a court martial) at TT, and the state of being surrounded is understood to have been accomplished prior to TT.

- E165. *Bèey k'úub-s-a'b-ik* don Felipe,
 thus hand.over/CAUS-CAUS-PASS.CMP-EXTRAFOC(B.3.SG) don Felipe

¹¹³ Notice the optional completive suffix that otherwise only occurs with the resultatives of active intransitives.

¹¹⁴ The applicative marker has been dropped. This is probably another instance of the general tendency to avoid multiple derivational suffixes; cf. §4.2.3. The same can be seen in E165, where *ba'pàach-a'n* 'surrounded' is contracted of *ba'pàach-t-a'n* environs-APP(PASS)-RES.

- ba'pàach-a'n* *tuláakal.*
 environs(PASS)-RES(B.3.SG) all

'Thus don Felipe was delivered, surrounded entirely.' (Fcp 385)

Assertion of a resultative at TT presupposes that the event expressed in the verbal base has occurred prior to TT. However, the resultative does *not* express anterior event order of the target event with respect to TT, as an anterior tense would. The resultative is completely stative; the target event gets backgrounded entirely, and is actually inaccessible to specifications of temporal location. A question such as E166 is completely odd, since *ba'x òora/k'iin* 'at what time' cannot actually refer to the time of S' VERB-ing here, but only to the time at which S was in the state of having VERB-ed.

- E166. ??*Ba'x òora/k'iin* VERB-a'n S?
 what hour/day VERB-RES(B.3.SG) S
 'At what time was S in the state of having VERB-ed?' (intended 'At what time had S VERB-ed?')

As with any stative eventuality, it has to be assumed that S is in the state of having VERB-ed ever after it first entered that state, as long as there is no reason to believe that S is not in the state of having VERB-ed *anymore*. Hence there is no plausible contrast to some other TT at which the resultative state would not hold. Therefore, a question of the format of E166 does not make much sense. Owen (1968: 57) uses the unacceptability of the frame **Ba'x k'iin* VERB-a'n as the decisive criterion of the resultative's stativity (or "timelessness", as he puts it).

As a stative predicative, the resultative form is by default interpreted imperfectively, i.e. as a situation in temporal overlap with TT. In E167, the TT of the positional resultative predicate *wa'l-akbal* stand-POS.RES 'standing' is marked by the antitopic clause (cf. §4.2.2) *káa h k'uchene* ' (when) I arrived'.

- E167. *Pablo-e' sáam-heak h bin-ih.*
 Pablo-TOP earlier.today-ak PRV go-B.3.SG

Way wa'l-akbal káa h k'uch-en-e'.
 here stand-POS.RES(B.3.SG) káa PRV arrive-B.1.SG-D3

'Pablo, he just went away. He was standing right here (when) I came.' (BVS 15.1.8)

As usual, imperfectivity as a default interpretation can easily be overridden in context. In E168 the resultative *biha'n* 'be gone' is interpreted perfectly due to the definite duration adverbial *te bukah k'iino'b* 'in as many days', i.e. 'during the time that'. In E169, the antitopic clause *biha'nen* is implicitly understood to refer to a bounded state, which thus serves to quantify the amount of work done by the actor of the main clause during that interval.

E168. Ba'x u láak klàase, estée, meyah t-a kaxt-ah
 what A.3 other class HESIT work PRV-A.2 find-CMP(B.3.SG)

te Bacalar-o', te bukah k'iin-o'b **biha'n**-ech-o'?
 LOC:DEF Bacalar-D2 LOC:DEF as.much sun-PL go:RES-B.2.SG-D2

'What other kind of, uhm, work did you find in Bacalar, during the time you were away?' (Bio Seb II 14)

E169. Chéen le bukah t-u ts'fib-t-ah **biha'n**-en-o'.
 just DEF as.much PRV-A.3 write-APP-CMP(B.3.SG)[go:RES-ABS.1.SG]_S-D2
 'Only that much did he write while I was off.' (Tama 139)

Thus, in examples such as E165 above, the resultative instantiates the implicature from the application of post-state operators in discourse to anterior event order introduced in §2.4.5.

5.2.2. Perfect

The 'perfect' in *-mah* is restricted to transitive stems. Like the resultative discussed above, the perfect refers to the post-state of the event designated in the stem, which is usually the target state of a state-change verb.

The difference between resultative and perfect lies in the perfect preserving the two-place morphology and semantics of the transitive base: the target state is ascribed to the theme/patient of the state-change verb, but at the same time, the perfect form has a second argument, corresponding to the A-argument of the transitive base, and marked by the set-A paradigm of cross-reference markers, just like the transitive A-argument. E170 compares the transitive *hats'* 'hit' in completive status (a) to the resultative (derived from the passive of the base) which preserves only the U-argument of the transitive base (b) and to the perfect which preserves both arguments of the transitive base (c).

E170 a. T-u hats'-ah-en.
 PRV-A.3 hit-CMP-B.1.SG
 'He hit me.'

b. Hats'-a'n-en.
 hit-PASS:RES-B.1.SG
 'I am (in the state of having been) hit.'

c. U hats'-mah-en.
 A.3 hit-PERF-B.1.SG
 'He has hit me.' (Bricker 1981 [a]: xxi-xxvii)

The semantic relation between the two arguments of the perfect is, however, primarily understood to be of a possessive nature. That is, the set-A marker is interpreted as the possessor of the theme marked by the set-B pronoun. This is apparent from the common Spanish translation of the perfect form, e.g., in E171, *¿Lo tienes hecho?*:

E171. A mètet-mah?
 A.2 make-PERF(B.3.SG)
 'Do you have it done/ready?'

The consultants translate E172a as *¿Qué es lo que entiendes en este libro?* 'What is your understanding in this book' or *¿Qué es lo que sabes acerca de este libro?* 'What is your knowledge about this book', 'What information do you have about this book', and as a plausible context for E172b (which otherwise would be odd) they suggest a situation where the speaker enters a room the addressee has created a mess in: 'What is it that you have done?' as a rhetorical question.

E172 a. Ba'x a kan-mah ich le libro he'l-a'?
 what A.2 learn-PERF(B.3.SG) in DEF book PRSV-D1
 'What is it that you have learned from (lit. in) this book?'

b. Ba'x a bèet-mah?
 what A.2 do-PERF(B.3.SG)
 'What is your deed?'

In line with the possessive interpretation of the perfect form, it seems to be referentially oriented towards the U-argument. This may be concluded from the frequent focussation or relativization of the U-argument.

E173 a. Tèech-e' mùuch a ch'a'-mah.
 you-TOP frog A.2 fetch-**PERF**(B.3.SG)
 'As for you, it's a frog that you married.' (Muuch 270)

b. le iik'-o'b k'àas-tak-o'b a kuch-mah-o'
 DEF wind-PL bad-DISTR-B.3.PL A.2 load-**PERF**(B.3.SG)-D2
 'the bad winds you are charged with' (Andrade & Vermont Salas 1971, text no. 35 (*The Ch'd'chák Ceremony*))

So far, the evidence presented suggests that the perfect is a relational (i.e. inalienably possessed) noun. However, as opposed to simple possessive constructions, perfects show deletion of the ergative clitic under A-argument focus, just as regular transitive verbs do (cf. §4.2.1.5). In this respect, the argument marked by the set-A pronoun behaves like the A-argument of a transitive verb, rather than like the possessor of a nominal.

E174 a. Máax bon-mah(-il)¹¹⁵ le nah-a'?
 who paint-**PERF**(-EXTRAFOC)(B.3.SG) DEF house-D1
 'Who is it that has painted the house?'

b. ??Máax u bon-mah le nah-a'?
 who A.3 paint-**PERF**(B.3.SG) DEF house-D1
 'Whom is it that the house has painted?'

Thus, E174b could only be interpreted to the effect that the interrogative pro-form is co-indexed with the U-argument of the perfect verb form (which would render the house coindexed with the A-argument), while the regular agent-focused perfect is represented in E174a.

Just as the resultative, the perfect is incompatible with time-locational specifications referring to the target event expressed by the verbal base (cf. Arzápalo 1973: 94, Owen 1968: 57). Thus, a question of the format of E175 cannot be taken to mean 'At what time did NP_A VERB NP_B?', but can only be interpreted in the sense 'At what time was NP_A in the state of having VERB-ed NP_B?'.¹¹⁵

¹¹⁵ In this construction, the perfect is optionally followed by the extrafocal status suffix *-il* of transitive verbs (cf. §4.2.3). The extrafocal does not otherwise occur with argument-focus constructions. This remains to be investigated.

E175. ??Ba'x òora/k'iin u VERB-mah (NP_U) (NP_A)?
 what hour/sun A.3 VERB-**PERF**(B.3.SG) (NP_U) (NP_A)
 'At what time/day was NP_A in the post-state of VERB-ing NP_O? (intended 'At what time/day did NP_A VERB NP_O?)'

As there is no likely contrast implied to a different topic time where NP_A was not in the state of having VERB-ed NP_U, such a statement would not be meaningful. Notice that just as with the resultative, the base remains completely non-referential and hence cannot itself provide a 'TT-contrast' (cf. Klein 1994: 5-9). Since the perfect derivation does not temporally locate the target event expressed by the verbal base, it cannot be said to express anterior event order between the target event and a reference event in discourse, but has to be analyzed as a post-state operator.

5.2.3. Gerundive

The third and final deverbal stative to be discussed here is the 'gerundive' in *-bil*. Both in formal and in semantic perspective the gerundive is much more difficult to describe than the resultative and perfect. The latter are restricted to main clause or relative clause predicates, where they denote the post-state of the event lexicalized in the verbal base. The gerundive, by contrast, although not significantly exceeding perfect and resultative in frequency, has a fairly large scale of different constructions that it can enter, and receives a similarly extensive range of possible interpretations all, evolving around the notion of 'pre-state'.

Like the resultative, the gerundive forms a one-place stative expression with the set-B series cross-referencing a single S-argument, and just like the perfect in *-mah*, the gerundive is restricted to transitive stems. Again, the gerundive predominantly appears with bases designating change-of-state, and the S-argument refers to the theme/patient of that state-change, corresponding to the U-argument of the transitive base. However, as opposed to both resultative and perfect derivation, the gerundive does not refer to the post-state of the event designated by the base, but rather to its pre-state, or actually one out of a whole range of pre-state readings possible with this derived form, depending in part on the particular construction. E176 shows gerundives functioning as the predicate of stative clauses.

E176 a. Hats'-bil.

beat-GIV(B.3.SG)

'He it to be beaten' (said in reply to a question as to what should be done with a thief who had just been caught).

b. Pul-bil.

throw-GIV(B.3.SG)

'It is to be thrown away' (said in reply to 'Of what use is this to us?'). (Andrade 1955: 320)

Various relations can be conceived of as obtaining between a given event and its pre-state. In particular, they may be linked by cause (or at any rate, contiguity), or the pre-state may be the intention of a participant that exerts potential control over the event. Neither of these two relations is directly expressed by the gerundive. In E176a, the pre-state has a modal shading other than intention (namely one of obligation, in this case imposed by the speaker on the addressees, to be inflicted by the latter onto the gerundive's S-argument), and in E176b, the relation between the pre-state and the event expressed in the verbal base is of a purposive nature, as judged from the context ('the purpose of this thing is to be thrown away'). And in its broadest and least specific usage to be exemplified below (e.g. E177c), the gerundive simply acts as an impersonal passive¹¹⁶ with non-specific reference, meaning 'NP_s is / to be VERB-ed / for VERB-ing / VERB-able'. The following examples illustrate the readings mentioned so far with embedded gerundives.

E177 a. T-u ka'n-s-ah le espanyòl-o'b
PRV-A.3 learnPASS-CAUS-CMP(B.3.SG) DEF Spaniard-PL

adoràar-bil.

[worship-GIV(B.3.SG)]_s

'The Spaniards taught to worship him (lit. that he was to be worshipped)' (Fcp 146)

¹¹⁶ Historically, the gerundive suffix *-bil* evidently derives from the Colonial passive marker *-(a)b* (which in Modern YM has been preserved in completive status with all passivized verbs and in all status categories for passivized forms of stems of the shape CV). The original function of the putative *-il* suffix that combined with the passive to form what was later re-analyzed as the gerundive suffix is not known. Cf. Smailus (1989: 138-142).

b. K-u ts'a'-ik wàah hàan-t-bil-e', ...
IMPF-A.3 give-INC(B.3.SG) tortilla eat-APP-GIV(B.3.SG)-D3
'He provides bread to eat, ...' (Fcp 169)

c. Pero le chen chuy-bil-o', u k'aaba'-e' chuy+che'.
but DEF only sew-GIV(B.3.SG)-D2A.3 name-TOP sew:wood
'But those which are only woven (lit. sewn), as for their name, it is *Chuyche* (a palisade).' (Nah 98)

E177a displays again the reading of induced obligation known from E176a. In the case of E177a, the obligation is understood to be imposed by the referent of the A-argument of a matrix verb 'teach', and the gerundive clause forms the U-argument of that verb. Observe at this point that gerundives can be embedded as propositional arguments in YM, as opposed to all other stative predicates. This issue is taken up below. E177b shares with E176b the purposive relation obtaining between pre-state and lexical target event, fitting with the environment of a purposive relative construction (*wàah hàantbil* 'bread to be eaten'). In E177c, the gerundive is nominalized and has the distribution of a headless relative; it may be translated as 'that one which is only to be woven'. Here, the only contrast motivating the use of the gerundive as opposed to the stative post-state-state operators resultative and perfect lies in the gerundive being compatible with inactual, i.e. generic or habitual reference. This is the function of the gerundive as a non-specific impersonal passive alluded to above. This function is prevalent in particular in another construction inaccessible to the resultative and perfect statives: the attributive use, e.g. *bàaxal(-t)-bil che* 'play(-APP)-GIV wood 'wood-en toy' (lit. 'wood to be played with'), *pàak'al(-t)-bil che* 'plant.ATP(-APP)-GIV wood 'planting stick' (lit. 'wood for planting'). Aside from their non-specific reference, attributive gerundives may most often be translated with post-state rather than with pre-state constructions in Indo-European languages. This is particularly obvious in the field of cooking terminology, where attributive gerundive constructions are used to name dishes in a way that the head noun refers to the main ingredient and the gerundive to the method how this ingredient is treated, cf. *chak-bil k'úum* boil-GIV squash, *huch'-bil bak* grind-GIV meat, *k'ut-bil iik* mash-GIV chilli. These would be translated into English by resultative constructions like *cooked squash*, *ground meat* and *mashed chilli*. The corresponding resultative constructions in YM would have to be predicative, e.g. *Hu'ch'-a'n le bak'-a* grindPASS-RES (B.3.SG) DEF meat-D1 'This meat is ground' which would refer exclusively to the state the main ingredient of some specific referent of the dish is in (conceived of as the result of the cooking process), whereas YM speakers

prefer to use the gerundive to refer to the type of a dish as distinguished by the treatment the ingredient is subjected to. It should be noticed that although the gerundive in principle does enter attributive constructions, as opposed to the resultative and perfect, the instances of this construction all seem to have a somewhat lexicalized (and partly idiomatized) flavor, because the construction is apparently used exclusively for *naming* things, by referring to the way they are created. Examples outside the kitchen include *k'ax-bil nah* tie-GIV house, referring to the traditionally built Mayan house (which is 'tied together' with liana, rather than fixed with nails), and *ki'+t'àan-bil ha'* sweet+call-GIV water 'holy water'.

Pre-states in a much more concrete sense are yielded when the gerundive appears in another embedded construction, namely in the 'motion-cum-purpose' construction introduced in §4.2.1.2.

E178 a. Xi'k bis-bil ti' a kumpàale
go.SUBJ(B.3.SG) [go:CAUS-GIV(B.3.SG)]LOC A.2 compadre

t-u nah-il.
LOC-A.3 house-REL

'He may go to your compadre to his place in order to take it to him (i.e. Have someone go to your compadre's house and take it to him).' (Andrade 1955: 323)

b. Beytisiinko túun kan hats'-bil.¹¹⁷
twentyfive CON SR.IRR:A.2 hit-GIV(B.3.SG)
'So twenty-five strokes was what you would get (for an offence like that) (lit. twenty-five (times) you were going to be hit).' (Yax 147)

c. Mikah kàah-kuns-bil túun le x-Yaxley
PROSP(B.3.SG) live-FACT-GIV(B.3.SG)CON DEF F-Yaxley

t-u ka'-téen-a'.
LOC-A.3 two-time-D1

'So sweet Yaxley was going to populated again.' (Yax 115)

The pre-state here is naturally provided by the motion event preceding the

¹¹⁷ See §4.2.1.5 on the allomorphs of the irrealis subordinator *kéen* formed by fusion with the set-A (as in *kan* in the example at issue) or set-B cross-reference markers.

propositional goal denoted by the gerundive, and the gerundive just replaces a subjunctive passive clause, which would look like *káa bis-a'k* SR go:CAUS-PASS.SUBJ (B.3.SG) 'so that it may be taken' in E178a. It seems that the gerundive has a special affinity for the motion-cum-purpose construction (cf. Andrade 1955: 321). The use of the gerundive to express the 'propositional goal' in the motion-cum-purpose construction seems also to underlie the patterns illustrated in E178b and c. The gerundive is occasionally used to replace the (passivized) main verb in the subordinate clause of a focus construction with prospective reference such as in E178. Similarly, the prospective AM marker *mukah* sometimes occurs with a gerundive form of the main verb, instead of the passivized main verb in a finite form (i.e. one inflected for status). In all cases, the exceptional role of the stative gerundive as replacing a finite status-inflected verb is explained as a syntactic blend: the gerundive form is chosen instead of a status-inflected verb form because of the prospective reference it yields. As syntactic blends, these constructions create the following rather perplexing effect: unlike the plain motion-cum-purpose construction, the variant with the gerundive does not require the S-argument of the gerundive to be coreferent with the S-argument of the motion verb. This was already seen in E178a. Below, an example is reproduced with a full noun phrase coindexed as the S-argument of the gerundive. Such constructions are only awkwardly translated into English.

E179. Káa t-u óordenar-t-ah u hèente Sulub-o'
káa PRV-A.3 command-APP-CMP(B.3.SG) A.3 people Sulub-D2

káa xi'k kins-bil
SR go.SUBJ(B.3.SG) die:CAUS-GIV(B.3.SG)

le máak-o'b h sùnah-o'b-o'.
DEF person-PL PRV turn\ATP:TMP-B.3.PL-D2

'(And) Sulub ordered his men to go and kill the people that had returned (lit. for the people who had returned to be killed).' (Yax 229f.)

Apart from the motion-cum-purpose construction and related constructions, another construction the gerundive frequently enters in lieu of a finite passive is the predicate focus construction, illustrated in E180:

E180. Ma' estudyàar-bil-i', na't-bil u mèet-ik-o'b.
NEG study-GIV(B.3.SG)-D4 understand-GIV A.3 make-INC-3.PL
'It cannot be acquired through reason, by intuition is how they do it (lit. understanding is what they do).' (Tyempo em 115)

It was observed in §4.2.1.5 that the predicate focus construction is not accessible to transitive verbs. One strategy to overcome this predicament, aside from incorporation of the U-argument and antipassivization, is, of course, passivization. Just as with the motion-cum-purpose construction and the related constructions, the gerundive is preferred in this environment over the finite passive.

Having outlined the morphosyntactic properties of the gerundive, let us now turn to its functions in temporal coherence. As a pre-state operator, the gerundive does not entail event realization. With the 'jussive' or 'purposive' reading obtained from the construction of gerundives as independent predicates, as in E176 above, this is rather evident, and the same holds for the interpretation of a propositional goal in the motion-cum-purpose construction, as in E178. Consider also E181, where realization of the gerundive's target state is implicitly denied (the delinquents were saved at the last moment by a pardon), and E182, in which the gerundive's S-argument is coreferent with the head of a relative clause, such that the existence of the referent of this head is negated in the higher predication.

E181. Le kàapitan ka'ch-o' mukah u kins
 DEF captainformerly-D2 PROSP(B.3.SG) A.3 die:CAUS(B.3.SG)

ka'ch-e', káa h ch'a'b òotsil-il ti'
 formerly-D3 káa PRV let.PASS(B.3.SG) poor-REL LOC

le kun kins-bil-o'b-o' tuméen góobernador.
 DEF SR.IRR:A.3 die:CAUS-GIV-B.3.PL-D2 CAUSE governor

'The captain, he was going to have (the delinquents) executed, (when) those who were going to be killed were reprieved (lit. as poor ones they were let, i.e. spared), by the governor.' (Proga 32)

E182. Ts'o'k u tàal siklòon, t-u láah lúub-s-ah,
 TERM A.3 come hurricane. PRV-A.3 all fall-CAUS-CMP(B.3.SG)

mina'n wàats' meyah-t-bil.
 NEG.EXIST(B.3.SG) bend\ATP work-APP-GIV(B.3.SG)

'A hurricane has hit us, it completely destroyed (the corn harvest), there's no bending¹¹⁸ work (left) to be done (lit. no bending to be worked).' (Milpa seb 20f.)

As a stative predicate, the gerundive by default presents the pre-state imperfectively, i.e. as including topic time TT. See, for example, E183:

E183. Òok-en, le hàan-al-o' be'dora kun ts'o'k-s-bil-a'.
 enter-IMP DEF eat-INC-D2 now SR.IRR end-CAUS-GIV(B.3.SG)-D1
 'Come in, dinner is going to be finished right now.' (Proga 75)

TT is defined by the deictic adverb *be'dora ...-a'* 'now' in E183. It is evident that what is located with respect to TT is not the target event (the completion of the cooking of the meal) but rather its pre-state. In E184, a nominalized gerundive occurs itself in a topic clause defining the TT of the overall sentence.

E184. Le kéen tàal-ak u xúul-s-bil
 DEF SR.IRR come-SUBJ(B.3.SG) A.3 exhaust\ACAUS-CAUS-GIV

ti' máak bèey-a', mix+tu'x, bin,
 LOC person thus-D1 NEG.EMPH+where HS

kéen aw il a mehen àanhel-o'.
 SR.IRR A.2 see(B.3.SG) A.2 little angel-D2

'So (when) the end is going to come to man (lit. (when) the going to be finished comes to man), nowhere, they say, will you see your little angels (i.e. babies).' (Inferno 220f.)

The gerundive refers to the apocalypse (the 'going to be finished'), and it is clear that the main clause event is temporally included in the pre-state of the apocalypse, rather than to coincide with it, as the main clause refers to the first omen of the approaching apocalypse, which is believed to be the failure of new births.

5.3. SUMMARY

§5 has discussed the formal and semantic properties of lexical predicates in YM. It was established that predicates are relatively accurately distinguished according to the dynamicity parameter. With very few exceptions (in particular, the modal verbs *binèet* 'need' and *páahtal* 'be possible'), all verbs are dynamic, whereas stative predicates are in fact stative, with some regular exceptions, such as event nominalizations. Stative predicates are not inflected for status and not modified by aspect-mood (AM) marking. The eventuality they lexicalize is subject to direct

¹¹⁸ The ripe corn is bent over in order to prevent it from windbreak, until the beans that are supported by the maize plants are ready to be harvested too.

temporal interpretation in the discourse representation. By default, stative predicates are interpreted to refer imperfectively. Imperfectivity in turn invites an implicature to the existence of an event in adjacent discourse that overlaps with the stative event. Both the implicature of imperfectivity from stativity and the implicature of overlap from imperfectivity can be overridden in context. Despite their natural imperfectivity, stative eventualities are not likely to serve as referential backgrounds in topic clauses, as they do not provide adequate temporal contrasts between a possible TT at which the state holds and one at which it does not obtain.

Members of the five verb classes of active, inactive, inchoative, positional, and transitive verbs never enter discourse without having been inflected for status, and in main clauses and certain subordinate contexts, they are in addition equipped with AM marking. It was demonstrated that the aspectual and modal meaning of a construction containing a verb is fully determined by status inflection and AM marking. Telicity is not reflected in YM grammar. There are no syntactic patterns sensitive to telicity; there is no telicity-changing *aktionsart* morphology within predicate classes; and with reference to the results of a test using novel verb stems with the formal properties of the different verbal subclasses, it has been shown that the predicate classes as such are not motivated with respect to telicity. In line with this, application of the realization-under-cessation test has shown that telicity varies significantly across members of the same predicate class. In particular, even active verbs, the active class being the only one supposed to host typically predicates, have turned out to be quite prone to telic interpretations in certain contexts, under a 'performance object' reading. It was concluded from telicity behavior of YM verbs that verb class membership is primarily motivated with respect to event structure features, and that it is only through the temporal implications of event structure that any lexical-aspectual properties can be assigned to the predicate classes as such. For example, what makes inactive, inchoative, and positional verbs prone to be interpreted telically is their state change semantics. Verbs of incremental change become atelic if the theme/patient argument is not referential, or not definitely quantified. This outcome aligns with the fact that with marginal exceptions, all members of all verb classes are compatible with all categories of status inflection and AM marking. It is thus assumed that the temporal behavior of verbs in discourse depends fully on status inflection and AM marking.

As the temporal properties of verbs are determined by AM marking and status inflection, derivational operations that transfer members of one verb class into another verbal class are neglected in the present study. Hence, the only derivations discussed separately in this chapter are the three derivations that turn verbs into stative predicates: the resultative, the perfect, and the gerundive. The resultative and the perfect have been shown to be post-state operators that refer most typically to the target state of a state-change-type event and allow only exceptionally for interpretations to experiential post-states. The gerundive in turn is a pre-state operator that allows for a variety of pre-state readings, ranging from prospectivity to purpose and obligation. All three forms refer imperfectively to the particular pre- or post-state and thus implicate overlap with another event in discourse. However, none of these operators serves to locate the event expressed in the verbal base itself on the time line.

STATUS INFLECTION AND AM MARKING

CHAPTER 6

Aspectual viewpoint and location in time constitute fundamental features of event reference. As YM shows no possible locus of tense inflection outside the domain of AM and status marking, all AM and status categories are analyzed in this chapter in order to determine whether they encode deictic tense relations that locate the event with respect to coding time, or relative tense relations that locate the event in time with respect to other events in the discourse representation. The result is negative in both respects for all categories in question. It is shown that the AM markers together with the verbal status inflections they govern serve to present the target event perfectly or imperfectly; to refer to the target event's pre- (prospective) or post-state (terminative); to assert or question the target event's temporal distance (proximate future, immediate, recent and remote past) with respect to topic time (whose location on the time line is itself a matter of inference); or to express a deontic or epistemic modal qualification of the target event's realization (predictive, obligative, necessitive, assurative, desiderative); but not to locate the target event explicitly on the time line.

6.1. STATUS INFLECTION

Most if not all Mayan languages employ both bound inflectional morphology and unbound preverbal particles in the marking of aspectual and modal distinctions, the unbound markers typically originating in complement-taking predicates.

"En la mayoría de las idiomas Mayances el aspecto y el modo son marcados, por lo menos en parte, por partículas (casi siempre proclíticas) antes del verbo. Pero todos los idiomas tienen algunas características de aspecto y/o de modo marcadas por sufijos y desinencias sufijadas que yo llamo aquí **sufijos de estatus**." (Kaufman 1990: 71)

(In the majority of the Mayan languages, aspect and mood are marked, at least partly, by (almost always proclitic) particles preceding the verb. But all the languages have some properties of aspect and/or mood marked by suffixes and suffixed desinences which I call here **status suffixes**.) (translation JB)

Typically, just as in YM, so in other Mayan languages status suffixes are selected according to the syntactic environment of the verbal core: there are status categories

which only occur in dependent clauses, and there are status categories which only occur in independent clauses, and the selection among the status categories in independent clauses is triggered by the preverbal aspect-mood markers.¹¹⁹ To facilitate the discussion, the categories **independent** and **dependent verbal core** shall be utilized. Dependent verbal cores are those that immediately depend on a predicate or clause. Independent verbal cores are those that are not immediately dependent on a predicate or clause, irrespectively of whether the verbal core occurs in a clause which is itself independent or subordinate. In other words, independent verbal cores are exclusively those that combine with one of the two morphologically bound AM markers perfective and imperfective (cf. §4.2.1.4). All other verbal cores in YM are dependent. The purpose of this distinction is to provide a rather simple access to the distribution of the status categories: the completive and imperative occur only in independent verbal cores, while all dependent verbal cores appear either in the incompletive or in the subjunctive, with the marginal exception of the extrafocal, which replaces the completive in manner focus constructions. F30 summarizes the function and distribution of the five status categories. The remainder of this chapter focuses on time reference in declarative and interrogative sentences; hence, the imperative will be neglected.

Incompletive and subjunctive status are analyzed here as dependent verb forms, the former being specialized on imperfective reference (such as an Indo-European *gerund*),¹²⁰ the latter being specialized on perfective reference (such as an Indo-

¹¹⁹ See, for example, Aissen (1987: 14-16, 41-42) on Tzotzil; Craig (1977: 59-72, 231-246) on Jakalteq; England (1983: 161-164, 172-174, 275-290) on Mam; Kaufman (1990: 72) on K'iche'. Dayley (1985: 105-117) discusses a merged inflectional aspect-mood system for Tz'utujil which he opposes to a set of non-obligatory 'auxiliary-like verbs' (Dayley 1985: 562-563). Hofling (2000: 42-52) deals with the system of AM and status marking in YM's sister language Itz'. The YM system is discussed extensively in Vapnarsky (1999: ch. 2). See also Smailus 1989 for the Colonial YM status system.

¹²⁰ Aside from the inflectional use of the incompletive in verbal cores, incompletive verb forms are also used as deverbal nouns, as discussed in §5.1. These deverbal nouns have a wide range of interpretations, clearly exceeding what may be derived from the semantic representation proposed here for the inflectional uses of the incompletive. Therefore, the present analysis is confined to the inflectional occurrences of the incompletive. Notice that there is at least one context in which the inflectional use of the incompletive is not easily distinguishable from the use as a nominalizing derivation. This occurs with controlled ('equi-deleted') intransitive verbal cores embedded under a desiderative matrix predicate (cf. §4.2.1.1) or in the motion-cum-purpose construction (cf. §4.2.1.2). As the semantics of these constructions clearly deviate from the analysis of the inflectional

European resultative participle; cf. e.g. Maslov 1988). In addition, the subjunctive is associated with a feature of *non-assertive* modality. Since verbal cores in most syntactic environments can only occur in either incomplete or subjunctive status, this formal opposition automatically assigns the opposite feature of 'assertive' modality to the incomplete. The semantics of completive status cannot be separated from the semantics of the perfective AM markers, since both obligatorily co-occur. The extrafocal is a residue of the Colonial YM dependent completive.

F30. *The YM system of status inflection*

Category	Distribution	Function
completive	independent verbal cores (and only with perfective AM)	perfective reference
incomplete	dependent verbal cores, except when in combination with imperfective AM	imperfective reference, assertive modality
subjunctive	dependent verbal cores, optative and command clauses, certain topic clauses with habitual/generic reference or future time reference (only in combination with the irrealis subordinator <i>kéen</i>)	non-assertive modality, perfective reference
extrafocal	dependent verbal cores (manner focus constructions only)	perfective reference
imperative	independent verbal cores	commands

The occurrences of the four status categories are largely motivated, but not fully predictable, and consequently, their semantic contribution to the constructions they occur in is not fully compositional, either. This should not be too surprising. Recollect from §4.2.1 that selection of the status category any verb is inflected for is fully determined by the verb's syntactic environment. In main clauses (which is to say, in independent verbal cores), selection of the status category depends on the AM marker. In dependent verbal cores, selection of the status

category depends on the matrix predicate and (in verbal cores embedded in adverbial function, such as in the motion-cum-purpose construction and in the gerundial construction) on the construction itself. This is to say, there is no construction in YM that allows the speaker to choose among two or more status categories in opposition, such that the speaker could choose to express one status *meaning* as opposed to another in one and the same construction (this holds with a few exceptions which are discussed below). Whatever the semantic contribution of a particular status suffix to a particular construction is, it is a fixed part of the meaning of the construction. A look at the distribution of status patterns across the AM markers shows that the overall compositionality of status inflection in YM is significantly reduced. The hatched cells in F31 represent the combinations that do not occur. The distribution has been discussed above, except for the prospective AM marker which triggers incomplete status marking on intransitives (and in addition equi deletion of the set-A marker that would otherwise cross-reference the S-argument) and subjunctive status on transitive verbs (this is the pattern of the motion-cum-purpose construction, from which the prospective AM construction has grammaticalized).

There are some clear instances of reduced compositionality found in this system. Thus, the terminative AM marker occurs with incomplete status, despite the terminative AM indicating post-state reference, and hence entailing realization of the target event, rather than unboundedness. The recent and remote past AM markers govern subjunctive status, but the immediate past AM governs incomplete status. A similar discrepancy obtains between the AM markers of deontic modality and the desiderative AM marker on the one hand, which trigger incomplete inflection, and the predictive AM marker on the other hand, which triggers subjunctive marking. The hypothesis explored below is that all these cases involve status patterns that have to be understood as "frozen": the pattern was more compositional in the construction from which the particular AM marking construction has grammaticalized (e.g. a phase verb construction in the case of the terminative AM marker, and probably also the immediate past AM marker, which triggered incomplete status marking like all phase verb constructions in YM), but in the course of the grammaticalization process, the old status pattern was simply retained, despite its original motivation having been lost.

occurrences of the incomplete proposed here, the incomplete is considered to be instantiating the deverbal noun formation in these constructions.

F31. Status assignment of the preverbal AM markers

AM marker		Status category triggered		
		Completive	Incompletive	Subjunctive
AM prefixes	Perfective AM			
	Imperfective AM			
Aspectual AM predicates	Progressive AM			
	Terminative AM			
	Prospective AM		(with V _{tr})	(with V _{tr})
	Obligative AM			
Modal AM predicates	Necessitive AM			
	Desiderative AM			
	Assurative AM			
	Predictive AM			
	Penative AM			
	Remote past AM			
AM predicates of temporal distance	Recent past AM			
	Immediate past AM			
	Proximate future AM			

The discussion proceeds by first addressing those status categories whose semantics can be described straightforwardly, due to their narrowly delimited distribution. This concerns the completive, which exclusively occurs with the perfective AM marker, and the extrafocal, which replaces the completive in manner focus constructions. The bulk of the discussion, however, will focus on the incompletive and the subjunctive, since these have a much wider range of occurrences than the two aforementioned status categories. As both categories occur in dependent verbal cores, and every dependent verbal core is inflected for either the incompletive or the subjunctive, the two categories will be treated in one subsection. Their semantics is best understood in contrast to each other,

despite the fact that they are hardly ever actually in opposition, in the sense that the speaker has a choice between them. However, since the subjunctive and incompletive occur each in a large and quite heterogeneous set of constructions, and since they cover not just aspectual, but also modal functions (which fall outside the proper subject of this study), their present treatment has to remain somewhat sketchy and preliminary. Finally, alternative analyses of the YM status inflection system that have been proposed are briefly addressed.

6.1.1. Completive and extra-focal

Completive status inflection occurs exclusively with the perfective AM marker, and perfective AM marking only occurs with completive status inflection. Consequently, there is no point in arguing for separate analyses of completive status and perfective AM. Therefore, these two categories are dealt with only in combination in the present study. In the contemporary language,¹²¹ the combinations of perfective AM markers and completive status suffixes might as well be treated as discontinuous morphemes; if this is not followed through here, it is mainly in order not to complicate the syntactic analysis of clause constitution proposed in §4.2.

E185. T-in xok-ah le periyòodiko-o'.
 Perfective PRV-A.1.SG read-CMP(B.3.SG) DEF newspaper-D2
 'I read the paper.'

The distribution of the extrafocal status in the variety of Modern YM considered in the present study is restricted to the manner focus construction, where its function equals that of perfective AM marking in unfocused main clauses. Thus, E186b (repeated from §4.2.1.5) can be conceived of as the manner-focused version of E186a with the perfective AM marker and completive status.

¹²¹ Historical evidence suggests that the function of the combination of perfective AM marking and completive status inflection in Modern YM equals the function of completive status inflection in Colonial YM (cf. Robertson 1992: 208, Smailus 1989: 41). In Colonial YM, verbal cores inflected for completive status were capable of constituting clauses by themselves, without the addition of a preverbal AM marker. Just as in Modern YM, completive status did not occur in verbal cores embedded as arguments of matrix predicates. The function of completive AM marking in Colonial YM was to mark perfective aspect.

- E186 a. Domíingo-ak-e' h hàats'-nah-en ma'+lób.
 Sunday-ak-TOP PRV beat(ATP-CMP-B.1.SG NEG+bad
 'Last Sunday, I hit (lit. beat) well.' (construed)
- b. Domíingo-ak-e' ma'+lób hàats'-nah-ik-en.
 Sunday-ak-TOP NEG+bad(B.3.SG) beat(ATP-CMP-EXTRAFOC-B.1.SG
 'Last Sunday, well is how I hit (lit. beat).'

As put forth in §4.2.3, present-day extrafocal status represents a relic of the distinction between independent status marking (*modo declarativo* in Smailus 1989) and dependent status marking (*modo referencial* in Smailus 1989) in Colonial YM. The allomorphs of extrafocal status (cf. §4.2.3) are those of the dependent ('referential') completive in the Colonial language. The extrafocal simply originates in a retention of the old dependent completive in the manner focus construction. It should be noticed, however, that the extrafocal has apparently wider uses in the more conservative western dialect. Thus, E187 shows an example of a verb marked for extrafocal status which constitutes a topic clause with past-time reference. In the dialect the present study is based upon this function is conveyed by the connective *káa* plus a clause marked for perfective AM.

- E187. Luk'-ik t-u ka'-téen Carrillo Puerto t-uy otoch,
 leave-EXTRAFOC(B.3.SG) LOC-A.3 two-times Carrillo Puerto LOC-A.3 home
- káa h bin u k'áat wáah he' u
 káa PRV go(B.3.SG) A.3 wish:APP(B.3.SG) ALT ASS A.3
- k'a'm-al wèen-el t-u estasyòon-il trèen (....).
 receivePASS-INC sleep-INC LOC-A.3 station-REL train
- 'Carrillo Puerto, having left home again, went to ask whether he would be allowed to sleep on the train station (...)' (Domínguez Aké 1992: 15)

6.1.2. Incompletive and subjunctive I: The aspectual contrast

Incompletive and subjunctive status are treated together in this section, because with the exception of the extrafocal occurring in manner focus constructions, all dependent verbal cores in YM appear either in the incompletive or the subjunctive. And since the distributions of both status categories cover a wide range of different constructions, the fairly abstract semantics of the subjunctive and

incompletive are best understood in contrast. The aim of this chapter, however, is confined to *motivating* the distribution of the two status categories at issue, while their occurrence in any given construction is not claimed to be fully *compositional*. Apart mainly from certain focus constructions, subjunctive and incompletive are not in opposition with respect to one and the same construction, such that the speaker could select among them according to the meaning (s)he intends to express. Except for the focus constructions mentioned (and the constructions occurring with predicates of temporal extension, to be explored below), the occurrence of a particular status inflection in a particular construction is fixed. Therefore, it is somewhat futile to argue what the meaning of the construction is like independently of the status category.

I submit that the distribution of incompletive and subjunctive status marking is motivated by a two-way opposition that covers an aspectual reading of boundedness and a modal reading of 'assertiveness'. The aspectual opposition is discussed in this subsection and the modal opposition in the following. Some constructions which pose a problem for *both* a *purely* aspectual and a *purely* modal analysis, but which promise a more satisfying treatment under a combined modal-aspectual interpretation, are considered as well.

The aspectual meanings 'perfective' and 'imperfective' have been introduced in §2.3. Perfectivity refers to the inclusion of the target event's boundaries in topic time TT, whereas imperfectivity applies to the reference of an assertion or question if the target event's boundaries are not included in TT. The aspectual perfective-imperfective contrast straightforwardly motivates the distribution of the subjunctive and incompletive in those constructions in which they are in direct opposition: in the agent focus construction, the time focus construction, and with lexical predicates of temporal extension.

Consider first the agent focus construction. The examples in E188 are repeated from §4.2.1.5.

- E188 a. Káada domíingo-e' téen hats'-ik hun-p'éeel hit.
 every Sunday-TOP me beat-INC(B.3.SG) one-CL.IN hit
 'Every Sunday, it's me who bats (lit. beats) a hit (in baseball).'

- b. Domíngo-ak-e' **tèen** hats'-ø hun-p'éeł hit.
 Sunday-ak-TOP me beat(SUBJ)(B.3.SG) one-CL.IN hit
 'Last Sunday, it was me who batted (lit. beat) a hit.'

- c. Te domíngo k-u tàal-o'
 LOC:DEF Sunday IMPF-A.3 come-D2

tèen kéen in hats'-ø hun-p'éeł hit.
 me SR.IRR A.1 beat(SUBJ)(B.3.SG) one-CL.IN hit

'Next (lit. coming) Sunday, it's me who will bat (lit. beat) a hit.'

In the clauses subordinate to the focus, the incomplete is used instead of the main clause progressive and imperfective AM constructions (E188a), in contrast to the subjunctive (unmarked on the transitive verb *hats'* 'beat' except when the verb occurs in clause-final position),¹²² which is used instead of the main clause perfective AM (E188b). In anticipation of the description of the AM markers in §6.2, the progressive AM marker may be said to signal imperfectivity and the imperfective AM to mark primarily habitual or generic reference, whereas the perfective AM marker indicates perfectivity. When perfectivity is combined with relative future time reference (E188c), the plain subjunctive construction of E188b is replaced by a construction featuring the irrealis subordinator *kéen*, in order to comply with the *Modal Commitment Constrained* (MCC) to be introduced in §6.2.1.1, which states that perfective reference to events in the future of topic time TT requires specification of the speaker's modal attitude towards the asserted or questioned proposition.

A similar distribution is found in the time focus construction. For imperfective and habitual/generic reference, however, the imperfective AM marker is used (E189a). (Notice, though, that the imperfective AM triggers itself incomplete status marking.) Again, the bare subjunctive occurs with bounded reference (E189b), and the irrealis subordinator *kéen* is added with relative future time reference (E189c).

- E189 a. Tèen-e' **kàada domíngo** k-in hats'-ik hun-p'éeł hit.
 me-TOP every Sunday IMPF-A.1.SG beat-INC(B.3.SG) one-CL.IN hit
 'Me, it is every Sunday that I get (lit. beat) a hit.'

¹²² In order to facilitate the understanding of the examples, I represent the morphologically unmarked subjunctive as a zero morpheme (-ø) in this section, as opposed to the practice followed elsewhere in the study.

- b. Tèen-e' **domíngo-ak in** hats'-ø hun-p'éeł hit.
 me-TOP Sunday-ak A.1.SG beat(SUBJ)(B.3.SG) one-CL.IN hit
 'Me, it was last Sunday that I batted (lit. beat) a hit.'

- c. Tèen-e' **domíngo kéen in** hats'-ø hun-p'éeł hit.
 me-TOP Sunday SR.IRR A.1.SG beat(SUBJ)(B.3.SG) one-CL.IN hit
 'Me, it is on Sunday that I will get (lit. beat) a hit.'

The only other constructions that feature subjunctive and incomplete in direct opposition are the constructions occurring with lexical predicates of temporal extension, such as *úuchtal* 'become a long time'. These constructions are discussed in §7.1.3. In E190a, temporal distance of a target event (referred to perfectly) relative to TT is expressed. The verb expressing the target event, *kan* 'learn', is inflected for subjunctive status. In E190b, the projective duration of an event which is unbounded with respect to TT is expressed, and *kan* 'learn' appears in the incomplete. In E190c, distance from TT is predicated of a future time event. Here the irrealis construction is used once more, except that the irrealis subordinator *kéen* has been replaced in the example by the adverb *chéen* 'only', which is treated as a phonological variant of *kéen* in such environments.

- E190 a. Ts'-uy **úuch-tal** in kan-eh.
 TERM-A.3 long-ago-PROC.INC A.1.SG learn-SUBJ(B.3.SG)
 'It's been quite a while since I learned it', 'I learned it a long time ago.'

- b. Yan uy **úuch-tal** in kan-ik,
 OBL A.3 long-ago-PROC.INC A.1.SG learn-INC(B.3.SG)

táantik in chun-ik-e'.
 IMM A.1.SG start-INC(B.3.SG)-D3

'It will take me a long time to learn it, I have only just begun.'

- c. Yan uy **úuch-tal** **chéen** xi'k-en Mérida.
 OBL A.3 long-ago-PROC.INC only go.SUBJ-B.1.SG Mérida.
 'It will take a long time until I go to Mérida.'

Further evidence for the incomplete status inflection marking imperfectivity comes from perception verb constructions in which the incomplete-marked embedded verbal core refers to an event perceived by the experiencer of the perception verb (the event overlaps with the perception event and hence unbounded with respect to it; cf. §4.2.1.1). Imperfectivity straightforwardly motivates the occurrence of incomplete status inflection with the progressive AM

marker (E191b), which expresses itself imperfectivity (like the progressive tenses of English), and the imperfective AM marker (E191a), which indicates primarily habitual or generic reference (the relationship between imperfectivity and habitual/generic reference is explored in §6.2.1.2). Imperfectivity may likewise account for the proximate future AM (E191c) triggering incompletive status marking. This marker expresses an aspectual pre-state, does not entail event realization, and displays scope ambiguity with telic durative verbs, allowing for a narrow interpretation (i.e. one with scope only over the terminal boundary of the target event) under which the event is understood to already have been initiated at TT.

- E191 a. **K-in** **xok-ik** **le** **periyòdiko-o'**.
 Imperfective **IMPF-A.1.SG** **read-INC(B.3.SG)** **DEF** **newspaper-D2**
 'I (used to) read the paper.'
- b. **Táan** **in** **xok-ik** **le** **periyòdiko-o'**.
 Progressive **PROG** **A.1.SG** **read-INC(B.3.SG)** **DEF** **newspaper-D2**
 'I /am/was/will be/ reading the paper.'
- c. **Ta'itak** **in** **xok-ik** **le** **periyòdiko-o'**.
 Proximate future **PROX** **A.1.SG** **read-INC(B.3.SG)** **DEF** **newspaper-D2**
 'I /have/had/will have/ almost read the paper', 'I /am/was/will be/ about to read the paper.'

More difficult to account for is the co-occurrence of incompletive status with the terminative AM marker (E192a) and the immediate past AM marker (E192b). The former refers to a post-state (cf. §2.4) of the event (like the perfect tenses of English); the latter expresses temporal immediacy with respect to a completed event. Consequently, the time of the event referred to by the verbal core does not include TT with either AM marker.

- E192 a. **Ts'o'k** **in** **xok-ik** **le** **periyòdiko-o'**.
 Terminative **TERM** **A.1.SG** **read-INC(B.3.SG)** **DEF** **newspaper-D2**
 'I /have/had/will have/ read the paper.'
- b. **Táant** **in** **xok-ik** **le** **periyòdiko-o'**.
 Immediate past **IMM** **A.1.SG** **read-INC(B.3.SG)** **DEF** **newspaper-D2**
 'I /have/had/will have/ just read the paper.'

At least in the case of the terminative AM marker, this apparent contradiction receives a diachronic solution, at the expense, however, of synchronic

compositionality. Diachronically, the terminative AM marker relates to the phase verb *ts'o'k* 'end', which, like all YM phase verbs (or 'aspectual verbs', cf. §7.1.2), strictly requires incompletive inflection on the part of the embedded verbal core. The reason for this is that phase verbs precisely serve to assert or question the target event's initial (with phase verbs translating 'begin', 'start', 'commence', etc.) or terminal boundary (with phase verbs translating 'end', 'finish', 'complete', 'stop', 'quit' or the like). This would seem incompatible with a perfective verb form which itself already asserts or questions the target event's boundaries.¹²³ E193a illustrates intransitive phasals, E193b transitive phasals. Both require the embedded core to be inflected for incompletive status, independent of the transitivity of the core.

- E193 a. **Táan** **u** **ho'p'-ol**
PROG A.3 **start-INC**
- in** **hàan-al** / **in** **ts'fīb-t-ik** **le** **kàarta-o'**.
 [A.1.SG eat-INC] / [A.1.SG write-APP-INC(B.3.SG) DEF letter-D2]
- 'I am starting / starting / finishing / finishing / stopping / quitting eating / writing the letter.'
- b. **Táan** **in** **kah-ik**
PROG A.1.SG **start-INC(B.3.SG)**
- in** **hàan-al** / **in** **ts'fīb-t-ik** **le** **kàarta-o'**.
 [A.1.SG eat-INC] / [A.1.SG write-APP-INC(B.3.SG) DEF letter-D2]
- 'I am starting / starting / finishing / finishing / stopping / quitting eating / writing the letter.'

The argument here is that distribution of the incompletive with the complements of phasals is purely syntactically motivated, whereas distribution with the terminative AM-marker is "frozen"; in other words, it simply preserves the syntactically motivated pattern of the lexical source of the terminative. The semantics of the incompletive simply get overridden by the semantics of the terminative. Presumably, the distribution of the immediate past AM marker

¹²³ The construction of complements of phase verbs is thus more uniform than in English, where the more regular gerund (or *-ing*-form) alternates with the *to*-infinitive construction with some phase verbs. Accounts of this alternation have been proposed by Freed (1979: 70-76, 152-156) and Wierzbicka (1988: 77-97).

táant(ik) ...-e' with the incomplete (as opposed to recent and remote past, which both govern subjunctive status, with a clearly syntactic motivation) finds a similar explanation. The origin of *táant(ik) ...-e'* is unknown, but bilingual speakers tend to translate the construction with the Spanish *acabar de*-construction which itself originates in an egressive phase verb.

The lack of compositionality in this area of the AM marking system becomes even more apparent when the distribution of the incomplete with the immediate past AM marker is compared to the co-occurrence of the subjunctive with the recent and remote past AM markers:

- E194 a. **Sáam** in xok-ø le periyòodiko-o'.
Recent past **REC** A.1.SG read(SUBJ)(B.3.SG) DEF newspaper-D2
'I/read/had read/will have read/ the paper a while ago.'
- b. **Úuch** in xok-ø le periyòodiko-o'.
Remote past **REM** A.1.SG read(SUBJ)(B.3.SG) DEF newspaper-D2
'I/read/had read/will have read/ the paper a long time ago.'

That the recent and the remote past AM markers both trigger subjunctive status is by itself motivated with respect to the subjunctive indicating perfectivity. However, the contrast with the immediate past AM marker governing the incomplete is quite unpredictable on purely synchronic grounds.

6.1.3. Incomplete and subjunctive II: The modal contrast

'Assertive' modality is the modality of an independently asserted or questioned proposition, and also of what might be called a *co-asserted* proposition, i.e. one which is asserted or questioned as part of a higher proposition (strongly, as with the propositional argument of *know*, or weakly, as with the propositional argument of *believe*, *think*, and so forth).¹²⁴ In contrast, 'non-assertive' modality applies to

propositions which are not asserted or questioned, but e.g. presupposed (such as the propositional argument of 'factive' predicates like *regret*), or deontically or epistemically qualified (as with the propositional argument of *possible*, *probable*, and so on), or which are subject to a 'world-to-word direction of fit' in the sense of Searl & Vanderveken (1985) (e.g. commands, desires, etc.).

Evidence suggesting that in addition to the aspectual perfective-imperfective contrast, the distribution of subjunctive and incomplete status marking is also motivated by a modal contrast comes from two constructions in which the subjunctive contrasts with the perfective AM marker, which undisputably expresses perfectivity. If the subjunctive marked exclusively perfectivity, these cases of opposition between subjunctive and perfective-plus-completive would be unexplainable. The most important of these two cases is the counterfactual conditional protasis:

- E195. Wáah káa xi'k-en ka'ch-e' ts'o'k in kim-il-e'.
ALT SR go.SUBJ-B.1.SG formerly-TOP TERMA.1.SG die-INC-D3
'If I had gone, I would have died.' (context: the bus the speaker had missed subsequently had an accident)

The subjunctive in the counterfactual protasis, as in E195, contrasts with a merely hypothetical (but not counterfactual) protasis with bounded reference, in which the perfective AM marker (triggering completive status) is used, as in E196:

- E196. Wáah t-in kax-t-ah hun-p'éel-e'
ALT PRV-A.1.SG find-APP-CMP(B.3.SG) one-CL.IN-TOP

k-in tās-ik tèech.
IMPF-A.1.SG come-CAUS-INC(B.3.SG) you

'If I find one, I will bring it to you.' (Andrade 1955: 113)

A different contrast between bare subjunctive status marking and the construction perfective AM plus completive status arises under negation. In order to assert that a certain event did not take place at topic time TT, the perfective AM is used (cf. E197a). In contrast, the subjunctive (cf. E197b) receives under negation an interpretation similar to English *not yet* + perfect form. Again, it is asserted that

approach to 'intensional anchoring'.

¹²⁴ The terms 'assertive' and 'non-assertive' are adopted from the work of Hooper (1975) and Terrell & Hooper (1974) on syntactic and semantic subclasses of 'non-factive' complement clauses in English and Spanish (the distinction of 'factive' and 'non-factive' predicates was established in Kiparsky & Kiparsky 1971). Terrell and Hooper's research draws on an older approach in Bolinger (1968) and has been typologically extended in Noonan (1985). More recent studies on the same phenomena (but stated in model-theoretic frameworks) include Roberts's (1986) work on 'modal subordination' and Farkas's (1992)

the target event did not take place at TT; but this time, it is understood that the event was *expected* to be completed at TT, and an implicature may arise in context to the effect that the event *will* be completed in the future.

E197 a. Domingo-ak-e' ma' h hàats'-**nah**-en-i'.
 Sunday-ak-TOP NEG **PRV** beatATP-CMP-B.1.SG-D4
 'Last Sunday, I did not bat.'

b. Tèen-e' tak be'òora-a' ma' hàats'-**nak**-en-i'.
 me-TOP even now-D1 NEG beatATP-SUBJ-B.1.SG-D4
 'Me, up to now, I have not batted (yet) (i.e. ever).'

The semanto-pragmatic difference between E197a and b might be explicable assuming that in addition to perfectivity, *presupposition* plays a role in motivating some of the occurrences of the subjunctive. Under this analysis, the 'not yet'-reading of E197b comes about by the subjunctive indicating presupposition of the realization of the target event independently of the negative marker, which assumes itself the role of the matrix predicate (cf. §4.2.1.5). So the presupposition of realization of the target event remains intact, despite the assertion that the event did not occur (or was not completed) at TT.

Noonan (1985), in his typological study of complement clause constructions, offers an account of non-assertive modality that covers presupposition, counterfactuality, what is called 'optative' modality in the present study (applying to propositions which are subject to a 'world-to-word direction of fit' in the sense of Searl & Vanderveken (1985), such as commands, requests, etc.), and irrealis modality. All these semantic subcategories are actually marked by the subjunctive in YM. Counterfactuality was illustrated above with counterfactual conditional protases; another instance is the 'penative' AM marker *óolak* which signals failure of event realization, semantically resembling counterfactual *almost* in *I almost got run over by a car*.¹²⁵

¹²⁵ In Noonan (1985), counterfactuality is only implicitly considered, with predicates of negative propositional attitude, such as *to doubt*; *to not believe* etc. However, these predicates occur with argument propositions of 'independent time reference', which are expressed by clauses rather than by verbal cores in YM (cf. 4.2.1.1). In clauses, status inflection depends on the AM marker. Consequently, semantically non-assertive propositions with independent time reference are not necessarily expressed by clauses with subjunctive-marked predicates. Note also that Noonan (1985: 99) groups counterfactuality under irrealis modality. However, the language-particular semantic category of irrealis

E198. Óolak in xok-ø le periyòodiko-o'.
 Penative PEN A.1.SG read(SUBJ)(B.3.SG) DEF newspaper-D2
 'I (will have / had) almost read the paper.'

Presupposition was used above to motivate the opposition of subjunctive verbal cores with clauses formed with perfective AM and completive status under negation. However, there is no conclusive evidence to the effect that the subjunctive generally marks presupposition in YM. 'Factive' predicates (Kiparsky & Kiparsky 1971), e.g. 'commentatives' (Noonan 1985: 116-119) translating 'to appreciate', 'to regret', and the like, occur with both incomplete-marked and subjunctive-marked verbal cores (or subjunctive clauses introduced by the subordinator *káa*), without the semantic feature that triggers the selection among these constructions being known to date. Below, it is argued that presupposition in contexts such as with negation plays a more specific role in conditioning the use of the subjunctive in YM.

The 'optative' reading of the subjunctive occurs in exclamation clauses (E199) and in commands (as in E200), where it competes with the imperative (cf. §4.2.3).

E199. Káa séeb uts-**chahak**-ech!
 SR quickly good-PROC.SUBJ-B.2.SG
 'Get well soon!' (BVS 13.1.33)

E200. Pèek', hóok'-**ok**-ech!
 dog exit-SUBJ-B.2.SG
 'Dog, get out!' (lit. may you get out)

The 'irrealis' reading of the subjunctive occurs with irrealis modality in YM, as expressed by the irrealis subordinator *kéen*, which combines with a subjunctive-marked verbal core. *Kéen* introduces topic clauses, relative clauses, and subordinate clauses in focus construction, in each case with either relative future-time reference or habitual/generic reference. The language-particular category of irrealis modality in YM is therefore considered here to be restricted to covering future-time and habitual/generic reference. *Kéen* plus subjunctive has been illustrated above with the agent focus construction (E188c), the time focus construction (E189c), and with predicates of temporal extension (E190c).

modality in YM (as expressed by the irrealis subordinator *kéen*) does not include counterfactual meanings.

In all the constructions considered so far in this subsection, the subjunctive is used with propositions which are not directly (co-)asserted (or questioned), in line with the non-assertive analysis. The most serious problem for the interpretation of the incomplete-subjunctive contrast in terms of an assertive vs. non-assertive opposition is presented by the fact that those AM markers expressing deontic modality govern the incomplete, not the subjunctive:

- E201 a. **Yan** in **xok-ik** le periyòdiko-o'.
 Obligative OBL A.1.SG read-INC(B.3.SG) DEF newspaper-D2
 'I /have/had/will have/ to read the paper', 'I will/would read the paper.'
- b. **K'a'náan** in **xok-ik** le periyòdiko-o'.
 Necessitive NEC A.1.SG read-INC(B.3.SG) DEF newspaper-D2
 'I /need/needed/will need/ to read the paper.'
- c. **He'** in **xok-ik** le periyòdiko-o'.
 Assurative ASS A.1.SG read-INC(B.3.SG) DEF newspaper-D2
 'I /promise/promised/will promise/ to read the paper.'

The same applies to lexical predicates of ability:

- E202. **K-u páahtal a k'uch-ul**
 IMPF-A.3 be.possible [A.2 arrive-INC
 ich ka'-p'éeł òora xfimb-al.
 in two-CL.IN hour walk-REL]CORE

'It is possible for you to get there in two hours walking.' (BVS 8.1.6)

Propositions inside the scope of deontic or epistemic operators qualify for non-assertive modality (Hooper 1975: 93-100, Farkas 1992: 89-90) and consequently should be expected to be expressed by subjunctive-marked forms.

Equally at odds with an interpretation of the incomplete-subjunctive contrast purely in terms of assertiveness is the fact that the desiderative AM marker *táak* (E203a) triggers incomplete status marking, unlike lexical desiderative predicates such as the relational noun *k'áat* 'wish'. *K'áat* takes subjunctive verbal cores (E203b), expanded by the subordinator *káa* if the referent of the possessor

of *k'áat* is not identical to the referent of the A-argument of the dependent verb (E203c).¹²⁶

- E203 a. **Táak** in **xok-ik** le periyòdiko-o'.
 DES A.1.SG read-INC(B.3.SG) DEF newspaper-D2
 'I /want/wanted/will want/ to read the paper.'
- b. **Ma** in **k'áat** in **man-ø** le **ba'l-o'b-o'**.
 NEG A.1.SG wish(B.3.SG) A.1.SG buy(SUBJ)(B.3.SG) DEF thing-PL-D2
 'I don't want to buy those things.' (BVS 7.1.6)
- c. **Ba'x a k'áat káa** in **man-eh?**
 what A.2 wish(B.3.SG) SR A.1.SG buy-SUBJ(B.3.SG)
 'What do you want me to buy?' (BVS 7.1.4)

Notice furthermore that the aspectual analysis of the incomplete-subjunctive contrast is by itself equally incapable of resolving these puzzles. The obligative, necessitive, and desiderative AM markers are exclusively used in perfective reference to events in the relative future of TT. Consequently, the aspectual analysis predicts that they trigger subjunctive status, not incomplete status.¹²⁷

¹²⁶ However, if the dependent core is intransitive, and its S-argument is referentially identical with the A-argument or possessor of the desiderative predicate, the dependent verb is marked for incomplete status, and the cross-reference marker that would otherwise index the dependent verb's S-argument is ('equi-')deleted under control. This pattern, which also occurs with the motion-cum-purpose construction, has been described in §4.2.1.1. It may be tentatively assumed that the construction of intransitive verbs with incomplete marking and equi-deletion of the S-argument marker has a semantics not derivable from the semantic representation of the incomplete. Recall that the incomplete also serves to derive lexical deverbal nouns, which show a wide range of different readings (cf. §5.1.2). This points to a function of the incomplete as a general deverbal nominalizer, which should at least preliminarily be kept apart from the occurrence of the subjunctive with the set-A pronouns in (dependent or independent) verbal cores. The occurrence of the incomplete in verbal cores is certainly just one instance of the nominalizing function of the incomplete, at least historically. Be that as it may, the analysis of the incomplete proposed here is confined to the inflectional occurrences with verbal cores.

¹²⁷ One might argue that they would require the irrealis subordinator *kéen* if they occurred with subjunctive-marked verbal cores, in order to comply with the Modal Commitment Constraint (MCC). However, it is argued in §6.2 that the modal AM markers satisfy the MCC by themselves, as they express precisely the kind of modal attitude required by the MCC.

In order to account for the fact that the deontic AM markers, the desiderative AM marker, and the lexical predicates of ability occur with incomplete-marked verbal cores, the analysis of the subjunctive proposed so far needs to be revised as follows: Under the aspectual interpretation, the subjunctive signals perfective reference to the event expressed by the verbal core. This entails *realization* of the event (cf. §2.4). Under the modal interpretation, the subjunctive marks non-assertiveness. Suppose now *both* interpretations are correct; only, instead of being merely in an *additive* relationship, the two semantic components are part of a more complex semantic structure: realization of the event expressed by the verbal core is entailed *inside* the scope of non-assertiveness. That is to say, the subjunctive serves to indicate that realization of the event expressed by the embedded verbal core is *not co-asserted with* and *does not depend on* the realization of the event expressed by the matrix predicate.

Before discussing how the refined analysis of the subjunctive explains why the subjunctive does not occur with the deontic and desiderative AM markers and the lexical predicates of ability, let us first consider some independent evidence in support of this refined analysis of the subjunctive. Then, it is briefly discussed how the analysis accounts for the occurrence of the subjunctive considered above to be purely aspectually or purely modally motivated; and finally, the issue of the deontic and desiderative predicates is resumed.

Evidence for the subjunctive signaling independence of realization (or blocking co-assertion of realization) of the event expressed by the verbal core with respect to the realization of the matrix event comes from causative predicates and from a comparison of the motion-cum-purpose construction with the gerundial construction. Predicates of direct causation (E204) combine with a dependent verbal core in the incomplete, whereas the embedded verbal core in expressions of indirect causation by command (E205), etc., is inflected for subjunctive status, and usually combined with the subordinator *káa*.

E204. He' u bèet-ik u k'áax-al ha' hun-túul sàanto-e'?'
 ASS A.3 do(B.3.SG) A.3 fall-INC water one-CL.AN saint-D3
 'Will a saint make it rain?' (Fcp 175)

E205. Káa t-u óordenar-t-ah u hènte Sulub-o'
 káa PRV-A.3 command-APP-CMP(B.3.SG) A.3 people Sulub-D2

káa xi'k kins-bil
 SR go.SUBJ(B.3.SG) die:CAUS-GIV(B.3.SG)

le máak-o'b h sùunah-o'b-o'.
 DEF person-PL PRV turn\ATP:CMP-B.3.PL

'(And) Sulub ordered his men to go and kill the people that had returned (lit. to go for the people who had returned to be killed).' (Yax 229-230)

This constructional difference naturally aligns with the semantic difference that realization of the causing event entails realization of the caused event with the direct causation construction, but not with indirect causation.

In the motion-cum-purpose construction (E206a; cf. §4.2.1.2), an embedded transitive verb with subjunctive marking contrasts with an incomplete-marked embedded transitive verb in the gerundial construction (E206b; cf. §4.2.1.3).¹²⁸

E206 a. Pedro-e' h tàal u sfih-ø chúuhuk
 Pedro-TOP PRV come(B.3.SG) A.3 present(SUBJ)(B.3.SG) sweet

te mehen pàal-al-o'b-o'.
 LOC:DEF little child-DISTR-PL

'Pedro came to give sweets to the kids.' (i.e. he came in order to present sweets to the kids)

b. Pedro-e' h tàal u sfih-ik chúuhuk
 Pedro-TOP PRV come(B.3.SG) A.3 present-INC(B.3.SG) sweet

te mehen pàal-al-o'b-o'.
 LOC:DEF little child-DISTR-PL

'Pedro came giving sweets to the kids.' (i.e. he came, presenting the sweets on the way)

In E206b, it is understood that the giving of sweets (marked by the incomplete as unbounded with respect to the matrix event) occurred simultaneously with the motion event, and that it was realized with the motion event. By contrast, realiza-

¹²⁸ The intransitive embedded verbal core in the motion-cum-purpose construction occurs with incomplete marking and equi-deletion of the set-A marker, just as the intransitive embedded verbal core with lexical desiderative predicates. The argumentation developed above with respect to the lexical desiderative construction applies to the motion-cum-purpose construction as well.

tion of the giving event in E206a is certainly strongly implicated, but not entailed. E207 gives an example of a motion-cum-purpose construction in a context in which realization of the event expressed by the embedded verbal core (the spending of a sum of money that had been hidden) is canceled (the money cannot be spent anymore, as it has been discovered and taken by somebody else).

- E207. ^ALe túun le máak-e' káa túun h bin
 DEF CON DEF person-TOP káa CON PRV go(B.3.SG)
- u xup' le tàak'in-o'. (...) ^BKáa h bin
 A.3 exhaust(SUBJ)(B.3.SG) DEF money-D2 káa PRV go(B.3.SG)
- uy il-a'-eh. ^CK-uy a'l-ik bin-e':
 A.3 see-? SUBJ(B.3.SG) IMPF-A.3 say-INC(B.3.SG) HS-D3
- ^DEste, pos téen-e', way t-in muk-ah in tàak'in-e'.
 HESIT well me-TOP here PRV-A.1.SG dig.in-CMP(B.3.SG) A.1.SG money-D3
- ^EPos tu'x yàan? (...) ^FMix+ba'l."
 well where EXIST(B.3.SG) EMPH.NEG+thing
- ^GSáam ch'a'-b-ak tuméen le chan Juárez-o'.
 REC take/fetch-PASS-SUBJ(B.3.SG) CAUSE DEF small Juárez-D2
- ^ASo the man, so **he went to spend the money**. (...) ^BHe went to look for it. ^CHe said, they say: ^DUhm, well, me, here I buried my money. ^EWell, where is it? ^F(Here is) nothing." ^GIt had already been taken by that little Juárez.' (Lazy boy 93-107)¹²⁹

Having given some independent support of the refined analysis of the subjunctive as marking "independent realization" (or blocking of co-assertion of realization), let us now consider how this analysis fits with those occurrences of the subjunctive discussed above as purely aspectually motivated or purely modally motivated. In focus constructions, with predicates of temporal extension and with the recent and remote past AM markers, realization of the event expressed by the verbal core is understood to be independent of the main predicate, because it is *presupposed*. The focus constructions precisely serve to disentangle the assertion of who was the agent in the event (agent focus construction) or of when the event occurred (time focus construction) from the realization of the event. Evidence for presupposition of event realization with the recent and remote past markers is

provided in §6.2.2.3. The same applies to the use of the subjunctive with negation, as discussed with respect to E197 above. In counterfactual uses, such as in counterfactual conditional protases and with the penative AM marker, co-assertion of realization of the target is blocked because in these constructions, realization of the target event is explicitly denied. In the 'optative' uses of the subjunctive, there is no matrix predicate with respect to which realization of the target event would have to be marked as blocked for co-assertion. But such utterances have the syntactic form of complements of desiderative or command predicates, and they are interpreted that way too.

How does the analysis of the subjunctive as blocking co-assertion of event realization account for the fact that the deontic and desiderative AM markers and lexical predicates of ability do not trigger subjunctive inflection, while lexical desiderative predicates do? The only formal difference, aside from the form of the embedded verbal core, between the desiderative AM marker in E203a and the lexical desiderative predicate in E203b-c consists in the fact that the lexical predicate has an argument referring to the experiencer of the desire, whereas the desiderative AM marker is impersonal, i.e. takes the embedded verbal core as its sole argument. The same holds with respect to the other modal AM markers. This suggests that the difference in status patterns between the lexical desiderative predicate *k'áat* and the desiderative AM marker *táak* is motivated by this difference between personal and impersonal construction of the matrix predicate, and more generally, that the incomplete status pattern associated with the deontic AM markers is explained with reference to the fact that these AM markers take the verbal core as their sole argument. Lexical desiderative predicates denote an experiencer to be in a state of desire directed towards realization of the event expressed by the embedded verbal core, so the subjunctive is used to indicate that realization of that event is independent of the state of desire. With the AM markers of deontic modality (E201), and with the lexical predicates of ability (E202), realization of the target event is not independent of the modal state, but is on the contrary qualified by the modal predicate. Hence these predicates select the incomplete. This semantic difference aligns with a tighter syntactic unit attested cross-linguistically in modal predicate constructions as opposed to other constructions of propositional arguments (Givón 1980, 1990: 532-537, Noonan 1985: 127-128). In YM, the only reflex of this tighter unit is the impersonal argument structure of the modal predicates. This constructional pattern is extended to the desiderative AM marker, in that the experiencer of the desire is no

¹²⁹ This example has been provided by Christel Stolz, which I gratefully acknowledge.

longer separately expressed, which also excludes the possibility of having an experiencer referentially disjunct from the S- or A-argument of the verbal core. And as a consequence, the realization of the event expressed by the verbal core is not marked as independent of the state of desire.

One problem for the analysis of the subjunctive as marking that an argument or adjunct proposition is blocked from co-assertion of event realization is posed by the fact that the predictive AM marker triggers subjunctive marking on the verbal core, despite the fact that it has an impersonal argument structure just like the deontic AM markers.

E208. *Bīn* háay-lak tāk'in
 PRED spread\ACAUS-POS.SUBJ(B.3.SG) money
 ich u nah-il-o'b bèey-a'.
 in A.3 house-REL-PL thus-DI

'Money will be spread out in their houses.' (Inferno 99)

It might be argued that the predictive does not deontically or epistemically qualify the realization of the event expressed by the embedded verbal core, unlike the deontic AM markers - hence the subjunctive to signal independence of realization. However, to the extent that the predictive AM marker is used to express *predictions*, it seems to entail epistemic certainty, and therefore should actually select for a strongly assertive argument proposition (Hooper 1975: 100-112). It may be the case that the subjunctive pattern associated with the predictive AM has to be accepted as another case of diminished synchronic compositionality. There are two possible sources from which the predictive AM *bīn* may have arisen: if the grammaticalization source is the motion verb *bin* 'go', then the status pattern may be a relic of the status pattern in the motion-cum-purpose construction. The second possible historical source of *bīn* is the hearsay evidential marker *bin* (which may itself be related to the motion verb *bin* 'go'). This explanation aligns with the predominant use of the predictive AM marker in prophecies, where it serves to communicate future events which have been predicted by "authoritative" sources such as shamans, diviners, prophets, and other people with privileged access to the supernatural. The hearsay evidential marker is itself frequently used in this type of context, to indicate that the speaker is not himself or herself the source of the prediction. If this is the etymology of predictive *bīn*, then its subjunctive pattern may actually be motivated by non-assertiveness, in the

sense that the speaker does not assume personal responsibility for the claim (thereby at the same time strengthening it). The predictive AM marker is treated in greater detail in §6.2.2.2.5.

6.1.4. Previous analyses

Lucy (1994) suggests an analysis of the aspectual value of the status categories (excluding the extrafocal, which he does not mention) which is largely compatible with the analysis proposed above. In particular, Lucy emphasizes the association of incomplete status with imperfective aspect and of complete and subjunctive status with perfective aspect. (Lucy in fact dubs the subjunctive 'gnomic perfective'.) However, he seems to consider the complete to be restricted to past-time reference:

"The past perfective aspect [i.e. complete status, *JB*] indicates that the given situation described by the predicate is construed as an existent whole without salient internal structure. Unlike a simple perfective, it cannot be applied to ongoing future events but emphasizes the actual completion of the event and thus suggests past tense and focus on result" (p. 634).

But as shown in §6.2.1.1, the restriction of perfective AM and complete status to non-future-time reference only holds for main clauses. In subordinate clauses, they may well occur with future-time reference. One example is the conditional protasis in E196 above, repeated here for convenience:

E209. Wáah t-in kax-t-ah hun-p'éele-e'
 ALT PRV-A.1.SG find-APP-CMP(B.3.SG) one-CL.IN-TOP
 k-in tās-ik tēech.
 IMPF-A.1.SG come:CAUS-INC(B.3.SG) you

'If I find one, I will bring it to you.' (Andrade 1955: 113)

The restriction to non-future-time reference in main clauses is explained with reference to a general 'Modal Commitment Constraint' in §6.2.1.1. On this analysis, it is not part of the semantics of either perfective AM or complete status.

Vapnarsky (1999) follows Lucy (1994), but points to the additional modal meaning of the subjunctive (without giving a detailed analysis). Krämer & Wunderlich (1999) likewise opt for an aspectual analysis of the completive-incompletive contrast. However, they ascribe post-state reference to the completive as its primary function. It is shown in §6.2.1.1 that perfective AM and completive status are indeed vague in terms of the distinction between perfective reference and post-state ('perfect') reference. However, perfective reference is by far the more frequent reading. In addition, Krämer & Wunderlich stipulate, without discussion, aspectual neutrality of the subjunctive. This is clearly inconsistent with the evidence presented in §6.1.2 above.

Arzápalo (1984) (and following him Monforte y Madera 1994) interprets the YM status categories as tenses. Incompletive status is described as a present tense, completive status as a past tense, and subjunctive status is ascribed a feature of temporal distance. However, evidence disproving deictic or anaphoric reference of the incomplete and completive in combination with the various AM markers that trigger these status categories can be found in the description of the relevant AM markers in §6.2. Incompletive status inflection occurs with present, past, and future time reference e.g. in combination with the terminative and progressive AM markers and the AM markers of deontic modality. Examples for the combination of perfective AM and completive status inflection occurring with present or future time reference are provided in §6.2.1.1 (one example can be found in E209 above). In each of the descriptions of the AM categories just mentioned, relative (anaphoric) tense analysis are refuted as well.

Arzápalo justifies the interpretation of the subjunctive as marking temporal distance with reference to the fact that both the remote past and the predictive AM trigger subjunctive status inflection on the verb. The predictive AM marker is analyzed by Arzápalo as an expression of distant or remote future. However, as has been pointed out by Vapnarsky (1995, 1999), the predictive AM marker may well be used in reference to events which are expected to happen within a few days after TT. Vapnarsky even quotes an example where a person predicts his death as immediately awaited, and indeed, the person was found dead on the same day. Moreover, Arzápalo fails to consider the recent past marker *sáam*, which is usually employed referring to target events that occurred earlier on the day of utterance (*sáam* actually represents a border-line case between a 'hodiernal past' and a true recent past category, cf. §6.2.2.3). And of course, Arzápalo's analysis

does not account for any of the clearly non-temporal uses of the subjunctive discussed above (e.g. the counterfactual and 'optative' readings).

6.1.5. Summary

It has been shown that completive status inflection occurs exclusively in independent verbal cores, where it is restricted to combinations with the perfective AM marker, whereas the incomplete and subjunctive inflections occur mainly in dependent verbal cores. The incomplete has been established as a dependent verb form marked for imperfective reference, similar to an Indo-European gerund. In addition, the incomplete conveys a feature of 'assertive' modality, which it may have received diachronically from its being in contrast with subjunctive status, which expresses 'non-assertive' modality. The subjunctive in turn has an additional reading of perfectivity, which may have arisen from the opposition to the incomplete. It has been argued that at least with respect to some of the occurrences of the subjunctive, non-assertive modality and perfectivity should be conceived of as forming a complex semantic structure, in that the subjunctive specifically signals blocking of event realization from 'co-assertion' by the matrix predicate or the entire construction.

All dependent verbal cores occur either in the incomplete or in the subjunctive, with the sole exception of manner focus constructions with perfective reference, in which the subjunctive is replaced by the extrafocal. The extrafocal represents a relic of the Colonial YM dependent completive status. On the basis of the formal distinction between independent and dependent verbal cores (recollect that dependent verbal cores are those that are immediately dominated by a higher predicate) and the semantic distinctions between perfective and imperfective reference and assertive and non-assertive modality, it becomes possible to motivate the occurrences of the status categories in all but a few marginal instances. However, as indicated above, *motivation* of the occurrences of the status markers must not be equated with *compositionality*.

In the further discussion of the temporal function of the constructions that trigger status inflection, status inflection is largely neglected, in accordance with the fact that status inflection is redundant in most constructions, since most structural environments determine the selection of exactly one status category. However, at

one point in the further investigation, namely when discussing the AM markers dealing with temporal distance (in particular the recent and remote past AM markers), a compositional analysis of the combination of these AM markers with the status categories they govern is undertaken.

6.2. PREVERBAL AM MARKERS

6.2.1. Bound particles

There are two morphologically bound AM markers, the perfective AM and the imperfective AM. These are prefixed to the set-A cross reference markers.¹³⁰ The introductory examples E210 are repeated from §1.2:

E210 a.	T-in	xok-ah	le	periyòdodiko-o'.
Perfective	PRV-A.1.SG	read-CMP(B.3.SG)	DEF	newspaper-D2
	'I read the paper.'			
b.	K-in	xok-ik	le	periyòdodiko-o'.
Imperfective	IMPF-A.1.SG	read-INC(B.3.SG)	DEF	newspaper-D2
	'I (used to) read the paper.'			

The perfective AM refers perfectly to the target event, i.e. it yields inclusion of the target event's boundaries in topic time TT. Typologically, the perfective AM represents a typical perfective aspect. The imperfective AM marker signals habitual or generic reference. The perfective AM marker triggers completive status on the verb, while the imperfective AM marker triggers incomplete status.

6.2.1.1. Perfective

The perfective AM marker acts as a perfective aspect: it refers to the target event in its boundaries, or put differently, it marks the inclusion of the target event's boundaries in TT. The perfective AM marker occurs exclusively with verbal cores inflected for completive status.

¹³⁰ This holds with the exception of the perfective AM when combined with intransitive verbal cores. The perfective shows an allomorph *h* in this environment, which is audible only when preceded by a sonoric sound. Like all AM markers, *h* immediately precedes the verbal core; cf. §4.1.

The YM perfective AM covers a truly perfective as well as a post-state reading. By 'truly perfective', the mapping of the event type encoded in the verb onto a bounded event in discourse is referred to. Inevitably, the terminal boundary of the event is included in the topic time TT of the assertion or question. Event realization is among the indispensable truth conditions of the perfective AM marker. To test this, the Event Realization Stimulus (EVEREST) developed by Angelika Wittek for the Acquisition Research Group at MPI Nijmegen was deployed.

EVEREST was designed to investigate the attention children at a certain stage in first language acquisition pay to realization of a target event when using state-change verbs of differing structural properties. The stimulus consists of two series of short video clips showing mostly accomplishment type events, with a few activities included for control purposes. The state-changes differ in whether or not the natural target state is eventually accomplished. The two sets comprise the same clips, except for the difference in event realization. For example, both sets include a scene where a burning candle is blown at; but in one set, the candle is actually extinguished, whereas in the other one, the flame flickers but persists. For details, see F32.

This stimulus was applied to the examination of sensitivity to event realization in AM-marking in the following way: The films were shown to the consultants without interruption first, and then repeated. This time they were stopped at some appropriate position motivating the aspectual category at stake, and the consultant was asked a question of the format *At this moment, (is it possible to say) AM [VERB...]CORE?* where AM represents the AM category to be investigated and *[VERB...]CORE* stands for the particular construction and the particular predicate the consultant had used after the first pass to describe the scene. By this method, the following aspectual categories were shown to be applicable to change-of-state verbs only when the target state was actually achieved in the video: the imperfective AM (in its most prominent habitual function), the perfective AM, the terminative AM, the deverbal derivations resultative and perfect, and the obligative AM (in its predictive future reading), as well as the immediate and recent past AM markers. Insensitivity to event realization was demonstrated for the progressive AM, the prospective AM, and the proximate future AM marker. Not tested due to their pragmatic inadequacy in this setting were the desiderative AM, the assurative AM, the predictive AM, the remote past AM, and the deverbal gerundive. With the perfective AM in particular, in case VERB was a state-change verb, all

five consultants accepted the statement *PRV [VERB ...]_{CORE}?* at the end of a film exclusively if the target state was actually achieved in the video clip.

F32. The EVEREST stimulus (selection; the videos are described in the order they appear in on the tape. Corresponding videos in the two series have identical numbers)

Series I	Series II
I/6 Woman inserts walnut into nutcracker. She presses the nutcracker's arms, but the nut slips out of the nutcracker.	II/4 Woman picks a plate from a row of plates, places it on the table in front of her, takes a hammer, lowers it onto the plate and smashes the plate to pieces.
I/8 Woman blows on three lit candles placed in a row and extinguishes the one next to her.	II/5 There's a closet with an open door. Woman enters the room, peeks into the closet and pushes the door so as to close it. However, when she releases the handle, the door swings back open again.
I/1 Woman pours orange juice out of a jar into the middle one of three beakers placed in a row. The level of juice in the beaker rises, but then drops again, because the fluid apparently escapes through an aperture in the bottom of the beaker. In the end, both the jar and the beaker are empty.	II/1 Woman pours orange juice out of a jar into the middle one of three beakers placed in a row. In the end, the jar is empty and the beaker full.
II/4 Woman picks a plate from a row of plates, places it on the table in front of her, takes a hammer, lowers it onto the plate and smashes the plate to pieces.	II/8 Woman blows on three lit candles placed in a row. The one next to her flickers, but does not extinguish.
I/5 There's a closet with an open door. Woman enters the room, peeks into the closet and closes the door.	II/6 Woman inserts walnut into nutcracker. She presses the nutcracker's arms, and the nut-shell breaks. She puts the nut and the fragments of the shell on the palm of her hand and presents them.

By the entailment of event-realization, the terminal boundary of the target event is always asserted or questioned (although in the post-state reading it is backgrounded, as the post-state itself has no boundaries). The initial boundary can be specified in addition by adverbial modification, such as in E211:

E211.	Leti'-e' h	xòok-nah	tí'	las dòos	tak	astàa	las sèeys,
	it-TOP	PRV	read\ATP-CMP(B.3.SG)	LOC	two.o'clock	even	until six.o'clock
	t-u	xok-ah	le	pèeriyodiko	te	las sèeys	tí'
	PRV-A.3	read-INC(B.3.SG)	DEF	newspaper	LOC:DEF	six.o'clock	LOC
	tak	las syèete,	káa	h	hàan-ih,	tí'	las syèete
	even	seven.o'clock	káa	PRV	eat-B.3.SG	LOC	seven.o'clock
						LOC	even

las òochò-i', káa túun h bin túun leti' t-u kàama.
eight.o'clock-D4 káa CON PRV go(B.3.SG) CON it LOC-A.3 bed

'As for him, he studied from two to six, he read the paper from six to seven, then he had dinner, between seven and eight, and then he went to bed.' (Proga 72)

The perfective AM is, however, unattested in my data with plain reference to the initial boundary of the target event. Compare the following example:

E212. Tèen-e' tí' h máan-en ho'l-heak te k'áax-o.
me-TOP LOC PRV pass-B.1.SG yesterday-ak LOC:DEF jungle-D2

Chen ichil in màan-e',
just in A.1.SG pass-TOP

káa t-in ya'+che'-t-ah hun-túul kàan.
káa PRV-A.1.SG step+foot-APP-CMP(B.3.SG) one-CLAN snake

'I went through the forest yesterday. (While) I was just walking about, I stepped on a snake.' (Perfa 9)

The perfective clause *Tí' h máanen ho'lheak te k'áaxo* 'I walked about there in the jungle yesterday' establishes the setting for the event to be communicated subsequently, i.e. *Tin ya'che'tah huntúul kàan* 'I stepped on a snake'. However, the first clause, marked for perfective AM, only asserts the fact that the speaker walked in the jungle on the day before the day of utterance. The perfective clause cannot itself convey the temporal background, as would be the case with either a progressive ('I was walking in the jungle, when I suddenly stepped on a snake') or an ingressive ('I started walking about in the jungle, when I suddenly stepped on a snake'). The perfective AM can have neither the imperfective reading of the progressive nor a perfective-ingressive reading like the inceptive periphrasis *káa h ho'p' káa PRV begin(B.3.SG)* '(and then) it began' > *kap'* (cf. §7.3.4). Therefore, after the perfective has been used to assert the fact that the speaker had been walking in the forest on the previous day,¹³¹ that event is repeated in a progressive-like construction *ichil in máan* 'while I was walking about' (lit. 'in

¹³¹ Why did the speaker not use the progressive in the first place, avoiding the redundancy of the repetition? Presumably because part of the setting definition provided by the use of the perfective AM marker was a definite location in time, *ho'lheak* 'yesterday', which is odd with the progressive 'I was walking in the forest' when uttered in isolation, and therefore may be considered slight odd as well with the progressive in the very first sentence of a statement.

my passing') with imperfective reference. This construction occurs as the topic of the clause referring to the snake encounter, making it clear that the walking had not been completed at the moment the speaker was bitten.

Especially in non-monological discourse,¹³² the completive is often used with change-of-state predicates to focus on the post-state of an event rather than on the event itself:

E213 a. **H** k'àax bakan ha' tuláak le àakab-o'.
 PRV fall(B.3.SG) INFER water all DEF night-D2
 'It has apparently rained all night.' (Perfa 14)

b. **H** kim-ih / ts'o'k u kim-il.
 PRV die-B.3.SG TERM A.3 die-INC
 'He / died / has died.' (Tama 56)

c. Tèen-e' eske **h** ah-en las kwàatroh
 me-TOP it.is.that PRV wake.up-B.1.SG four.o'clock

u ti'a'l u tàal u sáas-tal.
 A.3 for A.3 come A.3 clær:PROC

'As for me, (I'm tired) because I woke up at four o'clock early this morning.'
 (Perfa 17)

In E213b, where the consultant volunteered terminative AM *ts'o'k* as an alternative, the choice between the terminative AM and the perfective AM marker depends largely on the degree to which the event has been expected: the more the reference is anchored in expectation, and the closer the reading thus comes to completion, the likelier *ts'o'k* is to be preferred. In E213a and c, the terminative AM is impossible because of the event time specifications *tuláak le àakabo* 'all night' and *las kwàatro* 'at four'. Just like the deverbal resultative in *-a'n*, the terminative AM is only accessible for topic time modification. In E213c, *aha'nen las kwàatroh* would mean 'I was awake at four o'clock', and in E213a the use of this form would yield something quite odd, namely an ascription of the state of being fallen to the rain (cf. §5.2.1 on the resultative derivation and §6.2.2.1.2 on the terminative AM marker).

¹³² By 'non-monological', discourses that feature regular turn-taking and only a small number of propositions per turn are meant.

While the post-state reading of the perfective AM marker is possible with event time determination, it still shows the dissociation of topic time and event time that is typical of pre- and post-state operators. This proves that the post-state ambiguity is not a mere implicature, but a true case of vagueness. Consider the nice time contrast established in E214, where the topic time *behe'la ...-e* 'now' is clearly not the time of the event expressed in the perfective clause *h máano'b te bàantah te'lo* 'they moved over to the neighborhood over there'. The topic time *behe'la*, motivated by the contrast with *ka'ch* 'formerly', is rather an interval at which the result state of having moved holds true.

E214. **Ti'** yàan te' y-óok'ol eskiina i mēēdya
 LOC EXIST(B.3.SG) there A.3-on corner and half

kah-akbal-o'b ka'ch-a'. Ka'ch-a' tuméen behe'la-e',
 live-POS.RES-B.3.PL formerly-D1 formerly-D1 CAUSE today-TOP

h máan-o'b te bàantah te'l-o'.
 PRV pass-B.3.PL LOC:DEF direction there-D2

'Over there, at (over) a block and a half they used to live. *Used to* because nowadays they've moved over in that area over there.' (Hanks 1990: 395)

With the perfective reading proper, topic time and event time necessarily coincide. The perfective clause maps the event type lexicalized in the verb onto a bounded event in discourse; neither a pre- or post-state nor a time relation with respect to some reference point is implied, and hence, the only available topic time for a perfective clause is the interval opened up by the target event itself. The post-state reading, however, refers not to the target event itself, but to its post-state, which strictly speaking should even exclude any kind of event time modification. The possibility of determining the target event's location in time, such as in E213a and c, shows that the post-state referred to by the perfective is not actually the result state of the target event in a narrow sense, but rather some sort of experiential post-state. Such an 'experiential perfect' reading says, loosely speaking, something like "The (discourse) world is at topic time TT in the state of having experienced some significant change due to the occurrence of the target event (at the event time)." This explains the difference the experiential and the resultative reading of the English perfect show with respect to specifications of temporal location. For instance, *I have got up at five o'clock* seems acceptable as an answer to *Have you ever got up earlier than six o'clock?* (experiential reading), but would be downright ungrammatical in the context *When did you get up*

this morning? (cf. Comrie 1976: 52-53, 58-59). The perfect of result asserts the target state of the event lexicalized in the predicate to hold at TT; hence it is incompatible with any TT at which the target state does not hold any more; hence the result state itself is fully determined in its temporal location with respect to TT (and since TT in turn is determined by the deictic component of the English present perfect to coincide with coding time, the resultative reading of the present perfect excludes any locational modification; cf. Klein 1995). The perfective aspect of YM allows for an experiential perfect reading compatible with event-time modification, because the experiential reading does not entail that the concrete result of the target event still holds at TT. In examples where the result state does not actually hold any more at TT, the perfective is strongly preferred over both the terminative and the deverbal statives. Consider the following example:

- E215. T-a k'ahóol-t-ah in tàatah,
 PRV-A.2 acquaintance-APP-CMP(B.3.SG) A.1.SG father
 le máax h kim te ha'b h máan-o'?'
 DEF who PRV die(B.3.SG) LOC:DEF year PRV pass(B.3.SG)-D2
 - M'in chen hun-téen-ili' t-inw il-ah.
 DUB only one-time-ID PRV-A.1.SG see-CMP(B.3.SG)

'Did you get to know my father who died last year? - I think I only met him once.'
 (Tama 43)

Here, the consultant rejected both the terminative AM marker (*Ts'o'k a/in k'ahóoltik*) and the perfect derivation (*A/in k'ahóoltmah*) in both the question as well as the answer, with the volunteered explanation *Porque ya no vive* 'Because (the father) is not alive any more'. In general, though, both the terminative as well as the stative derivatives resultative and perfect are possible with experiential readings as well. They just do not allow for any event-time determination, and presumably, this is the proper reason why they were rejected in E215.

Ambiguity between a perfective and a post-state reading is not only a recurrent property of perfective aspects in the languages of the world (such as for instance the English simple past, the Romance preterite, and the Russian perfective) but holds in particular for Mayan perfectives. It seems that the connective *káa*, which occurs exclusively with perfective aspect, is used specifically to resolve potential ambiguity in that it excludes post-state interpretations. For an illustration, con-

sider the narration translated by the consultant in the following example (the beginning is already familiar from above):

- E216. Tèen-e' ti' h máan-en ho'l-heak te k'áax-o.
 me-TOP LOC PRV pass-B.1.SG yesterday-PAST LOC:DEF jungle-D2
 Chéen ichil in màan-e', káa t-in ya'+che'-t-ah
 only in A.1.SG pass-TOP káa PRV-A.1.SG step+foot-APP-CMP(B.3.SG)
 hun-túul kàan. Káa t-u chi'-ah in péek+òok-e',
 one-CLAN snake káa PRV-A.3 bite-CMP(B.3.SG) A.1.SG move+foot-TOP
 káa túun t-in ch'a'-ah hun-p'èel tunich, káa t-in
 káa CON PRV-A.1.SG fetch-CMP(B.3.SG) one-CL.IN stone káa PRV-A.1.SG
 ch'in-ah le kàan-o', káa h kim-ih.
 pelt-CMP(B.3.SG) DEF snake-D2 káa PRV die-B.3.SG

'I went through the forest yesterday. While I was just walking about (lit. only in my walking), I stepped on a snake. It bit me in the thigh, so I grabbed a stone and threw it at the snake, and it died.' (Perfa 9)

Perfective clauses with *káa* force a dynamic interpretation of the target event. In a set of events expressed by a sequence of *káa*-clauses, each event is interpreted by default as non-overlapping with respect to the adjacent events, and the sequence of clauses is translated into an iconic sequence of events (although it will be shown in a moment that these inferences depend on the context and can be canceled). A plain perfective clause would introduce the possibility of the post-state interpretation, and if the post-state meaning were selected, overlap of the post-state of the event expressed by the verb with respect to the surrounding *káa*-clauses would result. For example, *Tin ch'a'h hump'èel tuniche', káa tin ch'inah le kàano'* 'I had grabbed a stone, and I threw it at the snake' could be interpreted as the narrator having grabbed the stone already before he was bitten. If a *káa*-clause is accompanied by a clause with imperfective reference, the event denoted by the imperfective clause is interpreted to temporally include the event the *káa*-clause refers to.

- E217. Pwes tèen-e' hach chichan-en
 well me-TOP really small-B.1.SG

káa h káah in bin eskwèeláah.
 káa PRV begin\ACAUS(B.3.SG) A.1.SG go school

'Well as for me, I was really small when I started to go to school.' (BVS 14.1.9)

For a detailed treatment of *káa*, see §7.3.2. Not surprisingly, *káa*-constructions are also the preferred way of expressing event-time specifications with the perfective aspect. The time-location phrase forms the main predicate, and the perfective clause is subordinate just as in the extrafocal part of a focus construction (cf. §4.2.1.5), introduced by *káa*:

E218. Las sèeys káa h chúun u k'áax-al.
 six.o'clock káa PRV start\ACAUS(B.3.SG) A.3 fall-INC
 'It was six o'clock when it started to rain.' (Cont 2)

One of the central points of Bohnemeyer (1998 [d]; 2000 [a], [b]) is the demonstration that any description of how event order in discourse is inferred from aspectual information needs to account for a limited set of generalized implicatures that derive from very general principles of conversation. In what follows, the kind of phenomena that a theory of temporal implicatures has to deal with are illustrated, the focus being on the implicatures guiding application of the perfective AM in discourse.

It has been said that a sequence of two *káa*-clauses should trigger an inference to sequential ordering of the events denoted by these clauses. The order of the events is then inferred from the order of clauses; i.e., iconicity is assumed to obtain. Thus, in E219a, the writing event is inferred to take place before the smoking event, because the writing event is mentioned before the writing event is mentioned, whereas in E219b, exactly the opposite holds.

E219 a. Pedro-e' káa t-u ts'íib-t-ah hun-p'éeel 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'éeel chamal.
 káa PRV-A.3 smoke-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.'

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

káa t-u ts'íib-t-ah hun-p'éeel 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.'

The inference depends only indirectly on the presence or absence of *káa*. Without *káa*, one of the clauses or both could be (but would not need to be) interpreted as having post-state reference. The eventualities they refer to could then be inferred to overlap. Overlap, however, is possible even with *káa*-clauses. Recall that what *káa* signals is just perfectivity, not sequentiality as conveyed e.g. by English (*and*) *then*.¹³³ Perfectivity simply means that the terminal boundary of the event referred to gets asserted (or questioned), and as is developed in more detail in §2.4.5 and Bohnemeyer (2000 [a], [b]), boundaries are always assigned to events in the discourse representation with respect to the surrounding events in discourse. However, that reference to the boundaries of a writing event with respect to the boundaries of a smoking event (and vice versa) should imply mutual temporal exclusion still depends on an assumption from world knowledge that writing and smoking (when involving the same participant!, see below) should not overlap. This assumption weighs much more strongly for my consultants than it probably would for Euro-American people, as all five consultants agreed that the events referred to in E219 should be ordered sequentially, whereas in E220 below, the eating event and the drinking event were inferred to take place simultaneously by four out of five consultants. The fifth consultant considered both simultaneous as well as sequential order possible. The interpretation was not affected by presence or absence of *káa*, but all consultants confirmed that they strongly preferred to have *káa* with either interpretation. Independently of whether

¹³³ It may nevertheless be possible to relate *káa* to the famous 'referential shift' (or 'temporal advancement') of TT from one event to the following one in sequence (cf. Dowty 1986, Hinrichs 1986, Kamp & Reyle 1993: 521-534), if this 'shift' or 'advancement' is understood simply as an actualization, a *resetting* of the TT index, crucially not excluding the possibility that the event asserted with respect to the updated TT coincides with the previously mentioned event(s). This seems to be the function of the adverb *now* in English (oral) narratives (Wolfgang Klein p.c.). It may be possible to ascribe a similar function to *káa*, except that *káa* is far more pervasive in YM narrative discourse than *now* is in English narrations.

the events in question were understood to overlap or to follow each other in sequence, the consultants preferred to form the perfective clauses with *káa*, as long as they understood the events to be *completed*.

E220. Pedro-e' *káa* h hân-ih,
Pedro-TOP *káa* PRV eat-B.3.SG

káa t-uy uk'-ah hun-p'éeel refrèesko xan.
káa PRV-A.3 drink-CMP(B.3.SG) one-CL.IN soft.drink also

'Pedro, he ate, (and) he had a soft drink, too.'

With simultaneous interpretation, there is no longer room for iconicity effects, which only show up with sequential order. E221 repeats the events of E219, except that this time, the two events involve different participants; this releases the restriction imposed on E219 by world knowledge, so that both events can be readily interpreted to occur simultaneously. As a matter of fact, four out of five consultants stated that the events in E221 should be interpreted to occur simultaneously, and hence the reversal of clause order E221b displays with respect to E221a does not affect the order of events at all, according to these consultants.

E221 a. *Káa* t-u ts'fīb-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 smoke-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.'

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

Pedro-e' *káa* t-u ts'fīb-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.'

Finally, let us consider the behavior of the perfective AM with respect to 'absolute time', i.e. the partition of real world time into a present, a past and a future opened up by the moment of utterance. The perfective occurs with past time

reference (as in all the examples discussed so far in the present section) as well as with reference to events that happen more or less simultaneously with respect to coding time. Consider the example below. The speaker is standing by the window and tells another person what he sees happening on the street.

E222. ^AMukah-en inw a'l tēech ba'x k-inw il-ik
PROSP-B.1.SG A.1.SG say(B.3.SG) you what IMPF-A.1.SG see-INC(B.3.SG)

te béentana be'òora-a'. ^BHun-túul xib+pàal y-éetel
LOC:DEF window now-D1 one-CLAN male+child A.3-with

hun-túul x-ch'úupal táan u bàaxal-o'b te kàaye-o'.
one-CLAN F-female:child PROG A.3 play-3.PL LOC:DEF street-D2

^CBe'òora-a' le xib+pàal-o' ts'-u ch'a'-ik le
now-D1 DEF male+child-D2 TERM-A.3 fetch-INC(B.3.SG) DEF

bòola-o', i t-u pul-ah te x-ch'úupal-o'.
ball-D2 and PRV-A.3 throw-CMP(B.3.SG) LOC:DEF F-female:child-D2

^DBe'òora-a' le x-ch'úupal-o' t-u pul-ah te
now-D1 DEF F-female:child-D2 PRV-A.3 throw-CMP(B.3.SG) LOC:DEF

xib+pàal pàach-il ti'-o'.
male+child back-REL LOC(B.3.SG)-D2

'^AI'm going to tell you what I see in the window right now. ^BA boy and a girl are playing in the street. ^CRight now, the boy has grabbed the ball, and he throws it to the girl. ^DNow the girl, she throws it back to the boy.' (Tamb 8)

First, a setting is laid out by description of two simultaneous states: 'A boy and girl are playing in the street. Right now, the boy has grabbed the ball'. Then, a sequence of two events follows, reported in the perfective: 'He throws it to the girl. Right now, the girl, she throws it back to the boy'. In such instances, the perfective ignores overlap with coding time and signals completion (boundedness) with respect to the surrounding events instead, which spells out into non-overlap with respect to these events, to the extent that they are bounded too. Observe that the re-adjustment of topic time in the transition from one event to the following is achieved in this case not by *káa* but by *be'òora* 'now'.

E222 has another intriguing property which deserves attention before moving on to further discussion of the perfective's behaviour in absolute time. The general implicature conveyed by combinations of a bounded and an unbounded eventual-

ity is, by rule of thumb, that the latter temporally includes the former, such as in E217 above or in its English translation *I was really small when I started to go to school: I was really small* is stative description, interpreted by default to refer imperfectly, and hence it is assumed that the state held before the speaker entered school and that it continued after the speaker had entered school. However, this is just another inference depending on quite a few contextual factors. None of the two imperfective descriptions E222 starts out with can be said to referentially overlap with the two perfective clauses to follow in the speaker's report. The first one, *táan u bàaxlo 'b* 'they are playing' cannot be said to overlap with the ball game, because it does not refer to a distinct eventuality. The ball exchange to be reported subsequently is obviously part of the playful activity the two participants engage in. The second clause, *ts'u ch'a'ik le bòolao* 'he has grabbed the ball', refers to the post-state of grabbing the ball, such that this post-state is itself interpreted imperfectly. This cannot be understood to overlap with the sequence of throws. It is true that the terminative *ts'u ch'a'ik* 'he has grabbed it' is specifically selected here to indicate that the boy is in the post-state of grabbing the ball, meaning he is in the state of holding it now, ready to throw. But this state obviously terminates as soon as the boy actually throws. Both phenomena have been discussed in the literature. The first one has been described for English by König (1980) (progressive or *-ing*-form in some sort of paraphrase relationship with a sequence of event(s), rather than in temporal overlap with them). The second case, i.e. a state being terminated by a subsequently mentioned event (rather than to overlap with it) for reasons of internal causal connection, is mentioned e.g. in Hinrichs (1986) and Kamp & Reyle (1993: 528). Phenomena such as these underscore the need for an account of the defeasibility of temporal inferences.

Considering the marginality of cases such as E222, where the perfective is motivated with present time reference, because a whole sequence of events is reported to take place simultaneously with coding time, the perfective is most likely to have past time reference. Perfective clauses can refer to future events when topicalized. This occurs frequently in conditional protases (cf. E223) in opposition to the habitual/generic imperfective and the subjunctive marking counterfactuality (cf. §6.1); in temporal topics, future time reference is restricted to the formula *Le káa tu ya'lah X* 'At the moment / by the time / X happened' calqued from a Spanish idiom, according to Andrade 1955: 116-118 (cf. E224).

E223. Wáah t-in kax-t-ah hun-p'éele-e'
ALT PRV-A.1.SG find-APP-CMP(B.3.SG) one-CL.IN-TOP

k-in táas-ik tèech.
IMPF-A.1.SG come:CAUS-INC(B.3.SG) you

'If I find one, I will bring it to you.' (Andrade 1955: 113)

E224. Le káa t-uy a'l-ah u ts'o'k-s-ik
DEF káa PRV-A.3 say-CMP(B.3.SG) A.3 end-CAUS-INC(B.3.SG)

le ba'x k-u bèet-ik-e', ts'o'k in kim-il.
DEF what IMPF-A.3 do-INC(B.3.SG)-TOP TERM A.1.SG die-INC

'By the time he finishes what he is doing, I shall be dead.' (Andrade 1955: 118)

What is expressed by E224 is the completion of some situation posterior to the speech situation, such that the former serves as the reference point for a third situation, namely the ultimate target situation. More commonly, this kind of reference is established by means of a topic clause introduced by the irrealis subordinator *kéen*, which triggers subjunctive status, such as in E225 below (cf. §7.3.5). Be that as it may, the perfective is not used to refer to future time events in main clauses, aside from cases such as E225, which is simply a transposition of E222 into the future:

E225. Hun-túul xib+páal y-éetel hun-túul x-ch'úupal yan u
one-CLAN male+child A.3-with one-CLAN F-female:child OBL A.3

bàaxal-o'b te kàaye sáamal-e'. Le kéen u
play-3.PL LOC:DEF street tomorrow-D3 DEF SR.IRR A.3

ch'a' le bòola le xib+páal-o', káa t-u
fetch(B.3.SG) DEF ball DEF male+child-D2 káa PRV-A.3

pul-ah te x-ch'úupal-o'. Kéen ts'o'k-ok-e'
throw-CMP(B.3.SG) LOC:DEF F-female:child-D2 SR.IRR end-SUBJ(B.3.SG)-TOP

le x-ch'úupal-o' káa t-u pul-ah
DEF F-female:child-D2 káa PRV-A.3 throw-CMP(B.3.SG)

pàach-il te xib+páal-o'.
back-REL LOC:DEF male+child-D2

'A boy and a girl will play in the street tomorrow. (When) the boy will grab the ball, he will throw (PRV) it to the girl. Afterwards (lit. (when) that will be over) the girl, she throws (PRV) it back to the boy.' (Tamb 8)

Here, the perfective clauses are embedded into discourse denoting a sequence of events which has been 'framed' (cf. Dahl 1985: 147-149) sufficiently as having future time reference. But this is clearly a marginal and probably even odd example. The occurrence of future time events cannot be stated as plain facts in YM; the speaker has to make explicit some sort of deontic, epistemic, or evidential commitment with respect to events that are likely, necessary, intended, or simply predicted to occur in the future. This is, informally, the content of the **Modal Commitment Constraint (MCC)** to be clarified below. At face value, however, the MCC seems to be at issue with the distribution of other non-modal AM categories with respect to future time reference, such as the terminative in E224 above or the progressive in the following example:

E226. Tèen-e', inw a'l-ik-e',
me-TOP A.1.SG say-INC(B.3.SG)-D3

tèech-e' táan a mèet-ik le meyah he'l-o',
you-TOP PROG A.2 make-INC(B.3.SG) DEF work PRSV-D2

tèen táan in súus-ik u che'-il-o',
me PROG A.1.SG peel-INC(B.3.SG) A.3 wood-REL-D2

'As for me, I'd say you, you'll be doing that work (placing all the rafters where they belong in the skeleton of the house to be built), (and) it will be me who will be peeling the logs (i.e. removing the bark).' (Casa sebsat II 65-66)

Why is it that the MCC on future time reference constraints the use of the perfective AM, but not that of the other non-modal AM-categories, such as the terminative, the progressive, or, for that matter, the imperfective or prospective? Presumably for the same reason that allows for stative predicates to be asserted or questioned freely with respect to future time TTs in YM (cf. §5.1.1). Recall that all AM markers except for the morphologically bounded perfective and imperfective AM are actually stative predicates (cf. §4.2.1.4). States, to the extent that they are conceived of as time-stable, do not qualify for a particular location in time. Therefore, a state can be asserted or questioned with respect to a future time TT without giving rise to the expectation that this state holds at the TT in contrast to other conceivable TTs. This holds all the more for the aspectual and modal states asserted by using the AM markers. Pre-states and post-states can last forever. The progressive state is different in this respect, in that its time stability seems to be assessed according to that of the target eventuality itself (cf.

§6.2.2.1.1). Yet, in formal perspective, the progressive AM marker *táan* is a stative predicate, and it is incompatible with specifications of the target event's location in time. Inaccessibility to event-time specifications also holds for the imperfective AM marker, even though the imperfective AM marker *k-* is a prefix and should not be described as a predicate (stative or otherwise). The point here is that the perfective AM is the only non-modal category that entails the entire target event to obtain at TT and not at any possible other topic time, so that the target event's boundaries fall within TT (cf. §2.4).

This entails two further differences between the perfective AM marker and the other non-modal AM markers, both of which add up to the motivation of the MCC affecting the perfective AM but not the other non-modal AM markers. First, the perfective AM is used to assert or question the target event itself in its boundaries. If, in contrast, a pre- or post-state of the target event is asserted, or the target event is asserted to be in progression, or to be at a certain distance from TT (by using one of the AM markers of temporal distance), the target event itself is not in the immediate scope of assertion. If the terminative AM marker is asserted, then realization of the target event is entailed. If the AM markers of immediate, recent, or remote past are asserted, then realization of the target event is presupposed rather than asserted or entailed (cf. §6.2.2.3). (The terminative AM marker conveys a weak presupposition to the effect that the target event's realization is expected at TT (cf. §6.2.2.1.2), but this should not form part of the truth-functional content of the terminative AM marker.) With the progressive, imperfective, prospective, and immediate future AM markers, by contrast, realization of the target event is neither presupposed nor entailed, but can be canceled. In all these cases, the speaker's modal commitment with respect to the target event may be conceived of as overruled by the aim of asserting the particular aspectual state or the target event's metrical distance from TT. With the exception of the imperfective AM marker, the degrees of temporal distance and the various aspectual states are expressed by stative predicates, which do not themselves require (or even allow for) marking of modal commitment when asserted with respect to a future time TT.

Secondly, the perfective AM marker is also the most likely AM category to be used to introduce an event the temporal location of which may itself serve as TT for a following assertion. All other AM markers either refer imperfectively to the target event itself (in the case of the imperfective AM and the progressive AM) or

they are themselves stative predicates and express aspectual states (pre-states or post-states) or distance as stative information. In any case, the reference of the AM marker itself is inherently imperfective, regardless of which part of the target event is referred to, in the sense that whatever part of the target event the AM denotes (pre- or post-state or a central part of the event itself) is not included in the TT with respect to which the AM marker is asserted or questioned. The AM marker may be used occasionally in topic clauses in order to establish a temporal background (as is the case with the progressive AM in E226), but its own location in time will ultimately always be specified by a clause marked for perfective AM or for one of the modal AM markers. For illustration, the topicalized clause with the progressive AM marker in E226 above receives its TT from the utterance reproduced in E227 (the topic clause in E226 refers anaphorically to the work mentioned in E227). The main clause is marked for assurative AM, one of the modal AM markers. Notice also the relative clause construction whose head is the noun *dīiya* 'day' and which is used as a complex anaphor tracing the temporal location of another piece of work mentioned earlier in the discourse. The relative clause is introduced by the irrealis subordinator *kéen*, which marks habitual/generic reference and irrealis modality in focus and relative clause constructions and topicalizations (cf. §§ 4.2.1.5, 6.1.2-6.1.3, 7.3.5). Irrealis modality satisfies the MCC.

- E227. **He'** k láah ts'a'-ik u hòol+nah+che'-il-o',
 ASS A.1.PL all give/put-INC(B.3.SG) A.3 aperture+house+wood-REL-D2
 tuláakal xan, inw a'l-ik,
 all also A.1.SG say-INC(B.3.SG)
 le dīiya **ken**-o'n k wa'l-kun-t-o'.
 DEF day **SR.IRR**-B.1.PL A.1.PL stand-FACT-APP(B.3.SG)-D2

'We will install all its door rafters (of the house), everything, I think, on the (same) day on which we erect (the crossbars).' (Casa sebsat II 63-64)

So ultimately, the referential grounding of event order in discourse is always provided by either a clause containing the perfective AM marker or by a modal AM marker.¹³⁴ In effect, then, the MCC seems to affect only such AM markers

¹³⁴ Deictically or calendrically anchored time reference may be provided by adverbials, to be dealt with in §7.2.

which are not asserted with respect to some previously introduced TT, but rather establish a new TT themselves.

Finally, it is important to notice that the MCC concerns not just absolute future time reference, but also relative future time reference. Consider E228. The main clause event is referred to using the obligative AM marker *yan*, one of the modal AM markers. The aspectual viewpoint is perfective, as indicated by the locational adverbial *behe'lake* 'today'. TT is a transposed coding time, shifted to the past by the utterance clause *túuny a'lik ho'lheak* 'he was saying yesterday'. Perfective AM in the main clause is excluded in this context.

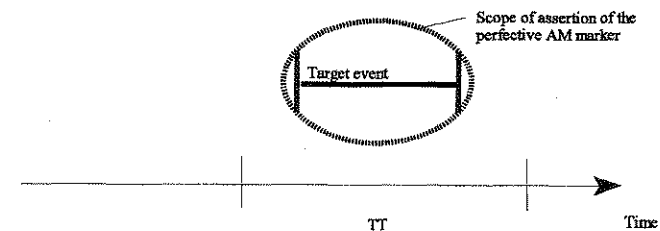
- E228. In suku'n ka'ch-e', túuny a'l-ik ho'lheak-e',
 A.1.SG elder.brother formerly-TOPPROG:A.3 say-INC(B.3.SG) yesterday-TOP
 yan u k'áax-al ha' behe'l-ak-e'.
 OBL A.3 fall-INC water today-ak-D3
 'My brother, he was saying yesterday it would rain today.' (Futa 73)

In concluding, let us state the MCC according to the refinements discussed:

- D2. **The Modal Commitment Constraint:** Perfective reference to an eventuality temporally located posterior to TT requires specification of the speaker's modal attitude with respect to the target event. The speaker may mark predictive or a irrealis modality, or (s)he may assert the target event to occur with necessity, or promise that the target event be realized, etc.

The semantics of the perfective AM marker may be diagrammed as follows:

- F33. *Temporal interpretation of the perfective AM marker*



The perfective AM marker does not serve to locate the target event on the time line (with respect to coding time or some other time interval). Instead, it marks inclusion of the boundaries of the target event in the scope of assertion. Put differently, the target event is evaluated in its entirety, including the boundaries, with respect to topic time TT. TT in turn is not determined with respect to coding time. There is a restriction preventing the perfective AM marker in main clauses from uses with TTs in the future of coding time, but this restriction merely derives from the MCC.

6.2.1.2. Imperfective

The imperfective generally conveys what is called 'inactual' reference here. Most commonly, it is found in generic and habitual contexts. Another instance is a specific type of future time reference to be defined below. By 'habitual' I refer to a potentially limited interval in which the target situation occurs in an unspecified number of instances (cf. Dahl 1985: 97):

E229 a. Hach he'ba'x k'lin-e'
really PRSV:what sun-D3

k-u tu'b-ul ti' u k'āaba' le máak-o'b-o'.
IMPF-A.3 slip.mind LOC(B.3.SG) A.3 name DEF person-PL-D2

'(S)he constantly forgets people's names (lit. on whatever day, (s)he forgets the people's names).' (Proga 52)

b. Te ha'b h máan-o' to'n-e'
LOC:DEF year PRV pass(B.3.SG)-D2 us-TOP

k mfiis-t-ik k nah-il-o'b-e' ti'
IMPF:A.1.PL sweep-APP-INC(B.3.SG) A.1.PL house-REL-PL-TOP LOC

sāabadoh. Behe'la-ak-e' ti' sut-ah
Saturday today-ak-TOP LOC turn-ATP(?)

kāadah hwēebes k mfiis-t-ik k nah-il.
every Friday IMPF:A.1.PL sweep-APP-INC(B.3.SG) A.1.PL house-REL

'Last year we used to sweep our house on Saturdays. Nowadays in turn we sweep our house every Friday.' (Proga 4)

In the sense that the number of occurrences of the target event during the larger interval is unspecified, the larger interval is rendered unbounded with respect to topic time TT, at least by default. This accounts for the semantic similarity and functional overlap between the imperfective AM and the progressive AM. However, boundaries can be imposed on the larger interval in context. In E229b, two intervals measuring habitual activities are delimited by the TT contrast *te ha'b h máano* 'last year' vs. *behe'la* 'nowadays', whereas in E229a, the larger interval is qualified as unbounded by the 'random choice' adverbial *he'ba'x k'lin* whose meaning is perhaps best rendered by the instruction 'Assume whatever day you want!'¹³⁵

Generics, in contrast, take an eventuality type of any kind of event structure and assert it as a 'law-like', timeless property (cf. Dahl 1985: 97, Loebner 1997). For illustration, *meow* is normally an activity and *break* an accomplishment, but in generic contexts such as *If you tease a cat, it meows* or *If you put a stone into this bag, it breaks* they refer to timeless properties of cats in general or of a particular bag, respectively (where the existence of the bag is likely to be time-bound, but validity of the property is conceived of as independent of its physical persistence). Again, in YM the imperfective is used in generic statements:

E230 a. Wáah k-a bāaxal y-éetel mfiis-a', k-uy āawat.
ALT IMPF-A.2 play A.3-with cat-D1 IMPF-A.3 call/ATP
'If you tease (lit. play with) a cat, it cries.' (Tama 75)

b. Wáah k-a hul-ik hun-p'ēel tunich
ALT IMPF-A.2 insert-INC(B.3.SG) one-CLIN stone

te bōolsa he'l-a' k-u háat-al.
LOC:DEF bag PRSV-D1 IMPF-A.3 break/ACAUS-INC

'If you put a stone into this bag, it breaks.' (Tama 79)

Generic reference shows up whenever dynamic predicates are used with a stative, atemporal meaning. A case in point may be metalanguage as in E231a, metaphor

¹³⁵ The characterization of habitual reference given above is not expected to be exhaustive. In particular, it fails to capture the intuition that habitual and generic readings are related. To the extent that generic reference denotes an otherwise time-bounded event in the description of an atemporal property, habitual reference can be described as denoting an otherwise time-bounded event in a description of a relatively time-stable state.

as in E231 b, restrictive clauses that refer to a distinguishing feature of their antecedent (cf. E231c), or conditional protases that express a general, inactual condition (E231d). Modal verbs occur almost exclusively in the imperfective (E231e).

E231 a. Pwes, k-uy a'l-a'l sùum.
well IMPF-A.3 say-PASS.INC rope
'Well, it is called *sùum*' (BVS 7.1.13)

b. K-u bin Xocempich le beh he'l-a'?'
IMPF-A.3 go Xocempich DEF way PRSV-D1
'Does this road here go to Xocempich?' (BVS 8.1.1)

c. Yàan wáah máax ti' k-a ch'a'-ik ts'aaak?
EXIST ALT who LOC(B.3.SG) IMPF-A.2 fetch-INC(B.3.SG) cure\ATP
'Is there someone you are getting medicine from?' (BVS 13.1.18)

d. Bix u bèet-ik
how A.3 do-INC(B.3.SG)

wáah k-u táas-a'l hun-p'éeel kàarta ti'?'
ALT IMPF-A.3 come:CAUS-PASS.INC one-CL.IN letter LOC(B.3.SG)

'What does she do (lit. 'how does she do it') in case a letter is delivered to her (she is blind)?' (BVS 11.1.7)

e. K-u páahtal a k'uch-ul
IMPF-A.3 be.possible [A.2 arrive-INC

ich ka'-p'éeel òora xím-bal-il.
in two-CL.IN hour walk-REL]CORE

'It is possible for you to get there in two hours walking.' (BVS 8.1.6)

The truth conditions for habituais and generics are a notorious problem. When the consultants were shown films of the EVEREST series described in §6.2.1.1 above asked them whether a scene be referred to as *IMPF* [... VERB ...]_{core} *te peliikula he'la'*, where VERB corresponded to the predicate the consultant had used after the first pass to describe the content of the particular film, the consultants always denied applicability of the imperfective *te peliikula he'la'* 'to/in this film' whenever the film featured an accomplishment-type event with infelicitous event realization and VERB was a change-of-state verb. This seems intuitively plausible and yet difficult to explain. The imperfective asserts realization of the event lexicalized in VERB as a time-less and hence unbounded property of the film; but

realization of the event implies in turn realization of the target state with state-change events. Something similar may be said with respect to the habitual use of the imperfective in the following examples.

E232 a. Pedro-e' san-sáamal-e' le k-u ts'o'k-ol u hàan-al-e',
Pedro-TOP RED-tomorrow-TOP DEF IMPF-A.3 end-INC A.3 eat-INC-TOP

k-u xok-ik le periyòodiko-o'.
IMPF-A.3 read-INC(B.3.SG) DEF newspaper-D2

'Pedro, every day, (when) he would have finished eating, he would read the paper.'

b. Pedro-e' san-sáamal-e' le k-u xok-ik le
Pedro-TOP RED-tomorrow-TOP DEF IMPF-A.3 read-INC(B.3.SG) DEF

periyòodiko-o', k-u ts'o'k-s-ik u hàan-al.
newspaper-D2 IMPF-A.3 end-CAUS-INC(B.3.SG) A.3 eat-INC

'Pedro, every day, (when) he would read the paper, he would finish eating.'

Both utterances comprise a sequence of two imperfective clauses, and E232b differs from E232a basically only in the order of mention. The sequences of clauses are interpreted to refer to a sequence of events that occurs *sansáamal* 'every day'. All five consultants confronted with this example agreed that, in E232a, Pedro would first finish eating and then read the paper, whereas in E232b, the inverse order of events would have to be inferred, implying that Pedro would most probably first start eating, then interrupt his meal in order to read the paper, and eventually finish eating. This seemed odd to the consultants, and they preferred to causativize the phase verb *ts'o'k* 'end' in E232b in order to explicitly assert that Pedro voluntarily finishes (and hence resumes) eating after he reads the paper (the intransitive basis *ts'o'k* does not imply control, cf. §7.1.2). Thus, the imperfective serves in this case to refer to a sequence of two events, just like the perfective, and just as with the perfective in examples like E221, the order of events is inferred under assumed iconicity from the order of clauses. But unlike with the perfective, even the very completion of the events is inferred, not asserted, as the imperfective asserts indefinite occurrence of the events within the larger unbounded interval marked by *sáansáamal*.

A genre where habituals and generics (often indistinguishably) are found with particular frequency and prominence are descriptive and instructive texts.¹³⁶ For illustration, E233 is repeated here from §4.2.2.

- E233. **K-a** ts'a'-ik u báaloh-il túun.
 IMPF-A.2 put-INC(B.3.SG) A.3 cross.rafter-REL CON
- K-u** ts'o'-k-ol a ts'a'-ik u báaloh-il túun,
 [IMPF-A.3 end-INC A.2 put-INC(B.3.SG) A.3 cross.rafter-REL CON]_S
- k-a** ts'a'-ik u kàabal+pàach+nah-il. Kéen
 IMPF-A.2 put-INC(B.3.SG) A.3 low+back+house-REL [SR.IRR]
- ts'o'-k-ok túun-e', yan a kaxt-ik u láak' u
 end-SUBJ(B.3.SG) CON]_S-TOP OBL A2 find-INC(B.3.SG) A.3 other A.3
- pàach+nah-il-o'b. **K-u** ts'o'-k-ol túun a ts'a'-ik u
 back+house-REL-PL [IMPF-A.3 end-INC CON A.2 put-INC(B.3.SG) A.3
- kàabal+pàach+nah-il-o'b, **k-a** wa'l-kunt-ik u
 low+back+house-REL-PL]_S IMPF-A.2 stand-FACT-INC(B.3.SG) A.3
- tisèerah-il-o'b. **K-u** ts'o'-k-ol-e' ...
 rafter-REL-PL [IMPF-A.3 end-INC]_S-TOP

'Then you put the crossbar. (When) you've finished putting the crossbars (then) you put the girder. (When) this will be done then, you have to find (the wood for) the other crossbars. (When) you've finished putting the crossbar then, you place the rafters upright. (Afterwards) ...' (K'axbil 18-28)

The example features the irrealis subordinator *kéen* (restricted to topic clauses and focus constructions) that requires subjunctive status on the verb. In contexts such as E233, this construction indicates habitual or generic reference in competition with the imperfective (cf. §7.3.5). Modal predicates such as obligative AM *yan* (also appearing in the third line of E233) are frequently found as well in this type of discourse, whereas the remaining AM markers occur marginally, at best. The perfective in particular, in its proper perfective reading (optionally reinforced by the perfective connective *káa*), is incompatible with generic or habitual

reference. There is, however, some overlap between the imperfective and the progressive. The imperfective tends to replace the progressive in all focus constructions, such as with the location focus in E234b (notice the nice contrast to the unfocused progressive in the first clause) and the predicate focus in E234a.

- E234 a. Hach máan ka'n-a'n-en, tuméen desde káa h líik'-en
 really INTENS tire-RES-B.1.SG CAUSE since káa PRV lift\ACAUS-B.3.SG
- te ha'tskab+k'in-a', pùuro mehen+hàan-al
 LOC:DEF early+sun-D1 pure make.ATP+eat-INC
- k-in** mèet-ik.
 IMPF-A.1.SG make-INC(B.3.SG)

'I'm really very tired, because ever since I got up this morning, only cooking is what I have been doing.' (Proga 81)

- b. Ho'l-heak Ana táan u xòok te'l tu nah-il-o', Martín-o',
 yesterday-ak Ana PROG A.3 read\ATP there LOC:A.3 house-REL-D2 Martín-D2
- ti' k-u bàaxal te'l ich le kòot-o'.
 LOC IMPF-A.3 play there in DEF build.a.stone.fence\ATP-D2

'Yesterday, Ana, while she was reading there in her house, Martín, he was there playing there in the courtyard.' (Proga 70)

The progressive in turn replaces the imperfective under negation. The negative realization can be both *ma' táan ...-i'* as well as *ma' t- ...i'* with both the progressive and the imperfective reading (cf. E239 below), whereas the affirmative imperfective *k-* is excluded with negation. AM marking under negation and in focus constructions is described in §4.2.1.5. Somewhat infrequently, however, the progressive occurs with habitual or generic reference even in affirmative clauses. Thus, in the following example, the consultant gave the progressive as an alternative to the (preferred) imperfective.

- E235. Bix u bèet-ik le miis-o'b-o''?
 how A.3 do-INC(B.3.SG) DEF cat-PL-D2
- / **K-uy** / **Túuny** / àawat.
 IMPF-A.3 PROG-A.3 call\ATP

'How (i.e. what kind of sound) do cats make? - They cry.' (Tama 73)

¹³⁶ For further observations regarding typical contexts of the imperfective AM, cf. Vapnarsky (1999: 85-94). Vapnarsky also discusses the imperfective AM in relation to other, less grammaticalized, means of expressing habituality, such as the stative predicate *sùuk* 'to be accustomed to' and the idiom *hach POSS=ohel* really POSS=knowledge, lit. 'to really know to'.

Use of the imperfective is not restricted in any way by the absolute location of coding time. But generic reference naturally excludes any specification of a particular topic time, and habituality seems quite marginal with future time reference.¹³⁷ However, as mentioned in the beginning of this section, the 'inactual' reference of the imperfective extends beyond generic and habitual contexts to cover a type of future time reference where TT is specified in context by some expression that satisfies the modal commitment constraint introduced in the previous section. One example is E223 above, repeated in E236a for convenience. Here, TT is determined by the conditional protasis *Wáah tin kaxtah hunp'éele* 'If I find one', and in E236b, TT is provided by the topic clauses *Chéen sùnaken be'dora òoka'n k'iine* 'As soon as I come home tonight' and *chéen ts'o'koke* 'As soon as that will be done' (both introduced by the irrealis subordinator *kéen* /*chéen*).

E236 a. *Wáah t-in kax-t-ah hun-p'éel-e'*
ALT PRV-A.1.SG find-APP-CMP(B.3.SG) one-CL.IN-TOP

k-in tàas-ik tèech.
IMPF-A.1.SG come:CAUS-INC(B.3.SG) you

'If I find one, I will bring it to you.' (Andrade 1955: 113)

b. *Tèen-e', chéen sùnak-en be'dora òoka'n k'iin-e',*
me-TOP only turn\ATP:SUBJ-B.1.SG now enter-RES(B.3.SG) sun-TOP

k-in hàan-t-ik hun-p'fit hàan-al,
IMPF-A.1.SG eat-APP-INC(B.3.SG) one-bit eat-INC

chéen ts'o'k-ok-e', k-in bin chital.
only end-SUBJ(B.3.SG)-TOP IMPF-A.1.SG go lie.down:PROC-INC

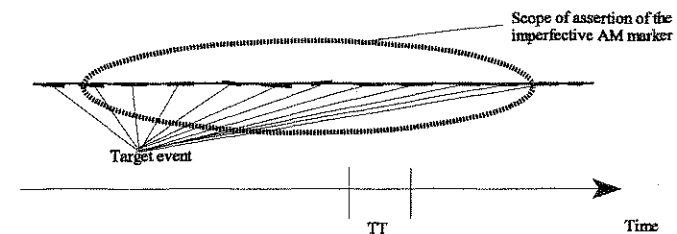
'Me, as soon as I come home tonight, I'll eat a little, (and) afterwards (lit. as soon as that will be done), I'll go to bed.' (Futa 87)

The imperfective AM itself does not violate the modal commitment constraint, as it does not entail the realization of the target event; or put differently, it does not define a reference point itself. However, it does not exactly seem to fulfill the

constraint either,¹³⁸ and it may be that the imperfective is chosen in contexts such as in E236 simply to circumvent any modal commitment. It should be noticed that the imperfective is quite rare in this function. Nonetheless, the use of habituality markers in future time reference is not entirely exotic in typological perspective; Dahl (1985: 111) reports to have found it in the so-called aorist of Azeri and Turkish. Notice also that the irrealis subordinator *kéen* covers as well, besides habitual and generic reference, future time reference. It may thus be the case that *kéen* and imperfective AM *k-* actually represent two different expressions of the same language-specific semantic category of irrealis modality which, in itself, does not distinguish between habitual, generic, and future time reference. However, a significant difference between imperfective AM and the irrealis subordinator *kéen* is represented by the imperfective occurring only somewhat infrequently with future time reference.

The habitual reading of the imperfective AM marker is diagrammed in F34: The imperfective AM marker does not locate the target event on the time line. It serves to mark (in its habitual reading) that an unspecified number of instances of the target event is included in the scope of assertion; or, put differently, an unspecified number of instances of the target event is asserted to occur overlapping with topic time TT. TT in turn is not determined by the imperfective AM in its location with respect to coding time.

F34. Temporal interpretation of the imperfective AM marker (habitual reading)



¹³⁷ People rarely *intend* to have certain habits in the future (although they frequently intend to *change* their habits in the future), and people are rarely *predicted* to have certain habits in the future (unless they already have the particular habit in the present, and the prediction is that they keep it).

¹³⁸ Vapnarsky (1999: 85-86) actually considers examples such as E236b unacceptable.

It was said above that the domain of 'inactual reference' is not exhausted by habitual and generic reference. As another instance, future time reference was mentioned.

6.2.2. AM predicates

There are 13 AM markers which are morphologically unbound (although many of them frequently form portmanteaus with the set-A cross-reference markers; cf. §4.2.1.4). The unbound AM markers have the morphological properties and syntactic privileges of occurrence of stative predicates, taking the verbal core as an argument (except for the prospective AM marker which takes the verbal core as an adjunct); cf. §4.2.1.4. On semantic grounds, the 13 unbound AM markers fall into three classes: aspectual AM predicates, modal AM predicates, and AM predicates of temporal distance.

6.2.2.1. Aspectual predicates

The three aspectual AM predicates are the progressive, terminative, and prospective AM markers:

- E237 a. **Táan** in xok-ik le periyòdiko-o'.
 Progressive **PROG** A.1.SG read-INC(B.3.SG) DEF newspaper-D2
 'I/am/was/will be/ reading the paper.'
- b. **Ts'o'k** in xok-ik le periyòdiko-o'.
 Terminative **TERM** A.1.SG read-INC(B.3.SG) DEF newspaper-D2
 'I /have/had/will have/ read the paper.'
- c. **Mukah** in xok-ø le periyòdiko-o'.
 Prospective **PROSP**(B.3.SG) A.1.SG read(SUBJ)(B.3.SG) DEF newspaper-D2
 'I/am/was/will be/ going to read the paper.'

The progressive AM marker refers to the target event imperfectively, i.e. it excludes the target event's boundaries from assertion at TT. The progressive AM semantically resembles the progressive tenses of English, but does not show any restriction to a TT in the past, present, or future of coding time. The same holds for the terminative and prospective AM markers. The terminative refers to a post-

state of the event designated by the verb, like the perfect tenses of English, and the prospective AM marker indicates pre-state reference, like the construction *be going to* plus infinitive in English. The terminative and progressive AM markers govern incomplete status inflection on the verb; the prospective triggers incomplete status on intransitive verbs, but subjunctive status on transitives.

6.2.2.1.1. Progressive

Like all unbound AM markers, the progressive marker *táan* can be shown to behave as the main predicate of the clause by application of the two tests mentioned in §4.2.1.4: attraction of the question focus marker *wáah* and occurrence in the predicate resumption strategy of affirmatively answering polar questions.

- E238. **Táan** wáah a bin xímbal? - **Táan**!
PROG **ALT** A.2 go walk **PROG**(B.3.SG)
 'Are you going for a walk? - Yes, I am!' (Ram)

E239 below points to the distinction between negative progressive (a) and negative prospective (b), which rests solely on the clause final particle *-i'* triggered by the former, but not by the latter construction. The negative prospective conflates different modal categories and is used, among other things, to express negative predictions and denial of intentions; cf. §4.2.1.5.

- E239 a. **Ma' táan** u lúub-s-ik k'áax-i'.
NEG PROG A.3 fall-CAUS-INC(B.3.SG) jungle-D4
 'He is not clearing jungle.'
- b. **Ma' táan** u lúub-s-ik k'áax.
NEG PROG A.3 fall-CAUS-INC(B.3.SG) jungle
 'He will not clear jungle / he never clears jungle.'

The progressive AM represents no exception to the general rule that the AM markers are not restricted to either deictic or anaphoric reference, but can occur with both. This includes capability of occurrence with future time reference for all AM markers except for the perfective, which is subject to the Modal Commitment Constraint (cf. §6.2.1.1). E240 below features a progressive AM with future time reference.

E240. Chéen k'uch-uk-o'n-e',
only arrive-SUBJ-B.1.PL-TOP

táan u ts'fīb-t-ik hun-p'éeł kàarta wal-e'.
PROG A.3 write-APP-INC(B.3.SG) one-CL.IN letter probably-D3

[Said in reply to "What your brother DO (when) we arrive, do you think (= what activities will he be engaged in)?"] '(When) we arrive, he will be writing a letter, I guess.' (Tama 17)

The imperfective reference of the progressive AM marker gives rise to the well-known 'imperfective paradox' discussed in §2.2.3, 2.4: applied to a telic verb, the progressive may be asserted with respect to some TT, while the perfective may not be asserted with respect to any TT, when the target state of the state-change expressed by the telic verb was not realized. Compare the following description of one of the films of the EVEREST stimulus introduced in §6.2.1.1. In this particular film, a character pours juice into a glass, but fails to fill the glass, since the juice escapes through an aperture in the bottom of the glass. After a first pass through the film, consultant SBM stated:

E241. - SBM: Ma' h p'áat u hùugo le x-chìina-o'.
NEG PRV leave\ACAUS(B.3.SG) A.3 juice DEF F-orange-D2

Te bàaso-o'.
LOC:DEF glass-D2

'The orange juice did not stay. In the glass.'

- JB: Ba'x h úuch fi'?
what PRV happen(B.3.SG) LOC(B.3.SG)
'What happened to it?'

- SBM: Inw a'l-ik-e', h hóok'
A.1.SG say-INC(B.3.SG)-TOP PRV exit(B.3.SG)

te'l y-áanal-o'.
there A.3-under-D2

'I think it went out at the bottom.'

- JB: Exactamente. Uhm, entòonses, mu'n bèey-tal
exactly HESIT therefore NEG.PROG:A.3 thus-PROC.INC

uy a'l-a'l "T-u,
A.3 say-PASS.INC PRV-A.3

t-u chup-ah le-le bàaso-o'?"
PRV-A.3 fill-CMP(B.3.SG) DEF-DEF glass-D2

'Exactly. So, you can't say "She filled the glass"?'

- SBM: Mu'n bèey-tal. - JB: Ma' t-u chup-ah-i'.
NEG.PROSP:A.3 thus-PROC.INC NEG PRV-A.3 fill-CMP(B.3.SG)-D4
'It's not possible.' 'She didn't fill it.'

- SBM: Ma' t-u chup-ah-i',
NEG PRV-A.3 fill-CMP(B.3.SG)-D4

tuméen h láah wéek-ih.
CAUSE PRV all dump\ACAUS-B.3.SG

'She didn't fill it, because [the juice] was all spilled.'

The film was then repeated. Freezing the picture at a moment where there is still juice poured into the glass, the glass being filled up to about half its height, the consultant was asked:

E242. - JB: Be'òora-a', k-u bèey-tal uy a'l-a'l
now-D1 IMPF-A.3 thus-PROC.INC A.3 say-PASS.INC

"Túun chup-ik"?
PROG:A.3 fill-INC(B.3.SG)

'Right now, is it possible to say "She is filling it"?'

- SBM: K-u bèey-tal. - JB: Túun chup-ik.
IMPF-A.3 thus-PROC.INC PROG:A.3 fill-INC(B.3.SG)
'It is possible.' 'She is filling it.'

- SBM: Uhum.
INT
'Uhum.'

- JB: Chéen ba'l-e', mu'n chup-ik.
only thing-TOP NEG.PROSP:A.3 fill-INC(B.3.SG)
'But she won't fill it.'

- SBM: Chéen ba'l-e', mu'n chup-ik,
only thing-TOP NEG.PROG:A.3 fill-INC(B.3.SG)

tuméen le bàas-o', estée, pa'-k'ah-a'n.
CAUSE DEF glass-D2 HESIT break-SPONT-RES(B.3.SG)

'But she won't fill it, because the glass is, er, broken.'

While the progressive *Túum chupik* 'She is filling it' is applicable in E242, it is at the same time asserted that *Mu'n chupik* 'She will not fill it', and in E241, the consultant says in retrospect *Ma' tu chupahi* 'She did not fill it', using the perfective AM marker.

The unbounded reference conveyed by the progressive AM marker implies a viewpoint from which the target event is envisaged as ongoing. Inferences leading to identification of the viewpoint with the moment of utterance or another event in discourse are invited by the generalized conversational implicatures controlling the application of aspectual operators in discourse, and thus use of the progressive AM in context usually implicates temporal overlap with either coding time or events in adjacent discourse. Compare the following example, where the progressive AM contrasts nicely in this respect with the imperfective AM, which otherwise may be said to convey imperfective reference as well. As put forth in §6.2.1.2, the habitual reference of the imperfective AM implies a certain interval during which the target event encoded by the verb occurs an unspecified number of times, but at least once. The difference between this kind of imperfectivity and the imperfectivity of the progressive referring to a single instance of the target event becomes visible when more than one event is reported using the imperfective AM. In this case, an indefinite number of occurrences of all the events referred to by imperfective AMs are understood to recur with the same relative order in time, whose understanding is in itself independent of the interpretation of the imperfective. Thus, in E243, the two imperfective clauses *Le hmèeno' ku xoltal*, *ku ho'p'ol u rèsasar* refer to a habitual sequence 'The priest, he would kneel down and start to pray', while the following four progressive clauses all refer to activities that are understood to take place simultaneously. After that, sequential order is resumed by first explicitly asserting the termination of the activities that were at issue before. To this end, the phase verb *ts'o'k* 'end' is employed in subjunctive status in combination with the prospective and habitual/generic subordinator *kéen* (another means of conveying 'inactual' reference). Then, another habitual sequence is started in the imperfective again.

- E243. ^ALe kéen ts'o'k-ok tuláakal le ba'l-o'b bèey-o',
 DEF SR.IRR end-SUBJ(B.3.SG) all DEF thing-PL thus-D2
 le h-mèen-o' k-u xol-tal k-u ho'p'-ol u rèsáar.
 DEF M-curer-D2 IMPF-A.3 kneel-PROC IMPF-A.3 begin-INC A.3 pray

^BLe mùuch-o'b-e' táan u k'áay-o'b le yùum cháak-o'b-e'
 DEF frog-PL-TOP PROG A.3 sing(ATP-3.PL DEF lord rain-PL-TOP

táan u kfilbal-o'b. ^CTáan u ko'-kol-ik-o'b
 PROG A.3 roar(ATP-3.PL PROG A.3 RED-tear-INC(B.3.SG)-3.PL

le ch'uy-ub yàan te'l ka'nal-o'; táan u
 DEF hang-SBSTR EXIST(B.3.SG) there above-D2 PROG A.3

we'k-el balche' ts'a'-a'n-o'.
 dump(PASS-INC balche put-PASS.RES(B.3.SG)-D2

^DLe kéen ts'o'k-ok u rèsáar le mèn-o',
 DEF SR.IRR end-SUBJ(B.3.SG) A.3 pray DEF curer-D2

k-u t'áan-ik tuláakal le mehen cháak-o'b-o' (...).
 IMPF-A.3 call-INC(B.3.SG) all DEF small rain-PL-D2

^A(When) all the things are done in this way, the priest kneels down and begins to pray. ^BThe frogs are crowing and the *Chaks* [rain gods] are thundering. ^Cthey are tearing down the *ch'uyu'b* ('hanged (container)') from above; and the *balche* ('sacred beverage) contained in there is spilled. ^D(When) the priest has finished his prayers, he calls all the small *Chaks* (...).' (Chaak 64-70)

The progressive AM is thus used in discourse to present the target as ongoing with respect to some pragmatically determined viewpoint, which is most frequently understood to be provided by coding time or by an event in adjacent discourse in temporal overlap with the target event. In the example reproduced below, the viewpoint is determined by a topic clause marked for perfective AM. The perfective AM renders the background event referred to by the topic clause as completed, and the inference is that this completed event is included in the unbounded interval referred to by the main clause containing the progressive AM.

- E244. Káa h k'uch-o'n way túun t-u káah-il x-Yaxley-il-e', -
 [káa PRV arrive-B.1.PL here CON LOC-A.3 village-REL F-Yaxley-REL]-D3

táan u k'áax-al u ha'-il.
 PROG A.3 fall-INC A.3 water-REL

'(When) we arrived in the village of Yaxley, it was raining.' (Rox ant 20)

However, temporal overlap as inferred from imperfectivity is an implicature and hence can be canceled or blocked. One type of context where this implicature fails to arise is a progressive description of a superordinate event which has

bounded parts that may be referred to by perfective clauses. An example of this type was already discussed in E222 above; another is found in E245 below. The deer's saying referred to using the perfective AM is evidently not a separate event temporally enclosed by the conversation referred to in the progressive clause *táan u tsikbal-o'b* 'they were chatting', but rather a *part* of this event.

E245. Káa h ho'p' u tsikbal-o'b.
káa PRV begin(B.3.SG) A.3 chat-3.PL

Ichil táan u tsikbal-o'b-e',¹³⁹
in PROG A.3 chat-3.PL-TOP

le kéeh-e' t-uy a'l-ah ti' le chan áak-e': (...).
DEF deer-D3 PRV-A.3 say-CMP(B.3.SG) LOC DEF little turtle-D3

'And they started chatting. (While) they were chatting, the deer said to the little turtle (...).' (Romero Castillo 1964: 307)

A context that triggers override of the implicature of overlap from imperfectivity is a causal relation obtaining between two events one of which is referred to employing progressive AM, the other one being referred to perfectly. Compare the following example:

E246. Táan uy èel-el le nah-o', (káa h tàal
PROG A.3 burn-INC DEF house-D2 káa PRV come(B.3.SG)

Pedro,) káa t-u tup'-ah le k'áak'-o'.
Pedro káa PRV-A.3 extinguish-CMP(B.3.SG) DEF fire-D2

'The house was on fire (lit. burning), ((when) Pedro came) and extinguished the fire.' (Kenny)

The second clause refers indeed to an event in overlap with the house's being on fire; but this clause can be omitted, and regardless of whether or not it is omitted, the third clause would have to be interpreted as referring to an event simultaneous to the house's being on fire, were it not the case that world knowledge rules out this inference. The phenomena of causality or paraphrase relations overriding the

¹³⁹ Note incidentally how *táan* is reinforced here by the interior preposition *ichil*. Like the supposed spatial model of *táan* itself, *ichil* does not itself specify a relation of location or change of location of an object with respect to a spatial landmark, but only designates a region of the landmark (its interior, cf. Bohnemeyer 1997; Bohnemeyer & Stolz ms.).

default inferences otherwise drawn from aspectual information have received considerable attention in the study of temporal coherence in Indo-European, cf. §2.4.5 and Bohnemeyer (1998 [d]; 2000 [a], [b]).

From the defeasibility of inferences to event order, it must be concluded that event order is not part of the semantic representation of the progressive AM marker. The same point can essentially be derived from the fact that the progressive AM marker is an aspectual operator, as it does not entail event realization. Of course, this holds for the progressive tenses of English as well. However, the English progressive tenses have a deictic tense component (expressed by the auxiliary) in addition to the aspectual component. The YM progressive marker does not express deictic tense (in other words, it is compatible with any TT in discourse). And since it cannot reasonably be expected to express 'relative' or 'anaphoric' tense and at the same time aspect, it has to be concluded that it represents a purely aspectual marker. Anaphoric tense is incompatible with an aspectual analysis, because no operator can express imperfectivity and at the same time simultaneous location of the target event with respect to a reference event in discourse (as a 'relative present' tense would; cf. §2.4.4).

E245 above featured a topicalized progressive clause. The topic in this example even resumes the event introduced by the previous clause, like the topics typical of procedural texts, as discussed in §4.2.2. The following example exhibits a reversal of the distribution of progressive and perfective AM with respect to topic and main clause as compared with E244.

E247. (...) kap' u p'uru's-t-ik hun-p'éel behiiga.
káa:PRV:begin(B.3.SG) A.3 blow-APP-INC(B.3.SG) one-CL.IN balloon

Táan u p'uru's-t-ik-e', káa h xfik-ih, (...)
PROG A.3 blow-APP-INC(B.3.SG)-TOP káa PRV explode-B.3.SG

'(...) (and) she started to inflate a balloon. (While) she was inflating it, it burst, (...)' (Tempest antram V 1/2 ant1 6-7)

Again, the topic clause containing the progressive marker clearly has a resumptive function. The greater likelihood of occurring in topic clauses distinguishes descriptions employing the progressive AM from lexical stative predicates, which were shown in §5.1.1 to display a certain improbability to occur as topics. Stative predications are somewhat unlikely to provide a plausible contrast between a TT

at which they hold and a TT at which they do not hold, and hence are generally infelicitous candidates for temporal topics. Progressive constructions, in contrast, do not affect the time stability of the event lexicalized by the verb at all. The time stability of *tsikbal* 'chat' in E245 or *p'uru'st* 'inflate' in E247 are just the same regardless of whether the verbs occur with progressive or perfective AM marking.

In the YM TEMPEST corpus (cf. §3.2.3), the progressive is the second most prominent AM category, following the perfective, whose frequency still exceeds that of the progressive by 100%. However, the progressive AM occurs itself twice as often as the terminative, which is in third position and occurs about as often as all other AM markers together.¹⁴⁰ The progressive AM is fully compatible with all verb classes. Notably, this includes punctual verbs. As outlined in §5.1.2.8, punctuality is attested with the egressive phase verbs *ch'en* 'to stop', *p'at* 'to quit', and *xul* 'to stop' (or their anticausative derivations): a YM verb is punctual provided that it can only be interpreted iteratively or habitually when combined with one of these phase verbs. A set of 60 verbs which had been proved to display punctuality by the method just described was tested in combination with the progressive.¹⁴¹ The construction proved interpretable to all consultants in all instances, on grounds of three different recurrent readings, which resemble strongly the interpretations obtained when punctual verbs are combined with ingressive phasals in YM (cf. §7.1.2). First of all, the progressive may act as a magnifying glass, selecting a pragmatic interpretation of the event referred to by the verb as a temporally extended process. Since the verb is still not generally compatible with *ch'en*, *p'at*, or *xul*, this extended process reading is not considered a property of the semantic representation of the verb. Consider *kach* 'break' in the following example:

E248. Le máak-o', **túun** **kach-ik** le che'
DEF person-D2 PROG:A.3 break-INC(B.3.SG) DEF tree

¹⁴⁰ See Bohnemeyer (1998 [d]: 604-614) for the absolute figures. The distribution in folk narratives is similar, except for a higher frequency of the imperfective AM; cf. Bohnemeyer (in press [a]). For a detailed discussion of contexts of use of the progressive AM in discourse, see Vapnarsky (1999: 126-132).

¹⁴¹ The consultants were first asked to provide an example of the verbs in context. The contexts were then reduced to the clauses containing the verbs, and the AM markers of these clauses was replaced by the progressive. The consultants were prompted to give a natural continuation to these constructions.

káa h k'uch-en-o'. U k'áat y-a'l-e':
káa PRV arrive-B.1.SG-D2 A.3 wish(B.3.SG) A.3-say(B.3.SG)-TOP

ts'-u **chúun-ul** u **kach-ik**.
TERM-A.3 start(A.3.SG)-INC A.3 break-INC(B.3.SG)

pero **ma' u láah kach-i'**.
but NEG A.3 all break(B.3.SG)-D4

'The man, he was breaking the tree (when) I arrived. This means he had begun to break it, but he had not yet broken it entirely.'

The extended process reading is attested by termination of the initial phase of the target event being asserted (*ts'u chúunul u kachik* 'he had begun to break it') and the post-state of the target event being negated (*ma' u láah kachi'* 'he had not yet broken it entirely'). The interpretation seems to draw on the spatial extension of the tree in question: it is possible to assert the breaking of the tree during an interval leading from the tearing of the first fibers up to the tearing of the last fibers, and only once the last-mentioned stage has been reached can it be asserted felicitously that *tu láah kachah* 'he broke it entirely', where the use of the quantifier *láah* implies that the theme has been affected completely. But this possibility of interpretation is certainly not lexicalized as part of the semantics of *kach*, which has to be considered unspecified with respect to the spatial extension (and other physical properties) of the theme.

The most frequent reading of the punctual verbs with progressive AM is the pre-state reading, which is also occurs in English (see below). The pre-state reading is attested through periphrasis with the prospective AM marker.

E249. Pedro-e', **túun** **k'ex-ik** u nòok'-e',
Pedro-TOP PROG:A.3 change-INC(B.3.SG) A.3 cloth-TOP

k-uy il-ik-e' ma' ti'bil tí'.
IMPF-A.3 see-INC(B.3.SG)-TOP NEG suitable(B.3.SG) LOC(B.3.SG)

Káa t-y-a'l-ah-o', **mukah** u **k'ex-eh**.
káa PRV-A.3-say-CMP(B.3.SG)-D2 PROSP(B.3.SG) A.3 change-SUBJ(B.3.SG)

'Pedro, he was changing his cloths, (when) he realized [the new cloths] did not fit him. At that moment [lit. '(when) it said that'], he was going to change [cloths].'

The final possible interpretation of the progressive AM marker when combined with a punctual verb has a certain paradoxical flair from an Indo-European point of view. Here, the progressive is used in order to signal temporal coincidence with another punctual event, exploiting the implicature from imperfectivity to overlap discussed above. This reading is distinguished by allowing completion of the target event to be asserted with respect to the same TT with respect to which the progressive is asserted. This is of course possible any time with atelic verbs, but in the case of the 'incidental' interpretation of punctual verbs, the target event is understood to be telic, and actually to be not just realized but also terminated when its completion is asserted. I have not been able to attest this interpretation anywhere in spontaneous discourse; its naturalness thus remains to be assessed. It also is by far the least frequent of the three possible interpretations of punctuals with progressive AM.

E250. **Táan u kutal** Juan tu k'àan+che' Pedro-e',
PROG A.3 sit:PROC.INC Juan LOC:A.3 hammock+wood Pedro-TOP

káa h k'uch Pedro. Káa t-y-a'l-ah-o'
 káa PRV arrive(B.3.SG)Pedro káa PRV-A.3-say-CMP(B.3.SG)-D2

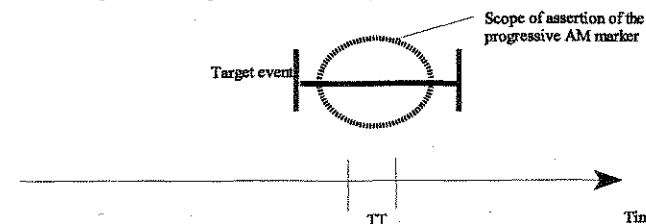
ts'-u kutal-i', kul-ukbal.
TERM-A.3 sit:PROC.INC-D4 sit-POS.REC(B.3.SG)

'Juan was sitting down on Pedro's chair, (when) Pedro arrived. At that moment [lit. '(when) it said that'], he had sat down, he was sitting.' (Kenny Ern)

The progressive AM's ability to combine freely with punctual verbs underlines its importance in temporal coherence in YM. The YM progressive can be applied to more verbs (or, at any rate, with more freedom of interpretation) than what has been attested of progressive constructions in Indo-European languages. In English, for example, punctual verbs are in general incompatible with the progressive tenses (unless under an iterative interpretation), except for a few verbs which allow for a pre-state reading in the progressive (e.g. *He was arriving*; cf. Brinton 1988: 38-43, esp. fn.43). A similar argumentation is pursued in §7.1.2, when YM phase verb constructions are compared to English phase verb constructions: fewer semantic restrictions with respect to event structure features of the target event spell out greater freedom of occurrence in discourse and hence allow for carriage of a greater functional weight in discourse.

In concluding, the semantics of the progressive AM marker may be depicted as in F35:

F35. *Temporal interpretation of the progressive AM marker*



The progressive AM marker does not serve to locate the target event on the time line. It rather restricts the scope of assertion, so that it does not include the boundaries of the target event, with the consequence that realization of a target state is not entailed. Put differently, the progressive AM marker indicates that the boundaries of the target event are not temporally included in TT. TT in turn is not located with respect to coding time by the progressive AM marker.

6.2.2.1.2. Terminative

As mentioned in §4.2.1.4, the terminative AM marker *ts'o'k* has developed out of the phase verb *ts'o'k* meaning 'end'. To be precise, the AM marker is phonologically identical with the lexical verb marked for perfective AM and accordingly inflected for B.3.SG cross-referencing the embedded verbal core (except for the optional portmanteau combinations of the terminative AM with set-A clitics, as in E251). E251 features both elements.

E251. (...) **ts'-u ts'o'k-ol u k'al-ik le kàarta bèey-a', (...)**
TERM-A.3 end-INC A.3 close-INC(B.3.SG) DEF letter thus-D1
 '(...) she had finished sealing the letter like this, (...)' (Tempest antram VII ram2 34-35)

Here, the egressive phase verb *ts'o'k* 'end' is itself marked for terminative AM. The analysis of lexical *ts'o'k* that is proposed in §7.1.2 claims that *ts'o'k* simply lexicalizes the abstract terminal boundary of a higher event, in other words, the 'becoming over' or 'passing by in time' of the higher event. Combined with the

perfective AM marker in its resultative reading (cf. §6.2.1.1), lexical *ts'o'k* refers to the post-state of the terminal phase of the higher order event, which is of course more or less the same as the post-state of the higher event itself. This is precisely what has become the function of the terminative AM marker, which, as is shown below, does not itself any longer make reference to the terminal boundary of the target event (corresponding to the higher event of the former phase verb).¹⁴² The terminative AM is an operator that serves to assert the post-state of the target event.

Before the discussion of the terminative AM marker in discourse is taken up, its formal status should be clarified briefly. Like all AM markers except for the morphologically bound imperfective and perfective markers, *ts'o'k* is a stative predicate, which takes the verbal core as its sole argument. The predicativity of *ts'o'k* can be proved with reference to the regular affirmative answer to a polar question involving resumption of the main predicate. Thus, the most natural affirmative answer to E252 below would be *Ts'o'k-ih!* TERM-B.3.SG 'It has finished!'.¹

E252. Ts'o'k wáah u máan le ha'-o'?

TERM ALT A.3 pass DEF water-D2

'Has the rain already gone bye?' (BVS 16.14)

E252 shows a second criterion for predicativity, namely the placement of the optional question focus marker *wáah*, which by default (if no particular constituent is highlighted) gets attached to the predicate.

As a post-state operator, application of the terminative AM marker entails realization of the target event. Consider the episode from the EVEREST experiment discussed in the previous section, where a character pours orange juice into a glass without filling it, as the juice runs out again through a hole in the bottom of

¹⁴² Vapnarsky (1999: 136) quotes examples which she analyzes as combinations of the terminative AM and the perfective connective *káa* (cf. §7.1.2). These are, in my view, instances of the lexical phase verb *ts'ó'k* 'end', rather than the terminative AM marker. The confusion stems, I think, from the assumption that the form *ts'ó'* + Set-A is a product of grammaticalization, whereas it may in fact simply be conditioned by a morpho-phonological process (cf. §4.2.1.4).

the glass. After the pouring had stopped in the film, the film was halted and a consultant was asked:

E253. - JB: Entòonses, ts'o'k u chup-ik?
therefore TERM A.3 fill-INC(B.3.SG)

- SBM: Ma', ma' t-u chup-ah-i'.
NEG NEG PRV-A.3 fill-CMP(B.3.SG)-D

'- JB: So, has she filled it? - SBM: No, she did not fill it.'

In connection with E253, it may be noticed that the terminative AM is incompatible with negation (**ma' ts'-u chup-ik(-i')* NEG TERM-A.3 fill-INC(B.3.SG)(-D4)). In replying negatively to a question featuring terminative AM, a speaker of YM uses either the negated perfective AM (as did the consultant above) or negated subjunctive status (*ma' u chup-i'* NEG A.3 fill(B.3.SG)-D4 'she has not filled it (yet)'), depending on whether (s)he wants to deny the occurrence of an instance of the target event itself (as in the English *She did not fill it*) or the realization of the target event's post-state (as in the English *She has not filled it*). AM marking under negation has been dealt with in §4.2.1.5 and §6.1.3.

Being a post-state operator, terminative AM competes with a whole range of semantically overlapping expressions, including the perfective AM marker, the resultative and perfect derivations (cf. §§5.2.1, 5.2.2), and, under higher predicates including negation, subjunctive status (cf. §§4.2.1.5, 6.1). The terminative AM is generally used in reference to three different kinds of post-states. Under the resultative reading, the post-state referred to is the target state of some telic event. Consider the following example, where clearly the physical condition of the interlocutor's mother is at issue, rather than the event of her getting better.

E254. "Laaili" k'oha'n a määma-e'?"
still sick(B.3.SG) A.2 mother-D3

- "Ma'; ts'o'k uy uts-tal."
NEG TERM A.3 good-PROC.INC

"Is your mother still ill?" - "No; she has recovered." (BVS 10.1.23-24)

The resultative reading is the most frequent function of the terminative AM marker. The result state of a change-of-state event can also be referred to by the

perfective AM (*H uts-chah-ih* PRV good-PROC.CMP-B.3.SG 'She recovered'); this is, however, vague concerning the distinction of resultative reference to the post-state of the target event and perfective reference to the target event itself, including its initial and terminal boundary. Moreover, result states are also expressed by the resultative and perfect derivations (*Uts-chah-a'n* good-PROC.CMP-RES(B.3.SG) 'She is recovered'); these occur, however, with far lower frequency than the terminative AM marker. This may be understood in connection with the general preference YM displays for marking aspectual and modal distinctions mainly at the preverbal AM position, rather than at the derivational and inflectional suffix slots, which carry the bulk of AM information in other Mayan languages (cf. §6.1). Another advantage in favor of the terminative AM might consist in its uniformity, which distinguishes it from the resultative and perfect derivations, which are restricted to intransitive and transitive verbs, respectively.

A kind of post-state that is almost uniquely referred to by means of the terminative AM is the experiential post-state, where a 'sentient' participant is asserted to be in the post-state of having a certain experience. This reading occurs prominently with perception verbs such as in E255a and other experienter predicates, but it is also possible with any other type of target event, including activities such as E255b, which provide the clearest basis for distinguishing the experiential from the resultative reading (the resultative reading being restricted to telic verbs).

E255 a. U k'áaba' le Don Felipe Carrillo Puerto-a',
A.3 name DEF Don Felipe Carrillo Puerto-D1

ts'o'k aw u'y-ik-e'x.
TERM A.2 hear-INC(B.3.SG)-2.PL

'The name of this Don Felipe Carrillo Puerto: you have already heard it.' (Fcp 4)

b. Bwèeno, tèn-e', ts'-in bàaxal+ha' ya'b u p'ul-ul te'l-a'.
alright me-TOP TERM-A.1.SG play+water many A.3 time-REL there-D1
[Said in reply to the question "Can you swim in this lake (= is it possible for anybody to swim in this lake)?":] 'Well, I've swum many times here.' (Perfa 7)

Experiential post-states are only marginally referred to using the deverbal statives mentioned above. But the truly genuine reading of the terminative AM marker is the one that comes closest to its lexical source. Here, the post-state referred to by the terminative AM does not receive its significance from a state-change or

experience obtained through an occurrence of the target event, but simply from the completion of the target event itself, which is at issue in context. Thus, in E256, the interlocutor wants to know whether the speaker's son is still busy doing his homework, and the speaker replies that he believes his son to be done already.

E256. Inw a'l-ik-e',
A.1.SG say-INC(B.3.SG)-TOP

ts'-u ts'o'k-s-ik u meyah-o'.
TERM-A.3 end-CAUS-INC(B.3.SG) A.3 work-D2

[Said in reply to the question "Is your son still doing his homework?":] 'I think he has finished his work (already).' (Perfa 70)

Expectation of an instance of the target event is the major factor that conditions preference of the terminative over the perfective AM marker in reference to post-states. In E257a, the speaker reports arrival of the king, knowing that the addressee, like everybody else, was expecting this event. In E257b, however, the speaker actually denies that the king had been awaited (employing the terminative AM to this end), and then goes on to announce the king's arrival using this time the perfective AM.

E257 a. (...) ts'-u k'uch-ul túun le rëey-e', (...)
TERM-A.3 arrive-INC CON DEF king-D3
'(...) so the king has arrived, (...)'. (Perfa 55)

b. Le rëey-e', ma' h pa't-a'b wáah ts'-u
DEF king-TOP NEG PRV await-PASS.CMP(B.3.SG) ALT TERM-A.3

k'uch-ul-e', pero leti'-e' h k'uch-ih.
arrive-INC-D3 but it-TOP PRV arrive-B.3.SG

'The king, it wasn't expected that he arrived, but he arrived.' (Perfa 56)

The particular likelihood of the terminative AM being used to assert or question the post-state of an event whose completion is expected at TT is evidently rooted in the presuppositional properties of the phase verb *ts'o'k* 'end'.¹⁴³ Related to this, it is probably worth mentioning that YM does not have any construction or morpheme other than terminative AM *ts'o'k* (and, in some contexts, recent past

¹⁴³ Cf. Freed (1979: 156-159) and ter Meulen (1995: 20) on presuppositions of phase verbs in general.

AM *sáam*; cf. §6.2.2.3) that translate English *already* (or Dutch *al*, German *schon*, Spanish *ya*, etc.), just as it has no expression of 'not yet' other than the combination of negation and subjunctive status.¹⁴⁴

Turning now to the question as to whether the semantics of the terminative AM can be accounted for in terms of an event order relation, it may first of all be observed that, like all the AM markers, terminative AM is not specialized on either deictic or anaphoric reference. The examples discussed so far in this section (with the exception of E251) were all understood to imply coding time to be their point of reference, while the following two examples have to be interpreted with respect to some topic time TT determined in context. TT is before coding time in E258a and subsequent to coding time in E258b; notice thus that the Modal Commitment Constraint (cf. §6.2.1.1) does not prevent the terminative AM marker from occurring with future time reference.

E258 a. K-u k'uch-ul-o'b-e',
IMPF-A.3 arrive-INC-TOP

ts'o'k u kim-il le chàampal-e'.
TERM A.3 die-INC DEF small:child-D3

'(By the time) they arrived, the baby had already died.'

b. Sáamal óok-a'n+k'jin-e'
tomorrow enter-RES+sun-TOP

ts'o'k u bèet-ik le túus+bèel-o' le pàal-o'.
TERM A.3 do-INC(B.3.SG) DEF send+way:REL-D2 DEF child-D2

'By tomorrow afternoon the boy will have done the errand.' (Andrade 1955: 135-136)

¹⁴⁴ It should be noticed that, like everywhere in the present thesis, the distinction of different readings a given sign occurs with is not meant to imply polysemy of that sign (cf. §3.3.2). The differences of the interpretations distinguished above can probably be accounted for as differences of the contexts in which these readings occur. The common denominator covering all the different senses is a post-state operator that distinguishes itself from the perfective AM, first, in that it does not allow for a reading under which the target event itself is being referred to in its boundaries, and second, by a weak presupposition that occurrence and completion of the target event had been expected.

It has been established that the terminative AM occurs indiscriminately with TTs in the present, past, or future of coding time. This means that the terminative AM has no deictic (or 'absolute') tense component. What needs to be investigated now is whether the terminative AM can be said to express *anaphoric* (or 'relative') tense. An analysis of terminative *ts'o'k* in terms of relative tense, rather than in terms of aspect, would represent the meaning of terminative *ts'o'k* as an anterior event order relation obtaining between the target event and a reference event in discourse. At first glance, this interpretation is corroborated by terminative *ts'o'k* not displaying any sensitivity to iconicity inferences. Immunity against iconic interpretation has been adduced throughout this study as a necessary condition of the presence of event order relations (cf., e.g., §4.2.2, §6.2.1.1). Consider in this respect E259, where the temporal interpretation of the utterances in (a) and (b) is the same, according to all consultants asked, independently of whether the smoking event referred to by the terminative clause is mentioned first or whether the writing event referred to by the perfective clause comes first in mention. In both cases, the smoking of the cigarette is understood to have preceded the letter writing. E259a thus refers anti-iconically in pragmatic terms (but not, as is shown below, in semantic terms).

E259 a. Pedro-e', káa t-u ts'fib-t-ah le kàarta-o',
Pedro-TOP káa PRV-A.3 write-APP-CMP(B.3.SG)DEF letter-D2

ts'o'k u ts'u'ts'-ik hun-p'èel chamal.
TERM A.3 suck-INC(B.3.SG) one-CL.IN cigarette

'Pedro, (when) he wrote the letter, he had smoked a cigarette.'

b. Pedro-e', ts'o'k u ts'u'ts'-ik hun-p'èel chamal-e',
Pedro-TOP TERM A.3 suck-INC(B.3.SG) one-CL.IN cigarette-TOP

káa t-u ts'fib-t-ah le kàarta-o'.
káa PRV-A.3 write-APP-CMP(B.3.SG)DEF letter-D2

'Pedro, he had smoked a cigarette, and (then) he wrote the letter', 'Pedro, (when) he had smoked a cigarette, he wrote the letter.' (a and b are referentially identical to all five consultants asked).

This might be taken as solid evidence for an analysis of the terminative AM as an anterior tense. However, as shall be seen in a moment, there is an alternative explanation of the data presented in E259, which does not make reference to event order relations. But first, it can be demonstrated that the account of terminative

ts'o'k as an anterior tense is actually untenable. As a tense operator, the terminative AM would serve to locate the target event in time with respect to a reference event in discourse (which would be the writing of the letter in E259). To be precise, the terminative should help assert that the target event is located 'before' or 'anterior to' the reference event. In this case, both TT and the target event itself (or rather its temporal projection, the 'situation time' (Klein 1994)) should be accessible to time-locational adverbials.¹⁴⁵ But as a matter of fact, the terminative AM is only compatible with TT adverbials. The following little discourse was tailor-made with the help of the consultants so as to assure that *káa h máanen tuy iknal Pedro lassýètee'* '(when) I passed by Pedro's at seven' only specifies the time TT for which *ts'o'k u hàanal leti'* 'he had (already) eaten' is asserted, while the speaker denies at the same time any knowledge of the event time (*mix inw ohel ba'x òora hàanaki'* 'I have no idea at what time he ate').

- E260 ^APedro-e' h hàan lassèeys. Chéen dyèes minùuto-s t-u
 Pedro-TOP PRV eat(B.3.SG) six.o'clock only ten minute-PL PRV-A.3
- bis-ah. ^BLassýètee káa h máan Pablo, káa t-uy
 go:CAUS-CMP(B.3.SG) seven.o'clock káa PRV pass(B.3.SG) Pablo káa PRV-A.3
- ohel-t-ah ^Cts'-u hàan-al Pedro.
 know-APP-CMP(B.3.SG) TERM-A.3 eat-INC Pedro.
- ^CChen ba'l-e', ma' t-uy ohel-t-ah ^Dba'x òora
 only thing-TOPNEG PRV-A.3 know-APP-CMP(B.3.SG) what hour
- káa h hàan Pedro-i'.
 káa PRV eat(B.3.SG) Pedro-D4
- ^DLasòcho-e' t-uy a'l-ah Pablo ti' Juan-e':
 eight.o'clock PRV-A.3 say-CMP(B.3.SG) Pablo LOC Juan-TOP

^EKáa h máan-en t-uy iknal Pedro lassýètee-e',
 káa PRV pass-B.1.SG LOC-A.3 at Pedro seven.o'clock-TOP

^Fts'o'k u hàan-al leti'; chen ba'l-e',
 TERM A.3 eat-INC it only thing-TOP

mix inw ohel ^Gba'x òora hàan-ak-i'".
 EMPH.NEG A.1 know(B.3.SG) what hour eat-SUBJ(B.3.SG)-D4

^A'Pedro, he ate at six. ^BIt took him just ten minutes. ^C(At) seven, Pablo came by, and he learned that Pedro (already) had eaten. ^DHowever, he did not come to know at what time Pedro had eaten. ^EAt eight, Pablo said to Juan: "(When) I went by Pedro's at seven, he (already) had eaten; only I have no idea at what time he had eaten."

The terminative AM is impossible in contexts where a specification of temporal location can only be understood as referring to the event time (cf. also Arzápalo 1984; Vapnarsky 1999: 137). Thus, in E261, *ho'lheak* 'yesterday' is not likely to be understood as referring to TT, as the speaker probably does not really want to know whether the interlocutor was in the state of having met the speaker's brother at the previous day. Topic times are seldom at issue outside court rooms etc. Hence, the terminative AM is excluded in E261.

E261. T-aw il-ah in suku'n ho'lheak,
 PRV-A.2 see-CMP(B.3.SG) A.1.SG elder.brother yesterday

he'bix t-a tukul-ah-e'?
 like PRV-A.2 think-CMP(B.3.SG)-D3

'Have you met my brother yesterday, as you had planned?' (Tama 45)

Similarly, the terminative cannot occur in time-focus questions introduced by *ba'x òora/k'in* 'at what time/day', where it has to be replaced by either the perfective AM or a verbal core alone in subjunctive status. The reason why the terminative AM marker is not compatible with event-time specifications is that the target event is simply outside the scope of assertion of the terminative AM. The terminative asserts the post-state of the target event to obtain at TT, and even though this may be argued to imply anteriority of the target event with respect to TT, the temporal location of the target event is obviously not semantically accessible when the terminative asserts its post-state. Consequently, the situation

¹⁴⁵ Take for example the English tense system. With the simple tenses, TT itself is already determined deictically (with respect to coding time), and so adverbials of temporal location can only refer to the event time (*I met her at 7 p.m. yesterday*, *I'll meet her at 7 p.m. tomorrow*). With the complex tenses, however, there is an anaphoric TT, giving rise to the principled ambiguity of *I had met her at 7 p.m. yesterday* and *I will have met her at 7 p.m. tomorrow* (even though most native speakers seem to prefer *by 7 p.m.* over *at 7 p.m.*, provided the adverbial is really meant to determine TT and not the event time. With the examples given, the TT interpretation becomes more likely when the adverbials are topicalized). Cf. Klein 1992, 1994: ch. 9.

time of the target event should not be considered part of the semantic representation of the terminative AM.¹⁴⁶

Another piece of evidence confirming the aspectual, rather than tense-like, nature of terminative *ts'o'k* comes from the fact that use of the terminative AM is infelicitous in contexts where the post-state asserted by the terminative no longer holds at TT. Thus, in the example given below, the consultant was reluctant to accept terminative (**ts'a k'ahóol-t-ah* 'have you made his acquaintance', **ts'in wilik* 'I have met him') rather than perfective AM, since the speaker's father, whose acquaintance the addressee is asked about, is asserted to be no longer alive at TT.

- E262. "T-a k'ahóol-t-ah in tàatah,
PRV-A.2 be.acquainted-APP-CMP(B.3.SG) A.1.SG father

le máax kim t-e ha'b <h> máan-o'?"
DEF who die(B.3.SG) LOC-DEF year PRV pass(B.3.SG)-D2

- "Mfin chen hun-téen-ili' t-inw il-ah.
DUB only one-times-ID PRV-A.1.SG see-CMP(B.3.SG)

"Have you (ever) met my father, who died last year?" - "I think I only met him once." (Tama 43)

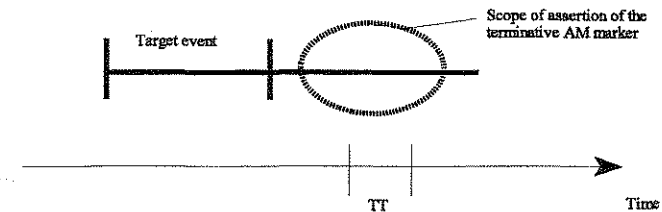
It is the stativity of the terminative AM as a post-state operator that accounts for its immunity vis-à-vis iconicity inferences shown in E259. Post-states are in themselves unbounded (i.e. interpreted imperfectly), as all states are by default; and, like all instances of unbounded eventualities, post-states invite inferences of temporal overlap. Thus, in E259 above, it is not so much understood that the event of smoking preceded the letter-writing event, but rather that the state of having smoked a cigarette overlapped with the event of writing a letter. And overlap leaves no room for iconicity effects, which can only affect the interpretation of sequential order. Accordingly, although the order of the letter-writing and

the smoking are inferred to be represented anti-iconically in E259a, the construction is nevertheless perfectly iconic in semantic terms.

E259 above illustrated topicalization of a clause formed with the terminative AM marker. Unlike basic stative predications, the post state asserted by the terminative AM marker provides a topic time contrast suitable for temporal backgrounding. Notice, however, that the terminative AM marker is found with much less frequency in topic clauses than the perfective, imperfective, and progressive AM markers.

The essential semantic analysis of the terminative AM marker is summarized in F36:

F36. Temporal interpretation of the terminative AM marker



The terminative AM marker does not entail any location of the target event on the time line. Rather, it selects a post-state of the target event for assertion at topic time TT. TT in turn is not located by the terminative AM marker with respect to coding time. The post-state will most likely be the target state of the event in cases when the event instantiates state-change. It can be, however, any change in the (discourse) world caused by the occurrence of the target event.

6.2.2.1.3. Prospective

The prospective AM marker *mukah* and its allomorphs *mikah* and *bikah* have been derived from a construction [*bíin set-A ka'h*] (cf. also Briceño Chel 1997 and Vapnarsky (1999: 110)) that is still in use in more formal and ritualized registers:

¹⁴⁶ Arguably, the event order of pre- and post-states with respect to their target events is part of the presuppositions, rather than of the entailments, of the pre- and post-state operators. Although this fits nicely with the weak presupposition of expectation noticed above that is conveyed by the use of the terminative AM marker, it is hard to prove, as the terminative does not undergo negation.

- E263. K'oha'n-en, **būn** in ka'h kim-il.
 sick-B.1.SG **PROSP** A.1.SG do die-INC
 'I am ill, I going to die.' (Fcp 395)

The structure is a relic of the Colonial YM predicate focus construction [V_{INC} set-A ka'h], lit. approximately 'V-ing NP_A do'. The focused predicate *būn* is a grammaticalized variant of the motion verb *bin* 'go', and it is homophone with the predictive AM marker *būn*. *Mukah*, having started its career in YM grammar as a morphological reanalysis of [*būn* set-A ka'h], has acquired argument marking with the set-B cross-reference paradigm (cf. *Mukah-en!* **PROSP**-B.1.SG 'I have to be on my way now!'). *Mukah* is actually the only AM marker of contemporary YM that displays personal inflection (i.e. inflection for an *animate* argument), and the transitivity-dependent pattern *mukah* triggers on the verbal core is exactly the same as with motion verbs. The examples E265 were discussed in §4.2.1.4. E264 demonstrates the predicativity of *mukah* according to the test introduced in §4.2.1.4: attraction of the interrogative focus marker *wáah*.

- E264. **Mukah**-ech **wáah** chital chéen k'uch-uk-ech?
PROSP-B.2.SG **ALT** lie.down:PROC. INC only arrive-SUBJ-B.2.SG
 'Are you going (to go) to sleep (when) you arrive?'

- E265 a. Le **mukah** chúun-ul le cha'n-o',
 DEF **PROSP**(B.3.SG) begin-INC DEF spectacle-D2

ba'x t-uy a'l-ah le chan ràaton-o' (...)?
 what PRV-A.3 say-CMP(B.3.SG) DEF small mouse-D2

'(While) the movie was going to start, what did the little mouse say?'
 (Mag_{ss}/com 1)

- b. Yáax táan-il túun-e' pwes be'dorita-a' **mukah**-en in
 first front:RELCON-TOP well now:DIM-D1 **PROSP**-B.1.SG A.1.SG

tsikbat tèech, estèe,
 chat:APP(B.3.SG)you HESIT

bix úuch hóok'-ok-o'n káah-tal túun way-e'.
 how REM exit-SUBJ-B.1.PL live:PROCCON here-D3

'For a start then, well, right now, I am going to tell you, uhm, how we went out to live here.' (Yax 18-19)

When the verb is intransitive (like *chúun* in E265a), it appears in incomplete status, and the set-A marker is equi-deleted. When transitive, such as *tsikbat* 'tell'

in E265b, it retains the set-A marker, but appears in subjunctive status (unmarked with transitives). Even semantically, the prospective marker *mukah* is still strongly reminiscent of the 'motion-cum-purpose' construction that provided its diachronic source. If, for instance, somebody says *Táan im bin màanal* **PROG** A.1.SG go buy.ATP 'I am going shopping', (s)he is probably referring to a situation where (s)he is found on her way to a store or market. The motion event of going to that place is a pre-state of the shopping-event, in the sense that the two events are spatio-temporally contiguous. As soon as the construction is used to refer to a pre-state of the target event other than a motion event with the target event as its "propositional goal", the grammaticalization from motion-cum-purpose to prospective aspect has been achieved.

Mukah and [*būn* set-A ka'h] make reference to the pre-state of a prospective situation, which may either consist in the speaker's intention (as in E266) or be witnessed by her (as in E267). (Observe, incidentally, how the prospective just like all AM markers is compatible with a topic time TT determined by coding time (as in E266) as well as in adjacent discourse (cf. E267).)

- E266. Ts'o'k in tukul-ik be'dora-a',
 TERM A.1.SG think-INC(B.3.SG) now-D1

mukah-en in ts'fib-t hun-p'éeł kàarta.
PROSP-B.1.SG A.1.SG write-APP(B.3.SG) one-CLIN letter

[Said in reply to the question "What are you planning to do right now?":] 'I have made up my mind now, I am going to write a letter.' (Tama 22)

- E267. Táan k il-ik bèey-o', pwes, **mukah** chúun-ul
PROG A.1.PL see-INC(B.3.SG) thus-D2 well **PROSP**(B.3.SG) start(ACAUS-INC

uy iik'-al le siklòon-o', (...)
 A.3 wind-REL DEF cyclone

'So we were realizing, well, the storm of the hurricane¹⁴⁷ was about to begin, (...)'
 (Rox ram 14-15)

¹⁴⁷ A hurricane is basically a giant tropical depression. The storm only forms the center of an area which in all is usually several 100km in diameter, consisting of dense clouding and heavy rain fall. Therefore, it makes perfect sense for the consultant to speak of the "storm of the hurricane".

The second type of use is much less frequent than the first one. Nevertheless, its existence proves that intentionality is not really part of the semantic representation of *mukah* (cf. also Vapnarsky 1999: 114-115). As a pre-state operator, the prospective AM competes with the modal AM markers on the one hand and with the deverbal gerundive in *-bil* on the other. As put forth in §5.2.3, the gerundive acts as a kind of impersonal passive, serving to assert or question the function or purpose of the theme of the verb it is derived from. The reason why the prospective AM is considered here to be an expression of an aspectual, rather than a modal, pre-state is that, as opposed to the modal AM predicates to be discussed below, application of the prospective AM marker is not subject to any modal commitment on the part of the speaker. The modal AM predicates are bound to either deontic commitment (with the necessitive, desiderative, and assurative AM markers), in which case they naturally do not entail event realization, or to epistemic commitment, in which case the speaker cannot withhold the prediction of event realization without contradicting herself. This is the case with the predictive marker *bīn* and, less frequently, the assurative *he'* ... *-e'*. Obligative AM *yan* occurs with both deontic and epistemic readings, the epistemic interpretation being more frequent. As opposed to all these modal AM markers, prospective AM *mukah* neither conveys any sort of obligation or desire of the speaker towards realization of the target event, nor does it entail event realization, in contrast to the modal AM markers that are bound to epistemic commitment. For illustration, consider the following conversation taken once more from the same EVEREST session quoted already in the previous sections. The exchange starts while the character in the stimulus video is holding the jar, about to start pouring the juice into the glass.

E268. - JB: K-u bēey-tal uy a'l-a'l be'òora-a',
IMPF-A.3 thus-PROC.INC A.3 say-PASS.INC now-D1

"Mukah u chup-eh"?
PROSP(B.3.SG) A.3 fill-SUBJ(B.3.SG)

- SBM: K-u bēey-tal, chéen ba'l-e',
IMPF-A.3 thus-PROC.INC only thing-TOP

mu'n chup-ik.
NEG.PROSP:A.3 fill-INC(B.3.SG)

- JB: Mukah u chup-eh, chéen ba'l-e',
PROSP(B.3.SG) A.3 fill-SUBJ(B.3.SG)only thing-TOP

mu'n chup-ik.^a
NEG.PROSP:A.3 fill-INC(B.3.SG)

- SBM: Mu'n chup-ik,
NEG.PROSP:A.3 fill-INC(B.3.SG)

tuméen le bàaso-o', estée, o'p'-ol.
CAUSE DEF glass-D2 HESIT shatter-INC(B.3.SG)

^a- JB: Is it possible to say right now, "She is going to fill it"? - SBM: It is possible, but she won't fill it. - JB: She is going to fill it, but she won't fill it. - SBM: She won't fill it, because the glass is, uhm, shattered.'

Notice that the element glossed as 'negative prospective' is formally related to the progressive AM marker, rather than to the prospective,¹⁴⁸ and it covers functionally the negation of prospective, obligative, predictive, and assurative AM. None of these markers is capable of combining itself with the regular negative marker *ma'*. The reading of the 'negative prospective' activated in E268 is, of course, not that of a negative prospective, but rather that of a negative predictive mood, which crucially entails event realization, as opposed to the prospective AM (cf. §4.2.1.5 on AM marking under negation).

Asserting a proposition with the prospective AM marker, the speaker does not make any commitment to the occurrence of the target event itself. (S)he only makes a commitment to the claim that the pre-state of the target event obtains at TT. This is why (s)he has to have some sort of *evidence* for the obtaining of the pre-state (as in E267) if the pre-state is not grounded in her own intentions. (If it is, the intention renders further evidence superfluous. The aspectual pre-state reading fits quite naturally with the requirements of an intentional expression without actually lexicalizing intention.) Otherwise, having no indication of the pre-state, the speaker would inevitably make a prediction concerning the occurrence of the target event itself.

The eventuality referred to by the prospective clause, i.e. the pre-state of the target event, is itself unbounded and is consequently interpreted imperfectly, i.e. as including topic time TT, which may in its turn be identified in context with the time of another event in the discourse representation. For this reason, iconicity effects are not likely to show up with the prospective AM. Compare E269 a and

¹⁴⁸ *Mu'n* is a contraction of *ma' táan u* NEG PROG A.3.

b, where, according to the consultants, the interpretation independently of the order of clauses is that Pedro smoked a cigarette before starting to write the letter. Indeed it is not actually known whether Pedro really ever wrote the letter, whereas it is known that he smoked a cigarette.

E269 a. Pedro-e' **mukah** u ts'fib-t le kàarta-o',
Pedro-TOP **PROSP** A.3 write-APP(B.3.SG) DEF letter-D2

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

'Pedro, he was going to write the letter, (and then) he smoked a cigarette', 'Pedro, (when) going to write the letter, he smoked a cigarette.'

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

mukah u ts'fib-t le kàarta-o'.
PROSP A.3 write-APP(B.3.SG) DEF letter-D2

'Pedro, (when) he smoked a cigarette, he was going to write the letter.'

However, despite its insensitivity to iconicity inferences, the prospective AM cannot be said to express a relation of event order, since it does not locate the target event lexicalized in the verb on the time line with respect to coding time or a reference point in discourse. Just as with the terminative AM in the previous section, the demonstration proceeds by showing that the prospective AM is only capable of occurring with adverbials specifying topic time TT, whereas event-time specifications are inadmissible. Thus, in E270, *lassèeys* 'at six' in *mukah hàanal lassèeys* clearly only refers to the topic time with respect to which it is asserted that Pedro 'was going to eat'. It cannot possibly refer to the time of eating, since event realization is defeated in the context. In E271, however, it is obvious that *behe'lak* 'today' refers to the anticipated situation time of rain, not just to a topic time TT for which it might be sensible to assert that it 'was going to rain' at TT. Consequently, prospective AM *mukah* is ruled out here, and instead, obligatory *yan* is selected.

E270. ^APedro-e' wíh lassèeys, **mukah** hàan-al.
Pedro-TOP hungry(B.3.SG) six.o'clock **PROSP**(B.3.SG) eat-INC

^BKáa h máan hun-tíul máak-e',
káa PRV pass(B.3.SG) one-CL.IN person-TOP

káa h t'a'n-ih, káa h p'áat
káa PRV callPASS-B.3.SG káa PRV leave\ACAUS(B.3.SG)

mix h hāan-i'. ^CBe'òora-a' sèeysmèedya-e' ma'
EMPH.NEG PRV eat(B.3.SG)-D4 now-D1 six.thirty-TOP NEG

hāan-ak Pedro-i'. ^DPedro-e'
eat-SUBJ(B.3.SG) Pedro-D4 Pedro-TOP

mukah hāan-al lassèeys, chen ba'l-e', be'òora
PROSP(B.3.SG) eat-INC six.o'clock only thing-TOP now

las sèeys y mèedya-a' mix hāan-ak leti'.
six.thirty-D1 EMPH.NEG eat-SUBJ(B.3.SG) it

^APedro, he was hungry at six, he was going to eat. ^B(Then) a person came by, and he was called, and he ended up not eating at all. ^CNow it's six-thirty, and Pedro still hasn't eaten. ^DPedro was going to eat at six, but right now at six-thirty, he has not eaten yet.'

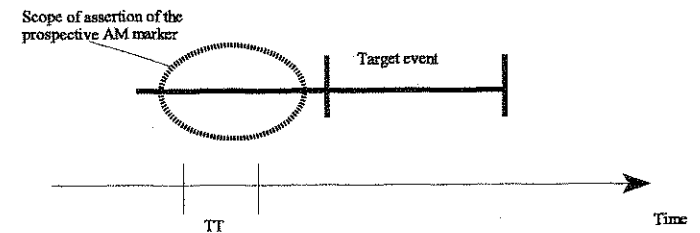
E271. In suku'n ka'ch-e', túuny a'l-ik ho'lheak-e'
A.1.SG elder.brother formerly-TOP PROG:A.3 say-INC(B.3.SG) yesterday-TOP

yan u k'áax-al (??/mukah k'áaxal)ha' behe'la-ak-e'.
OBL A.3 fall.from.sky-INC (PROSP...) water today-ak-D3

'My brother was saying yesterday that it would rain today.' (Futa 73)

In conclusion, the following diagrammatic representation of the semantics of the prospective AM marker can be derived:

F37. Temporal interpretation of the prospective AM marker



The diagram attempts to capture the following properties: The prospective AM marker (whose semantic scope is represented by the dotted ellipsis) does not

locate the target event on the time line. It serves to refer to a pre-state of the target event. This pre-state is an eventuality in its own right, not a time interval. The pre-state is causally related to the target event. It is the pre-state that is evaluated with respect to topic time TT. TT in its turn is not located with respect to coding time.

6.2.2.2. Modal Predicates

Modal predicates constitute the largest subset among the 13 morphologically unbound AM markers, comprising no less than six elements:

- E272 a. **Yan** in xok-ik le periyòodiko-o'.
Obligative OBL A.1.SG read-INC(B.3.SG) DEF newspaper-D2
'I/have/had/will have/ to read the paper', 'I will/would read the paper.'
- b. **K'a'náan** in xok-ik le periyòodiko-o'.
Necessitive NEC A.1.SG read-INC(B.3.SG) DEF newspaper-D2
'I/need/needed/will need/ to read the paper.'
- c. **Táak** in xok-ik le periyòodiko-o'.
Desiderative DES A.1.SG read-INC(B.3.SG) DEF newspaper-D2
'I/want/wanted/will want/ to read the paper.'
- d. **He'** in xok-ik le periyòodiko-o'.
Assurative ASS A.1.SG read-INC(B.3.SG) DEF newspaper-D2
'I/promise/promised/will promise/ to read the paper.'
- e. **Bíin** in xok-ø le periyòodiko-o'.
Predictive PRED A.1.SG read(SUBJ)(B.3.SG) DEF newspaper-D2
'I will/would read the paper.'
- f. **Óolak** in xok-ø le periyòodiko-o'.
Penative PEN A.1.SG read(SUBJ)(B.3.SG) DEF newspaper-D2
'I (will have) almost read the paper.'

The obligative, necessitive, desiderative, and assurative AM markers all govern incompletive status inflection on the verb, while the predictive and the penative AM markers trigger subjunctive status. The obligative is primarily used in reference to 'scheduled' events. The necessitive AM expresses necessity and the desiderative AM desire. The assurative AM marker is used in its deontic reading to express promises and in its epistemic reading to indicate accordance of the

proposition with the speaker's or addressee's knowledge base. The predictive AM is mainly restricted to the genre of prophecies; it is used in predicting events which are highly unusual. All five modal predicates just mentioned refer to events in the future of topic time TT (which is explained below as a consequence of their modal meanings), while none of them (with the possible exception of the predictive AM) is restricted to a TT in the past, present or future of coding time. The sixth modal AM marker, the penative AM, indicates failure of event realization subsequent to TT (like the English adverb *almost* in one of its two readings) and thus has a counterfactual meaning.

6.2.2.2.1. Obligative

Obligative *yan* relates to the stative existential and locative predicate *yàan*, which covers a wide number of functions ranging from the predication of existence without mention of location (E273a) to the predication of existence at a certain location (E273b) and predication of location of a figure marked by the S-argument of *yàan* vis-à-vis a ground object encoded as an adverbial (E273c), to the predication of possession (E273d). Many more specific readings evolve around these basic uses.

- E273 a. **Yàan** ba'x in k'áat inw u'y-ik tèech-a'.
EXIST(B.3.SG) what A.1 wish(B.3.SG) A.1.SG hear-INC(B.3.SG) you-D1
'There's something I want to hear from you here.' (Hanks 1990: 159)
- b. **Yàan** káanal te'l pàach-il-o'.
EXIST(B.3.SG) canal there back-REL-D2
'There's a canal there behind (the mound in front of us).' (Hanks 1990: 128)
- c. Tu'x **yàan**-ech, chan áak?
where EXIST-B.2.SG small turtle
'Where are you, little turtle?' (Romero Castillo 1964: 308)
- d. **Yàan** tèech tsfimin?
EXIST(B.3.SG) you horse
'Do you have a horse?, lit. does a horse exist on you?' (BVS 5.1.24)

The difference in tone and vowel quantity between locative *yàan* and obligative *yan* should not necessarily be considered the trace of a grammaticalization process, but may be just the morphophonemic reflex of the different distribution.

(And, as often, the normalized orthography (cf. §3.1.3) hides some variation found in the actual occurrences of both elements.) The prehistory of both markers is not entirely certain. Apparently, both forms originate in a transitive verb *an* or *aan*, of whose inflectional paradigm their current appearance is a member frozen with A.3.SG *y-*. At least three other members of the paradigm have survived as isolated defective forms, reanalyzed as intransitive verbs (completive *(y)anhi* and subjunctive *(y)anak*, both with the obligative meaning 'have to') or monovalent stative predicates (extrafocal *(y)anil*, meaning 'to be in a certain condition', e.g. *Bix yanilech?* 'How are you?' with B.2.SG *-ech*; the forms without /y/ are only attested in the western dialect of YM). These relic forms must not be confused with the inchoative form *yàantal* 'grow, come into existence' of existential/locative *yàan*. Although *yàantal* does not in its most frequent use take an embedded verbal core, its completive *yàanchah* may be used with the same meaning as *(y)anhi*.

- E274 a. Káa **yanhi** u wach'-a'l-o'b.
 káa EXIST.CMP(B.3.SG) A.3 loosen-PASS.INC-3.PL
 'They had to be untied (and they were).' (Andrade 1955: 151)

- b. Káa h **yàan-chah**
 káa PRV EXIST-PROC.CMP(B.3.SG)
 in p'at-ik in xòok.
 A.1.SG leave-INC(B.3.SG) A.1.SG read\ATP

'I had to quit my studies (and I did).' (Bio ern 92-93)

Like all AM markers, obligative *yan* is not restricted to deictic reference, but can be used with any topic time in discourse, including one in the past of coding time. Hence, *yan* can be used in the same context as *(y)anhi* and *yàanchah*. Andrade (1955: 148) states an interesting observation concerning the semantic difference:

"The distinction is like that which can be made by the use of an imperfect and the preterite tenses of the Spanish verb. *Tuve que buscarlo*, like *Yanhi in kaxtik*, implies that I was under compulsion to look for it, and I did look for it; whereas *Tenia que buscarlo* asserts that there was a compulsion of some sort, but is non-committal as to whether I actually looked for it. The latter is the sense of *Yan in kaxtik* with reference to a past situation." Andrade (1955: 148)

The finding that *yan*, at least in its obligative reading, does not entail event realization, and that it has the imperfective reference of the Spanish imperfect

tenía que, is taken up below. The verb forms *(y)anhi/yàantal* etc. are of no further concern, as they are ruled out for membership in the AM category on account of their being inflected for status.

It may seem tempting to analyze obligative *yan* as a metaphorical extension of the (in itself already figurative) possessive use of existential-locational *yàan*, similar to e.g. English *have to* + infinitive or Spanish *tener que* + infinitive. However, on closer inspection, this reconstruction loses some of its plausibility. In English and Spanish, the infinitive with *to/que* is a nominal verb form with perfective reference, in opposition to the imperfective gerundial form in *-ing/-ndo*. This explains why the infinite form has posterior reference with respect to the main verb *have/tener*, which then serves to attribute the pre-state of the lexical verb to a metaphorical possessor. This possessor is interpreted to be compelled to conduct the target event, which consequently is normally controlled, even though impersonal uses do occur. In contrast, *yan* is an impersonal monovalent predicate that takes the embedded verbal core as its sole argument, and the verbal core appears in incomplete status, which is an unbounded verb form, resembling an Indo-European gerund, rather than an infinitive (cf. §6.1). And in functional perspective, although consultants tend to translate *yan* in most contexts with *tener que* + infinitive, the opposite does not hold: Spanish compulsive constructions with *tener* are usually translated into YM using the necessitive AM *k'a'náan*, rather than obligative *yan*. The example reproduced below was elicited as a translation of *(Para lograr el primer autobus) tengo que levantarme muy temprano mañana* '(In order to catch the first bus) I have to get up very early tomorrow'. I therefore entertain the hypothesis that the modal use of *yan* might be directly related to existential *yàan*, without the possessive reading playing any role in its genesis. But further evidence is needed to settle this issue.

- E275. K'a'náan in líik'-il tèmprano sáamal.
 NEC A.1.SG líik'ACAUS-INC early tomorrow
 'I (will) have to get up early tomorrow.'

Much more than in true compulsion, the functional core of the modal meaning labeled here 'obligative' seems to consist in scheduled and arranged events such as appointments (cf. E276).¹⁴⁹ (Independent anthropological evidence would be

¹⁴⁹ Vapnarsky (1999: 105) mentions intention and causality as other frequent contexts. I would not dispute that obligative *yan* is compatible with these contexts, but I doubt that

required in order to determine whether and to what extent such social obligations are considered compulsory in YM culture.) Another domain of the obligative AM is plans. Consider E277, where the speaker could have chosen as well to mark desire employing the desiderative AM *táak* or the lexical predicate *k'áat* 'wish'. E278 was elicited in the same context as E266 above.

E276. Hach túun tukul-ik ka'ch
really PROG:A.3 think-INC(B.3.SG) formerly

yan u bin te dèentistah te he'l diiyah-o'.
OBL A.3 go LOC:DEF dentist LOC:DEF other day-D2

'He was really worried then, because he had to go to the dentist the other day.'
(Futa 111)

E277. Túuny a'l-a'l-e' yan a man-ik 300 mehen
PROG:A.3 say-PASS-INC-TOP OBL A.2 buy-INC(B.3.SG) 300 small
x-òoron-o'b u ti'a'l a li's-eh.
F-doll-PL A.3 for A.2 guard-SUBJ(B.3.SG)

'It is said you intend to buy 300 little dolls in order to collect them.' (Perfa 44)

E278. Tèen-e' sáamal-e', yan in p'áat-al te nah-o'.
me-TOP tomorrow-TOP OBL A.1.SG leave\ACAUS-INC LOC:DEF house-D2
'Me, tomorrow, I will stay at home.' (Futa 39)

The reason why E278 features the obligative AM, rather than the prospective one, which is otherwise used to refer to intended events, is the specification *sáamal* 'tomorrow'. As opposed to the aspectual predicates and the predicates of temporal distance, the modal AM markers are capable of co-occurring with such event-time adverbials, simply because modal operators must be capable of having scope over a temporally definite event. Notice, though, that a time index inside the scope of a modal operator must not be confused with the Reichenbachian notion of 'event point' or the corresponding 'situation time' of Klein (1994), as employed in this study, since the modally qualified time index does not yield a location of the target event in time outside the scope of the modal predicate (in the sense that realization of the target event is not assured outside the scope of the modal predicate); cf. §2.4. I tentatively suggest the introduction of a **modal time index** (MTI) to capture this difference. An MTI may be defined as the temporal

intention or causality is ever actually part of the semantic *construal* conveyed by *yan*.

location of an event in a referentially opaque context (cf. e.g. Lyons 1977: 192), i.e. in a context in which realization of the event is not assured, so that the event cannot be taken up in subsequent discourse, unless it is either asserted to be actually realized, or else the modal attitude in which the event was first introduced is explicitly or implicitly carried on.

However different these interpretations are, they are grouped together here as instances of obligative modality, which in turn is understood to be a kind of deontic modality, as opposed to the use of *yan* in the following example, which is considered to display epistemic modality.

E279. - JB: Ts'-aw il-ik bix-ih.
TERM-A.2 see-INC(B.3.SG) how-B.3.SG

K-u bèey-tal be'òora uy a'l-a'l
IMPF-A.3 thus-PROC-INC now A.3 say-PASS-INC

"Yan u chup-ik le, estée, le bàaso-o'?"
OBL A.3 fill-INC(B.3.SG) DEF HESIT DEF glass-D2

'You have seen how it is. Is it possible now to say "She will fill the, uhm, the glass"?'.

- SBM: Mu'n bèey-tal.
NEG.PROSP:A.3 thus-PROC-INC
'It is not possible.'

- JB: Mu'n chup-ik? - SBM: Mu'n chup-ik.
NEG.PROSP:A.3 fill-INC(B.3.SG) NEG.PROSP:A.3 fill-INC(B.3.SG)
'She won't fill it?' 'She won't fill it.'

This is taken from the elicitation session deploying the event realization stimulus EVEREST introduced in §6.2.1.1. The dialogue reproduced in E279 evolved when the film was shown to the consultant for the second time. The film was stopped right before the character started to pour the juice into the glass. The consultant rejects the description *Yan u chupik le bàasoo* 'She will fill the glass', which he accepted with respect to an otherwise identical scene where the glass actually ended up full of juice (as did the four other consultants). Notice that the form used to negate the filling of the glass is the 'negative prospective' *ma' táan* (+set-A > m/set-A/'), which serves as the negative counterpart of not just the

obligative AM, but also the prospective and the assurative (cf. §4.2.1.5). None of these AM markers is itself compatible with negation.

The crucial difference distinguishing the epistemic from the deontic reading of the obligative AM marker is its sensitivity with respect to realization of the target event. In E280, Pedro is said to have been supposed to go to the town of Felipe Carrillo Puerto on Monday, which, however, he failed to do. It is important to realize that the deontic reading that allows for defeasibility of event realization is inevitably selected whenever a topic time in context is assumed, whereas the epistemic reading that entails event realization can only occur provided topic time equals coding time.¹⁵⁰

- E280. ^ATe semàana h màan-o', Pedro-e' **yan** u bin
 LOC:DEF week PRV pass(B.3.SG)-D2 Pedro-TOP OBL A.3 go
 Carrillo ìunes. ^BChéen ba'l-e' ma' h yàan-chah
 Carrillo Monday only thing-TOPNEG PRV EXIST-PROC.CMP(B.3.SG)
 tyèempo ti' u bin tak myèerkoles. ^CMyèerkoles-e' káa
 time LOC A.3 go even Wednesday Wednesday-TOP káa
 h bin Carrillo túun. ^DByèernes-e' káa t-uy a'l-ah
 PRV go(B.3.SG) Carrillo CON Friday-TOP káa PRV-A.3 say-CMP(B.3.SG)
 Pedro ti' Pablo-e': ^E**Yan** ka'ch im bin Carrillo ìunes-ak,
 Pedro LOC Pablo-D3 OBL formerly A.1.SG go Carrillo Monday-ak
 chéen ba'l-e' ma' h bèey-chah-ih,
 only thing-TOPNEG PRV thus-PROC.CMP-B.3.SG

¹⁵⁰ I assume that predictions cannot be made retrospectively. If an event in the relative future of a past TT is referred to (*Three months later, he would be dead*), the speaker must have knowledge of the target event at coding time (or else (s)he lies), and therefore cannot truly predict its realization. Of course, it is possible to mark *inferences* to past events (*He will/must have been ill*). In this case, the speaker indicates that (s)he does not want to make a straightforward claim about the occurrence of the event (*He was / has been ill*). But a prediction is, it would seem, precisely a straightforward claim about the occurrence of an event (*He will be ill on Monday*). Therefore, the notion 'prediction' is felicitously used only in reference to future events. Notice, incidentally, that obligative AM *yan* cannot be used to mark inferences to events in the present or past of coding time. If an event is predicted to take place in the future of a TT which is itself in the future of coding time (*Three months later, he will be dead*), the prediction is still made with respect to the speaker's knowledge and beliefs at coding time, and therefore counts as a prediction asserted with respect to coding time.

tak myèerkoles-ak káa h bin-en."
 even Wednesday-ak káa PRV go-B.1.SG

^ALast week, Pedro, he was to go to Carrillo on Monday. ^BHowever, he did not find the time to go until Wednesday. ^CSo on Wednesday, he went to Carrillo. ^DOn Friday, Pedro said to Pablo, ^E"I was supposed to go to Carrillo last Monday, but that did not work out, it was only on Wednesday that I (eventually) went".

That *yan* behaves "non-committally" concerning realization of the target event when used with respect to a reference time determined in discourse was already put forth by Andrade in the passage quoted above. In fact, if *yan* is used in combination with a past-time adverbial such as in E281 and there is no further indication in context or in the utterance situation, the understanding is not merely "non-committal" with respect to event realization, but actually, inference to failure of event realization is invited.

- E281 a. Lassèeys-ak-e' Pedro-e' **yan** u bin y-iknal doktòr.
 six.o'clock-ak-TOP Pedro-TOP OBL A.3 go A.3-at doctor
 'At six, Pedro, he had to go to the doctor.'
 b. Pedro-e' **yan** u bin y-iknal doktòr lassèeys-ak.
 Pedro-TOP OBL A.3 go A.3-at doctor six.o'clock-ak
 'Pedro, he had to go to the doctor at six.'

Not surprisingly, the deontic reading of *yan* that is capable of occurring with a TT in context proves to be insensitive with respect to iconicity effects, simply because it refers imperfectively to the obligative pre-state of the target event, which is interpreted in examples such as E282 to overlap with the event that serves as the vantage point in discourse (familiarity with the logic of the argument from the treatment of the terminative and prospective AM markers above is assumed here). In E282, both utterances received the same interpretation by the consultants: the event that came first was interpreted to be the smoking of the cigarette, independently of clause order. But notice also that in both E282a and b, it was again understood that the letter was never actually written. Since *yan* under its deontic interpretation does not entail event realization, there is no reason to account for its immunity vis-à-vis iconicity inferences by assuming a posterior event order relation to obtain between the target event and a reference event in discourse such as the smoking in E282.

E282 a. Pedro-e' **yan** u ts'fib-t-ik hun-p'éeł kàarta-e',
 Pedro-TOP OBL A.3 write-APP-INC(B.3.SG) one-CL.IN letter-TOP

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

'Pedro, (when) he was supposed to write a letter, he smoked a cigarette.'

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

yan u ts'fib-t-ik hun-p'éeł kàarta.
 OBL A.3 write-APP-INC(B.3.SG) one-CL.IN letter

'Pedro, (when) he smoked a cigarette, he was supposed to write a letter.'

What conclusions concerning the semantic representation of obligative *yan* are possible? Two different readings have been distinguished, a deontic one and an epistemic one. A representation of the deontic reading in terms of event order relations has been defeated with reference to the indeterminacy the deontic reading displays concerning event realization.¹⁵¹ The epistemic reading is restricted to predictions in YM (cf. also Vapnarsky 1999: 107-108).¹⁵² Predictions

¹⁵¹ Strictly speaking, there are two options for a tense analysis of operators such as the AM markers of YM. A given operator may determine the temporal location of topic time with respect to coding time (deictic tense), or it may determine the temporal location of the target event (or, at least theoretically, even the location of TT) with respect to a reference event in discourse (relative/anaphoric tense). The first analysis has been defeated by showing that the obligative AM marker is used indiscriminately with respect to coding time and with respect to some TT introduced in discourse. The second option is defeated by the obligative AM marker not entailing event realization. From this result, it follows that the obligative AM marker must have at least a modal or aspectual component (and it has been argued above that this modal component is in fact deontic obligation). Since a given operator cannot have both an aspectual/modal meaning and express an event order relation with respect to a reference event in discourse (cf. §2.4.4), it has to be concluded that the obligative AM marker expresses a purely modal function.

¹⁵² Andrade 1955: 147 refers to the epistemic reading of *yan* as asserting "that what the IKAL-component [i.e. the verbal core, J.B.] specifies is, was, or will be an expected consequence of prior or contemporary circumstances." He gives a few illustrative examples which, in cases when TT does not equal coding time ("was or will be an expected consequence..."), show that Andrade drew the line between the epistemic and the deontic interpretation incorrectly. The examples fit otherwise with the hypothesis that *yan* marks 'expected consequences', but are not sufficient to force ascription of this property to the truth-conditions of (epistemic) *yan*. The reason why consequentiality in Andrade's sense is not assumed to be part of the semantic analysis of (epistemic) *yan* here is that *yan* is not

are committed to event realization (or else they are self-contradictory), and they only occur taking coding time as the TT with respect to which the prediction is asserted. The epistemic reading of *yan* might thus be argued to embody a future tense. Obviously, an account of the epistemic reading of *yan* in terms of event order cannot be defeated, but neither is an analysis in terms of event order relations immediately forced by any facts. The decisive question seems to be whether the two readings of *yan* can be accounted for by a monosemous representation. This would rule out event order relations as semantic components of *yan*, considering the clearly non-time-relational nature of the deontic representation. In favor of a monosemous analysis, the following pieces of evidence should be taken into account. First, predictions are not necessarily marked at all in YM. In E258b, repeated as E283 below, a prediction is made in a clause with terminative AM (the speaker chose to encode the post-state rather than the predictive character of the proposition), and in E284, the consultant judged the imperfective, obligative, and assurative AM to occur all equally felicitously in an answer to the question 'What will happen if I eat this mushroom?'. The speaker may select the imperfective AM to highlight the genericity of the lethal consequences of eating this particular class of mushroom, or (s)he may use the obligative to indicate the prediction, or (s)he may go for the assurative, so as to emphasize the certainty of death. (Whether the latter is conceptually different from an ordinary prediction or merely another predictive metaphor is not clear. Aside from obligative and assurative, there is another marker of predictions which is entirely specialized on this modal sub-domain, namely the predictive AM to be discussed in the next section. The predictive AM is not considered here, because it is highly restricted both in terms of registers and in terms of genres.)

E283. Sáamal óok-a'n+k'iin-e'
 tomorrow enter-RES+sun-TOP

ts'o'k u bèet-ik le túus+bèel-o' le pàal-o'.
 TERM A.3 do-INC(B.3.SG) DEF send+way:REL-D2 DEF child-D2

'(By) tomorrow afternoon the boy will have done the errand.' (Andrade 1955: 135-136)

used to mark inferences to propositions referring to events in the present or past of coding time, of the type *She must be in right now (so I gather from the fact that the lights are on)*, at least not in eastern YM.

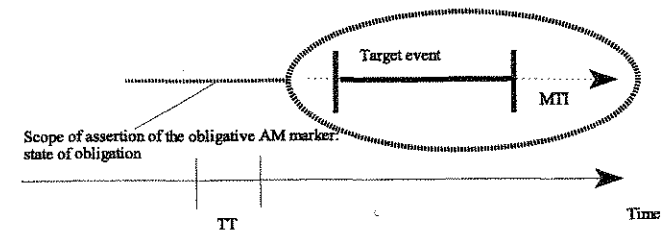
- E284. K-a kim-il / yan a kim-il / he' a kim-il-e'.
 IMPF-A.2 die-INC OBL A.2 die-INC ASS A.2 die-INC-D3
 [Said in reply to: "What/ happens / will happen / if I eat this mushroom?"] 'You
 (will) die.' (Tama 81)

There is thus no reason to believe that prediction exists as a meaning in YM independent of expressions such as obligative *yan* or assurative *he' ...-e'*. The situation would be different if the speaker were forced to mark the prediction one way or another whenever his or her statement involves a predictive attitude. At the same time, *yan* is not privileged as an expression of predictions in YM. And furthermore, the contexts of the deontic and the epistemic reading of *yan* are not in complementary distribution. It is true that with a TT determined in context, only the deontic interpretation of *yan* is possible. But if TT is given by coding time, both readings are possible. Consider E277 above, which may be interpreted as referring to a plan of the addressee (as was held in the above discussion of the example, since this was the meaning of the model the consultant had translated), but could as well be taken to report a prediction made by a third party (i.e. the one referred to by *túny a'la'l* 'it is said'). Since this context does not itself provide any clue that suffices to distinguish the two readings of *yan*, a polysemous analysis would have to accept a serious verification gap. It therefore has to be concluded that there is not only no compelling evidence forcing an assumption that the predictive reading of *yan* represents a future tense, but that such an analysis would actually be more problematic than the one holding that *yan* is a monosemous modal operator. Obligative *yan* designates a modal pre-state of the target event which can be interpreted in a deontic as well as in an epistemic way, and in the latter case, event realization is implied as part of the understanding of epistemic necessity, although it is not actually part of the semantics of *yan*. Prediction is primarily a type of assertion, a speech act involving a certain attitude of the speaker with respect to the proposition. It so happens that speakers of YM frequently use the obligative AM marker when asserting a proposition under this particular attitude. In doing so, they treat the proposition as if it were deontically necessary or obligatory. This does, however, not mean that the obligative AM marker is itself a sign of prediction, or that prediction is part of the semantic representation of the obligative AM marker.

F38 sketches the crucial features of the semantic analysis given above with respect to the obligative AM marker. The obligative AM marker inserts the target event into the scope of an operator of deontic obligation. Inside the scope of this

operator, the target event can be assigned a Modal Time Index, even though realization of the target event is not assured, and therefore, no location of the target event in time is entailed outside the scope of the deontic operator. What is interpreted with respect to topic time TT is the state of obligation toward realization of the target event. This state, expressed by the obligative AM marker as a stative predicate, is interpreted to temporally include TT. Logically, the state of obligation precedes the target event, since realization of the target event would terminate the state of obligation. No location of TT with respect to coding time is implied.

F38. Temporal interpretation of the obligative AM marker



6.2.2.2.2. Necessitive

There is a set of expressions of possibility and necessity in YM which should be briefly mentioned in preparation of the proper discussion of the necessitive AM marker *k'a'náan*, which is the only member of this set considered an AM marker in this study. While *páahtal* and *bèeytal* (both meaning 'to be able to', 'to be possible') are lexical (inchoative) verbs (although their occurrence is mostly restricted to imperfective AM, cf. §5.1), some other modal predicates, such as *k'abéet*, *k'a'náan*, *páayben*, and *úunah*, all roughly meaning 'to be necessary', have the stative and impersonal construction of AM markers. They are mutually exclusive with the AM markers, though. *Páayben* and *úunah* are ruled out from membership in the category of AM markers by the criterion that AM markers co-occur with verbal cores, but not with finite clauses. *Páayben* and *úunah* take complement clauses introduced by the subjunctive subordinator *káa* (*úunah* seems obsolete in the contemporary language anyway). *K'a'náan* and *k'abéet* fulfill the criterion of taking verbal cores as arguments, but not clauses, and so they comply with the definition of AM markers given in §4.2.1.4. *K'abéet* and

k'a'náan are considered dialectal variants as put forth in §4.2.1.4, and so the discussion in this section is restricted to *k'a'náan*.

E285. **K'abéet** in man-ik hun-p'éel ch'óoy.
 NEC A.1.SG buy-INC(B.3.SG) one-CL.IN bucket
 'I need to buy a bucket.' (BVS 7.1.12)

E286. **K'a'náan** in líik'-il tèmprano sáamal.
 NEC A.1.SG liftVACAUS-INC early tomorrow
 'I (will) have to get up early tomorrow.'

In having strong paradigmatic relationships with lexical predicates, *k'a'náan* resembles the AM predicates of temporal distance (cf. §6.2.2.3). Necessitive *k'a'náan* also shares two further properties with the AM markers of temporal distance. These properties qualify both *k'a'náan* and the distance predicates as less grammaticalized than the remaining AM markers. Like some of the distance predicates, *k'a'náan* preserves a derivational relationship to a dynamic predicate, which in turn is inflected as a verb (cf. *k'a'náantal* 'become necessary'). And, secondly, again like some of the AM markers of temporal distance (and the desiderative AM marker to be dealt with in the next section), but unlike all other AM markers except for the perfective and progressive AM markers, *k'a'náan* is compatible with negation:

E287. **Ma' k'a'náan** bin ich a kòol-i'?
 NEG NEC:A.2.SG go in A.2 clearVATP-D4
 'Don't you need to go to your milpa?' (Casa sebsat 13-14)

E288. **K'a'náan** k tukul-ik-e': yan k gáanar.
 NEC A.1.PL think-INC(B.3.SG)-D3 OBL A.1.PL win

Ma' k'a'náan k a'l-ik-e', wáah ma'n k gáanar.
 NEG NEC A.1.PL say-INC(B.3.SG)-D3 ALT NEG.PROSP A.1.PL win
 'We have to believe that we will win. We must not think that we won't win.'
 (Must 9)

As E288 shows, the construction *ma'... k'a'náan* expresses not only the outer negation of the necessitive AM marker, but also the inner negation of the verbal core inside the scope of the (affirmatively used) necessitive marker. The term customarily used in the general linguistic literature for this phenomenon, 'negative raising', is misleading with reference to YM, as there is no alternative negation of

the verbal core itself (**k'a'náan ma' k a'lik*). Only clauses can be negated in YM, and clauses are not embedded in argument position (cf. §4.2.1.1). Of course, *k'a'náan* expresses a purely modal pre-state of necessity, so realization of the target event is not actually entailed:

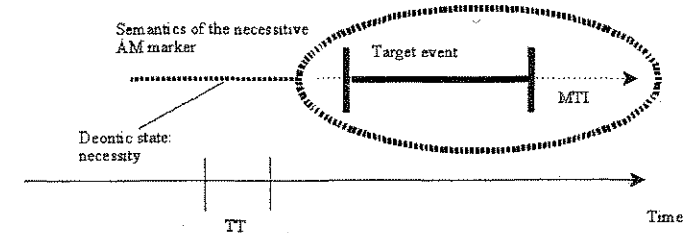
E289. **K'a'náan** in bin Carrillo lòobal, pero ma' h
 NEC A.1.SG go Carrillo FRUST but NEG PRV

bèey-chah-i', mina'n tu'x te kamyòon-o'.
 thus-PROC.CMP(B.3.SG)-D4 NEG.EXIST(B.3.SG) where LOC:DEF bus-D2

'I really had to go to Carrillo, but it didn't work out, there was no space (lit. 'no where [i.e. to go]' in the bus.) (Lex)

A diagrammatic representation of the semantics of the necessitive AM marker is given in F39:

F39. Temporal interpretation of necessitive AM marker



The necessitive AM marker serves to assert that the deontic state of necessity for the target event to be realized obtains at TT. A location of the target event itself in time is not entailed, as realization of the target event is not entailed. This holds despite the fact that the target event can be ascribed a Modal Time Index (as introduced in the previous section) inside the scope of the necessitive AM marker (cf. e.g. *sáamal* 'tomorrow' in E286 above). No localization of TT with respect to coding time is entailed (compare E289, with TT preceding coding time, to all other examples given in this section, where TT in fact does equal coding time).

6.2.2.2.3. Desiderative

The desiderative AM marker *táak* expresses desire. As opposed to the lexical desiderative predicate *k'áat* 'wish', *táak* is not marked for the experiencer of the desire (*k'áat* is a relational noun which takes the experiencer as possessor; cf. §4.2.1.1). The experiencer of the desire is understood to be the S or A argument of the embedded verb. *Táak* is replaceable by *k'áat* in all contexts, except when referring to bodily needs of the kind *I want to sleep/eat/drink, I need to urinate / throw up* etc. According to Smailus (1989: 88), such bodily needs represent the original domain of *táak* in Colonial YM.¹⁵³

E290. Pedro-e' hach ka'n-a'n, **táak** u wèen-el.
 Pedro-TOP really tire-RES(B.3.SG) DES A.3 sleep-INC
 'Pedro, he is really tired, he wants to sleep.'

E291. Pedro-e', òotsil y-óol, **táak** u kim-il.
 Pedro-TOP poor(B.3.SG) A.3-soul DES A.3 die-INC
 'Pedro, he is in poor spirits, he wants to die.'

Like necessitive AM *k'a'náan*, and like the AM markers of metrical distance, *táak* may be analysed as slightly less grammaticalized than the remaining AM markers, on account of the fact that *táak* is compatible with negation (E292), and that it allows for the derivation of an inchoative verb (E293).

E292. Ma' **táak** in wèen-el-i'.
 NEG DES A.1.SG sleep-INC-D4
 'I do not want to sleep.'

E293. Le káa h **táak-lah** im bin Carrillo-e'
 DEF káa PRV DES-PROC.CMP(B.3.SG) A.1.SG go Carrillo-TOP
 Carrillo-TOP

ma' h bin-en-i'.
 NEG PRV go-B.1.SG-D4

'(When) I wanted to go to Carrillo, I did not go.'

Expressing desire with respect to the target event, *táak* does not entail realization of the target event, and hence cannot be said to locate the target event in time. In

¹⁵³ *Táak* is frequently found with weather phenomena in constructions like 'It wants to rain / cool down / heat up'. Such examples are explained by my consultants as expressing bodily needs of deities conceived of as the causers of the meteorological phenomena.

E294, realization of the desired target event is explicitly denied. E294 also shows that *táak*, like the other modal AM markers, is compatible with a modal time index (MTI), i.e. a temporal location inside the scope of the modal operator that can be canceled together with the realization of the target event without contradicting the assertion of the modal operator (cf. §6.2.2.2.1). In E294, the MTI is marked by the adverb *sáamal* 'tomorrow'.

E294. **Táak** im bin Carrillo *sáamal* **ka'ch-e'**,
 DES A.1.SG go Carrillo tomorrow formerly-TOP

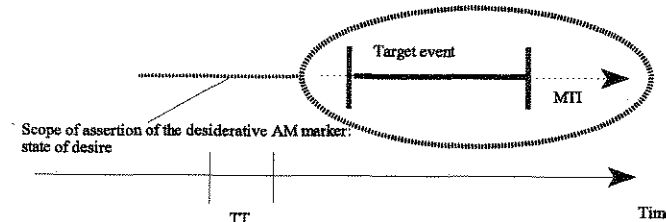
káa t-uy a'l-ah tèn Fidel mu'm bin.
 káa PRV-A.3 say-CMP(B.3.SG) me Fidel NEG.PROSP:A.3 go

'I wanted to go to Carrillo tomorrow, (when) Fidel told me he won't go (and so could not take me).'

E294 also illustrates the topicalization of clauses formed with the desiderative AM marker *táak*. This occurs somewhat infrequently, as a modal state such as the state of desire expressed by *táak* does not provide a very likely 'topic time contrast' (cf. Klein 1994: 5-9). Note that E294 was collected in direct elicitation; I have not found an example with a topicalized *táak*-clause in spontaneous discourse.

The essential semantic properties of the desiderative AM marker are summarized in F40:

F40. Temporal interpretation of the desiderative AM marker



The desiderative AM marker asserts with respect to TT a state of desire toward realization of the target event. Consequently, realization of the target event is not entailed, and the target event is not located in time, despite the fact that the desiderative AM marker allows for a Modal Time Index (cf. §6.2.2.2.1) inside its

scope (instantiated e.g. by *sáamal* 'tomorrow' in E294). No temporal location of TT is implied (in E294, TT precedes coding time; in the prior examples, TT equals coding time).

6.2.2.2.4. Assurative

The assurative AM marker *he' ...-e'* is grammaticalized out of the presentative construction exemplified in E295c, which in turn derives from the use of the spatial demonstrative *he'l/a/o'* 'here/there' (cf. E295a for adnominal and E295b for adverbial construction) as the main predicate of the clause. The main difference between the assurative AM (cf. E295d) and the spatial constructions that form its source is that the former requires the textual deictic particle *-e'*, while the latter occur with the spatial deictics *-a'* and *-o'* (cf. §4.2.2 on the clause-final deictic particles).

E295 a. Sa'tes tèn tàat, k-u bin Xocempich le beh **he'l-a'?**
 forgive me sir IMPF-A.3 go Xocempich DEF road PRSV-D1
 'Excuse me, Sir, does this way go to Xocempich?' (BVS 8.1.1)

b. **He'l** k-u tàal Don Alberto xan-o'!
 PRSV IMPF-A.3 come Sir Alberto also-D2
 'Here comes Don Alberto, too!' (BVS 15.1.16)

c. **He'l** hun-p'fit ts'aak-a' (...)
 PRSV one-bit medicine-D1
 'Here is a little medicine (...)' (BVS 16.16)

d. **He' wáah** a túux-t-ik ti' hump'éel kàarta-e'?
 ASS ALT A.2 send-APP-INC(B.3.SG) LOC(B.3.SG) one-CL.IN letter
 'Will you really send her a letter?' (Tama 22)

E295d shows that the assurative AM marker, just like the presentative *he'l ...-a'* in E295c, forms the main predicate of its clause, according to the criteria established in §4.2.1.4: it attracts the interrogative focus particle *wáah*, and it occurs in anaphorical affirmative answers to questions employing the assurative AM marker. The common affirmative answer to questions such as E295d is simply *He'le'*! which is also used in reaction to suggestions that do not themselves feature the assurative AM. *He'le'*! is best translated as 'Okay!', 'Deal!', 'Agreed!'. The liquid consonant that occurs in *He'le'*! as well as in the demon-

strative and presentative sources of the assurative AM is not attested with the assurative AM itself. The elision of this segment may be taken as a trace of the grammaticalization process.

The metaphorical link between E295c and E295d is a promise given to the addressee (cf. 'Here you are!'). In its deontic usage, the domain of *he' ...-e'* are promises and requests, such as E296. Replacement of assurative AM *he' ...-e'* by obligative *yan* would be semantically possible in the context of E296, but it would be impolite, making the request sound more compulsory.

E296. In yúum, **he' wáah** a ts'a'-ik tèn meyah-e'?
 A.1.SG lord ASS ALT A.2 put-INC(B.3.SG) me work-D3
 'Master, will you give me work?' (Hijo 81)

There is no reason to assume a sharp dividing line between deontic and epistemic readings of the assurative AM marker. Utterances featuring the assurative AM with an embedded verbal core with inanimate S- or A-argument are more often than not promises made by a speaker who has the power to realize the target event, or who assumes responsibility for its realization. E297 is uttered by a frog who is really an enchanted princess with supernatural powers and who will actually provide the house talked about in the course of the fairy tale.

E297. **He' u** yàan-tal k nah-il uts-e'!
 ASS A.3 EXIST-PROC.INC A.1.PL house-REL good(B.3.SG)-D3
 'We will have a decent house!' (Muuch 102)

If neither speaker nor listener nor a third person referred to by the S- or A-argument of the verbal core is responsible for the realization of the target event, one of them may simply be considered a privileged source of information concerning realization of the target event. At issue, then, will be confirmation or denial of the likelihood of event realization with respect to that source of knowledge (similarly Vapnarsky 1999: 119-121). Thus, E298 is taken from a conversation in which two people plan the construction of a house. The assurative is utilized to solicit agreement in the estimation of the quantity of certain materials that will be needed and the amount of time needed to accomplish certain steps in the construction work. In most cases, RMC, who is older and more experienced, serves as the privileged source of information.

- E298. - SBM: Hach hay-p'éeł xa'n hu' bis-ik aw
 really how.many-CL.IN palm ASS:A.3 go:CAUS-INC(B.3.SG) A.2
 a'l-ik-e'? Hay-wáal
 say-INC(B.3.SG)-D3 how.many-CL.flat
 xa'n hu' bis-ik-e'?
 palm ASS:A.3 go:CAUS-INC(B.3.SG)-D3
 'Exactly how many palm twigs do you think it **will** take? How many palm leaves **will** it take?'
 - RMC: Pwes, hach tak tres mil xa'n-e'.
 well really even three thousand palm-D3
 'Well, just up to three thousand.'
 - SBM: Tres mil. - RMC: Tres mil. Ma' séen nohoch-i'.
 three thousand three thousand NEG very big(B.3.SG)-D4
 'Three thousand.' 'Three thousand. It's not really big.'
 - SBM: Hay-p'éeł diiya aw a'l-ik
 how.many-CL.IN day A.2 say-INC(B.3.SG)
 hu' chuk-pah-al u xa'n-il-e'?
 ASS:A.3 catch-SPONT-INC A.3 palm-REL-D3
 'In how many days do you think the palm twigs **will** be sufficient (in quantity)?'
 - RMC: Wáah káa k boł-'t àanta'l-e',
 ALT SR A.1.PL pay-APP(B.3.SG) help-PASS-INC-TOP
 yáan máax hu' ch'ak-ik tak tres syèento-s
 EXIST(B.3.G)who ASS:A.3 cut-INC(B.3.SG) even three hundred-PL
 hun-p'éeł k'iin-e', wáah yáan u xa'n-il.
 one-CL.IN day-D3 ALT EXIST(B.3.G) A.3 palm-REL
 'If we'd pay for help, there are people who **will** cut up to three hundred in one day, provided there are enough palms.'
 - SBM: Chéen ts'o'k-ok-e', yan k tsíik-t-ik;
 only end-SUBJ(B.3.SG)-TOP OBL A.1.PL roof-APP-INC(B.3.SG)
 u tsíik-il-e', hay-p'éeł diiya aw a'l-ik
 A.3 roof-REL-TOP how.many-CL.IN day A.2 say-INC(B.3.SG)

ha'k tsíik-t-ik-e'?
 ASS:A.1.PL roof-APP-INC(B.3.SG)-D3

'As soon as that will be done, we'll have to roof [the house]; the roofing, in how many days do you think we **will** roof [the house]?'
 - RMC: Wáah hach láah chuk-a'n u xa'n-il-e',
 ALT really all catch-RES(B.3.SG) A.3 palm-REL-TOP

ka'-p'éeł diiya.
 two-CL.IN day

'If the palm straw is really completely sufficient, (in) two days.'

- SBM: Ka'-p'éeł diiya.
 two-CL.IN day
 'Two days.'

- RMC: Hach ka'-p'éeł diiya in tukul-ik.
 really two-CL.IN day A.1.SG think-INC(B.3.SG)
 'Just two days I think.'

- SBM: Chéen ts'o'k-ok-e', yan k ch'ak-ik u
 only end-SUBJ(B.3.SG)-TOP OBL A.1.PL cut-INC(B.3.SG) A.3

xa'n-il ti' k pak'-ik u hòol.
 palm-REL LOC A.1.PL plant-INC(B.3.SG) A.3 aperture

'(When) that will done, we'll have to cut the palm twigs in order to make [lit. plant] the door.'

- RMC: Lelo' yan. Lelo' u láak diiya xan
 DEM:D2 OBL(B.3.SG) DEM:D2 A.3 other day also

kéen u bis to'n.
 SR.IRR A.3 go:CAUS(B.3.SG) us

'That's right (lit. as for that, we'll have to [do it]). As for that, it will take us another day.'

- SBM: Inw a'l-ik-e' hu' bis-ik syèen-e'.
 A.1.SG say-INC(B.3.SG)-TOP ASS:A.3 go:CAUS-INC(B.3.SG) hundred-D3
 'I'd say, it **will** take a hundred [palm twigs].' (Casa sebram 59-69)

The question in E299 is asked of a person who is known to have swum in the particular lake many times before. A more elaborate translation of E299 would be 'Would you agree that it is possible for someone to swim in this lake?'

E299. **Hu'** bèey-tal
ASS:A.3 be.possible-PROC.INC

u bàaxal+ha' le máak-o'b-o' te ha' he'l-a'?
A.3 play+water DEF person-PL-D2 LOC:DEF water PRSV-D1

'Will it be possible for people to swim in this lake?' (Perfa 7)

Similarly, E300 calls upon the beliefs of the interlocutors using the assurative AM in a rhetorical question. The speaker is convinced that the interlocutors cannot possibly agree with the questioned proposition. Notice that neither E299 nor E300 refer to specific target events in the relative future of TT, but rather to generic or habitual eventualities. This is a general trait that distinguishes the epistemic from the deontic reading of the assurative AM marker.¹⁵⁴

E300. **He'** u bèet-ik
ASS A.3 do-INC(B.3.SG)

u k'áax-al ha' hun-túul sàanto-e'? Mix+bik'in!
A.3 fall-INC water one-CL.AN saint-D3 NEG.EMPH+?

'Will a saint make it rain? Never!' (Fcp 175)

With the epistemic reading of assurative AM *he'* ...-e', event realization cannot be canceled in the same utterance without contradiction. However, as has been shown, in its epistemic reading, the assurative AM does not necessarily have future-time reference. By contrast, the deontic reading is confined to relative future time reference (though not to deictic future time reference, as E301 below shows), but cannot entail event realization.¹⁵⁵ It follows that the assurative AM marker is a modal operator which under no interpretation entails a location of the target event in time.

¹⁵⁴ It does not seem possible, though, to refer to a specific event in the relative past or present of TT. Even though an inferential usage comparable to that of the English future in utterances such as *Will he be in his office right now?* seems plausible with the assurative AM, the consultants were reluctant to accept the corresponding YM constructions. The assurative AM is restricted to relative future time reference and generic/habitual reference.

¹⁵⁵ Entailment of event realization would conflict with the deontic nature of the operator. I do not have an example in which realization of the target event is explicitly denied, but I believe it is entirely possible to say something like *He' in biskech lóobale'*, *chéen ba'le'*, *mu'm bèeytal in bin* 'I would be willing (ASS + 'frustration marker' *lóobal*) to take you along, but I can't go'.

E301. T-uy a'l-ah téen Fidel ho'lheak-c' he' u
PRV-A.3 say-CMP(B.3.SG) me Fidel yesterday-D3 ASS A.3

bis-ik-en Carrillo-e',
go:CAUS-INC-B.1.SG Carrillo-D3

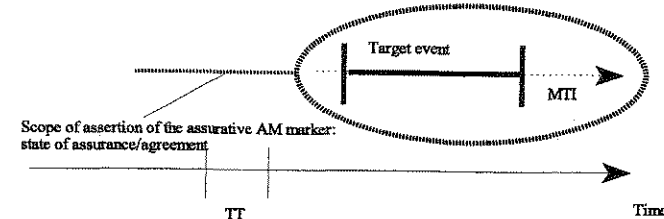
chéen ba'l-e' ma' t-u bis-ah-en-i'.
only thing-TOPNEG PRV-A.3 go:CAUS-CMP-B.1.SG-D4

'Fidel told me yesterday he would take me to Carrillo (i.e. he promised to take me), but he did not take me.'

The definite future cannot be negated, which would be pragmatically odd anyway. Put differently, not only is the assurative AM marker structurally incompatible with the clausal negation marker *ma'*, but the assurative AM marker has in semantic terms no negative counterpart.

A semantic analysis of the assurative AM marker is schematically represented in F41:

F41. Temporal interpretation of the assurative AM marker



The assurative AM marker serves to mark that at TT, the speaker or addressee agrees or promises to realize the target event (deontic reading), or that realization of the target event is in line with her relevant information (epistemic reading). This deontic or epistemic agreement is expressed as a state that overlaps with TT. Logically, the state of agreement precedes the target event. However, with the deontic reading, realization of the target event is not entailed (even though it is presumably possible to provide the expression of the target event with a Modal Time Index inside the scope of the AM marker), and the epistemic reading does not necessarily concern any specific target event. It may be concluded that the assurative AM marker does not entail a location of the target event in time. As for

topic time TT, it equals coding time in the great majority of uses, but is not semantically restricted to coding time. E301 above illustrates this for the deontic reading; E302 illustrates it for the epistemic one.

- E302. Káa t-inw il-ah-e', deke he' u páah-tal
 káa PRV-A.1.SG see-CMP(B.3.SG)-TOP SR ASS A.3 possible-PROC.INC
 u chan yáan-tal hun-p'ít ilustrasyòon
 A.3 small EXIST-PROC one-bit illustration
 ti' u kàah-tal-il Chan Kom.
 LOC A.3 live-PROC.INC-REL Chan Kom

'(And then) I realized that it would be possible for the village of Chan Kom to become an example.'¹⁵⁶ (Andrade & Vermont-Salas 1971: text no. 15 (*Historia de Chan Kom*))

6.2.2.2.5. Predictive

The existence of the predictive AM marker *bīn* was only brought to my attention by Vapnarsky (1995, 1999: 116–117). This AM marker never occurs in the data specifically collected for the present study. Before reading Vapnarsky's article, I knew *bīn* only from western YM sources (cf. §3.1.1) and concluded that it represented a dialectal variant of prospective *mukah*, knowing that *mukah* does not itself occur in the western varieties. I hypothesized that *bīn* and the protoform of *mukah*, [*bīn* set-A *ka'h*], are simply in free variation in western YM, while they both have been replaced by *mukah* in eastern YM. However, Vapnarsky (1995) makes the point that *bīn* in fact occurs in the eastern dialects as well, and that its semantics are clearly distinct from the prospective *mukah* and its archaic form [*bīn* set-A *ka'h*]. The reason that there are instances of *bīn* in the elicited corpus is that the use of the predictive AM marker is highly constrained in terms of genre and register. Predictive AM *bīn* occurs predominantly in the so-called **prophecies**. Even when used outside the prophecies, *bīn* invokes the solemn and sacred tone of the prophecies:

"Es poco frecuente encontrar *bīn* en oraciones que no pertenecen al discurso profético. De hecho, el que *bīn* caracterice a las profecías parece influir en sus otros contextos de uso. (...) Los raros casos en que lo hemos oído empleado, fuera de las profecías, correspondían casi siempre a situaciones solemnes, en las cuales el orador quiso hacer hincapié en sus palabras." (Vapnarsky 1995: 101)

(*bīn* is only infrequently encountered in utterances that do not belong to the prophetic discourse. In fact, it seems that the use of *bīn* in other contexts is influenced by what characterizes it in the prophecies. (...) The few instances in which we observed it being employed outside the prophecies corresponded almost always to solemn situations which the speaker intended to emphasize in his words.) (all translations in this section JB)

It is crucial for the understanding of the nature of the prophecies, and for the understanding of the conditions of use of *bīn*, to realize that whoever utters a prophecy and uses *bīn* in this context is not normally supposed to be the author of the prophecy, and accordingly, is not actually asserting a prediction. The prophecies are considered to be of divine origin, and they are uttered by historical personalities by way of quotation, not assertion:

"Las profecías son mencionadas y comentadas, voluntariamente transmitidas o simplemente se alude a ellas, en diversos contextos de la vida social. En lo cotidiano, surgen generalmente como comentario explicativo de un acontecimiento, de una conjetura que las cumpliría. Sirven entonces como medio de la interpretación del presente. (...) Otros contextos favorecen la narración de profecías. Tal es el caso de los relatos de la historia pasada, que terminan casi siempre con la mención de acontecimientos por venir, no sólo porque se considera que el anuncio de éstos fue hecho en aquel tiempo, sino también porque lo profetizado es consecuencia de lo que entonces ocurrió. (...) Las profecías provienen del pasado (*úuchi*), lo que les confiere una primera legitimación. La mayoría de los mayas de las últimas generaciones dicen que esto 'está dicho' (*a'la'n*) - pero no se dice *a'lbi* 'fue dicho', por lo que se marca la continuidad del efecto de esa enunciación. (...) Quienes son menos precisos mencionan la 'biblia', el *almaht'áan* ('dicha palabra'); quienes son más explícitos un *sàanto hu'n* ('santo papel'), un *sàanto hura méento*, cuya lectura se hacía hasta hace unos quince años y tal vez se sigue haciendo en el centro ceremonial al cual pertenecen. Se trata de un cuaderno manuscrito. (...) El libro se considera un 'milagro' en sí y es conservado con mucha vigilia." (Vapnarsky 1995: 90–93)

(The prophecies are mentioned and commented, passed on or simply alluded to in various contexts of social life. In daily life, they generally occur as explicative comments on some event, with a conjecture that the event might be the fulfilment of the prophecy. In this way, the prophecies serve to interpret the present. (...) Other contexts favour the narration of prophecies. This is the case in historical narrations which end almost always with the mention of events yet to come, not only because these events are considered to have been prophesied in the times of the historical

¹⁵⁶ The village of Chan Kom, located in the Valladolid area, just north of the border of Quintana Roo (and the former *Cruzo'b* territory), was described by Redfield & Villa Rojas (1934) as an example of the economical and social development in Indian communities after the Mexican revolution and the suppression of the *Cruzo'b* rebellion.

events, but also because the prophesied events are consequences of the historical events. (...) The prophecies originate in the past (*úuchi*), which lends a first legitimation to them. The younger generations mostly say that the content of the prophecies 'is said' (*a'la'n*) - but they do not say *a'ibi* 'it was said' but rather indicate the continuous effect of the utterance of the prophecies. (...) Those who are less precise mention the 'Bible', *el almaht'áan* ('said word'); those who are more explicit mention a *sàanto hu'n* ('holy paper'), *un sàanto hurahtënto* ('holy oath'), which was publicly read until about fifteen years ago and maybe continues to be read in the ceremonial center to which they belong. This refers to a handwritten notebook. (...) This book is considered a 'miracle' by itself, and it is preserved with great care. (YM orthography adapted; JB)

In §6.1, two possible grammaticalization sources of predictive AM *bfin* have been mentioned: the motion verb *bin* 'go' - in which case the subjunctive marking assigned by the predictive AM is a relic of the motion-cum-purpose construction (§4.2.1.2) - or the hearsay evidential marker *bin* (which may itself have originated from the motion verb *bin* 'go'). One piece of evidence in support of the second hypothesis is that the hearsay marker is frequently found in the same contexts as the predictive AM marker.

E303. U tũukul (...) le úuch-ben máak-o'b-o', (...) **bfin** ka'
A.3 think\ATP DEF long-ago-ADJ person-PL-D2 PRED REP

sũut-nak, **bin**,
turn\ATP-SUBJ(B.3.SG) HS

wũnik he'x úuch u chúun-ul-e' (...).
man how happen(B.3.SG) A.3 start\ACAUS-INC-D3

'What the old folks (...) thought, (...) man will return, they said, to where he started (...).' (Tyempo 1-6)

The hearsay marker serves to indicate that the speaker does not himself claim the proposition, but that it is generally believed to be true (more specific sources may be specified in context, like "the old folks" in the example). Thus, the hearsay evidential would be motivated as the source of the predictive AM marker by the fact that the target event is not actually predicted by the speaker who uses the predictive AM, but by a more authoritative source implicitly or explicitly referred to by the speaker. This hypothetical etymology in turn explains the subjunctive inflection assigned by the predictive AM marker, as the subjunctive marks non-assertive modality (§6.1.3).

An illustration of prophecies being mentioned in the context of historical narrative is E304, from a narrative which, inspired by Vapnarsky's paper, had been recorded precisely on the nature of the prophecies. The prophecies in E304 are traced by the narrator to the ancient *Cruzo'b* (cf. §3.1.2) prophet Florentino Cituk, who received them at the end of the nineteenth century. The first quoted sentence says explicitly that, in those days, nobody had seen the things mentioned in the prophecies. The narrator goes on to say that, while the prophecies were uttered by the grand old people, they were not believed in those days. Then follows the citation of the prophecies (starting with sentence B). After the citation, the quote is explicitly marked as such (sentence F). Sentences G and H refer to the present, interpreting the presence of the author as part of the fulfilment of the prophecy that during a certain period, the Maya would maintain peaceful exchange with foreigners. The last sentence (I) states that the prophecies were revealed to Florentino Cituk by no other than God.

E304. ^AMix+máak il-mah-il le he'l-o',
NEG.EMPH+person see-PERF-EXTRAFOC(B.3.SG) DEF PRSV-D2

tũuny a'l-a'l tuméen le nukuch máak-o'b úuch-o':
PROG:A.3 say-PASS.INC CAUSE DEF big person-PL long-ago-D2

mu'n krèer-t-a'l. ^BBfin máan-ak máak
NEG.PROSP:A.3 believe-APP-PASS.INC PRED pass-SUBJ(B.3.SG) person

te x-tsímin+k'áak'-o'. ^CLe chan túurix xan-o',
LOC:DEF F-horse+fire-D2 DEF small dragonfly also-D2

yan u máan te ka'nal-o'. ^DLeti' túun, le 'áabyon'
OBL A.3 pass LOC:DEF high-D2 it CON DEF airplane

le k-y-a'l-a'l-o', **bfin** máan-ak, le estée-le-le,
DEF IMPF-A.3-say-PASS.INC-D2 PRED pass-SUBJ(B.3.SG) DEF HESIT-DEF-DEF

le ts'ũul-o'b-o', **bfin** xi'k xan máasewáal xan
DEF stranger-PL-D2 PRED go.SUBJ(B.3.SG) also Indian also

te chan x-turix-o', te ka'nal-o'. ^EBfin tãal-ak
LOC:DEF small F-dragonfly-D2 LOC:DEF high-D2 PRED come-SUBJ(B.3.SG)

hun-tũul-hunt-ũul ts'ũul ma' k k'ahóol u
one-CL.AN one-CL.AN stranger NEG A.1.PL acquaintance(B.3.SG)A.3

kàah, tãanxel lu'm-il u tãal-o'b-e', **bfin** a
live foreign earth-REL A.3 come-PL-D3 PRED A.2

k'ahóol-t-eh, **būn** tsikbal-nak-e'x y-éetel-o'b. "
acquaintance-APP-SUBJ(B.3.SG) **PRED** talk-SUBJ-B.2.PL A.3-with-PL

^FK-uy a'l-ik. ^GHel-o', behe'la-e' il aw
IMPF-A.3 say-INC(B.3.SG) PRSV-D2 today-TOP see(B.3.SG) A.2

il-eh! [laughter] ^HBehe'la-e' buka'h tu'x a tãal!
see-SUBJ(B.3.SG) today-TOP how.much where A.2 come

^IPwes máax a'l lelo', dyòos a'l-eh.
well who say(B.3.SG) DEM:D2 God say-SUBJ(B.3.SG)

"Noboday had seen this, (and while) it was being said by the grand old men long ago, it wasn't believed. "^BPeople will move about in automobiles (lit. firehorses). "^CThe little dragonfly as well, it will move in the sky. "^DSo this, the 'airplane' as they call it, the, uhm, the-the, the strangers will travel (in it), the Indians, too, will also go on the dragonfly, in the sky. "^EA-a stranger will arrive we don't know his country, from distant lands they will come, you will make their acquaintance, you will talk to them." "^FIs what he said. "^GNow, today, just look! [laughter] "^HToday, from how far have you come! (addressing the author) "^IWell who was it who said this, it was God who said it.

The prophecies always concern events which are considered greatly disruptive to the ordinary course of things:

"Las profecías, palabras que anuncian el porvenir, *ba'x ku tãal u k'in* ('lo que viene su tiempo'), son mencionadas con frecuencia por los mayas en distintos contextos de la vida social. De manera global, predicen el fin de la era actual. Éste presentará dos posibles realizaciones: ya sea el estallamiento de una nueva guerra que, con la ayuda divina, los mayas ganarán y en el cual podrán vengarse de los sufrimientos infligidos por parte de los mexicanos en la guerra anterior (Guerra de Castas), ya sea un cataclismo (un incendio devastará la tierra) que pondrá termino a la raza humana actual." (Vapnarsky 1995: 89)

(The prophecies, words which announce the future, *ba'x ku tãal u k'in* ('things whose day is to come') are mentioned frequently by the Maya in different contexts of social life. On the whole, the prophecies predict the end of the present era. This can be realized in two possible ways: either by the outbreak of a new war, which the Maya would win with divine help and in which they would take revenge for the hardships inflicted on their ancestors by the Mexicans in the previous war (the Caste Wars), or by a cataclysm (a fire consuming the earth) which would put an end to the present human race.)

If the predictive AM marker is used outside the context of the prophecies, the utterance will invoke the register of the prophecies, and thereby in a way imitate them. This again is done only in reference to extraordinary events. One example

cited by Vapnarsky involves a youth announcing to his mother his own imminent violent death¹⁵⁷ (a prophecy which came true hours later, so adopting the style of the prophecies was certainly not meant to be mockery in this case). Vapnarsky also mentions that the predictive AM marker would be highly inappropriate in reference to recurrent events such as annual *fiestas*.

As Vapnarsky observes, the predictive AM marker is compatible with TT adverbials (as in E305a), but not with event-time adverbials (as in E305b).

E305 a. **Būn** úuch-uk **te** dos mil-o',
PRED happen-SUBJ(B.3.SG) **LOC:DEF** two thousand-D2

ma' k ohel ba'x diiya-il-e'.
NEG A.1.PL knowledge what day-REL-D3

'It will happen in the year 2000 (i.e. in the third millennium), we don't know (at) what date (lit. on what day).' (Vapnarsky 1995: 95)

b. ***Būn** tãal-ak le h-kon+nòok' lùunes-o'.
PRED come-SUBJ(B.3.SG) DEF M-sell+cloth Monday-D2
'The garment salesperson will arrive on Monday.' (Vapnarsky 1995: 95)

This should come as no surprise, as this behavior has been attested with all morphologically unbound AM markers discussed so far. The general explanation for this phenomenon is that the morphologically unbound AM markers are stative predicates which assert some aspectual or modal state with the target event as the theme, and it is this state that is evaluated with respect to topic time TT, rather than the target event itself. Just as throughout the discussion of the morphologically unbound AM markers, the fact that the predictive AM marker cannot serve to locate the target event on the time line is to be interpreted here as crucial evidence to the effect that the predictive AM marker does not express an event order relation, or, put differently, that the predictive AM marker does not mark tense. That the predictive AM marker constitutes a stative predicate, just like the remaining morphologically free AM markers, can be seen from its capacity to occur in isolation, as an anaphoric predicate:

¹⁵⁷ In §6.1.4, this example was exploited as evidence against the analysis proposed by Arzápalo (1984) according to which the predictive AM marker expresses 'distant future', i.e. entails metrical distance.

E306. Inw a'i-ik-e' mu'n háan yàan-tal
 A.1.SG say-INC(B.3.SG)-TOP NEG.PROSP:A.3 fast EXIST-PROC.INC

rebwèelta-s, talbes **bün**,
 turn-PL maybe PRED(B.3.SG)

pero ma' hach k ohel ba'x tyèempo-il-i'.
 but NEG really A.1.PL knowledge(B.3.SG) what time-REL-D4

'I think there won't be riots soon, maybe there will be (i.e. riots), but we don't really know at what time.' (Vapnarsky 1995: 96)

Outside the prophecies and similar contexts, the function of marking predictions is carried mainly by the obligative AM marker *yan*. An example of *yan* as an equivalent of *bün* is found in E304 above (sentence C). In focus constructions and relative and topic clauses, *bün* is replaced by the prospective and generic/habitual subordinator *kéen*, which serves in any focus construction with relative future time reference. Sentence E of E307 (taken from the same text as E304 above) is an example of a topic clause introduced by *kéen* in a context where otherwise *bün* figures.

E307. ^ABün háay-lak tàak'in ich u nah-il-o'b
 PRED spread\ACAUS-POS.SUBJ(B.3.SG)money in A.3 house-REL-PL

bèey-a'. ^BBehe'la-e' to'n-e' mina'n. ^CLela' bün
 thus-D1 today-TOP us-TOP NEG.EXIST(B.3.SG)DEM:D1 PRED

háay-lak tàak'in ichil.
 spread\ACAUS-POS.SUBJ(B.3.SG)money in(B.3.SG)

^DBün u ch'in uy àalak'-o'b y-éetel u tàak'in.
 PRED A.3 pelt(B.3.SG) A.3 domesticated.animal-PL A.3-with A.3 money

^EKéen y-a'l lelo', uts yàan-ik-o'b, (...).
 SR.IRR A.3-say(B.3.SG) DEM:D2 good(B.3.SG) EXIST-EXTRAFOC-B.3.PL

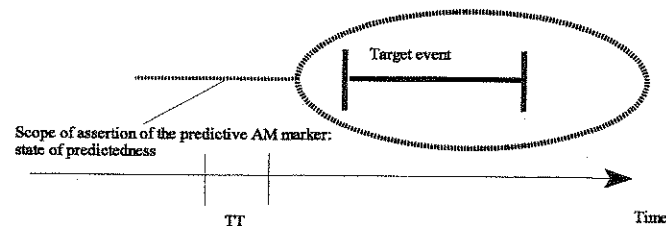
'^AMoney will be spread out in their houses. ^BToday, us, we have none (i.e. money). ^CThen, money will be spread out inside (the houses). ^DThey will throw money at their animals. ^E(When) this will be the case (lit. it says that), they will be well off.' (Inferno 99-102)

Like most AM markers, predictive *bün* is not compatible with clausal negation (Vapnarsky 1995: 96). It is uncertain whether and how negative predictive AM is

expressed (considering its highly marked distribution, no elicitation work has been done on this marker).¹⁵⁸

The following graphic representation of the semantics of the predictive AM marker may be concluded:

F42. Temporal interpretation of the predictive AM marker



The predictive AM marker indicates a language-particular semantic category of 'predictive' modality. The epistemic state of the target event's realization being predicted is asserted with respect to topic time TT, which is presumably identical with coding time in canonical usage. A temporal location of the target event is not entailed, as was inferred above from the behavior which the predictive AM marker displays with respect to time adverbials.

6.2.2.2.6. Penative

The penative AM marker *òlak* entails temporal proximity (but see below!) of the target event with respect to TT and failure of event realization. It may be translated in all its occurrences by the English adverb *almost*.

¹⁵⁸ Vapnarsky (1995: 96) suggests the adverbial *mix bik'in* 'never' as an expression of negative predictive AM, perhaps because its structure is suggestive of an etymology ??*mix bün k'in* NEG.EMPH PRED sun 'its time will not come'. However, Vapnarsky also offers an example in which *mix bik'in* co-occurs with the predictive AM marker. In general, negative statements with relative future time reference are framed in the negative prospective (cf. §4.2.1.5). This may take over the function of the predictive AM marker as well. It is also possible that the predictive AM pragmatically excludes negation.

- E308. Hach òolak xi'k-en ximbal,
 really PEN go.SUBJ-B.1.SG walk
 chéen ba'l-e', ma' h bin-en-i'.
 only thing-TOPNEG PRV go-B.1.SG-D4

'I almost went for a walk, but I did not go.'

The semantics of the penative AM marker thus closely resemble that of the proximate future AM marker *ta'itak*, to be described in the next section. The difference between these two operators lies in the proximate future AM marker not entailing event realization, but inviting an implicature towards event realization, whereas the penative AM marker excludes event realization. Thus, E309 is not acceptable unless it is understood that the two topic times refer to two different games. The clause *hach òolak gáamarnaken* 'I almost won' entails that the speaker actually lost the game.

- E309. *Las sèeys-e' hach òolak gáanar-nak-en,
 six.o'clock-TOP really PEN win-SUBJ-B.1.SG
 i las sèeys i mèedyà-e', h gáanar-nah-en.
 and six.thirty-TOP PRV win-CMP-B.1.SG

'At six, I almost won, and at six thirty, I won.'

Just like proximate future AM *ta'itak*, penative AM *òolak* displays scope ambiguity with durative telic verbs. Thus, with the durative telic description *ts'ùbt hunp'èel kàarta* 'to write a letter' in E310a, the penative AM marker can have both wide scope over the entire target event, as in E310b (where initiation of the target event is denied), and, at least for some consultants, narrow scope over only the terminal boundary of the target event, as in E310c (where only termination of the target event is denied). (It should be noticed, though, that the interpretation in b appeared much more natural to the consultants.)

- E310 a. Hach òolak in ts'ùb-t hun-p'èel kàarta,
 really PEN A.1.SG write-APP(B.3.SG) one-CL.IN letter
 káa h tàal Pablo, ...
 káa PRV come(B.3.SG) Pablo

'I almost wrote a letter, (when) Pablo came, ...'

- b. ... káa h p'áat
 káa PRV leave\CAUS(B.3.SG)

ma' t-in chúun-s-ah-i'.
 NEG PRV-A.1.SG start\CAUS-CAUS-CMP(B.3.SG)-D4

'... (and) I ended up not having started (writing it).'

- c. ... káa h p'áat ma' t-in ts'o'k-s-ah-i'.
 káa PRV leave\CAUS(B.3.SG) NEG PRV-A.1.SG end-CAUS-CMP(B.3.SG)-D4
 '... (and) I ended up not having finished (writing it).'

In E311, however, with the atelic verb *bàaxal* 'play (games)', only continuation b (denial of the initiation of the target event) is possible, whereas continuation c, with narrow scope over the terminal boundary only, is rejected by all consultants.

- E311 a. Hach òolak bàaxal-nak-en ka'ch-il, ...
 really PEN play-SUBJ-B.1.SG formerly-REL
 'I had almost played, ...'

- b. ... pero ma' t-in chúun-s-ah-i',
 but NEG PRV-A.1.SG start\CAUS-CAUS-CMP(B.3.SG)-D4

t-y-óolal Pablo.
 LOC-A.3-reason Pablo

'... but I did not start (playing), because of Pablo.'

- c. ??... pero ma' t-in ts'o'k-s-ah-i', t-y-óolal Pablo.
 but NEG PRV-A.1.SG end-CAUS-CMP(B.3.SG)-D4 LOC-A.3-reason Pablo
 '... but I did not finish (playing), because of Pablo.'

Since not even initiation of the target event is warranted (in most cases, it is in fact excluded) by assertion of the penative AM marker, the term 'temporal proximity' is actually misleading in reference to the semantics of the penative marker. In the examples presented so far, *òolak* was used to express frustrated attempts to accomplish some target event. In spontaneous discourse, however, *òolak* is virtually exclusively used with target events which are not controlled by the topical participant, typically to express the presence of some kind of jeopardy to the topical participant represented by the target event at TT.

- E312. Hach òolak lúub-uk-en ka'ch ti' hun-p'èel che'.
 really PEN fall-SUBJ-B.1.SG formerly LOC one-CL.IN tree
 'I almost fell from a tree.'

In all occurrences, penative AM *dolak* triggers subjunctive status on the verb. This was accounted for in §6.1 with reference to the modal function.¹⁵⁹

6.2.2.3. Distance predicates

This section gives a description of the four AM markers concerned with metrical¹⁶⁰ distance in time, or 'degrees of remoteness' (Comrie 1985: ch. 4): the proximate future and the immediate past AM markers, which trigger incomplete status inflection on the verb, and the recent and remote past AM markers, which govern subjunctive status.

- E313 a. **Ta'itak** in xok-ik le periyòdiko-o'.
Proximate future PROX A.1.SG read-INC(B.3.SG) DEF newspaper-D2
'I/have/had/will have/ almost read the paper', 'I/am/was/will be/ about to read the paper.'
- b. **Táant** in xok-ik le periyòdiko-o'.
Immediate past IMM A.1.SG read-INC(B.3.SG) DEF newspaper-D2
'I/have/had/will have/ just read the paper.'
- c. **Sáam** in xok-ø le periyòdiko-o'.
Recent past REC A.1.SG read(SUBJ)(B.3.SG) DEF newspaper-D2
'I/read/had read/will have read/ the paper a while ago.'
- d. **Úuch** in xok-ø le periyòdiko-o'.
Remote past REM A.1.SG read(SUBJ)(B.3.SG) DEF newspaper-D2
'I/read/had read/will have read/ the paper a long time ago.'

¹⁵⁹ Considering its counterfactual nature, no diagrammatic representation of the semantics of the penative AM marker is attempted here.

¹⁶⁰ The term 'metrical' is to be understood here in a loose sense. The recent and remote past markers do have a calendrical definition (the recent past marker has as its core meaning reference to events that happened earlier on the day that includes TT, whereas the remote past marker is commonly said by native speakers to refer to events which are 'at least three days ago'), but it is not a very precise definition. For example, events that happened one or two days before the day that includes TT may in certain contexts be referred to using the recent (or even the immediate) past marker, and perhaps (although I have not been able to elicit this) even the remote past marker.

Although almost unknown in Indo-European and near-by languages, grammatical operators dealing with metrical distance in time have been found in recent years in a wide range of unrelated languages spread across the globe.¹⁶¹ Nevertheless, very little has been established about the semantics of such categories so far. It should therefore be emphasized that the analysis proposed in the following is not meant to be a hypothesis about the semantics of distance operators as such. It seems entirely possible that there are languages with distance operators which function essentially like Indo-European tenses, locating the target event in time with respect to coding time or with respect to some topic time in discourse, and only in addition marking the temporal distance of the target event. Such *distance tenses*, as they might be called, would differ from Indo-European tenses merely in that they divide the past or future of TT in which the target event is located into subcategories distinguished by their distance from TT. This seems to be pretty much the conventional approach to distance operators in the current typological and descriptive literature. However, the AM markers of temporal distance of YM do not behave this way. They do not express location of the target event in time with respect to TT, but only metrical distance of the target event from TT. The distance is expressed as the content of a stative predicate with the target event as its theme, and this state of temporal distance is asserted to obtain at TT. Thus, first evidence against an analysis of the AM predicates of temporal distance as 'distance tenses' comes from the fact that all AM markers are compatible with any TT determined in discourse. They are not necessarily evaluated with respect to coding time and thus do not entail 'absolute' (i.e. deictic) tense. E314 illustrates this with the proximate future AM marker *ta'itak*, used with a TT in the past of coding time.

- E314. ^ALas sèeys-e' mukah chúun-ul u pàax Pedro,
six.o'clock-TOP PROSP(B.3.SG) start\ACAUS-INC A.3 play.music\ATP Pedro
- káa t-u k'at-ah u báah Pablo, káa h
káa PRV-A.3 cross-CMP(B.3.SG) A.3 self Pablo káa PRV
- p'áat mix t-u chúun-s-ah u
leave\ACAUS(B.3.SG) NEG.EMPH PRV-A.3 start\ACAUS-CAUS-CMP(B.3.SG) A.3
- pàax Pedro-i'. ^BLas dòose-e', káa t-uy a'l-ah
play.music\ATP Pedro-D4 twelve.o'clock-TOP káa PRV-A.3 say-CMP(B.3.SG) A.3

¹⁶¹ For a survey, see Comrie (1985: ch. 4) and Dahl (1984; 1985: 120-128).

Pedro t-uy atan: ^CLas sèeys-e' ta'itak in pàax,
 Pedro LOC-A.3 wife six.o'clock-TOP PROX A.1.SG play.music\ATP

káa h tàal Pablo, káa h p'áat
 káa PRV come(B.3.SG) Pablo káa PRV leave\CAUS(B.3.SG)

ma' t-in chúun-s-ah-i'."
 NEG PRV-A.1.SG start\CAUS-CAUS-CMP(B.3.SG)-D4

^AAt six, Pedro was going to start playing music, (when) Pablo interfered (and) Pedro ended up not even having started (to play music). ^BAt twelve, Pedro told his wife: ^CAt six, I almost played music; (when) Pablo came (and) I ended up not having begun (to make music).¹⁶²

Conversely, there is absolutely no constraint on using the recent or even the remote past AM marker with TTs in the future of coding time.

Ideally, an analysis of the AM markers at stake as coding exclusively temporal distance, but not event order, would suggest that the system of distance operators in YM should be entirely *symmetric*: a given operator should only specify a certain distance from TT, without indicating whether the distance is to be measured into the future or into the past of TT. This is, however, not the case. YM distance operators distinguish one degree of future distance, the 'proximate future AM', and three degrees of distance of past events: 'immediate', 'recent' and 'remote past AM'. With respect to the proximate future marker, this predicament does not pose a problem for the analysis. The proximate future marker is shown by E314 above not to entail commitment of the speaker towards realization of the target event, which rules out the analysis of the proximate future AM marker as a tense.

With respect to the three AM markers of past distance, however, an explanation for the apparent contradiction has to be given that even though, with these markers, the temporal location of the target event is not semantically accessible, their use is nevertheless restricted to target events in the relative past of TT. The argumentation proceeds along the following lines: Leaving the immediate past AM

aside for the moment, the recent and remote past markers have lexical bases which do in fact behave symmetrically, expressing pure temporal extension (distance or duration) without distinguishing event order. The remote past marker *úuch* and the recent past AM marker *sáam* produce derived inchoative stems *úuch-tal* and *sáam-tal* > *sáantal*, both approximately 'to last', 'to take time', which express pure temporal extension.¹⁶³ They can be used both in expressions of duration and of temporal distance, without distinction between distance of future time events and distance of past time events. In E315a, *sáantal* is used to express temporal distance from TT of an event in the (relative) future, and in E315b, *sáantal* is used to express temporal distance from TT of an event located in the (relative) past. This difference is reflected in the construction: in E315a, with relative past time reference, *sáantal* takes an embedded verbal core inflected for subjunctive status, just like the recent past marker *sáam* does, whereas in E315b, with relative future time reference, *sáantal* combines with a clause introduced by the irrealis subordinator *kéen*.

E315 a. Ts'-u *sáantal* in kan-eh.
 TERM-A.3 earlier.today:PROC.INC A.1.SG learn-SUBJ(B.3.SG)
 'It's been a while since I learned it', 'I learned it some time ago.'

b. Yan u *sáantal* *kéen* xi'k-en Mérida.
 OBL A.3 earlier.today:PROC.INC SR.IRR go.SUBJ-B.1.SG Mérida.
 'It will take some time until I go to Mérida.'

Equally, in E316a, *úuchtal* is used to express temporal distance of an event in the relative future of TT, and in E316b, *úuchtal* is used to express temporal distance to an event located in the relative past of TT. Again, in E316b, with relative future time reference, *úuchtal* combines with a clause introduced by the irrealis

¹⁶³ I consider *sáantal* to be the synchronic inchoative of the stative predicate *sáam* that has the privileges of occurrence of an AM marker. In other words, I do not think that the recent past marker is a grammaticalization of the stative base of *sáantal*. There is no evidence suggesting such an analysis. The remote past marker *úuch* is homophonous with a noun or adverb *úuch* referring to things past. Etymologically, this may be a lexicalization of the completive of the verb *úuch* 'to happen', referring to the past in the sense of what has happened. However, it is not clear to me how this etymological analysis would relate to the feature of temporal extension found in both the inchoative *úuchtal* and the remote past AM marker *úuch*. I therefore prefer to confine myself to establishing a relation between the remote past marker *úuch* and the inchoative *úuchtal* which, as has been shown, does not imply event order, unlike the adverb or noun *úuch*. The adverb/noun *úuch* is introduced in §7.2.2 as an alternative to the 'topic time shifter' *ka'ch(íl)* 'formerly'.

¹⁶² Vapnarsky (1999: 108-109) has *ta'yt-...-e'* as the basic allomorph of the proximate future AM. *Ta'yt-Set-A* is a contraction of *ta'itak* with the set-A cross-reference markers. The particle *-e'* does occur frequently with the proximate future AM; however, it does not appear to accompany *ta'itak* obligatorily, unlike in the case of the assurative and immediate past AM markers.

subordinator *kéen*, whereas in E316a, with relative past time reference, *úuchtal* takes an embedded verbal core inflected for subjunctive status, just like the remote past AM marker *úuch*.

- E316 a. Ts'-uy *úuch-tal* in kan-eh.
 TERM-A.3 long-ago-PROC.INC A.1.SG learn-SUBJ(B.3.SG)
 'It's been quite a while since I learned it', 'I learned it a long time ago.'

- b. Yan uy *úuch-tal* *kéen* xi'-k-en Mérida.
 OBL A.3 long-ago-PROC.INC SR.IRR go.SUBJ-B.1.SG Mérida.
 'It will take a long time until I go to Mérida.'

It follows that the restriction of the recent and remote past AM markers to past time reference has to be attributed to the *construction* combining the AM marker with the verbal core, rather than to the AM marker itself. The verbal core appears in the subjunctive with the recent and remote past AM markers. Subjunctive status itself shows no restriction to past time reference, but only marks perfective reference to the target event (cf. §6.1.2). The construction of the recent and remote past AM markers are a special instance of a more general construction of predicates of temporal extension, discussed in §7.1.3. This construction, when used to express temporal distance of events referred to perfectly, is subject to the 'Modal Commitment Constraint' introduced in §6.2.1.1. This explains why the construction combining the recent and remote past AM marker, respectively, with a bare subjunctive-marked verbal core cannot have future time reference.

This analysis is not applicable to the immediate past AM marker, since the immediate past marker does not have a lexical counterpart, nor does it govern subjunctive status. The immediate past marker *táant(ik) ...-e'* requires an incomplete core and is considered by native speakers to be the closest translation of the Spanish phase verb construction *acabar de* + infinitive. Consider the following examples, collected as translations of (contextualized) *acabar de* constructions (corresponding to English *just* plus the appropriate perfect tense):

- E317 a. Juanita hach *táantik* uy a'l-ik hun-p'éel t'áan-e'!
 Juanita really IMM A.3 say-INC(B.3.SG) one-CL.IN speech-D3
 'Juanita **just** said something!' (Context: Contando lo que un bebé ACABAR DE HACER: "Juanita ACABAR DE HABLAR su primera palabra!") (Perfa 57)

- b. In *kiik-e' táant* uy a'l-ik t'èen-e'
 A.1.SG elder.sister IMM A.3 say-INC(B.3.SG) me-TOF

le r'èey-e' ts'-u k'uch-ul.
 DEF king-TOP TERM-A.3 arrive-INC

'My sister **just** told me that the king had arrived.' (Context: Dicho por una persona que **acaba de oír** hablar del suceso pero no lo ha visto: "Mi hermana acaba de decirme que el rey LLEGAR.") (Perfa 68)

Semantic closeness to phase verb constructions was exploited in §6.1.2 as an explanation of the fact that the immediate past AM marker assigns incomplete status to the verb, like all phase verbs in YM do, and unlike the recent and remote past AM markers, which trigger subjunctive status. I am, however, not aware of any historical evidence that would allow one to decide whether or not the immediate past AM marker actually originated in a phase verb construction.

However, the indiscriminateness of the recent and remote past AM markers with respect to event order is corroborated by the behavior of these AM markers under negation: this shows that the anterior relation of the target event with respect to TT is *presupposed*, rather than asserted, by the recent and remote past AM markers. Thus, if *Sáam súunak le kòombioo* 'It is already a while ago that the bus returned' is negated, as in E318a, it is understood that the bus returned more recently than what is commonly assumed with *sáam*, as is stated in E318b, whereas it would be infelicitous to continue E318a with E318c saying that the bus has not yet returned at all. E318c should be possible if understood as 'presuppositional protest', but as a matter of fact, the consultants confronted with E318c rejected it entirely.

- E318 a. Ma' *sáam* sùunak le kòombio-o', ...
 NEG REC turn\ATP:SUBJ(B.3.SG) DEF van-D2
 'It was not a while ago that the bus returned, ...'

- b. ... inw a'l-ik-e' h ts'o'k mèedya òora.
 A.1.SG say-INC(B.3.SG)-TOP PRV end(B.3.SG) half hour
 '... I think it was half an hour ago.'

- c. ??... tuméen ma' sùunak-i'.
 CAUSE NEG turn\ATP:SUBJ(B.3.SG)-D4
 '... because (in fact) it has not returned (yet).'

Equally, a negation of *Úuch inw il huntúul chakmo'l te k'áaxo* 'Long ago I saw a jaguar in the jungle', as in E319a, cannot be taken to mean that the speaker denies having ever seen a jaguar in the jungle, as in E319c. It can only be understood in

the sense that the speaker denies that his sighting of a jaguar took place at a distance from TT as quantified by the remote past AM marker. In this case, it is understood that the speaker saw a jaguar in the jungle more recently than what is commonly understood to be the temporal distance expressed by the remote past AM marker, as is made explicit in E319b.

E319 a. **Ma' úuch** inw il hun-túul chak+mo'l
NEG REM A.1.SG see(B.3.SG) one-CL.AN red+claw

te k'áax-o', ...
LOC:DEF jungle-D2

'Not long ago I saw a jaguar in the jungle, ...'

b. ... inw a'l-ik-e'
A.1.SG say-INC(B.3.SG)-TOP

h ts'o'k chéen hun-p'éel semàana.
PRV end(B.3.SG) only one-CL.IN week

'... I think it was only a week ago.'

c. ??... hach t-u háah-il-e' tak be'dora-a'
really PRV-A.3 truth-REL-TOP even now-D1

mix hun-téen inw il-i'.
NEG.EMPH one-times A.1.SG see(B.3.SG)-D4

'... as a matter of fact, until now, I have not seen one once.'

And this behavior with respect to negation is shared by the immediate past AM marker. Thus, if the immediate past marker is negated, as in E320a, it is inferred that the target event is located at a greater temporal distance from TT (as is actually asserted in E320b), not that it is not located in the relative past of TT at all. E320c was strictly rejected by the consultants as a continuation of E320a.

E320 a. **Ma' táantik u sùut le kòombi-o', ...**
NEG IMM A.3 turn\ATP DEF van-D2
'It is not just a moment ago that the bus returned, ...'

b. ... **h ts'o'k óox-p'éel òora.**
h end(B.3.SG) three-CL.IN hour
'... it is (in fact) three hours ago.'

c. ??... **ma' sùunak-i'.**
NEG turn\ATP:SUBJ(B.3.SG)-D4
'... (in fact,) it has not returned yet.'

This supports extension of the analysis developed for the recent and remote past AM markers to the immediate past AM marker. That anterior order of the target event with respect to TT is presupposed, rather than asserted, by the immediate past marker is to be interpreted as evidence that the immediate past AM marker predicates merely temporal immediacy and not event order. For the sake of completeness, the presuppositional analysis also applies to the proximate future AM marker. Thus, in E321a, proximity of the speaker going to Mérida is negated. A plausible continuation would be E321b, where posteriority of the target event is preserved, but temporal distance is extended. E321c, however, would be infelicitous as a continuation of E321a, as it denies any intention on the part of the speaker of going to Mérida.

E321 a. **Ma' ta'itak in bin Mérida-i', ...**
NEG PROX A.1.SG go Mérida-D4
'I won't go to Mérida soon, ...'

b. ... inw a'l-ik-e' **yan u xáan-tal.**
A.1.SG say-INC(B.3.SG)-TOP OBL A.3 last-PROC.INC
'... I think it will take some time (before I go).'

c. ??... **mix+bik'in in bin.**
NEG.EMPH+? A.1.SG go
'... I'll never go (there).'

The analysis that the AM markers of temporal distance do not code a location of the target event in time is corroborated by their behavior vis-à-vis time-locational adverbials. Like all AM markers except for the perfective AM, the AM markers of temporal distance are only compatible with adverbials referring to topic time TT, but not with event-time adverbials specifying. (With respect to the AM markers of temporal distance, this would be pragmatically odd anyway, since event time is inerrable from the temporal distance of the target event to TT.) This can be illustrated with respect to the remote past AM marker *úuch* (the following analysis has been confirmed to obtain with respect to all four AM markers of temporal distance). That event time is not semantically accessible with the remote past AM marker can be seen from the fact that the remote past AM marker is not available in questions referring to it, such as for example:

- E322. ??Ba'x òora/k'ìin úuch a túucht-eh?
 what hour/sun REC A.2 send-SUBJ(B.3.SG)

The point here is that E322 could only mean something like 'At what time/day was it long ago that you send it?', but not the desired 'At what time/day did you send it?'. In E323, the embedded question at what day the speaker sent a letter to Pablo (last sentence) is formed with the perfective AM marker, rather than with the remote past, even though the speaker asserted the remote past AM marker with respect to the same target event in the preceding utterance.

- E323. ^APedro-e' lùunes-ak káa t-u túucht-ah hun-p'éeł kàarta
 Pedro-TOP Monday-ak káa PRV-A.3 send-CMP(B.3.SG) one-CL.IN letter
 ti' Pablo. ^BHwèebes-ak káa t-u k'áat-ah
 LOC Pablo Thursday-ak káa PRV-A.3 ask-CMP(B.3.SG)
 uy u'b-ah Juan ti' Pedro-e': ^CTs'o'k a
 A.3 hear-CMP(B.3.SG) Juan LOC Pedro-TOP TERM A.2
 túucht-ik le kàarta-o'?' ^DKáa t-u núuk-ah
 send-INC(B.3.SG) DEF letter-D2 káa PRV-A.3 answer-CMP(B.3.SG)
 Pedro-e', ^EÚuch in túucht-eh,
 Pedro-D3 REM A.1.SG send-SUBJ(B.3.SG)
 chéen ba'l-e' h tu'b tèn hach ba'x k'ìin-ak
 only thing-TOPPRV slip.mind(B.3.SG)me really what sun-ak
 káa t-in túucht-ah."
 káa PRV-A.1.SG send-CMP(B.3.SG)

^A'Pedro, (on) Monday he sent a letter to Pablo. ^B(On) Thursday, Juan asked Pedro:
^C'Did you already send the letter?' ^DPedro answered: ^E'I sent it long ago, but I forgot exactly what day I sent it.'"

Notice also that if the speaker had remembered the day he sent the letter, he could not have stated it saying

- E324. ??Lùunes-ak úuch in túucht-eh.
 Monday-ak REM A.1.SG send-SUBJ(B.3.SG)

since that could only be interpreted as 'On Monday, it was long ago that I sent it'.

Like all morphologically unbound AM markers, the AM markers of temporal distance are stative predicates that constitute the matrix predicates of their clauses. E325 illustrates this for recent past AM *sáam*:

- E325. *Sáam wáah* k'uch-uk-ech? - *Sáam-ih!*
 REC ALT arrive-SUBJ-B.2.SG REC-B.3.SG
 'Is it (already) a while ago that you arrived? - It is (already) a while ago!'

The criteria applied in E325 to show the predicativity of recent past AM *sáam* are those introduced in §4.2.1.4 and used throughout the discussion of AM marking: attraction of the question focus marker *wáah* and occurrence as a resumptive predicate in affirmative answers to polar questions.¹⁶⁴

Being stative predicates, the AM markers of temporal distance serve to assert of the target event the state of being at a certain temporal distance from TT. This state in turn is understood to overlap with TT. Therefore, the use of the distance markers is independent of the order of mention. Thus, both in E326a and E326b it is understood that Pedro first ate and then, after a while, read the paper, independent of the order of mention.

- E326 a. Pedro-e' *sáam* hãan-ak-e',
 Pedro-TOP REC eat-SUBJ(B.3.SG)-TOP
 káa t-u xok-ah le periyòdiko-o'.
 káa PRV-A.3 read-CMP(B.3.SG) DEF newspaper-D2
 'Pedro, he had eaten a while ago, (and) he read the paper
 b. Pedro-e' káa t-u xok-ah le periyòdiko-o',
 Pedro-TOP káa PRV-A.3 read-CMP(B.3.SG) DEF newspaper-D2
sáam hãan-ak.
 REC eat-SUBJ(B.3.SG)

'Pedro, (when) he read the paper, he had eaten a while ago.'

¹⁶⁴ Notice that the construction of *sáam* as an anaphoric predicate involves the B.3.SG pronoun *-ih* of intransitive verbs, which also occurs with the terminative and the remote past AM markers when these occur in isolation (i.e., without an embedded verbal core). The occurrence of *-ih* with *sáam* and remote past AM *úuch* is remarkable because, unlike terminative AM *ts'o'k*, *sáam* and *úuch* originate not in intransitive verbs, but in root-stative predicates.

It has been established that this immunity to iconicity inferences cannot be explained in terms of a hypothetical anaphoric event order relation obtaining between the two clauses in E326. An account in terms of event order is not tenable, because the relation between the target event and the TT of the recent past AM marker (TT being defined by the reading of the paper in E326, expressed by the perfective clause) is not asserted, but only presupposed. Moreover, it has been shown that there is reason to believe that this presupposition is rooted in the construction combining the distance marker with the verbal core, rather than in the semantics of the recent past marker, which specifies exclusively metrical distance, but not event order.¹⁶⁵

Let us finally take a closer look at the nature of the temporal extension expressed by the distance AM markers. The semantics of the proximate future AM marker *ta'itak* resembles closely the semantics of the penative AM marker *òolak* discussed in the previous section. In many contexts, *ta'itak* is more properly translated as 'almost', not as 'soon' (the 'soon'-rendition corresponding more closely to the meaning of temporal proximity). Like *òolak*, *ta'itak* does not entail realization of the target event, and like *òolak*, *ta'itak* has ambiguous scope with durative telic verbs. This scope ambiguity of *ta'itak* has been discussed in §5.1.2.6 as a criterion for telicity in YM. With atelic verbs, the ambiguity does not arise: *ta'itak* can only have scope over the entire target event, not just over its terminal boundary. The difference between *ta'itak* and penative AM *òolak* lies first and foremost in *òolak* entailing failure of event realization, whereas *ta'itak* does not entail, but at least implicates event realization. For example, *Las sèeyse' ta'itak in pàax* 'At six, I almost played music' in E314 above could entirely naturally be continued with *...i las sèeys i mèedyae' h pàaxnahn* 'And at six thirty, I (actually) played'. This makes it more plausible to ascribe a feature of temporal proximity to *ta'itak*, which, as has been shown, is not possible on a strict account with respect to the penative AM marker. The semantic difference between the penative AM and the proximate future AM with respect to entailment of event realization is nicely reflected in the status pattern of the two markers: whereas penative AM *òolak* triggers exclusively subjunctive status inflection on the verb

(as motivated by the feature of non-assertive modality conveyed by the subjunctive), proximate future AM *ta'itak* assigns exclusively incomplete status. An example in which the proximate future marker actually has being translated as 'soon' is E327:

- E327. Tèen-e' hach **ta'itak** in wèen-el.
 me-TOP really PROX A.1.SG sleep-INC
 'Me, I'll soon (go to) sleep.' (Futa 85)

'Immediacy' as expressed by the immediate past AM is certainly not a very precise notion. For example, it is absolutely possible for somebody to say that (s)he has *just* eaten (using the immediate past AM), even though (s)he actually finished his or her meal half an hour ago and has done other things in the meantime. An important part of the *pragmatics* of the AM markers of temporal distance comes from the fact that they are used in *opposition* to each other. So if somebody says that (s)he has *just* eaten, this implicates that it would not be appropriate to refer to the same event using the recent past AM, which is basically used in reference to events earlier on the day of utterance. It is implicated that the eating event took place not just at *any* time earlier on the same day, but at a time *reasonably close* to TT. What 'reasonably close' means depends in turn on world knowledge about the event at issue. For example, if somebody is invited to share another person's meal, then 'I've *just* eaten' may be understood in the sense 'Sorry, I ate so close to now that right now, I cannot possibly eat again.'

The stative predicate *sáam* from which the inchoative *sáantal* is derived refers to events that do not exceed the limits of the day which includes TT. This can be seen from the adjective *sáam-ben* which is used in combinations with things that originate on the same day, e.g. *sáam-ben wàah* 'tortillas that were baked earlier on the day including TT (and that are thus not fresh, but neither are they *úuch-ben* 'old')'. The term *sáam-al* 'tomorrow' seems to originate in a nominalization of *sáam*. In accordance with this, the core meaning of the recent past AM marker *sáam* seems to consist in a 'hodiernal past' (Dahl 1985: 125), i.e. in reference to events that happened earlier on the day of TT. However, *sáam* can be used referring to events on the day before the day of TT or earlier, although such usage is marginal in spontaneous discourse. Native speakers consistently suggest that events referred to using the remote past AM marker *úuch* should precede TT by at least three days, and that any more recent event can be referred to using *sáam*.

¹⁶⁵ E326a shows topicalization of a clause marked for recent past AM. This occurs not infrequently (with the recent past AM as well as with the other distance AM markers), as the state of some event being at a certain metrical distance from TT provides a suitable topic time contrast for temporal backgrounding.

Notice, though, that despite such estimations, the difference between remote past *úuch*, recent past *sáam*, and immediate past *táant(ik) ...-e'* is not readily quantifiable. Negation of remote past AM *úuch* implicates (but does not entail) recent past AM *sáam*, and negation of recent past AM *sáam* implicates (but does not entail) immediate past AM *táant(ik) ...-e'*.¹⁶⁶ The last-mentioned implicature was explicitly stated by the consultant who uttered E328.

- E328. A k'lik'-e' ti'-ili' wáah yàan te nah-o'?
 A.2 elder.sister-TOP LOC-ID ALT EXIST(B.3.SG) LOC:DEF house-D2
 - Ma'; leti'-e' /táant u bin-e' / ma' sáam xi'k-i'.
 NEG it-TOP /IMM A.3 go-D3 / NEG REC go.SUBJ(B.3.SG)-D4

'Your sister, is she still in the house? - No, as for her, she / just left / went not so long ago.' (Perfa 27)

Notice, however, that there is another reading of *sáam* which, unlike the one considered so far, is usable in reference to events which otherwise can be referred to using the immediate (as in E329) or remote past AM marker.

- E329. Le pèek'-o' /táant u hàan-t-ik
 DEF dog-D2 /IMM A.3 eat-APP-INC(B.3.SG)
 /sáam u hàan-t /to'n le páastel-o'.
 /REC A.3 eat-APP(B.3.SG) /us DEF cake-D2

'The dog, it / just ate / has eaten / our cake.' (Perfa 58)

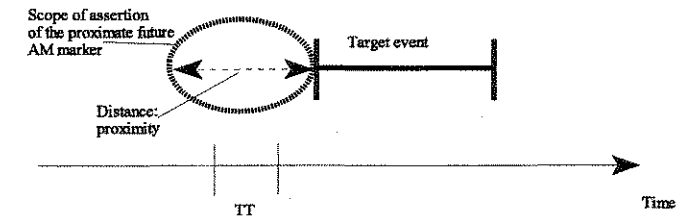
In this usage, *sáam* is translated by bilingual speakers with *ya* 'already', just like the terminative AM marker frequently is (cf. §6.2.2.1.2). *Sáam* thus is used here to indicate completion of an event. The difference from terminative AM *ts'o'k* consists in *ts'o'k* being primarily used for events whose completion has been expected, whereas *sáam* is used to express completion of unexpected events (or unexpected completion of events), as in E329.¹⁶⁷

¹⁶⁶ To this extent, the three AM markers of metrical distance to relative past time events operate as if they were organized on a 'Horn-scale' (cf. Horn 1989). However, they are not, as they exclude each other, rather than entailing each other.

¹⁶⁷ Consider also the example of someone shouting something after someone else who just went away and is now out of earshot. 'He's gone **already**!' would be rendered as *Sáam xi'k!* REC go.SUBJ(B.3.SG) in this situation, which is literally more like 'He's long

F43 summarizes the semantic analysis of the proximate future AM marker.

F43. Temporal interpretation of the proximate future AM marker

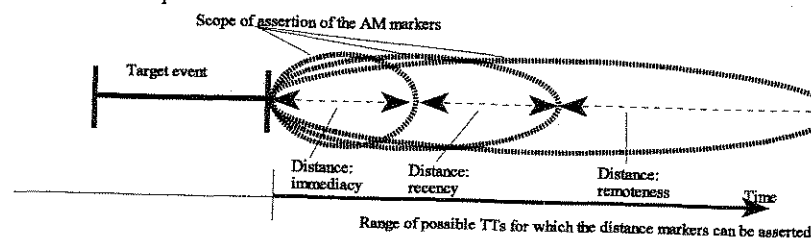


The proximate future AM marker expresses proximity of the target event as a state obtaining at TT. This may seem paradoxical, as the proximity is at the same time measured with respect to TT and coded as a state overlapping with TT. However, the apparent contradiction vanishes as soon as it is understood that the AM markers of temporal distance lexicalize qualitative distance, or more precisely, they are not numerically quantifiable. The target event is inferred to be in the state of proximity for a period of time that is limited, but of unspecific extension. It has been shown that realization of the target event is not entailed with the proximate future AM marker. Consequently, the proximate future AM marker does not serve to locate the target event on the time line. TT in turn is not determined in its temporal location vis-à-vis coding time.

The semantic analysis of the immediate, recent, and remote past AM markers is summarized in F44. The AM markers of relative past time distance do not imply a location of the target event in time. They rather serve to express temporal immediacy, recency, or remoteness of the target event with respect to topic time TT. The property of being at recent distance etc. is expressed as a state understood to overlap with TT. The fact that the relative past distance AM markers are only applicable to events in the past of TT is explained with reference to the Modal Commitment Constraint. No location of TT with respect to coding time is implied.

gone!'. This illustrates the semantic motivation for using the recent past AM marker in such contexts: exaggeration.

F44. Temporal interpretation of the AM markers of immediate, recent and remote past



6.3. SUMMARY

In this chapter the system of status inflection and aspect-mood marking has been discussed. Status inflection has been shown to be largely motivated, but not fully compositional. Incompletive status is a dependent verb form with imperfective time reference, carrying an additional meaning of assertive modality, whereas subjunctive status is a dependent verb form marking non-assertive modality and perfectivity. Completive status occurs only with the perfective AM marker and cannot be assigned a meaning independent of the perfective AM marker, and extrafocal status marks temporal boundedness in certain dependent verbal cores (in the manner focus constructions).

As the status category selected in combination with a given AM marker is fully determined by the AM marker, the contribution of status inflection could be largely neglected in the discussion of the system of AM marking. The fifteen AM markers of YM are first divided morphologically into two prefixal categories, the perfective and imperfective AMs, and thirteen morphologically unbound markers, which have the morphosyntactic properties of stative predicates. These AM predicates are divided on semantic grounds into aspectual AM markers, modal AM markers, and AM markers of temporal distance.

The perfective AM marker expresses perfective aspect: it signals inclusion of the event's boundaries in TT. Consequently, realization of the event at TT is entailed with application of the perfective AM. The imperfective AM is used mainly for habitual and generic reference. The three modal AM predicates serve to select different parts of the event for assertion at TT: the progressive AM marker

presents the event as ongoing at TT; i.e. does not include the boundaries of the event in the scope of assertion. The terminative AM marker is used to refer to post-states of the event, whereas the prospective AM marker yields reference to pre-states of the event.

With the exception of the perfective AM marker, all AM markers of YM can be used with respect to any TT in the past, present, or future of coding time. That is, the AM markers of YM do not express tenses. The perfective AM cannot be used in reference to future time events, except when occurring in subordinate clauses. In order to explain this, the Modal Commitment Constraint (MCC) was postulated. The MCC says that reference to future time events requires the speaker to make explicit his or her deontic or epistemic attitude towards realization of the event (occurrences of future events cannot simply be treated as facts). In order to comply with the MCC, the speaker uses one of the modal AM markers when referring to future events in main clauses. With these modal AM markers, the speaker presents the event as necessary (using the necessitive AM) or desired (using the desiderative AM), or marks the realization of the event as promised or (deontically or epistemically) 'agreed' (using the assurative AM), or simply as 'scheduled', using the obligative AM marker. However, none of these AM markers (and neither the prospective AM, which is used to indicate intentions) is itself restricted to future time reference. This shows that the MCC is a modal restriction, not a temporal one. In addition to the AM markers just mentioned, the set of modal AM markers includes the predictive and the penative. The predictive AM is mostly restricted to the genre of prophecies. It is used in reference to highly unusual events, and it arguably conveys non-assertive modality. The penative AM indicates failure of realization of the event, similar to the English adverb *almost* in its counterfactual reading.

The discussion then focused on the four AM markers of temporal distance: the proximate future, immediate past, recent past, and remote past AM markers. Again, none of these has a deictic tense component that locates TT with respect to coding time. The proximate future expresses proximity of the target event, but does not entail its realization. The recent past marker is used mainly in reference to events that happened earlier on the day that includes TT, whereas the remote past AM marker is mainly used in reference to events at a distance of at least several days from TT. None of the AM markers of temporal distance entails event order: anterior or posterior order of the target event with respect to TT is

presupposed, not asserted, when one of these markers is used in a main clause. Negation of the proximate future AM implies that the event happens in the future of TT, but at a greater distance. Negation of the immediate past AM implies that the event happened at a distance that could be referred to using the recent past AM marker, whereas negation of the recent past AM marker implies that the event happened in the immediate past of TT. The presupposition of event order with the AM markers of temporal distance has been explained with reference to their constructions. The recent and remote past markers both have lexical counterparts used in reference to events in the past of TT as well as to events in the future of TT, the difference just depending on the construction. For future time reference with these lexical predicates of temporal distance, a construction is used that involves the marking of irrealis modality, in order to comply with the MCC.

An important part of the analysis of the AM markers concerned their behavior with respect to time-locational specifications. The aspectual AM markers and the AM markers of temporal distance are not compatible with event-time specifications. This confirms that they assert aspectual meanings or meanings of temporal distance, but not locations on the time line, as tenses do. The explanation for the inaccessibility of the target event to event-time specifications with these AM markers comes from the properties of the construction of the AM markers: the morphologically unbound AM markers are stative predicates which assert the pre- or post-state of the event, or its ongoingness, or a state of metrical distance to obtain at TT, but not the target event itself. Time-locational specifications with past-time reference are expressed with the perfective AM marker (or with a time-focus construction), and time-locational specifications with future-time reference are expressed using the modal AM markers (or a time-focus construction). However, time-locational specifications inside the scope of the modal AM markers are referentially opaque. To account for the referential opacity of such specifications, the 'Modal Time Index' (MTI) has been introduced.

FURTHER OPERATORS

So far, the discussion of the grammar and lexicon of temporality in YM has focused on the lexical predicate classes (investigating to what extent these are motivated by properties of lexical-aspectual, event structure, and participant structure semantics) and on status inflection and aspect-mood (AM) marking. A complete picture of the representation of temporal information in a minimal independent (verbal or stative) clause has been achieved. However, there are two further structural positions in YM clauses and sentences which may host expressions of temporality, although these are optional in the sense that clauses can form independent sentences in discourse without any expression filling either of these two slots. The two syntactic positions in question are those of **adverbials** and **conjunctions**. Adverbials and conjunctions with temporal functions are dealt with in §7.2 and §7.3, respectively. As throughout the presentation of temporality in YM, the central question in these sections will be whether the adverbials and conjunctions lexicalize event order relations. First, however, some lexical predicates (in particular, verbs) which have specifically temporal meanings are discussed, in §7.1. These are **phase verbs** (designating the beginning or end of an event), predicates of **temporal extension** (referring to the duration of an event, or to its distance from topic time TT), and **modal predicates** (expressing ability, desire and the like).

7.1. LEXICAL AM PREDICATES

7.1.1. Preliminary remarks

Except for the semantics of event structure and lexical aspect, meanings in the domain of temporality are predominantly expected to be expressed by grammatical morphemes and constructions, not by lexical items. This expectation is justified with respect to YM, just as it is with respect to Indo-European languages, as has been established in the preceding chapters. However, arguably, there is no semantic domain that could be dealt with entirely within morphosyntax in any language. It is, for example, unlikely that the entire range of meanings in the domain of deontic, epistemic and evidential modality is exhausted by grammaticalized markers. In YM, a core part of modality is indeed expressed by status inflection and AM marking, but there is in addition a relatively large set of

adverbs with epistemic and evidential functions (which are ignored in this study, as they do not bear any close connection to temporality), and also a small number of lexical predicates that express (primarily) deontic meanings of ability and desire. The present section (§7.1) is devoted to lexical predicates that serve in the domain of temporality. These are identifiable as lexical predicates, because they do not share the formal properties of AM markers, as defined in §4.2.1.4. Most of the predicates dealt with in this section are actually verbs, i.e. they are themselves inflected for status in order to form verbal cores, and the verbal cores then combine with the preverbal AM markers discussed in the previous chapter.

In YM, the lexical predicates expressing meanings falling in or related to the domain of temporality may be divided into three subsets on semantic grounds. These are **phase verbs** (referring to the beginning or end of a higher event), **predicates lexicalizing temporal extension** (i.e. the duration of an event, or its temporal distance from topic time TT), and **modal predicates**. Modality is not of central concern in this study. However, the domains of temporality and modality are tightly related. In addition, a substantial part of status inflection and AM marking (as described in the preceding section) deals with modal functions; so it might be felt that the picture of modality in YM should be completed. However, the discussion is confined below to just a few lines (§7.1.4). In contrast, phase verbs are crucial for the purposes of the present study, as they carry an important part of temporal information in YM discourse. The YM phase verbs are dealt with extensively in §7.1.2. The predicates of temporal extension are inchoative verbs in YM. English expresses temporal extension in verb phrases, too; e.g. *It is long ago*, *It took a lot of time*. However, unlike YM, English does not have verbs that *lexicalize specific degrees* of temporal extension. This makes the YM extension verbs difficult to translate (a reasonable approximation might be something like 'to become recent', 'to become long ago', etc.). The discussion of the extension verbs in §7.1.3 primarily focuses on the relation of these verbs to the AM markers of temporal distances that have been dealt with above.

7.1.2. Phase verbs

Phasal operators are aspectual operators that narrow the scope of the assertion to a particular 'phase' of the target event, in particular, its initial or terminal boundary (cf. §§2.2.3, 2.3). In the Anglo-Saxon literature, phasal operators have

been discussed predominantly as expressed by the so-called 'aspectual verbs' or **phase verbs** such as *start*, *begin*, *continue*, *cease*, *stop*, *quit*, *keep*, *end*, *resume*, *finish*, *complete*, *repeat* etc. (see the literature mentioned in §2.3). Phase verbs lexicalize the initiation or termination of a higher event (i.e. the target event of the phasal operator) as an event in its own right. The term **phase** is understood here to designate this kind of event of initiation or termination of some higher-order event. Only if phases are understood as events in their own right is it possible to also include expressions in the category of phasal operators that mark not the initial or terminal boundary of the higher event, but some subinterval in between, e.g. as 'continuative' phases. In YM, phasal operators are exclusively lexicalized as phase verbs. There are no stative predicates or particles, nor is there any bound morphology, that expresses phasal meanings. In what follows, of primary concern are **ingressive** phase verbs (referring to the initial boundary of the target event) and **egressive** phase verbs (referring to the terminal boundary of the target event). The discussion of continuation is more or less exhausted by reporting the remarkable fact that continuation is not lexicalized in YM.

It has been shown by the outcomes of the TEMPEST sessions in Bohnemeyer (1998 [b]; 1998 [d]: ch. 10; 2000 [a]) that phasal operators play a more prominent role in temporal coherence in YM discourse compared to their Indo-European counterparts. The occurrences of phasal operators in the YM data exceeded those in the German data significantly.¹⁶⁸ In the present section, certain semantic properties with respect to which YM phase verbs differ from phase verbs of English and other Indo-European languages are outlined. The overall line of argumentation is that there are fewer semantic restrictions on the compatibility of phase verbs with respect to lexical-aspectual traits of the embedded verb. One particularly relevant difference between phase verbs of English and YM is found in the domain of telicity: English egressive phase verbs fall into two subsets, depending on whether or not they entail realization of the target state of the event denoted by the embedded verb. Those egressive phasals that do entail event realization can be combined only with telic verbs. YM egressive phase verbs, however, show no co-occurrence restrictions with respect to the telicity of the embedded verb, even

¹⁶⁸ As phasal meanings are exclusively lexicalized by verbs in YM, but to a significant extent by adverbs and verbal particles in German, the technical term 'phasal operator' is used here as a cover term for the YM phase verbs and all phasal expressions in German, including both verbs and adverbs, particles, etc. For a brief summary of the TEMPEST protocol, cf. §3.2.3.

though there are items that do enforce an interpretation of full event realization when combined with state-change verbs. Furthermore, there is a subset of YM phase verbs which are fully compatible with punctual verbs, contrary to a supposition generally held in the literature to the effect that events denoted by punctual predicates do not have phases and hence exclude combinations with phasal operators. From an Indo-European perspective, YM phase verbs may thus be characterized by greater freedom of occurrence, and this greater freedom is widely exploited in temporal discourse coherence. The principle tasks of phasal operators in time reference and temporal coherence are discussed at the end of this section.

Let us start by examining the resources YM has for expressing phasal notions, as compared with English. Freed 1979 discusses a set of ten 'aspectual verbs' for English: *start, begin, continue, cease, stop, quit, keep, end, resume, finish, complete, and repeat*. Ter Meulen 1995: 19-37 considers in addition the less frequent *initiate, commence, refrain from, terminate, and halt*, but does not include *quit* and *repeat*. Of these, *start, begin, initiate, and commence* evidently refer to the initial boundary of the target event, or its 'ingressive' phase, just like *cease, stop, quit, finish, complete, terminate* and *halt* refer to the terminal boundary of the target event, or to its 'egressive phase'. *Continue, keep* and *resume* are said to designate 'the middle' (ter Meulen 1995: 19) of the target event, or its 'continuative phase'. These three aspectual verbs relate in one way or another to an interruption of the target event: *resume* entails and *keep* excludes the occurrence of such an interruption previous to the 'topic time' with respect to which the phase verb construction is evaluated, while *continue* does neither and hence can be used to stay neutral with respect to the occurrence of an interruption, to conceal such an occurrence, or, on the contrary, to invite an implicature to the occurrence of an interruption, depending on the context. *Repeat* denotes multiple occurrences of the target event.¹⁶⁹ In YM, repetition is not lexicalized in any special verb, but expressed by a clitic preverbal particle which covers both repetitive and reversative readings, similar to English *again* and the Latin prefix

¹⁶⁹ By far the largest set of phase verbs is discussed in Brinton 1988: ch.2. Aside from the items mentioned so far, Brinton considers complex verbal lexemes which are semantically more specific and partly lexicalize other notions in addition to phase, such as *set (about/in) to V* (ingressive), *burst out V-ing* (ingressive), *lie/sit/stay V-ing* (continuative), *give up V-ing* (egressive), *forsake V-ing* (egressive). Brinton also includes a subset of 'habitual' phasals, among which *used to V* and *take to V/V-ing* are found.

re-. In addition, the verb *sùut* 'to (re)turn' is occasionally used to this end, in a construction probably calqued from Spanish *volver* + gerund. *Refrain from* is not actually an aspectual verb at all, but a verb of intentionality. It is included in ter Meulen's account due to its entailment of 'not-start' (shared also by *refuse* and *reject*), which allows ter Meulen to set up a close network of entailment relations among the phasal operators (ter Meulen 1995: 29). Both *refrain* and *repeat* remain outside consideration in the following. This is not to say that repetition and intentionality should generally be excluded from discussions of phasal notions; *repeat* and *refrain* just do not seem to contribute to any of the points to be addressed below. F45 gives a preliminary survey of the lexicalization of ingressive, egressive and continuative phases in English and YM.

F45. *The lexicalization of phase in English and YM*

Ingressive phase (including initial boundary of target event)		Continuative phase		Egressive phase (including terminal boundary of target event)	
English	YM	English	YM	English	YM
<i>start, begin, initiate, commence</i>	<i>ho'p', kah, káah, káahs, chun, chúun, chúuns</i>	<i>keep, con- tinue, re- sume</i>	<i>sèegir (sùut)</i>	<i>cease, stop, quit, finish, complete, terminate, halt</i>	<i>ts'o'k, ts'o'ks, xul, xúul, xúuls, p'at, p'áat, ch'en, ch'éen</i>

Two pieces of the information given in F45 deserve particular attention. First of all, continuation (with or without entailment of a preceding interruption) is apparently not lexicalized at all in YM. *Keep, continue* and *resume* are all translated using *sèegir* borrowed from Spanish (cf. E331); the inflectional and derivational properties of *sèegir* differ substantially from those of the native phase verbs. (Like all intransitives borrowed from Spanish, *sèegir* is integrated into the active class, whereas the native intransitive phase verbs belong to the inactive class.) Sometimes the third singular present tense form of *seguir* is borrowed and formally treated like a member of the AM paradigm (*siige*, cf. E330). According to a suggestion by John Lucy (p.c.), continuation without any entailment or implicature of interruption is expressed by the progressive AM marker, optionally accompanied by the adverb *láaili* 'still' triggering the text deictical particle *-e* as in E332 (cf. §7.2.2.2).

- E330. Ts'o'k u xàan-tal u bàax-t-ik bèey-o';
 TERM A.3 last-PROC A.3 play-APP-INC(B.3.SG) thus-D2

le hun-túul-o', siige u pax+gitàara xan.
 DEF one-CL-AN-D2 continue A.3 play+guitar also

'(The woman in white) had been playing (the volleyball) for a while thus; that one (the woman in red), she kept guitar playing.' (Tempest ernseb VI 3/4 seb2 45-46)

- E331. Yan u séegir u mèet-ik
 OBL A.3 continue A.3 make-INC(B.3.SG)

u kòol-o'b aw a'l-ik?
 A.3 clear\ATP-PL A.2 say-INC(B.3.SG)

'Do you think (the people of Quintana Roo, in the years to come) will continue to make their milpas?' (Entrevi EMB & SBM 255)

- E332. Káa t-u k'al-ah-e', le x-ch'úup chak
 kaa PRV-A.3 seal-CMP(B.3.SG)-TOP DEF F-female red(B.3.SG)

u nòok'-o' láaili' táan u wèen-el-e' (...).
 A.3 dress-D2 still PROG A.3 sleep-INC-D3

'(When) (the woman in white) sealed (the envelope), the woman with the red dress, she was still sleeping (...)' (Tempest antram II 3/4 a1 7-8.)

In addition, resumption of a target event may be expressed using *siut* 'to turn', 'to return', which also expresses repetition, as mentioned above (*siut* is given in brackets in F45, because continuative phase cannot be considered the core meaning of this lexeme). This apparent gap in the native code deserves further study. In what follows, continuation is of no further concern.

A second point of interest in F45 is that a certain morphological pattern not paralleled in the English data appears in the YM phase verbs. These formal relationships are made more explicit in F46. By their pattern of argument marking and status inflection, *ho'p'* and *ts'o'k* can be identified as intransitive, whereas *kah*, *chun*, *xul*, *ch'en*, and *p'at* are all transitive. The seven verbs mentioned so far form the second column from the left of F46; these stems are monomorphemic, i.e. underived. The root-transitive stems *kah*, *chun*, *xul*, *ch'en*, and *p'at* all have derived intransitive counterparts, which are listed in the third column of F46. These forms belong to the 'inactive' inflectional class of intransitive verbs and relate to their transitive bases by a regular process of anticausativization marked

by a tone change. The two root-intransitive stems *ts'o'k* and *ho'p'* belong to the inactive class of intransitive verbs, just as do the derived intransitive phase verbs. Inactive intransitives are subject to a transitivity operation of causativization in -s converse to the anticausativization of root transitives. As can be gathered from the right-most column of F46, causativization occurs with the basic intransitive stem *ts'o'k* as well as with the anticausative forms *káah*, *chúun*, and *xúul*, while it is unattested with root-intransitive *ho'p'* and with the anticausatives *ch'éen* and *p'áat*.¹⁷⁰

F46. YM phase verbs according to transitivity

Root	Stem	underived	anticausative	causative
intransitive		<i>ho'p'</i> 'to start'	-	-
		<i>ts'o'k</i> 'to end', 'to finish', 'to complete'	-	<i>ts'o'k-s</i>
transitive		<i>kah</i> 'to start'	<i>káah</i>	<i>káah-s</i>
		<i>chun</i> 'to start'	<i>chúun</i>	<i>chúun-s</i>
		<i>xul</i> 'to end'	<i>xúul</i>	<i>xúul-s</i>
		<i>ch'en</i> 'to stop'	<i>ch'éen</i>	-
		<i>p'at</i> 'to quit', 'to abandon'	<i>p'áat</i>	-

The syntactic construction of intransitive phase verbs was discussed in §4.2.1.1. The single argument of intransitive phase verbs is the embedded verbal core denoting the target event, independently of whether the phase verb is plain or derived. (The difference between E333a and b is discussed below.)

- E333 a. Táan u ho'p'-ol / chúun-ul / ts'o'k-ol / xúul-ul
 PROG A.3 start-INC / start\ACAUS-INC / end-INC / end\ACAUS-INC
- / ch'éen-el / p'áat-al
 / stop\ACAUS-INC / quit\ACAUS-INC

¹⁷⁰ See §5 on the YM system of predicate classes and §4.2.3 for details of the valence-changing operations mentioned.

/ in meyah / in ts'fib-t-ik le kàarta-o'.
 / [A.1.SG work] / [A.1.SG write-APP-INC(B.3.SG) DEF letter-D2]

'I am starting / starting / finishing / finishing / stopping / quitting working / writing the letter.' (Lit. My working / writing the letter is starting / starting / ending / finishing / stopping / quitting.)

b. Táan u ho'p'-ol / chúun-ul / ts'o'k-ol / xúul-ul
 PROG A.3 start-INC / start\CAUS-INC / end-INC / end\CAUS-INC

/ ch'éen-el / p'áat-al
 / stop\CAUS-INC / quit\CAUS-INC

/ in ka'n-al / in ts'fikil-t-ik Pedro.
 / [A.1.SG get.tired] / [A.1.SG feel.angry-APP-INC(B.3.SG) Pedro]

'I am starting / starting / finishing / finishing / stopping / quitting getting tired / being mad at Pedro.' (Lit. My getting tired / being mad at Pedro is starting / starting / ending / finishing / stopping / quitting.)

If, in contrast, the phase verb is transitive, regardless of whether monomorphemic or derived, the embedded verbal core is cross-referenced on it by the set-B person marker, and in addition, the phase verb takes a personal argument marked by the set-A series of cross-reference indices. This second construction is subject to an important restriction. Transitive phase verbs can only be combined with embedded cores designating controlled target events, and the personal argument of the phase verb has to be coreferential with the controller of the target event. Thus, *meyah* 'to work' and *ts'fibt* 'to write' are compatible with transitive phase verbs (cf. E334a), whereas *ka'n* 'to become tired' is ungrammatical in this environment and *ts'fikil* 'to be mad at somebody' is at least doubtful to most consultants (cf. E334b). A comparison with E333b shows that no such restriction holds for intransitive phasals.

E334 a. Táan in kah-ik / chun-ik
 PROG A.1.SG start-INC(B.3.SG) / start-INC(B.3.SG)
 / káah-s-ik / ts'o'k-s-ik / ch'en-ik
 / start\CAUS-CAUS-INC(B.3.SG) / end-CAUS-INC(B.3.SG) / stop-INC(B.3.SG)

in meyah / in ts'fib-t-ik le kàarta-o'.
 [A.1.SG work] / [A.1.SG write-APP-INC(B.3.SG) DEF letter-D2]

'I am starting / starting / finishing / finishing / stopping / quitting working / writing the letter.'

b. *Táan in kah-ik / chun-ik
 PROG A.1.SG start-INC(B.3.SG) / start-INC(B.3.SG)
 / káah-s-ik / ts'o'k-s-ik / ch'en-ik
 / start\CAUS-CAUS-INC(B.3.SG) / end-CAUS-INC(B.3.SG) / stop-INC(B.3.SG)

in ka'n-al / in ts'fikil-t-ik Pedro.
 [A.1.SG get.tired] / [A.1.SG feel.angry-APP-INC(B.3.SG) Pedro]

'I am starting / starting / finishing / finishing / stopping / quitting to get tired / to be mad at Pedro.'

In contrast, even passives (cf. E335a), anticausatives (cf. E335b), and spontaneous forms (cf. E335c) can be accommodated as arguments of intransitive phase verbs.

E335 a. K-u ho'p'-ol tíun u ts'a'-b-al y-óok'ol méesa.
 IMPF-A.3 start-INC CON [A.3 put-PASS-INC A.3-on table]
 'They would begin to be put on the table', lit. 'Their being put on the table begins.' (Andrade & Vermont Salas 1971, text no. 35 (*The Ch'á'cháak Ceremony*))

b. Le kéeh-o', ts'-u chúun-ul
 DEF deer-D2 TERM-A.3 start\CAUS-INC
 u k'éex-el u kòolor, ...
 [A.3 change\CAUS-INC A.3 color]

'The deer, it has started to change its color, ...', lit. 'The deer, its changing its color has started, ...'

c. Ts'-u chúun-ul u he'-k'ah-al
 TERM-A.3 start\CAUS-INC [A.3 open-SPONT-INC
 le hòol tuméen le ìik'-o', ...
 DEF aperture CAUSE DEF wind-D2

'The door's being opened because of the wind has begun, ...'

Turning now to the differences between English and YM phasals on the lexeme semantic level, one important feature of egressive phase verbs in English is their differing sensitivity with respect to the *telicity* of the embedded verb. This has already been mentioned in §5.1.2.4. In English, there is one set of egressive phase operators that entail the achievement of some target state, in particular *finish*, *complete* and *end*, and another set do not imply achievement, in particular *stop*, *cease* and *quit*. The latter convey an implicature of interruption or abandonment

when applied to telic verbs, whereas the former are not compatible at all with atelic verbs (cf. Dowty 1979: 57-58, Freed 1979: 47-63).

- E336 a. *Mary finished/completed/ended (giving) a lecture on semantics.*
 b. *Mary stopped/ceased/quit wondering about semantics.*
 c. **Mary finished/completed/ended wondering about semantics.*¹⁷¹

In YM, the basically transitive egressive phasals *ch'en* 'to stop', *p'at* 'to quit', 'to abandon', and *xul* 'to end' are not sensitive to telicity, just like *stop*, *cease* and *quit*. *Ch'en*, *p'at* and *xul* and all their derived intransitive counterparts entail no achievement of target states with verbs that lexicalize state-change, whereas the root-inactive verb *ts'o'k* 'to end' does have this property. E337 (repeated from §5.1.2.4) shows a nice contrast:

- E337. Le meyah ko'n mèet-o', las siinko k-ak
 DEF work SR.IRR:B.1.PL do(B.3.SG)-D2 five.o'clock IMPF-A.1.PL

 ch'en-ik, pero ma' k ts'o'k-s-ik
 stop-INC(B.3.SG) but NEG.PROG A.1.PL end-CAUS-INC(B.3.SG)

 túun-e'; ...
 CON-D3

'The work we are going to do, we will quit at five, but we won't finish it (tomorrow), ...' (Entrevis AME & SME 224)

However, unlike *finish*, *complete* and *end*, *ts'o'k* and its causative counterpart *ts'o'ks* occur with telic and atelic predicates alike.

- E338. Táan u ts'o'k-ol u bàax-t-ik le bòola-o',
 PROG A.3 end-INC A.3 play-APP-INC(B.3.SG) DEF ball-D2

 káa h ts'o'k u pàax.
 káa PRV end(B.3.SG) A.3 play.music/ATP

'She was about to quit (lit. finish) playing the ball, (when) (the other woman) quit (lit. finished) playing (guitar).' (Tempest antram VI 3/4 ant1 26)

¹⁷¹ The last example will be acceptable provided *wondering about semantics* is construed as having a result state, or at least a 'natural endpoint', i.e. telically. There are also verbs which are compatible with *finish*, but which appear to be atelic in any other construction, such as *to work*. Pustejovsky's (1995) notion of 'coercion' may be relevant here.

Ts'o'k simply means 'to end', 'to pass by'. In cases where the event that the verb expresses can only be asserted provided a certain definite change of state has occurred, combination of that verb with *ts'o'k* does entail accomplishment of that change of state; but *ts'o'k* goes just as well with atelic verbs, simply imposing termination on the processes they denote. In sum, phase verbs of both types are sensitive to the lexicalization of change-of-state in the verb they combine with (not in their compatibility with that verb, but only in the interpretation yielded), but they are not sensitive to telicity. This neutral behavior of phasals with respect to telicity is greatly exploited in the establishment of discourse coherence in YM.

The most striking difference in phasal semantics of English and YM, however, is found in the behavior of phasals with respect to **punctual** predicates. As Freed (1979: 56-57) observes, punctual verbs are sometimes compatible with *start* and *begin*, but yield a pre-state reading in such combinations. They are of dubious acceptance, if any, with *finish*, and strictly incompatible with all other phasals (except for non-specific interpretations).

- E339 a. The American team started/?finished/*stopped reaching the summit this morning
 b. *I started/finished/stopped finding my coat. (Freed 1979:56)

Durativity vs. punctuality of YM verbs is tested by compatibility with the egressive phase verbs *ch'en* 'to stop', *p'at* 'to quit', 'to abandon', and *xúul* 'to end', or their derived anticausative forms (this phenomenon was used as a criterion for punctuality in §5.1.2.8; the relevant examples are repeated below). As mentioned above, 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 is naturally excluded with punctual verbs. Therefore, the only likely interpretation a construction of these phasals with a true punctual receives is iterativity or habituality of the punctual verb (or in Freed's (1979: 73-86, 152-156) terms, a 'generic' interpretation). Compare, for instance, the construction of *ch'éen* or *xúul* with the durative *ch'úh* in E340a, where an interpretation 'the tree stopped growing' poses no problems at all, to the combination of the same phasals with the punctual verb *púuts* 'to escape' in E340b, where the only interpretation the consultants could come up with was that some pigs escaped repeatedly or habitually during a certain interval which terminated when the pigsty or pen eventually got repaired.

E340 a. Káa h ch'één / xúul u
 káa PRV stop\ACAUS(B.3.SG) /end\ACAUS(B.3.SG) A.3

ch'fih-il le che'-o',
 grow-INC DEF tree-D2

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

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

b. Káa h ch'één / xúul
 káa PRV stop\ACAUS(B.3.SG) /end\ACAUS(B.3.SG)

u pùuts'-ul le k'e'kèen te
 A.3 escape-INC DEF pig LOC:DEF

k'ax+che'-o', t-inw uts-kint-ah u k'ax+che'-il.
 tie+wood-D2 PRV-A.1.SG good-FACT-CMP(B.3.SG) A.3 tie+wood-REL

'When the pigs stopped / quit escaping from the pigsty (i.e. escaped no longer), I had fixed the pigsty.'

The consultants were asked to continue an utterance of the format

E341. Káa h /ch'één /p'áat
 káa PRV /stop\ACAUS(B.3.SG) /leave\ACAUS(B.3.SG)

/xúul /u ____-e'...
 /end\ACAUS(B.3.SG) /A.3 ____-TOP

'(When) it stopped ____-ing, ...'

where the verb to be tested for durativity was inserted in the slot marked by "____". A total of 60 punctual verbs was investigated employing this procedure. Compare now the outcomes of E340 with E342 where *ts'o'k* 'to end', but not *ch'één*, *xúul*, or *p'áat*, prove to be compatible with the punctual *ah* 'to wake up'.

E342. Káa h ts'o'k / *ch'één / *xúul
 káa PRV end(B.3.SG) / stop\ACAUS(B.3.SG) /end\ACAUS(B.3.SG)

/*p'áat inw ah-al-e',
 /leave\ACAUS(B.3.SG) A.1.SG awaken-INC-TOP

káa h líik'-en uk'ul.
 káa PRV lift\ACAUS-B.1.SG drink.ATP

'I finished waking up, and then I rose to have breakfast', 'When I finished waking up, I rose to have breakfast', 'My waking up passed, and then I rose to have breakfast', 'When my waking up passed, I rose to have breakfast.'

Ts'o'k can be combined with punctual verbs without restriction. This adds up to its glossing as 'to become over', 'to pass by in time', deduced above from its indistinctness vis-à-vis telicity of the embedded verb. *Ts'o'k* must be assumed to represent a type of phasal operator unattested and probably unparalleled in Indo-European languages. The terminal boundary it imposes on the interpretation of the target event in discourse representations is purely referential in nature and simply ignores the lexical-aspectual properties stored with the lexical semantics of the embedded verb. This underlines the status of *ts'o'k* as an operator of temporal coherence, rather than merely a lexical verb. But *ts'o'k* is not exceptional in its behavior with respect to punctual verbs. Compatibility with punctual embedded verbs is also displayed by all ingressive phasals of YM.¹⁷² Compare the combinations of *ho'p*, *káah*, and *chúun* with, once again, *ah* 'to wake up' in E343.

E343. Káa h ho'p' / káah / chúun
 káa PRV begin(B.3.SG) / start\ACAUS(B.3.SG) / start\ACAUS(B.3.SG)

inw ah-al-e', túun chúun-s-ik
 A.1.SG awaken-INC-TOP PROG:A.3 start\ACAUS-CAUS-INC(B.3.SG)

¹⁷² Goddard (2001) adduces the compatibility of *ts'o'k* and *ho'p* with punctual verbs as evidence for them "functioning both as lexical phase verbs and as temporal operators, i.e., semantic equivalents to 'after' and 'before'" (pp. 48-49). I agree with the first part of this assessment - like all phase verbs, *ts'o'k* and *ho'p* are temporal (to be precise, aspectual) operators. And like all aspectual operators, *ts'o'k* and *ho'p* have a dedicated function in time reference and the maintenance of temporal discourse coherence. Moreover, the YM phase verbs, and *ho'p* and *ts'o'k* in particular, seem to realize the notional aspectual operators 'ingressive' and 'egressive' more purely than their Indo-European counterparts. From this, however, it does not follow by any means that they are "semantic equivalents to 'after' and 'before'". Goddard's position appears to imply that the notional ingressive and egressive aspects introduced in §2.3 are themselves "semantic equivalents to 'after' and 'before'", which seems a bona fide case of *reductio ad absurdum*. (Besides, compatibility with punctuals is true of *all* ingressive phase verbs of YM, not just of *ho'p* - so by Goddard's rationale, all ingressive phasals of YM would have to be exponents of 'before'.)

u	meyah	le	máak-o'b	te	chúumuk-o'.
A.3	work	DEF	person-PL	LOC:DEF	center-D2

'I began to wake up, and the people on the village square were starting their work', '(When) I began to wake up, the people on the village square were starting their work.'

In general, three different readings can be distinguished when ingressive phasals are combined with punctual verbs in YM. The first one is the pre-state reading already familiar from the exceptional English example E339 above. In YM, a pre-state interpretation can be obtained with any ingressive phase verb and any punctual embedded verb. The pre-state reading can be attested by periphrasis with the prospective aspect marker *mukah*, which both semantically and etymologically resembles the *be going to* construction of English and its likes in Romance languages. An example is given below; the topic time with respect to which the phase verbs are asserted is traced anaphorically by the formulaic phrase *káa tya'laho* 'when it said that' (cf. §7.3.6).

E344.	Káa	h	ho'p'	/	káah	/	chúun
	káa	PRV	begin(B.3.SG)		/start\CAUS(B.3.SG)		/start\CAUS(B.3.SG)
	k	ts'o'k-s-ik			k	hòoch-e'	káa
	A.1.PL	end-CAUS-INC(B.3.SG)			A.1.PL	harvest-ATP	káa
	t-ak	ts'a'-ah-o'n			kwèenta-e'	mix-tu'x	ak
	PRV-A.1.PL	give-CMP(B.3.SG)-1.PL			account-TOP	EMPH.NEG-where	A.1.PL
	ts'a'-ik-o'n	u	al+nal-il.		Káa		
	put-INC(B.3.SG)-1.PL	A.3	?+corn.plant-REL		káa		
	t-y-a'l-ah-o'		mukah	k	ts'o'k-s-eh.		
	PRV-A.3-say-CMP(B.3.SG)-D2		PROSP(B.3.SG)	A.1.PL	end-CAUS-SUBJ(B.3.SG)		

'(When) we started to finish harvesting, (then) we realized there was no place where we could put the *alnalil* [i.e. freshly harvested corn cobs to be preserved for planting in the year to follow]. At that moment, we were going to finish it (i.e. the harvest).'

Notice that the embedded verb in E344 is itself a phase verb, namely no other than *ts'o'k* 'to end' discussed above. Such combinations, only marginally known from Indo-European (cf. *the beginning of the end*), are quite inconspicuous in YM discourse.

In connection with the issue of pre-state readings with phase verbs, the well-known analysis of Freed (1979: 37-40, 71-77, 129-133), further developed in Wierzbicka (1988: 77-89), needs to be mentioned again. According to Freed, the phase verbs of English differ in whether they denote an initial or terminal part of the target event itself (in the case of *begin* and *finish*) or rather its 'onset' or 'coda' (as is supposedly the case with *start* and *end*). Onset and coda are parts that immediately precede or follow the target event, respectively, but cannot be referred to by the progressive of the verb denoting the target event. In other words, onset and coda are a kind of pre- and post-state, respectively. The plausibility of this proposal is slightly harmed by the fact that the onset and coda readings are not normally available with punctual verbs. This means that onset and coda would have to be different from the kind of pre- and post-state reference yielded by the prospective and perfect constructions, respectively, which are regularly available with punctual verbs (cf. *The bomb / was going to explode / had exploded*). Moreover, in order to explain why *start* and *end* cannot normally be combined with punctual verbs, Freed stipulates 'unstructuredness' of durationless events even outside their proper boundaries. Be that as it may, no distinction corresponding to the semantic difference Freed ascribes to *start* vs. *begin* and to *end* vs. *finish* can be attested among YM phase verbs. And the pre-state interpretation with ingressive phase verbs in YM can regularly be paraphrased by a prospective construction, and thus seems to be distinct from the onset-interpretation Freed ascribes to *start*. Wierzbicka (1988: 77-89) has suggested a correlation of onset or coda interpretations with the use of the *to*-infinitive as opposed to the gerund (or *-ing*-form), which regularly goes with English phase verbs. It seems relevant to notice in this respect that all YM phasals invariably require embedded verbal cores inflected for incomplete status. The incomplete was identified as an imperfective verb form in §6.1.2, much like the English gerund. The 'generic' reading Freed ascribes to the phase verb construction with the infinitive complement, as opposed to the gerund construction, is regularly available in YM with the embedded verbal core inflected for incomplete status, as seen in E340b above.

The second possible interpretation of ingressive phasals with punctual embedded verbs is illustrated in E345 below, namely the reading of the target event as an **extended process**. In this case, the ingressive verb acts like a progressive, and the target event is interpreted to be ongoing, i.e. to have begun, but to be as yet unfinished. This is demonstrated by negation of the post-state of the target event, the post-state being referred to by subjunctive status, i.e. *ma' ah-ak-i* 'he had not

woken up yet'. The adverb *hach* serves to disambiguate the terminal boundary of the target event from the target event as a whole being included inside the scope of *ma'* + SUBJ, the second reading being ruled out with *hach*. *Ma' hach ahaki'* may be translated as 'He had not yet fully/completely woken up'.

- E345. Káa h ho'p' / káah / chúun uy
 káa PRV begin(B.3.SG) / start(ACAUS(B.3.SG) / start(ACAUS(B.3.SG) A.3
- ah-al Pedro-e', káa h bin u
 awaken-INC Pedro-TOP káa PRV go(B.3.SG) A.3
- àamigo. Káa t-y-a'l-ah-o', ma' hach ah-ak-i'.
 friend káa PRV-A.3-say-CMP(B.3.SG)-D2 NEG really awaken-SUBJ(B.3.SG)-D4

'(When) Pedro began / started / started to wake up, (when) his friend [who had been calling] went away. At that moment (lit. when it said that), he was not really awake yet.'

It should be emphasized that whereas the pre-state reading of ingressive phase verbs is available with all punctual predicates, the extended process reading is clearly restricted. It might be argued that it resides in a lexical semantic ambiguity or vagueness of the embedded verb with respect to the punctual-durative distinction, rather than in any semantic feature of ingressive phase verbs. However, the punctual verbs that admit the extended process reading in combination with ingressive phasals are, like all truly punctual verbs in YM, incompatible with the egressive phasals *ch'éen*, *xúul*, and *p'áat* (under a non-iterative and non-habitual interpretation), as opposed to durative telic verbs. Therefore, the ambiguity or vagueness supposedly responsible for the extended process reading is not easily pinned down on the lexical semantic level. A pragmatic account of this phenomenon seems more promising.

The third possible interpretation of a combination of an ingressive phase verb with a punctual embedded verb in YM is the **incidental** reading, i.e. a construal of two punctual events coinciding. Under this interpretation, the initial boundary of the target event is asserted, but is understood to temporally coincide with the terminal boundary. Thus, the consultant in E346 asserts that whenever the post-state (marked once again by the subjunctive) of the ingressive phase of *ah* 'to wake up' has been reached, the post-state of the event designated by *ah* itself has been achieved as well (this post-state being referred to by the terminative aspect marker *ts'o'k/ts'* - grammaticalized itself out of the egressive phase verb *ts'o'k*

discussed above).¹⁷³

- E346. Le chéen chúun-uk uy ah-al
 DEF only start(ACAUS-SUBJ(B.3.SG) A.3 awaken-INC
- hun-túul máak-e', ts'-uy ah-al xan.
 one-CL.AN person-TOP TERM-A.3 awaken-INC also

'As soon as somebody has begun to wake up, he has woken up already too.'

Compare now this native analysis with E343 above, uttered by the same speaker. There, the ingressive boundary of a waking-up event is asserted, and from the construction it will be inferred that the event of initiating the waking-up coincides with another event, in this case, the initiation of some people's work on the village square. Temporal overlap with another punctual event in the discourse representation, most typically another ingressive event, is the defining characteristic of the incidental usage of ingressive phase verbs in YM. For a proper assessment of the status of the incidental interpretation in YM discourse, the following facts must be born in mind: First, there is no evidence for the occurrence of *káah* and *chúun* with punctual embedded verbs under incidental interpretation outside the data collected during the elicitation task at issue. This is not to say that *káah* and *chúun* do not occur with the incidental reading in spontaneous discourse at all; however, phasal constructions headed by *káah* and *chúun* with incidental reference must at least be rare and marginal. However, secondly, there is abundant spontaneous data corroborating *ho'p'* 'to begin' with incidental reference, most commonly marked for perfective aspect and preceded by the one-place connective *káa*. This construction *káa h ho'p'* and its grammaticalized counterpart *kap'* are commented on in §7.3.4.

In sum, from an Indo-European perspective, YM phase verbs are strikingly insensitive to the lexical-aspectual features of telicity and durativity of the embedded verb.

¹⁷³ The construction *chéenlkéen* + SUBJ signals prospective or generic reference in topicalized clauses (cf. §7.3.5).

7.1.3. Predicates of temporal extension

Temporal extension is measured by verbs which belong to the inchoative class (dealt with in §§4.2.3 and 5.1.2). These are derived from the adjective *xáan* 'slow', and from the stative predicates (in the narrow sense) *sáam* 'recently', 'earlier today' and *úuch* 'long ago'. *Sáam* and *úuch* also function as AM markers of recent and remote past, respectively (cf. §6.2.2.3). In the following, the base of the inchoatives *sáan-tal* and *úuch-tal* are glossed 'earlier today' and 'long ago', respectively, corresponding roughly to the semantic content of the AM markers. *Sáantal* and *úuchtal* lexicalize the interval of the extension expressed by *sáam* and *úuch* as the target state of an event. As has been said in §6.2.2.3, the extension of these intervals is not very precisely defined. The interval denoted by *sáantal* has a length of between less than one and a few days, whereas the interval denoted by *úuchtal* has a length of at least several days. In contrast, *xáantal* 'to take time' does not entail a specific duration. E347 exemplifies *xáantal* and *sáantal* in a variety of different constructions serving different functions.

- E347 a. Le fiyèesta-o' yan u xáan-tal / sáantal
 DEF feast-D2 OBL A.3 slow-PROC.INC / earlier.today:PROC.INC

(ðox-p'éeł k'ín).
 three-CL.IN day

'The feast will last (for three days).'

- b. Yan u xáan-tal / sáantal in
 OBL A.3 slow-PROC.INC / earlier.today:PROC.INCA.1.SG

kan-ik, táantik in chun-ik-e'.
 learn-INC(B.3.SG) IMM A.1.SG start-INC(B.3.SG)-D3

'It will take me some time to learn it, I have only just begun.'

- c. Yan u xáan-tal / sáantal in bin
 OBL A.3 slow-PROC.INC / earlier.today:PROC.INCA.1.SG go

Mérida-e', inw a'l-ik-e', mi'n bin
 Mérida-D3 A.1.SG say-INC(B.3.SG)-TOP NEG.PROSP:A.1.SG go

te mées he'l-a'.
 LOC:DEF month PRSV-D1

'It will take some time until I go to Mérida, I think I won't go this month.'

- d. Yan u xáan-tal / sáantal
 OBL A.3 slow-PROC.INC / earlier.today:PROC.INC

chéen xi'k-en Mérida.
 only go.SUBJ-B.1.SG Mérida.

'It will take some time until I go to Mérida.'

E347a shows *xáantal* and *sáantal* expressing the duration of a feast denoted by a topicalized noun phrase coreferent with the S-argument of the extension verbs. A quantitative specification is optionally added by an adverbial (such as *ðoxp'éeł k'ín* 'three days' in E347a); under omission of this duration adverbial, the construction would simply read 'The feast will last some time'.¹⁷⁴ E347b is identical to E347a save for the S-argument of *xáantal* and *sáantal*, which is represented in E347b by an embedded verbal core *in kanik* 'my learning it'. The interpretation is 'My learning it will take some time', i.e. 'It will take me some time to learn it'. E347c differs from E347b in that the embedded verbal core, *in bin Mérida* 'my going to Mérida', is punctual, not durative. The likeliest reading obtained here is that the extension asserted by *xáantal* and *sáantal* does not refer to the duration of the target event, but to its metrical distance from topic time (in the case of E347c, coding time), i.e. 'It will take some time before I go to Mérida'. Notice, though, that both the distance and the duration interpretation are possible in principle with both *in kanik* in E347b and *in bin Mérida* in E347c. E347d shows the preferred construction of *xáantal* and *sáantal* when referring to the temporal distance of a target event in the relative future of topic time. The target event is not encoded by an embedded verbal core, but by a subordinate clause introduced by the irrealis subordinator *kéen* (in E347d, as often, replaced by *chéen* 'only'; cf. §7.3.5 on *kéen/chéen*). The *kéen/chéen*-clause could as well be topicalized ((*Le*) *chéen xi'ken Méridae*', *yan u xáantal* '(Until/before) my

¹⁷⁴ Given that *sáantal* and *úuchtal* already lexicalize intervals of a specific length (though not a very precise one), the question arises of what precisely the semantic relation between *sáantal* and the duration specification *ðoxp'éeł k'ín* in E347a is, as opposed to the relation between *xáantal* and *ðoxp'éeł k'ín*. It is quite possible that duration adverbials function as restrictive modifiers only with the (in itself unspecific) *xáantal*, but as appositive modifiers with *sáantal* and *úuchtal*. This has to be left open to future research.

(hypothetical) going to Mérida, it will take some time'). The S-argument of *xáantal* and *sáantal* remains semantically empty; the extension predicate simply denotes some lapse of time. Since the relation between the clause containing the extension verb and the clause expressing the target event is not syntactically defined in any narrow way, the construction can equally well be interpreted as referring to the time the speaker is going to spend in Mérida. It is thus not the case that *kéen/chéen* expresses an event order relation obtaining between the target event and the TT of the extension predicate. Moreover, *kéen/chéen* does not entail future time reference out of context, since it is also used to cover habitual and generic reference. Therefore, the use of *kéen/chéen* with predicates of temporal extension under future time reference has to be explained with respect to the **Modal Commitment Constraint** postulated in §6.2.1.1. This point was anticipated in the discussion of the recent and remote past AM markers in §6.2.2.3. It plays an important role in the analysis of these AM markers, in that it accounts for the restriction of the recent and remote past AM marker to past time reference. The lexical extension predicates with past time reference have not been introduced yet; this is done in E348.

E348. Ts'-u *xáan-tal* / *sáantal*
 TERM-A.3 slow-PROC.INC / earlier.today:PROC.INC

 in *kan-eh.*
 A.1.SG learn-SUBJ(B.3.SG)

'It's been a while since I learned it', 'I learned it some time ago.'

E348 demonstrates how an embedded verbal core in subjunctive status is used with *xáantal* / *sáantal* in order to indicate the temporal distance of a target event that occurred anterior to topic time TT. As was outlined in §6.1.2, the contrast between verbal cores inflected for subjunctive vs. incomplete status is motivated by the aspectual reference of the embedded core with respect to the event expressed by the matrix predicate. Incomplete status signals imperfective reference of the embedded verb form (like the 'gerund' or *-ing*-form of the English verb), whereas subjunctive status marks perfectivity of the subordinate event (like the perfect participle of the English verb). Thus, whereas in E347b above, the lapse of time expressed by the extension verb is understood to temporally overlap with the learning expressed by the embedded verbal core ('My learning it will last

for some time'),¹⁷⁵ the learning event in E348 is understood to be bounded with respect to the extension denoted by the matrix predicate, and hence not to overlap with it. A closer translation of E348 may read something like 'My having learned it has lasted some time.' The subjunctive is also triggered by the recent and remote past AM markers. As was shown in §6.1.2, the subjunctive is used to signal perfectivity of the target event, but it is not restricted to past time reference. Since the recent and remote past markers do not express anterior ordering themselves (as is apparent from the behavior of their derived inchoative stems), it follows that their restriction to past time reference can only be explained with respect to the construction combining them with the subjunctive verbal core. This construction is just a special instance of the construction exemplified in E347b-E348. So if the restriction of subjunctive verbal cores to past time reference is to be accounted for with respect to the modal commitment constraint, then the same holds for the restriction of the recent and remote past AM markers. (In all the examples E347b-E348, an additional adverbial quantification of the temporal extension expressed by *xáantal* / *sáantal* such as *ðoxp'éel k'iin* 'three days' in E347a is possible.)

The point of this discussion of E347 and E348 is that *xáantal* and *sáantal* merely lexicalize temporal extension. They may be used to express both duration and distance of a target event ordered anteriorly or posteriorly to TT, depending simply on the construction. However, none of the constructions that occurred in the examples in E347 and E348 expresses exclusively temporal distance or duration. E347a simply features verbs with nominal S-arguments. E347b and c and E348 display verbs with propositional S-arguments expressed by embedded verbal cores in incomplete or subjunctive status, motivated by the perfectivity of the embedded verbal core. Finally, E347d instantiates a subordinate clause of prospective or habitual/generic reference. E349 illustrates the same range of functions and constructions with *úuchtal*, which is derived from the stative predicate *úuch* functioning as the remote past AM marker. The meaning of *úuchtal* seems to be roughly the same as that of *sáantal*, i.e., roughly, 'to last', 'to take time', except that *úuchtal* is used for larger intervals (i.e. longer duration or greater temporal distance).

¹⁷⁵ The embedded verbal core in E347c is in the incomplete as well, which remains however unmarked on the irregular inactive verb *bin* 'to go'.

- E349 a. Le " fiyèesta-o' yan uy úuch-tal
 DEF feast-D2 OBL A.3 long-ago-PROC.INC

óox-p'éeel semàana.
 three-CL.IN week

'The feast will last for three weeks.'

- b. Ts'-uy úuch-tal in kan-eh.
 TERM-A.3 long-ago-PROC.INC A.1.SG learn-SUBJ(B.3.SG)
 'It's been quite a while since I learned it', 'I learned it a long time ago.'

- c. Yan uy úuch-tal in kan-ik,
 OBL A.3 long-ago-PROC.INC A.1.SG learn-INC(B.3.SG)

táantik in chun-ik-e'.
 IMM A.1.SG start-INC(B.3.SG)-D3

'It will take me a long time to learn it, I have only just begun.'

- d. Yan uy úuch-tal in bin Mérida-e',
 OBL A.3 long-ago-PROC.INC A.1.SG go Mérida-D3

inw a'l-ik-e', mi'n bin
 A.1.SG say-INC(B.3.SG)-TOP NEG.PROSP:A.1.SG go

te mées he'l-a'.
 LOC:DEF month PRSV-D1

'It will take quite some time before I go to Mérida, I think I won't go this month.'

- e. Yan uy úuch-tal chéen xi'k-en Mérida.
 OBL A.3 long-ago-PROC.INC only go.SUBJ-B.1.SG Mérida.
 'It will take a long time until I go to Mérida.'

All the predicates considered so far in this section have temporal extension as their core meaning.¹⁷⁶ Aside from these, there are other predicates which do not lexicalize temporal extension on a non-metaphorical account, and whose primary function lies outside the domain of temporal extension, but which can also be used to express temporal extension. These are in particular the phase verb *ts'o'k* 'to end', the existential predicate *yàan*, and various verbs of motion and transport. *Ts'o'k* 'to end' may be used to denote the terminal boundary of an extension

¹⁷⁶ Entirely parallel both in meaning and in its range of constructions to the inchoatives *xáantal*, *sáantal*, and *úuchtal* is the root inactive verb *t'íil*.

interval. Semantically, *ts'o'k* lexicalizes the termination of an event (in this function, it was discussed in the previous section). E350 illustrates how this representation can be extended to a time interval, by applying *ts'o'k* to the noun *k'iin* 'sun', 'day', 'time'. *K'iin* is combined with *yàan-tal*, the inchoative of the existential predicate *yàan*, yielding an event *yàantal k'iin* 'to become time' whose terminal boundary then can be selected by *ts'o'k*. In E351 and E352, this dummy event *yàantal k'iin* is elided, as it were, and *ts'o'k* is directly combined with an extension noun phrase as its S-argument. Thus, in E351, *ts'o'k* is understood to refer to the terminal boundary of the interval expressed by *óoxp'éeel ha'b* 'three years', and in E352, *ts'o'k* is used to select the terminal boundary of *ka'p'éeel k'iin* 'two days'. Notice that the further interpretation of the interval depends entirely on the context. In E351, the three years could be understood both to refer to duration, as rendered by the translation '(when) those three years were over', and to refer to distance, translating 'after three years'. In E352, the two days are understood to measure the distance to TT of the event of a person's falling ill. Notice that the event is conveyed by a verbal core inflected for subjunctive status, just as in the constructions discussed above with *sáantal*, *úuchtal* etc.

- E350. Pwes, ermaàano, h ts'o'k u yàan-tal k'iin!
 well brother PRV end(B.3.SG) A.3 EXIST-PROC.INC sun
 'Well, brother, it's been a long time (since we saw each other last time)!', lit. 'it ended to become time' (BVS 13.1.15)

- E351. Tu'x túun h bin-ech káa h ts'o'k
 where CON PRV go-B.2.SG káa PRV end(B.3.SG)

le óox-p'éeel ha'b(...)?
 DEF three-CL.IN years

'So where did you go (when) those three years were over (...)? (BVS 14.1.22)

- E352. H ts'o'k ka'p'éeel k'iin sèen k'oha'n-chahak.
 PRV end(PB.3.SG) two-CL.IN sun very sick-PROC.SUBJ(B.3.SG)
 'It's two days ago that I became seriously ill.', lit. 'it ended two days that I became...' (BVS 13.1.3)

Time intervals can be denoted by the S-argument of the existential predicate *yàan*. This is another strategy to express distance or duration. In E353, the extension noun phrase *hunp'éeel òora* is combined with *yàan* to express the distance from TT (coding time) of the speaker's seeing some other people, whereas in E354, the noun phrase *dos méeses* occurs with *yàan* to refer to the

duration of the speaker's not feeling well up to TT (coding time). Evidently, this distinction is not rooted in the semantics of *yàan*.

E353. Tu'x t-aw il-e'x-o'b?
where PRV-A.2 see-2.PL-B.3.PL

- Way-e', yàan hun-p'éeel òora.
here-D3 EXIST(B.3.SG) one-CL.IN hour

'Where did you see them? - Right here, an hour ago.', lit. 'it is an hour' (BVS 11.1.29-11.1.30)

E354. Mfin yàan kex dos mèses
DUB EXIST(B.3.SG) at.least two month:PL
ma' ma'+lòob inw u'y-ik in báah-i'.
NEG NEG+bad A.1.SG hear-INC(B.3.SG)A.1.SG self-D4

'It's at least two months, I think, that I've not been feeling well.' (BVS 13.1.16)

The extension phrase *ka'p'éeel àanyos* 'two years' in E355 expresses distance, as apparent from the subjunctive marked on the verbal core. Nevertheless, in its context it is clear that the target event (the speaker's being employed at the place of utterance) is ongoing at TT. In this case, perfectivity is presumably imposed by the quantificational phrase. In other words, what is represented perfectly is not so much the event of the speaker working, but rather the quantified event of the speaker's working for two years.

E355. Yàan ka'p'éeel áanyo-s
EXIST(B.3.SG) two-CL.IN year-PL

meyah-nak-en way-e'.
work-SUBJ-B.1.SG here-D3

'It's two years that I've / worked / been working / here.' (BVS 14.1.38)

Several motion verbs have secondary temporal uses, among them the basic inactive motion verbs *bin* 'to go', *tàal* 'to come', *màan* 'to pass', and *k'uch* 'to arrive'. *Bin* 'to go' is used to designate a definite or indefinite quantity of anything that is needed in the accomplishment of some aim, not unlike the English phrase *X to go*. Aside from e.g. the number of objects that need to be worked on, or the amount of money that needs to be collected in order to accomplish the aim, this also includes the amount of time needed in order to accomplish an already

initiated event. In E356, the speaker asserts that if he and his interlocutor have only two days left in order to complete the construction of a house, they have to use this time for facing the walls of the house and paving its floor. In E357, the speaker does not give a definite amount of time needed to accomplish what he and his co-workers are working on, but only uses the existential predicate to assert that there is an indefinite quantity, of which it is then said that it is yet to go. The implicature is that what is needed is not just some time, but a lot of it.

E356. Wáah chéen ka'p'éeel diiya u bin
ALT only two-CL.IN day A.3 go
k k'ub-ik le, le nah-o', pwes yan k
A.1.PL deliver-INC(B.3.SG) DEF DEF house-D2 well OBL A.1.PL
chuy+che'-t-ik, yan k but'-ik (...).
sew+wood-APP-INC(B.3.SG) OBL A.1.PL fill-INC(B.3.SG)

'If it is only two days to go to deliver the, the house, we'll have to face it, we'll have to floor it (...).' (Casa sebsat II 77-78)

E357. Uh, las kwàatro, leti' k meyah-t-ik ka'-téen,
HESIT four.o'clock it A.1.PL work-APP-INC(B.3.SG) two-times
tuméen chan yàan u bin u ts'o'k-ol.
CAUSE small EXIST(B.3.SG) A.3 go A.3 end-INC

'Uh, (at) four, it's that what we're are going to work on again, because there's a lot to go (until) it's finished.' (Entrevis AME & SME 258-259)

E358 illustrates several other motion-related verbs which occur in expressions of temporal extension. *Màan* 'to pass' is used to refer to the passing of a quantified amount of time. So for example, *Two days later, she did X* can be rendered as *Two days passed, (and then) she did X*. *Bis*, the causative of *bin* 'to go' illustrated above, is used to quantify the amount of time somebody needed to accomplish some event (which, unlike the target event with *bin* in the usage discussed above, may be completed). Depending on the context, *tu bisah hump'éeel k'iin* may be translated as 'It took her one day' or 'She spent one day'. This use of *bis* is presumably calqued from Spanish *llevar*. Alternatively, some speakers use *ch'a'* 'to take', 'to grab' in the same function. With both *bis* and *ch'a'*, the target event whose duration is expressed with the help of the motion/transport verb denoted by a purpose clause.

E358.	H	máan	hun-p'éeel	k'iin	ti'	bèey-o'
	PRV	pass(B.3.SG)	one-CL.IN	sun	LOC(B.3.SG)	thus-D2
	káa	t-u	ch'a'-ah	hun-p'éeel	k'iin	u
	káa	PRV-A.3	take-CMP(B.3.SG)	one-CL.IN	sun	A.3
						ti'a'l
						for
	u	hi'+nòok'	túun, t-u	bis-ah	hun-p'éeel	
	A.3	smooth+cloth	CON PRV-A.3	go:CAUS-CMP(B.3.SG)	one-CL.IN	
	k'iin	xan	u	ti'a'l	u	hi'+nòok'
	sun	also	A.3	for	A.3	smooth+cloth

'One day passed (on her / with the activity of sewing) like that, (and then) it took her one day in order to iron, she spent one day ironing.' (Quant Sat)

7.1.4. Modal predicates

Modality is not within the central concern of this study, so the discussion is confined to a broad survey and some examples. It seems that modality is not primarily expressed by lexical predicates in YM, but by either AM markers (i.e. those treated in §6.2.2.2) or adverbs (which are neglected in the present study). The only prominent exception are stative desiderative predicates (cf. §4.2.1.1) and deontic ability and epistemic possibility, which are both indiscriminately expressed by the irregular inchoatives *bèeytal* and *páahtal*. E359 illustrates *bèeytal* expressing ability, E360 shows the same verb expressing possibility. *Bèeytal* and *páahtal* are irregular, both in that they have partly irregular status inflection and in that their compatibility with AM marking is severely restricted. *Páahtal* only occurs with imperfective and assurative AM and in the subjunctive, and for *bèeytal*, basically the same holds, except that it can be used in addition to that with other AM categories, the reading changing to 'to succeed'.¹⁷⁷

E359.	In	suku'n-e'	k-u	bèey-tal
	A.1.SG	elder.brother-TOP	IMPF-A.3	thus-PROC.INC

¹⁷⁷ Predicates of cognition and communication are frequently used to indicate the propositional attitude of the speaker. An example is the use of *a'l* 'to say' in E360 to indicate that the speaker is uttering a belief.

u	ch'uy-ik	le	tunich	he'l-a'
A.3	hang-INC(B.3.SG)	DEF	stone	PRSV-D1

'My older brother, he / can / is able / to lift this stone here.' (Futa 83)

E360.	Inw	a'l-ik-e'	Tomás-e'	túun	lálal-ik
	A.1.SG	say-INC(B.3.SG)-D3	Tomás-TOP	PROG-A.3	pour-INC(B.3.SG)

y-o'ch	ti' le	àalak'-o'b	be'dora-o'	Chéen leti'	k-u
A.3-food	LOC DEF	domestic.animal	now-D2	only it	IMPF-A.3

bèey-tal	u	mèet-ik	be'dora-a'
thus-PROC.INC	A.3	make-INC(B.3.SG)	now-D1

inw	a'l-ik-e'
A.1.SG	say-INC(B.3.SG)-D3

'I think, Tomás, he's feeding the animals right now. That's the only thing he could do right now, I think.' (Proga 79)

7.2. TIME ADVERBIALS

The discussion proceeds to tackle adverbial and adsentential modification. There is a set of (mostly monomorphemic or synchronically unanalyzable) adverbs, most of them deictic, which represent the only substantial exception to the general claim defended in this thesis that there is no expression of event order relations in YM. These adverbs include the deictic 'topic time shifters' *ka'ch* 'formerly' and *be'dora ...-a'* 'now', which do not actually locate the target event in time (they could thus not answer a 'when'-question), but only serve to identify the temporal location of topic time. The discussion dwells somewhat with these adverbs, as they show rather intriguing semantic properties. Other deictically anchored time adverbs identify weekdays with respect to the day that includes coding time, i.e. they translate 'yesterday', 'today', 'tomorrow' etc. It is shown that at least etymologically, these are not expressions of temporal location, but only of temporal distance or duration. Also, not too surprising any more at this stage of the investigation, YM lacks a proper temporal interrogative pro-form. There are calendrical question phrases available to ask for the hour, a date, etc., but no general 'when'. Prepositions can be used in temporal function, but readings in terms of event order relations can be defeated. As a by-product of this discussion, prepositional phrases used to express duration are shown not to be sensitive to telicity distinctions.

7.2.1. Preliminary remarks

Time adverbials in YM can occur in three different positions: topic position (E361 a), focus position (E361b), and core-final position (E361c). The three positions at issue were introduced and defined in §4.2. These examples illustrate all three distributional classes with the adverb *behe'l ...-e'/a'*. A comparison of E361c with E361d reveals that time adverbials in core-final position compete with other adverbials without the relative order being strictly determined. Thus, the spatial adverbial *te merkàado* 'at the market place' precedes the time adverbial *behe'lak ha'tskabk'iin* 'this morning' (lit. today in the morning) in E361c, whereas the spatial adverbial *tu kàahil Tulum* 'in the town of Tulum' follows the temporal adverbial *mas ti' hup'èel mèes* '(for) more than a month' in E361d.

E361 a. Tèen-e' *behe'la'-ak-e'* ma' way tfin kah-tal-e'.
me-TOP today-ak-TOP NEG here PROG live-PROC.INC-D3
'Me, today, I don't live here (any more).' (Perfa 53)

b. In suku'n-e' túun tukul-ik ho'lheak
A.1.SG elder.brother-TOP PROG:A.3 think-INC(B.3.SG) yesterday
ka'ch-e' *behe'la'-ak* a tàal-e'.
formerly-TOP today-ak A.2 come-D3

'My brother, he was expecting yesterday it would be today that you come.' (Futa 71)

c. T-inw il-ah te merkàado
PRV-A.1.SG see-CMP(B.3.SG) LOC:DEF market
behe'la'-ak ha'tskab+ k'iin-o'
today-ak early+sun-D2

'I saw him at the market place today in the morning.' (Tama 141)

d. Te àanyo h máan-o' h p'áat-o'n
LOC:DEF year PRV pass(B.3.SG)-D2 PRV leave/CAUS-B.1.PL
mas ti' hun-p'èel mèes tu kàah-il Tulum.
more LOC one-CL.IN month LOC:A.3 town-REL Tulum

'Last year, we stayed (for) more than a month in the town of Tulum.'

In §4.2.2, the (sentence-initial) topic position and the (sentence-final) 'antitopic' position were assigned the same syntactic status (namely that of 'adjunctions' or

'detachments', rather than main clause constituents), and it was hypothesized that topics and antitopics have similar functions. E362 shows a time adverbial in antitopic position. Like antitopics in general, time adverbials in antitopic position are infrequent. They are neglected in the discussion to follow.

E362. Le úuch-o', estéé, mina'n kwàarto àanyo way-e',
DEF happen-D2 HESIT NEG.EXIST(B.3.SG) fourth year here-D3
estée, *milnobesyèentos+sesèenta+i+tres-ak.*
HESIT nineteenhundred+sixty+and+three-ak

'Formerly, uhm, there was no fourth grade here [at primary school], uhm, in 1963.' (Bio ram 7-8.)

The three positions differ in their access to the different layers of temporal interpretation. Adverbials in topic position show a preference for modifying topic time TT, such as in E363, although event-time adverbials do occur in topic position as well, as in E364.

E363. Sáamal óok-a'n+k'iin-e'
tomorrow enter-RES+sun-TOP

ts'o'k u bèet-ik le túus+bèet-o' le pàal-o'.
TERM A.3 do-INC(B.3.SG) DEF send+way:REL-D2 DEF child-D2

'By tomorrow afternoon the boy will have done the errand.' (Andrade 1955: 135-136)

E364. Y-ohel-o'b dèeke u ti'a'l àanyo ùuno-e'
A.3-knowledge-3.PL that A.3 for year one-TOP

h tàal hun-túul dyòos (...).
PRV come(B.3.SG) one-CL.AN god

'They know that in the year 1 A.D., there came a god (...).' (Fcp 119-120)

Core-final position is predominantly reserved for event time adverbials (such as in E361c above), though TT adverbials are possible in this position as well. An example is E365:¹⁷⁸

¹⁷⁸ Event-time specifications are improbable under negation, except in contrastive contexts where negation may be understood to have scope over the event time (cf. *I didn't see her yesterday, I saw her today*). However, the example E365 is more complex than might appear at first sight. The speaker does not just assert with respect to the day of

- E365. Tèen-e' ma' he'l-ek-en ti' le ~ k'iin behe'la-a'.
 me-TOP NEG rest-SUBJ-B.1.SG LOC DEF day today-D1
 'Me, I have not rested today.' (BVS 15.1.4)

Focus position is virtually ruled out for TT specifications. E366 shows a combination of a TT specification in topic position (*behe'la-a'* 'today') and an event time specification in focus position:

- E366. Behe'la-a' hach hùul+pirima'
 today-D1 really irradiate\ACAUS+early.morning
 káa h líik'-en meyah.
 káa PRV líik\ACAUS-B.1.SG work

'Today, it was really at the crack of dawn (when) I got up to work.' (Lex)

Since the core-final occurrence is the only one unique to adverbials, it is used here to identify adverbials. Among expressions with a temporal meaning, expressions of the following internal structure can occur in core-final position: simple adverbs such as *behe'la ...-e'/-a'* 'today' illustrated above, adverbial noun phrases such as *milnobsyèentossesèentaitresak* 'in 1963' in E362 or *mas ti' hump'éeel mées* 'more than a month' in E361d, and prepositional phrases, as in E367:

- E367. Chéen xi'k-ech Chétumal t-u he'l semàana-o',
 only go.SUBJ-B.2.SG Chétumal LOC-A.3 other week-D2
 hay-p'éeel k'iin kéen a mèet-eh?
 how.many-CL.IN sun SR.IRR A.2 make-SUBJ(B.3.SG)

'When you go to Chétumal next week, how many days are you going to spend?'

These three constructions are discussed below in three consecutive sections. In all three constructions, the three basic functions of temporal adverbials occur, namely **temporal location** (i.e. location on the time line, as expressed by locational adverbials), **duration** and **distance**. In addition, §7.2.2 on simple adverbs also briefly deals with aspectual and modal adverbs.

utterance that he did not rest, but he also implicitly quantifies the amount of time that he has spent working without rest ('I haven't rested all the live-long day'). This is why he chooses the prepositional phrase *te k'iin behe'la'* instead of the simple adverb *behe'la'*, and this is presumably also the reason why the speaker selected the core-final position.

English has separate interrogative pro-forms for temporal location (*when?*) and temporal extension (*how long?* for *how long?* *how long ago?* etc.). YM has no monomorphemic interrogative pro-forms that denote a location in time, i.e. no morpheme translating interrogative 'when'. The adverbial noun phrases *ba'x òora* 'what hour', *ba'x k'iin* 'what day' and *ba'x àanyo* 'what year' may be used to this end. It should be noted, however, that they only elicit an appropriate calendrical specification, i.e. an expression of time-of-day in the case of *ba'x òora* and an expression denoting a date with *ba'x k'iin* and *ba'x àanyo*. On more than one occasion, considerable efforts were made - mostly in vain - to train consultants to use *ba'x òora* referring not to some calendrical time index, but to a reference event (as in *When did you get up this morning?* - *When I heard the busses blowing their horn*; *When did the woman in red enter the room?* - *When the woman in white was about to finish writing the letter*). The idea appeared to be highly alien to the consultants. This confirms again the semantic inaccessibility of event order in YM discourse. Extension may be asked for by *hay-p'éeel òora/k'iin/àanyo...* 'how many hours/days/years...', with the interrogative quantifier *hay-p'éeel* how.many-CL.IN for countable inanimate items; alternatively one may ask *buka'h tyèempo* 'how much time', with the interrogative quantifier *buka'h* for non-countable items and the Spanish noun *tyèempo* 'time'. The preferred strategy is the first-mentioned one. All YM interrogative phrases mentioned in this paragraph are adverbial noun phrases.

One further property needs to be addressed here, concerning YM temporal adverbials irrespective of their construction or function. This is the occurrence of past or present-time adverbials with the suffix *-(he)ak*.¹⁷⁹ *-(he)ak* is illustrated with the simple adverb *behe'la'* 'today' in E361a-c and with the nominal *milnobsyèentossesèentaitres* '1963' in E362. In both cases, the adverbial in question has locational function. In E368, *-(he)ak* occurs with the duration phrase *òoxp'éeel semàana* 'for three weeks'.

- E368. Te àanyo h máan-o', òox-p'éeel semàana-ak
 LOC:DEF year PRV pass(B.3.SG)-D2 three-CL.IN week-ak

¹⁷⁹ The segment /he/ is optional with all occurrences, except for some lexicalized combinations with time-of-day terms (cf. §7.2.3).

h p'aat-en México.
PRV stay\ACAUS-B.1.SG México

'Last year, I stayed in México for three weeks.'

The suffix *-(he)ak* occurs almost exclusively with expressions of calendrical time reference, regardless of whether they designate temporal location, distance, or duration. In addition, *-(he)ak* may also appear in the counting of events, as in E369.

E369. **Hun-téen-ak-e'** tfin bin in xfiibat in
one-times-ak-TOP PROG:A.1.SG go A.1.SG walk:APP(B.3.SG) A.1.SG

àamigo-e', káa h lúub-en t-u bèel-j'.
friend-TOP káa PRV fall-B.1.SG LOC-A.3 way-D4

T-u **ka'-téen-ak-e'** káa h k'uch-en-e',
LOC-A.3 two-times-ak-TOP káa PRV arrive-B.1.SG-TOP

mina'n.
NEG.EXIST(B.3.SG)

'Once, I was going to visit a friend, (when / and then) I fell on the way. On the second time (that I went to see my friend), (when) I arrived, he wasn't at home.'

-(he)ak never occurs with deictic or anaphoric adverbials. *-(he)ak* was illustrated above with past and present time reference; however, its use with present time reference seems to be restricted to the adverb *behe'la* 'today'. Terms of weekdays, months etc. do not generally take *-(he)ak* when referring to the particular weekday, month etc. that includes coding time (cf. E372 below). *-(he)ak* cannot occur with future time reference (cf. E370), unless it marks an interval that includes coding time (and hence is located in the present of coding time) and the target event is located within that interval, but in the future of coding time. An example is E371.

E370. *Téen-e' yan in bin México lùunes-ak.
me-TOP OBL A.1.SG go México Monday-ak
'Me, I have to go to México on Monday.'

E371. **Behe'la'-ak** kéen in ts'ib-t hump'éeel kàarta ti' Pedro.
today-ak SR.IRR A.1.SG write-APP one-CL.IN letter LOC Pedro
'Today is (when) I'm going to write a letter to Pedro.'

So in broad outline, *-(he)ak* is sensitive to a future vs. non-future distinction, being restricted in its use to non-future intervals. E372 shows that the distinction in question is future vs. non-future in 'absolute' or deictic terms, in other words, that the cut-off point is coding time.

E372. **^Roberto-e'** h k'uch Veracruz lùunes diiya kiinse
Roberto-TOP PRV arrive(B.3.SG) Veracruz Monday day fifteen

ti' hulyo. ^BBehe'la-a' myèerkoles diiya bèeyntisyèete de
LOC July today-D1 Wednesday day twentyseven ATR

agòosto. ^CK-u bèey-tal inw a'l-ik be'òora-a':
August IMPF-A.3 thus-PROC.INC A.1.SG say-INC(B.3.SG) now-D1

^DRoberto-e' h k'uch Veracruz lùunes-ak
Roberto-TOP PRV arrive(B.3.SG) Veracruz Monday-ak

diiya kiinse-ak ti' hulyo-ak. ^ET-uy a'l-ah
day fifteen-ak LOC July-ak PRV-A.3 say-CMP(B.3.SG)

tèen ka'ch-e', yan u bin México
me formerly-TOPOBL A.3 go México

domingo-ak diiya bèeyntikwàatro-ak ti' agòosto(*-ak).
Sunday-ak day twentyfour-ak LOC August-ak

'^ARoberto, he arrived in Veracruz on Monday, July 15. ^BToday, it's Wednesday, August 27. ^CIt's possible for me to say right now: "^DRoberto, he arrived in Veracruz on Monday, July 15. ^EHe told me he was going to México (City) on Sunday, August 24."

Sentences D and E are uttered by the speaker in retrospect, as is clarified in the first three sentences of E372. In sentence E, the speaker reports that a person named Roberto had told him he would travel to México City on August 24. This date is in the future of Roberto's utterance, but in the past of the speaker's utterance. The fact that the phrase referring to the date is marked by *-(he)ak* shows that decisive for the use of this morpheme is coding time, not a TT in the discourse representation. Notice also that *-(he)ak* was rejected by the consultants in marking the month of August, which includes coding time in the example.

What makes *-(he)ak* a puzzle for a time-semantic analysis is the combined impact of the following facts: *-(he)ak* marks deictic non-future (in most cases actually past); it occurs only with calendrical and event-count specifications; it is entirely

optional in all its uses; and its presence or absence is not considered to have any impact on the interpretation of any utterance by native speakers. In terms of informativeness, *-(he)ak* helps to resolve a minimum of ambiguity in cases such as *hulyo-ak* or *liunes-ak* where it at least indicates that some past July or Monday is at issue, not a future one. But in other cases, such as in *1963-ak* (E362), *-(he)ak* is entirely redundant, since the past year 1963 is not sensibly contrasted with a future year 1963. And recall that *-(he)ak* is not even indirectly tied to the temporal location of the target event, since it also occurs with duration intervals, as in E368. It has to be concluded that the function of *-(he)ak* consists in classifying calendrical intervals and the countable 'times' of reiteration of an event into those that have already been instantiated in the history of the world up to coding time and others that have not yet been instantiated.¹⁸⁰

7.2.2. Adverbs

7.2.2.1. Temporal adverbs

The temporal adverbs of YM may be divided into four groups. First of all, there are the two **topic time shifters** *ka'ch(il)* 'formerly' and *be'dora ...-a'/-e'* 'now'. Second, there are five adverbs measuring distance from coding time in day lengths: *ka'ho'lheak* 'the day before yesterday', *ho'lheak* 'yesterday', *behe'la' ...-e'/-a'* 'today', *sáamal* 'tomorrow' and *ka'beh* 'the day after tomorrow'. Both groups consist of deictic time adverbs. Both deserve special attention in this study, as they represent the only instances of lexicalization of temporal relations in YM. Thirdly, there are two adverbs specifying duration or distance from a reference point without distinguishing event order (i.e. they can be used to refer to distances in the future of TT as well as in the past of TT). These are *ho'loh* 'for

a day' and *ka'wah* 'for two days'. And finally, there is the 'isotemporal' adverb *walakil ...-a'*, which means 'at this time', i.e. 'at the hour/weekday/month etc. that includes coding time, but on another day or in another week/year etc.

7.2.2.1.1. The topic time shifters *be'dora ...-a'/-e'* and *ka'ch(il)*

The adverbs are discussed in the order in which they have been introduced. The 'topic time shifters' *ka'ch(il)* 'formerly' and *be'dora ...-a'/-e'* 'now' do not actually serve to locate the target event on the time line, but merely indicate a shift of topic time to an interval simultaneous with (*be'dora ...-a'/-e'*) or anterior to (*ka'ch(il)*) coding time. To see this, consider the question *ba'n òora káa h hàan-ech* what hour káa PRV eat-B.2.SG 'at what time did you eat'? Evidently, *??Ka'chil!* 'Formerly!' (or: 'In the past!') cannot form a sensible reaction to this question (and neither does the more elaborate *H hàan-en ka'chil* 'I ate formerly'). However, the question *?Ba'x òora táan a hàan-al?* what hour PROG A.2 eat-INC 'At what time are you eating?' might well be answered by *Be'doraa'!*; but of course this question is itself pragmatically weird, as the speaker reveals by using the progressive AM marker that (s)he is already aware of the addressee's ongoing eating at topic time, i.e. (in this example) the moment of utterance.¹⁸¹

Clear examples of *ka'ch(il)* and *be'dora ...-a'/-e'* operating on TT rather than on the event time are found in counterfactual contexts such as the following:

E373.	Wáah	káa a	p'at	sáamal	a	tàal	ka'ch-e'
	ALT	SR	A.2 await(B.3.SG)	tomorrow	A.2	come	formerly-TOP
	ts'o'k-a'n	in	ts'íib-t-ik		le	kàarta	
	end-RES(B.3.SG)	A.1.SG	write-APP-INC(B.3.SG)		DEF	letter	

¹⁸⁰ Kaufman (1990: 98) mentions two suffixes *-iir* and *-iih/-eeh* that mark calendrical adverbials with past and future time reference, respectively, in K'iche' Maya. Dayley (1985: 272) lists the same suffixes with the same functions for the closely related Tz'utujil. It may be speculated that despite its apparent redundancy when used with the Spanish-based calendar system of the present, the marking of calendrical intervals was once motivated in combination with the ancient Mayan calendar, in a way vaguely reminiscent of the deictic determiners that speakers of Indo-European languages sometimes use in combination with cyclic calendrical intervals, in saying things like *last/next Monday/July*, etc. - Vapnarsky (1999: 171-172) notes that *-(he)ak* does not occur in focus if the extra-focal clause is marked for subjunctive status. This curious restriction deserves further study.

¹⁸¹ *Be'dora ...-a'/-e'* 'now' has least one reading distinct from the one considered in the remainder of this section, which does in fact admit a use as modification of the target event's location in time. Under this interpretation, *be'dora ...-a'/-e'* does not actually refer to the deictic present of coding time, but to its immediate future. This semantic extension is known from many other languages. Thus, one can say *Be'dora kin tàal-a'!* now SR.IRR:A.1.SG come-D1 'I'm coming!', 'I'll come in a second' where *be'dora ...-a'/-e'* of course does refer to the time of the event, or at any rate to a 'modal time index' anticipating it (cf. Spanish *Ahorita vengo!*, German *Ich komme sofort!*).

chéen k'uch-uk-ech-o'.
only arrive-SUBJ-B.2.SG-D2

'If you had postponed (lit. waited) your coming (until) tomorrow, I would have finished writing the letter (by the time) you would have come.'

In E373, the target event of the addressee's visiting the speaker is counterfactually located on the day after the day of utterance. *Ka'ch* does not refer to this counterfactual event, but to the TT of the addressee's actual visit, which preceded coding time. It is with respect to this TT that the speaker asserts that if the addressee had postponed his visit at TT, the speaker would have been able to finish a letter.

In accordance with the semantic domain of *ka'ch(il)* and *be'dora ...-a'/-e'* being restricted to TT, these adverbs never occur in focus position (unless *be'dora ...-a'/-e'* is used with a reading different from 'now', cf. Fn180). They occur mainly in topic position, although they may occupy core-final position within a topicalized clause, such as in E373 above. The fact that the topic time shifters do not directly serve to locate the target event in time means that the topic time shifters *do* represent an exception to the claim that YM does not lexicalize event order, but that they do *not* represent an exception to the claim that YM does not lexicalize the temporal location of events. Temporal localization of the target event is only achieved by the adverbs translating 'yesterday', 'tomorrow', etc., which is discussed below. *Ka'ch(il)* and *be'dora ...-a'/-e'* are actually somewhat unlikely (though it is not excluded) to occur with the perfective AM, the only AM category fully compatible with event time adverbials (i.e. ones that refer to the location of the target event in time). They are more likely to be found in constructions with the stative AM predicates such as the progressive AM in E374a, the prospective AM in E374b and the terminative AM in E374c.

E374 a. Le nohoch máak-o' hach túun kim-ij ka'ch-il,
DEF big man-D2 really PROG:A.3 die-INC formerly-REL
chéen ba'l-e' kaxt-a'b u ts'áak ti'.
only thing-TOP find-PASS.CMP(B.3.SG) A.3 cure\ATP LOC(B.3.SG)

'The grand old man, he was dying, but they found the right medicine (and so he was cured).'

 (Proga 57)

b. Le kàapitan ka'ch-o' mukah u kins
DEF captain formerly-D2 PROSP(B.3.SG) A.3 die:CAUS(B.3.SG)

ka'ch-e, káa h cha'b òqtsil-il
formerly-TOP káa PRV let:PASS(B.3.SG) poor-REL

ti' le kun kins-bil-o'b-o' (...).
LOC DEF SR.IRR:A.3 die:CAUS-GIV-B.3.PL-D2

'The captain, he was going to execute [the delinquents], (when) the pardon was given to the delinquents.' (Proga 32)

c. Ts'-in mètik hun-p'éei pàastel
TERM-A.1.SG make-INC(B.3.SG) one-CL.IN cake

a hàan-t ka'ch-e, chéen ba'l-e'
A.2 eat-APP(B.3.SG) formerly-TOP only thing-TOP

h hàan-t-a'b tuméen hun-tùul pèek'.
PRV eat-APP-PASS.CMP(B.3.SG) CAUSE one-CL.AN dog

'I made a cake for you, but it was eaten by a dog.'

In E374a, *ka'ch* marks the topic time for which the progressive clause *túun kimil* 'he is / was / will be dying' is asserted as being prior to coding time. The motivation for this, however, comes not so much from the possible misunderstanding that the old man might be dying *now*, at coding time - if YM grammar really cared about the possibility of this kind of misunderstanding, *ka'ch* and *be'dora ...-a'/-e'* would have to be ubiquitous in YM discourse, but in fact they are comparatively infrequent. The point is rather that the old man's dying state is *now*, at coding time, *over - without the old man having died*. Put differently, the reason the old man's dying is reported using the progressive AM instead of the perfective is that the old man never actually did die. But then the speaker will seek to prevent the listener from searching for a topic time TT (given in the discourse representation, if not identical with coding time) with respect to which to evaluate the progressive AM, with the natural expectation that subsequent to TT, the old man died (as a natural consequence of being dying at TT). So, first of all, *ka'ch* saturates the need of the progressive AM for a TT for which it is asserted. Second, as is shown below, *ka'ch(il)* regularly conveys an implicature (invites an inference) that a state asserted with respect to a TT marked by *ka'ch(il)* no longer obtains at coding time. Hence it will be inferred in E374a that the old man was dying at some TT prior to coding time, but is not dying at coding time. And finally, from the fact that the speaker has indicated that he did not intend the progressive AM to be understood with respect to a TT given in context, and that he has invited the inference

that the progressive assertion does not hold at coding time, a second inference will be drawn to the effect that the target state of the old man's being dead never achieved realization.

It should be emphasized that if the clause containing the progressive AM in E374a had been embedded in a continuous narrative where TT is determined by context, no need for using *ka'ch* would have arisen, independent of whether or not the target event was realized. Even in E374a, *ka'ch* is redundant, since the failure of event realization is reported by the second sentence. Yet, it is true that the use of the progressive AM in an utterance in which TT is not determined by context (and the speaker has no reason to assume the interlocutor to know TT) may cause confusion if TT is not identical with coding time. But recall that the only reason why the progressive AM is used in this way in E374a in the first place consists precisely in the lack of event realization subsequent to the TT marked by *ka'ch*. Frustration of event realization is clearly one of the major factors triggering the use of *ka'ch(il)* with dynamic eventualities. Another example is E374b with the prospective AM *mukah* ('The captain *was going to* execute the delinquents - but then did not actually execute them'). Unlike E374a, E374b even has a narrative continuation and thus would be perfectly acceptable without *ka'ch* (whereas E374a might be more difficult to process without *ka'ch*). In E374c, in contrast, *ka'ch* occurs with the terminative AM marker *ts'* - referring to the post-state of the target event, i.e. the cake's being baked. Here, the implicature invited by the use of *ka'ch* is that this post-state does not obtain anymore at TT. This is clarified in the following sentence: the cake does not exist anymore at coding time.

The examples in E375 feature *be'dora ...-a'/-e'* with the same aspect markers shown in combination with *ka'ch* above, namely the prospective (a), progressive (b) and terminative AM (c).¹⁸²

E375 a. Tèen-e' *mukah*-en chital *be'dora*-a',
me-TOP PROSP-B.1.SG lie:PROC.INC now-D1

¹⁸² *Be'dora ...-a'/-e'* can trigger either of the clause-final particles *-a'* (D1, 'proximal deixis') or *-e'* (D3, 'textual deixis'; cf. §4.2.2). I have not been able to determine a semantic difference between these options. *-a'* is more frequent.

tuméen ka'n-a'n-en y-éetel in meyah.
CAUSE tire-RES-B.1.SG A.3-with A.1.SG work

'Me, I am going to sleep now, because I am tired from working.' (Futa 38)

b. In suku'n-e' túuny a'l-ik *be'dora*-a'
A.1.SG elder.brother-TOP PROG:A.3 say-INC(B.3.SG) now-D1

sáamal-e' yan u bin te nohoch kàah-o'.
tomorrow-TOP OBL A.3 go LOC:DEF big town-D2

'My brother, he is saying right now that he has to go to the city tomorrow.' (Futa 91)

c. *Be'dora*-a' ts'-u k'uch-ul t-u nah-il.
now-D1 TERM-A.3 arrive-INC LOC-A.3 house-REL.
'Now, he has (already) arrived at home.' (Tama 65)

The contexts are not directly reminiscent of those of the *ka'ch*-examples. In E375a and c, the state of the S-argument at coding time is at issue (in a the speaker reacts to a question to that effect), and in b, the speaker wants to contrast the time at which his brother makes the statement about going to the city (which is coding time, marked by *be'dora-a'*) from the time for which the brother projects his going to the city, i.e. *sáamal* 'tomorrow'. In general, *be'dora ...-a'/-e'* is used with dynamic events when the co-incidence of TT with coding time is to be emphasized, possibly for contrast, possibly because the aspectual or modal state of the eventuality asserted obtains at coding time contrary to the speaker's or listener's expectation.

In the examples discussed so far, *be'dora ...-a'/-e'* and *ka'ch(il)* occurred with stative AM predicates to mark the obtaining of some aspectual or modal state of the target event at a topic time TT including coding time or anterior to coding time. But most frequently, the topic time shifters occur, not with dynamic target eventualities, but with (lexical) states. (Recollect that stative predicates do not combine with AM markers, cf. §4.2.1.4) This fact was already commented on in §5.1.1; the example is repeated for convenience here as E376.

E376. T-u estàado Quintana Roo-e' yàan huri-p'éel kàah
LOC-A.3 state Quintana Roo-TOP EXIST(B.3.SG) one-CL.IN village

nohoch *be'dora*-a' túun p'áat-al syùudad.
big(B.3.SG) now-D1 PROG:A.3 leave\ACAUS-INC city

Ka'ch-e', Santa Cruz de Bravo, tuméen Don Ignacio Bravo
 formerly-TOP Santa Cruz de Bravo CAUSE Don Ignacio Bravo

h tàal u hets'-kunt
 PRV come(B.3.SG) A.3 quiet-FACT(B.3.SG)

le màaya-s-o'b way túun ba'tehil-o'b-a', (...).
 DEF Maya-PL-PL here PROG:A.3 fight-3.PL-D1

'In the state of Quintana Roo, there is a town which is big right now, it is becoming a city. Formerly, it was (called) Santa Cruz de Bravo, because Don Ignacio Bravo came to pacify the Mayan people that were fighting here, (...).' (Fcp 342-6)

E377. Le ha' **ka'ch-il-a'** máantats' chokol,
 DEF water formerly-REL-D1 always hot(B.3.SG)

ba'l-e' behe'la-ak-e' sfis.
 thing-TOP today-ak-TOP cold(B.3.SG)

'The water (in this lake) here formerly, it was always cold, but today, it is cold.'
 (Tama 30)

In E377, *be'òora ...-a'/-e'* 'now' is replaced by *behe'la ...-a'/-e'* 'today', as is frequently the case. It is clear in the context that the speaker does not intend to restrict the statement to the day that included coding time, and, just like their English equivalents, *be'òora ...-a'/-e'* and *behe'la ...-a'/-e'* may be used interchangeably to mark a topic time as including coding time with large-scale topic time contrasts. *Ka'ch* and *behe'lake'* are used in E377 to explicitly contrast a state holding at coding time from a state obtaining previously that logically excludes the present state. Why are states so particularly prone to occur with explicit indication of whether they do or do not obtain at coding time? Part of the answer lies obviously in states not being conceived of as having any particular location in time (states as *semantic* entities, that is). Dynamic eventualities are mentioned in discourse and then dropped, and when topic time shifts in the flow of discourse, a previously mentioned event is not expected to continue. States, on the contrary, are expected to persist, to the extent that they are time-stable. This makes the need for specifically restricting the time for which they are asserted more likely in a given context. Thus, E377 would turn into a contradiction without the use of the topic time shifters. But why, then, specify *topic* time, instead of locating the state itself in time? Because states as such are not only not conceptualized as bounded in time, they are also difficult to locate in time. This point was made in §5.1.1 above. The option of specifying a location in time for both the

initial and the terminal boundary of the target event is not available in YM, because this would presuppose event order relations. Dynamic eventualities can be located by inclusion in a calendrical interval, but this possibility is of no more than marginal relevance for states. And location of a state 'at' a calendrically specified point in time is impossible with states. As most states cannot be explicitly located in time at all in YM, then, restricting the TT for which they are asserted becomes all the more important.

It was said above that *ka'ch(il)* 'formerly' is most often employed to mark a state as obtaining at a TT prior to coding time with the implication that the state does not hold any more at coding time. In fact, the corpus of the present study does not contain any spontaneously produced instance of *ka'ch(il)* where the state it occurred with was not understood to have changed before coding time.¹⁸³ It is thus worthwhile establishing that this time-boundedness of the target state with respect to coding time is but an implicature. Consider E378:

E378. Le nah-o' **be'òora-e'** chak, **ka'ch-e'** láaili'
 DEF house-D2 now-TOP red(B.3.SG) formerly-TOP still

chak xan-e', tuméen chak-ili'-e'.
 red(B.3.SG) also-D3 CAUSE red(B.3.SG)-ID-D3

'The house, right now, it is red, and formerly, it was also red, too, for it is simply red.'

In the pedagogical grammars of Colonial YM (cf. §3.1.1), a predecessor of *ka'ch(il)*, *kuchi*, was considered part of the inflectional paradigm of the YM verb, encoding the tense component that was supposed to be found in the semantics of YM clauses translating tensed Spanish clauses. Compare the following selection taken from the paradigm of *nak* 'to ascend' as represented in San Bonaventura (1684):¹⁸⁴

¹⁸³ One exception is the common use of *ka'ch(il)* with facts the speaker knows (or so (s)he pretends), but which (s)he can temporarily not remember properly, e.g. *Bix a k' àaba' ka'ch-il* how A.2 name(B.3.SG) formerly-REL 'What was your name, again?'.

¹⁸⁴ The orthography has been adapted to the conventions used in this study for the contemporary language, whereas the phonological shape of morphemes has not been attempted to be "modernised". The structure of the "Present" and "Imperfect" forms is based on a predicate focus construction (cf. §4.2.1.5) whose function was presumably that of the Imperfective AM in Modern YM, i.e. the marking of habituality. Note the use of

- E379 a. Nak-al in kah.
 "Indicative ascend-INC A.1.SG do(B.3.SG)
 Present" 'I ascend.'
- b. Nak-al in kah **kuchi**.
 "Imperfect" ascend-INC A.1.SG do(B.3.SG) formerly
 'I was ascending.'
- c. Nak-en.
 "Preterite" ascend-B.1.SG
 'I ascended.'
- d. Nak-en-ili **kuchi**.
 "Pluperfect" ascend-B.1.SG-ID formerly
 'I had (just) ascended.'
- e. Nak-en-ili **kuch-om**.
 "Future ascend-B.1.SG-ID formerly-?
 Perfect" 'I will have (just) ascended.'

There is no reason to assume that the function and formal status of *kuchi* was any different from the function and formal status of *ka'ch(il)* in Modern YM. In particular, the study of Colonial YM texts (cf., e.g., Roys 1967) reveals that *kuchi* was optional and infrequent in its combination with the verb forms listed above. It is clearly not the case that the predicate focus construction, for example, occurred only imperfectly with respect to coding time when used without *ka'ch*, which was said in the Colonial grammars to disambiguate the "imperfect" from the "present". In the example reproduced below, the predicate focus construction is used without *kuchi*, even though TT in this example is in the past of coding time

- E380. ^AXimbal u ka'h-o'b t-u kan kib t-u
 walk A.3 do-3.PL LOC-A.3 four candle LOC-A.3
- kan-tas ti' èek'. ^BMa' sáas-ij kab,
 four-in.order LOC star NEG light-REL(B.3.SG) world
- ti' hun mina'n k'iin, ti' hun
 LOC ? NEG.EXIST(B.3.SG) sun LOC ?
- mina'n áak'ab, ti' hun mina'n uh.
 NEG.EXIST(B.3.SG) night LOC ? NEG.EXIST(B.3.SG) moon

kuch-om, in example (e), with relative past-time and absolute future time reference. This may be taken as an indication that *kuchi* was derived from a hypothetical form **kuch* which indicated relative anteriority to TT instead of absolute anteriority to coding time.

^CAh u'b-ah-o'b ti' ix táan uy ah-al kab.
 ? hear-CMP-3.PL LOC ? PROG A.3 awaken-INC world

^DKáa túun ah-ih kab.
 káa CON awaken-CMP(B.3.SG) world

^A'They moved (lit. **moving was what they did**) among the four lights, among the four layers of the stars. ^BThe world was not lighted; there was neither day nor night nor moon. ^CThen they perceived that the world was being created. ^DThen creation dawned upon the world.' (Text Roys 1967: 32. Translation Roys 1967: 101. Orthography adapted to the conventions used in this book for the representation of Modern YM.)

Evidently, the classical account in terms of the alleged expression of tenses in Colonial YM is not born out by an analysis of YM structures and semantics; it is probably based on translations from Spanish. Be that as it may, there is a grain of truth in the tense analysis of the Colonial grammars. Recall from §§2.4.3-2.4.4 the analysis of the English tense system proposed in Klein (1994). Klein holds that all tenses comprise two independent semantic components: one which he calls 'aspectual', whose function it is to locate the 'situation time' of the target event with respect to topic time TT, and one which locates TT with respect to coding time. According to Klein, only the last-mentioned relation is the genuine function of pure deictic tenses. In other words, following Klein's analysis, a tense without an 'aspectual' component would not actually serve to locate the target event in time, contrary to what virtually the entire tradition of temporality theory believed, but would only serve to express a deictic anchoring of TT with respect to coding time. It is precisely this function of anchoring TT with respect to coding time that is fulfilled by the topic time shifters *be' òora ...-a'/-e'* and *ka'ch(il)*.

From this analysis, the following may be concluded: Firstly, despite the fact that the topic time shifters *be' òora ...-a'/-e'* and *ka'ch(il)* certainly do not represent tenses in structural terms, they nevertheless share the semantics of the deictic (or absolute) component of the Indo-European tenses present and past (or preterite). But secondly, the pragmatics of the YM topic time shifters are very different from the pragmatics of Indo-European tenses, in that the topic time shifters primarily deal with states, not with dynamic eventualities, and in that they function to indicate that a state obtains at coding time, or to implicate that it does not obtain any longer at coding time.

Finally, it should be mentioned that *ka'ch(il)* is sometimes replaced by *úuch*, which seems to be a lexicalized nominalization of the inactive verb *úuch* 'to happen'. *Le úuch-o'* DEF (PRV) happen-B.3.SG-D2 'what has happened' is a common way to refer to the past. In E381, *úuch* and *ka'ch* actually co-occur. According to the consultants, these two expressions may be freely substituted for each other.

- E381. In tàatah-e' k-uy a'l-ik tèn
 A.1.SG father-TOP IMPF-A.3 say-INC(B.3.SG) me
- úuch ka'ch** chan xib+pàal-e',
 past formerly little male+child(B.3.SG)-TOP
- le eskwèela-o'b-e' máas uts u ka'n-s-a'l
 DEF school-PL-TOP more good A.3 learn\PASS-CAUS-PASS-INC
- máak ke't behe'la-ak-e'.
 person compare\PASS today-ak-D3
- 'My father, he tells me that formerly (when) he was a kid, the schools, people were better educated than today.' (Perfa 65)

7.2.2.1.2. Adverbs expressing deictic day-length intervals

There are five adverbs measuring distance from coding time in day lengths: *ka'ho'lheak* 'the day before yesterday', *ho'lheak* 'yesterday', *behe'la' ...-e'/-a'* 'today', *sáamal* 'tomorrow' and *ka'beh* 'the day after tomorrow'. These represent the only lexicalization of event order in YM, aside from the deictic topic time shifters discussed above, and, above all, they represent the only instances of operators that actually locate the target event on the time line with respect to a reference interval (which is coding time). E382 illustrates *sáamal*, *ho'lheak* and *ka'ho'lheak* in focus position, the position that serves best to unambiguously identify event-time specifications.¹⁸⁵

- E382 a. Ana-e' **sáamal** u hóok'-ol.
 Ana-TOP tomorrow A.3 exit-INC
 'Ana, tomorrow she will leave.' (Proga 66)

- b. Bèey **ho'lhe(ak)** (káa) h k'uch-ech a xímbat-o'n.
 thus yesterday káa PRV arrive-B.2.SG A.2 walk:APP-B.1.PL
 'So yesterday you arrived to visit us.' (BVS 9.1.19)

- c. **Ka'+ho'lhe(ak)** (káa) h tàal-o'b aw éct+kàah-al-o'b
 two+yesterday káa PRV come-B.3.PL A.2 companion+live-REL-PL

u xímbat-en.
 A.3 walk:APP-B.1.SG

'The day before yesterday your compatriots came to visit me.' (BVS 9.1.21)

There is nothing much the analysis could reveal about the semantics of these adverbs, and nothing much that the semantics of these adverbs might contribute to the overall argumentation. However, of some interest is the etymology of these terms. *Ho'lheak* 'yesterday' is clearly derived from *ho'loh*, which by itself does not give any temporal location, but exclusively duration (the length of one day). *Ho'loh* is introduced in the following section. *Ho'lheak* is derived from *ho'loh* by addition of the suffix *-(he)ak* which was discussed above (with *ho'lheak*, this suffix is 'frozen', i.e. it has become inseparable). In other words, *ho'lheak* is composed of a term that designates an interval of one day's length and a suffix that indicates that this interval has been instantiated in the past of coding time. *Ka'-ho'lheak* 'day before yesterday' in turn is derived from *ho'lheak* by doubling the length of the interval with the help of the numeral *ka'* 'two'. Similarly, *sáam-al* 'tomorrow' originates in a nominalization (cf. Smailus 1989: 109) of the term *sáam* which refers to events occurring or having occurred within the day of TT. Above all, *sáam* is used as a recent past marker (cf. §6.2.2.3). There are examples in sources of Colonial YM in which *sáamal* is used to refer to the day following TT, not to the day following coding time, as in E383a. Speakers of Modern YM are hesitant to accept this construction, although uses of *sáamal* in the sense of '(on) the next day' can be overheard in everyday conversations (one such example is E385 reproduced in the section below). Consider also the reduplication *sáan-sáamal*, which means 'every day'.

- E383 a. **sáamal** u tàal pàaskwa kuchi
 (on)the.next.day A.3 come christmas formerly
 'the day before Christmas', lit. '(on) the next day, Christmas was coming' (Barre-rra Vasquez et al. 1980: 716)

¹⁸⁵ It may be noticed that E382a deviates from the regular time focus construction with future time reference, which involves the irrealis subordinator *kéen* (cf. §4.2.1.5 and §7.3.5). The construction of E382 is instantiated in the corpus only with *sáamal* (as in E382a) and *behe'la' ...-a'/-e'* 'today'.

- b. **Ho'lhe'** pàaskwah káa h lúuk'-en.
 (on)the.day.before Christmas káa PRV leave-B.1.SG
 'I left the day after Christmas.', lit. 'the day before, it was Christmas, (and/when)
 I left' (Barrerra Vasquez et al. 1980: 226)

Notice also the parallel use of *ho'lhe'* 'yesterday' in the sense of '(on) the day before' in E383b. In the variety of YM this study is based upon, E383b would be formed with the duration adverb *ho'loh*.¹⁸⁶ So there is at least some evidence suggesting that even the terms for deictically determined weekdays were originally used as pure duration terms, with the addition of morphology that served to indicate whether the particular interval was located in the past or in the future of coding time. As already indicated in section §7.2.1 above, this may have been the original function of the suffix *-(he)ak*, which has become largely redundant in the current language. It goes without saying that this hypothetical restructuring of the semantics of calendrical terms must have been caused by the contact with the Western calendar as used by the Spaniards and Mexicans.

7.2.2.1.3. Extension adverbs measuring day lengths

The adverbs *ho'loh* and *ka'wah* lexicalize the length of a temporal interval of one and two days, respectively. In E384, the terms are used to express pure duration.

- E384. Káa h k'uch-ech Chetumal te semàana
 káa PRV arrive-B.2.SG Chetumal LOC:DEF week
 h máan-o', hay-p'éel k'lin t-a mèet-ah?
 PRV pass(B.3.SG)-D2 how.many-CL.IN sun PRV-A.3 make-CMP(B.3.SG)

Chéen **ho'loh** wáah **ka'wah**?
 only one.day ALT two.days

'(When) you got to Chetumal last week, how many days did you spend? Only one, or two?'

However, like all extension terms in YM, *ho'loh* and *ka'wah* can be used to

¹⁸⁶ *Ho'lhe'* and *ka'ho'lhe'* seem to correspond to Central YM *ho'lheak* and *ka'ho'lheak*, but are restricted to the western dialect. Full clarification of the internal structure of the expressions at issue would require an analysis of the internal structure of the suffix *-(he)ak*.

express both duration and distance from TT. In E385, *ho'loh* is used to refer to a distance of one day into the future of TT, in other words, to the day following the day of TT (which is implicitly understood to be the 22nd of that month, as the speaker is arguing that he is going to kill a pig on the 23rd in order to make sure that it is eaten on the day that it is slaughtered). Notice that the speaker spontaneously used *sáamal* 'tomorrow' to refer to this day following TT, but in a later discussion preferred to replace *sáamal* by *ho'loh*.

- E385. Yan in kins-ik le k'éek'en t-u
 OBL A.1.SG die:CAUS-INC(B.3.SG) DEF pig LOC-A.3

ha'tskab+k'lin-il diiya béeyntitres.
 early.morning+sun-REL day twentythree

Tuméen wáah **ho'loh/?sáamal** chéen hàan-t-a'k-e',
 CAUSE ALT one.day/tomorrow only eat-APP-PASS.SUBJ(B.3.SG)-TOP

ma' hach ki'-i'.
 NEG really tasty(B.3.SG)-D4

'I will slaughter the pig on the early morning of the 23rd (i.e. the day of the feast). Because if it is eaten a day later, it would not be very tasty.'

The syntax of *ho'loh* and *ka'wah* in these examples follows the time focus construction (cf. §4.2.1.5). *Ho'loh* and *ka'wah* do not lexicalize the distinction between distance to future and distance to past events. This difference is only captured by the construction. In the time focus construction, future time reference is generally expressed using the irrealis subordinator *kéen* or the adverb *chéen* 'only', frequently used in replacement of *kéen*. The use of *kéen/chéen* in the time focus construction can be explained ultimately with reference to the modal commitment constraint. In particular, it is not the case that the construction *kéen/chéen* plus subjunctive expresses posterior event order (cf. §7.3.5). In E386, *ho'loh* is used to refer to the day following a TT in the past of coding time. The verbal core is marked for perfective AM.

- E386. T-in kins-ah le k'éek'en t-u
 PRV-A.1.SG die:CAUS-CMP(B.3.SG) DEF pig LOC-A.3

k'lin-il òochò. **Ho'loh** káa h hàan-t-a'b-ih.
 sun-REL eight one.day káa PRV eat-APP-PASS.CMP-B.3.SG

'I killed the pig on the eighth. It was on the following day that it was eaten.'

Aside from not being sensitive to the distinction of future and past relative to coding time, *ho'loh* and *ka'wah* are also indiscriminate with respect to whether they refer to temporal distance of events in the relative past or in the future of topic time. In the examples discussed so far, *ho'loh* expressed distance of events posterior to TT, whereas in E387 *ho'loh* refers to the day that preceded TT. This is accomplished by the construction negation plus subjunctive that expresses anti-iconic ordering of the target event to TT in pragmatic, but not in semantic, terms (cf. §4.2.2).

- E387. **Ho'loh** ma' kim-ik in papàa káa h k'uch-en.
 one.day NEG die-SUBJ(B.3.SG)A.1.SG father káa PRV arrive-B.1.SG
 'It was one day before my father died that I arrived', lit. 'One day my father had not died yet (and/when) I arrived'.

Observe how the reference of *ho'loh* is computed here: semantically, the construction negation plus subjunctive expresses a pre-state of the target event (the death of the speaker's father) to obtain at TT ('my father had not yet died'). The interval lexicalized by *ho'loh* is interpreted to overlap with this pre-state. So the inference is derived that *ho'loh* refers to an interval of one day's length located within the pre-state of the father's death. This would be fulfilled by any interval of one day's length that precedes the target event; in other words, by an infinite number of intervals. However, the only relevant interval in this context is the one immediately preceding the target event, and so it is concluded that it is this interval what the speaker is aiming at.

7.2.2.1.4. The isotemporal adverb *walakil ...-a'*

The 'isotemporal' adverb *walakil ...-a'* serves two purposes. First, it takes up a reference interval from the discourse representation, and specifies within that reference interval the same calendrical location in time as coding time occupies in the corresponding calendrical interval that contains coding time, for example, 'tomorrow at the same time' in E388a, which is 5 p.m. if the utterance is made at 5 p.m. today, and 'last year at this time' in E388b, which is July if the utterance is made in July this year.

- E388 a. **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 Carrillo.'

- b. **Te** àanyo h màan-o' walakil
 LOC:DEF year PRV pass(B.3.SG)-D2 ISO

káa h bin-en Estàados Unidos-a'.
 káa PRV go-B.1.SG United States-D1

'Last year, it was at about this time that I went to the states.'

In E388a, *walakil ...-a'* is in topic position, immediately preceded by the adverb *sáamal* 'tomorrow' that specifies the calendrical interval within which to interpret *walakil ...-a'*. In E388b, the calendrical interval, *te àanyo h màano* 'last year' is in topic position, whereas *walakil ...-a'* occupies the focus position of the main clause. It follows that the reference of *walakil ...-a'* is "parasitic" on a calendrical interval to whose expression *walakil ...-a'* bears no particular syntactic relationship. The calendrical interval may be mentioned in context or even left to inference entirely. Obviously, the calculation of the subinterval denoted by *walakil ...-a'* within this calendrical interval does not involve event order relations: it is "the same" that is occupied by coding time in the present instantiation of the cyclic calendrical interval.

But secondly, by specifying a temporal location at a calendrical interval isotemporal with coding time, *walakil ...-a'* inevitably implies a definite distance from coding time, and this equation can be reversed. That is, *walakil ...-a'* may be combined with a specification of temporal distance, referring to a location in time at that distance from coding time, but irrespective of its ordering with respect to coding time. Thus, *walakil ...-a'* gives 'a year ago' in E389a and 'in one year (from now)' in E389b.

- E389 a. **Walakil hun àanyo-ak-a'**
 ISO one year-ak-D1

káa h bin-en Estados Unidos.
 káa PRV go-B.1.SG United States

'At this time a year ago, I went to the States.'

- b. *Walakil hun àanyo* chéen xi'k-en Estados Unidos-a'.
 ISO one year only go.SUBJ-B.1.SG United States-D1
 'At this time in a year is (when) I will go to the States.'

Quite ingeniously *walakil* ...-a' thus combines deictic time, anaphoric time and calendrical time, and moreover both location in time and temporal distance, and it manages to do all that without specifying any relation of temporal order.

7.2.2.2. Aspectual adverbs

Adverbs play only a minor role in the expression of aspectuality in YM. Aspectuality is mostly expressed by AM markers and verbs. The present section deals with particles of two different types, lexicalizing continuation and habituality. *Láaili* '...-e' and *p'iiskili* '(yah) ...-e', both glossed 'still', express continuation, which is commonly considered a phasal meaning (cf. §7.1.2). These adverbs combine exclusively with stative predicates (E390) and with verbal clauses marked for progressive AM (E391) (the illustration is restricted to *láaili* '...-e').

- E390. *Le nah-o' be'dora-e' chak, ka'ch-e' láaili*
 DEF house-D2 now-TOP red(B.3.SG) formerly-TOP still
chak xan-e', tuméen chak-ili'-e'.
 red(B.3.SG) also-D3 CAUSE red(B.3.SG)-ID-D3

'The house, right now, it is red, and formerly, it was also red, too, for it is simply red.'

- E391. *Káa t-u k'al-ah-e', le x-ch'úp chak*
 káa PRV-A.3 seal-CMP(B.3.SG)-TOP DEF F-female red(B.3.SG)
u nòok'-o', láaili táan u wèen-el-e' (...).
 A.3 dress-D2 still PROG A.3 sleep-INC-D3

'(When) (the woman in white) sealed (the envelope), the woman with the red dress, she was still sleeping (...)' (Tempest antram II 3/4 a1 7-8)

As E392 shows, *láaili* '...-e' is not sensitive to whether the target event is understood to have been interrupted at TT (as in E392) or not (as in E390).

- E392. *^Pedro-e' las òochò káa t-u chun-ah*
 Pedro-TOP eight.o'clock káa PRV-A.3 start-CMP(B.3.SG)

- u ts'fib-t-ik hun-p'éel kàarta. ^Las dyèes-e'*
 A.3 write-APP-CMP(B.3.SG) one-CL.IN letter ten.o'clock-TOP

- káa h tàal Pablo tsikbal, káa t-u*
 káa PRV come(B.3.SG) Pablo chat káa PRV-A.3

- ch'en-ah u ts'fib-t-ik Pedro. ^Las dyèes i mèedya*
 stop-CMP(B.3.SG) A.3 write-APP-INC(B.3.SG) Pedro ten.thirty

- káa t-u ka' séegir-t-ah u*
 káa PRV-A.3 REP continue-APP-CMP(B.3.SG) A.3

- ts'fib-t-ik le kàarta-o'. ^Las òonse túun-e' káa*
 write-APP-INC(B.3.SG) DEF letter-D2 eleven.o'clock CON-TOP káa

- h tàal uy atan Pedro, káa t-u k'áat-ah*
 PRV come(B.3.SG) A.3 wife Pedro káa PRV-A.3 ask-CMP(B.3.SG)

- uy ohel-t-eh: ^Láaili' táan a*
 A.3 knowledge-APP-SUBJ(B.3.SG) still PROG A.2

- ts'fib-t-ik le kàarta-o'?"*
 write-APP-INC(B.3.SG) DEF letter-D2

- ^Káa t-u núuk'-ah Pedro: ^Láaili'-e'!"*
 káa PRV-A.3 answer-CMP(B.3.SG) Pedro still-D3

'^Pedro, (at) eight he started to write a letter. ^At) ten, Pablo came to chat, (and) Pedro stopped writing (the letter). ^At) ten thirty, Pedro resumed writing the letter. ^So (at) eleven, Pedro's wife came and asked: ^"Are you still writing the letter?" ^And) Pedro answered: ^"(I am) still (writing)!"

The meaning of *láaili* '...-e' and *p'iiskili* '(yah) ...-e' is evidently rooted in the clitic particle *-ili* '...-e' glossed 'ID(entity)' suffixed to *chak-ili* 'just red' in E390. This particle has a wide range of functions. With the emphatic pronoun *leti* 'it' it means 'the same'. Combined with numeric expressions, it restricts the reference to the number lexicalized by the numeral and blocks inferences that the actual number of referents might exceed that number. So, if *n* represents a numeric expression of the magnitude *N*, then *n-ili* '...-e' yields 'only/exactly *N*'. In temporal expressions, *-ili* may be used to indicate immediacy, which may spell out into either overlap (as in E393) or adjacency (E394), similar to the English adverb *just*.

- E393. (...) *táan-ili' u ts'fib-t-ik le-estée-le*
 PROG-ID A.3 write-APP-INC(B.3.SG) DEF-HESIT-DEF

x-ch'úup le kàarta
F-female DEF letter

káa h òok le chak u nòok'-o' (...).
káa PRV enter(B.3.SG) DEF red A.3 cloth-D2

'(...) the-uh-the woman was just writing the letter (when) the red-dressed one entered (...).' (Tempest antram VII 1/3 ram2 20-21)

E394. Estée, ts'o'k-ili' u ts'fib-t-ik le kàarta,
HESIT TERM-ID A.3 write-APP-INC(B.3.SG) DEF letter
káa h tàal le chak u nòok' k-u,
káa PRV come(B.3.SG) DEF red A.3 cloth IMPF-A.3
k-u pàax-o'.
IMPF-A.3 play.music\ATP-D2

'Uhm, (the woman in white) had just written the letter, (when) the red-dressed one that plays (on the guitar) came.' (Tempest antram VI 1/2 ant2 18-19)

Both examples are from the TEMPEST sessions. The particle *-ili' ...-e'* is introduced here, rather than elsewhere in this chapter, because it occurs as an inseparable component of the adverbs *láaili' ...-e'* and *p'iiskili'(yah) ...-e'*.

Let us turn now to the adverbs *sáansáamal*, *máantats'*, *máantakal*, and *masach*, all glossed roughly as 'always', 'all the time', and all indicating, one way or another, habituality. *Sáan-sáamal* is a reduplication of *sáamal* 'tomorrow'. This would hardly explain the closest English translation of *sáansáamal*, 'every day', if *sáam-al* were not understood as a nominalization of *sáam*, which refers to events of the day that includes TT. Recollect from the previous section that *sáamal* was used in Colonial YM to refer to the day following TT, not to the day following coding time. *Sáansáamal* 'every day' is preferentially used with verbal clauses either marked for imperfective AM (as in E395) or formed with the irrealis subordinator *kéen* (replaced by *chéen* 'only' in the topic clause in E396) plus subjunctive. (Notice that in E396, the topic clause *chéen sáasake'* 'as soon as it would dawn' reflects the habitual reference induced by *sáansáamal*, but not the main clause *táan k bin* 'we are leaving'. The reference of the main clause depends entirely on the topic clause. A direct combination of the main clause with *sáansáamal* would be hardly interpretable.)

E395. Pedro-e' *sáan-sáamal-e'* le k-u ts'o'k-ol u
Pedro-TOP RED-tomorrow-TOP DEF IMPF-A.3 end-INC A.3

háan-al-e', k-u xok-ik le periyòodiko-o'.
eat-INC-TOP IMPF-A.3 read-INC(B.3.SG) DEF newspaper-D2

'Pedro, every day, (when) he would have finished eating, he would read the paper.'

E396. *Sáan-sáamal-e'*, komoke te ràancho-o',
RED-tomorrow-TOP [because LOC:DEF ranch(B.3.SG)]s-D2

chéen *sáas-ak-e'*, táan k bin.
only dawn-SUBJ(B.3.SG)-TOP PROG A.1.PL go

'Every day, because it was on a farm, as soon as it would dawn, we would be leaving (to start working).' (Bio ram 23)

The adverb *máantats'*, in contrast, goes primarily with stative predications and may be translated as 'always', 'usually', 'normally' or the like. The evidence concerning *máantakal* and *masach* is scanty, but suggests that they behave similarly to *máantats'*.¹⁸⁷

E397. Le ha' ka'ch-il-a' *máantats'* chokol, ba'l-e'
DEF water formerly-REL-D1 always hot(B.3.SG) thing-TOP

behe'la-ak-e' sfis.
today-ak-TOP cold(B.3.SG)

'The water (in this lake) here formerly, it was always hot, but today, it is cold.' (Tama 30)

7.2.3. Adverbial noun phrases

This is the right point to introduce the calendrical lexicon of YM. As mentioned in §3.1.2, the ancient Mayan calendar has been replaced throughout the Yucatecan peninsula by the Gregorian calendar, and in general, all calendrical units used

¹⁸⁷ It should also be mentioned here that custom is expressed by the stative predicate *sùuk*, its inchoative *sùuk-tal*, and the irregular resultative *sùuk-a'n* 'to be accustomed'. *Sùuk* was rejected as a habitual AM marker in §4.2.1.4. Although pragmatically related to *sáansáamal*, *máantats'* etc., *sùuk* and its derived forms are not dealt with here, because they are not adverbs.

nowadays by speakers of YM are time units of a Western format. Thus, times located with reference to the clock cycle, weekdays and dates are expressed by words and constructions borrowed from Spanish. The examples below show that these intervals are expressed as adverbial noun phrases, i.e. without a preposition, independently of whether they occur in core-final position, such as *las sèeys i kwàarto* 'at six fifteen' in E398 and *lùunes* 'on Monday' in E399, or as predicates in focus position as *hùulyo milnòobesèetossesèentainwèebe* 'in July 1969' in E400, or as topics such as *las dyèes i mèedya* 'at half past ten' in E401.

E398. Káa h máan-en t-uy iknal Pedro
káa PRV pass-B.1.SG LOC-A.3 at Pedro

las sèeys i kwàarto-e', táant u hàan-al leti'.
a. quarter.past.six-TOP IMM A.3 eat-INC it

'(When) I passed by Pedro's (at) six fifteen, he had just eaten.'

E399. Te semàana h màan-o',
LOC:DEF week PRV pass(B.3.SG)-D2

Pedro-e' yan u bin Carrillo lùunes.
Pedro-TOP OBL A.3 go Carrillo Monday

'Last week, Pedro, he had to go to Carrillo (on) Monday.'

E400. Hùulyo milnòobesèentos+sesèenta+i+nwèebe káa h hóok'-en.
July nineteenhundred+sixty+and+nine káa PRV exit-B.1.SG
'It was (in) July 1969 (when) I left [school].' (Bio em 68)

E401. Las dyèes i mèedya-e' kap' u k'áax-al
half.past.ten-TOP káa:PRV:begin(B.3.SG) A.3 fall-INC

túun k'a'm-kach ha' Carrillo.
CON loud-INTENS water Carrillo

'So (at) half past ten, heavy rain began to fall in Carrillo.' (Rox ant 16)

There is only one domain in which native intervals persist, namely expressions of time-of-day, though these are in competition with Spanish terms, which are used with clear preference especially by younger speakers. The inventory includes the terms given in F47.¹⁸⁸

¹⁸⁸ Speakers of YM also distinguish among several seasonal terms. The dry season is partitioned into a cooler part lasting approximately from November until February and a

F47. YM time-of-day terms

Term	Gloss	Translation	Comments
(húul+)'pirima'	(irradiate\ACAUS+) early.morning	'(crack of) dawn'	
húul+ha'tskab	irradiate ACAUS+early	'sunrise'	
ha'tskab(+k'iin)	early(+sun)	'early mor- ning'	
chúun+k'iin	startACAUS+sun	'morning'	
chúumuk+k'iin	center+sun	'noon'	
chún-il+k'iin	tiltACAUS-INC+sun	'afternoon'	
òok+k'iin	enter+sun	'sunset'	often used synonymously with <i>òoka'nk'iin</i>
òok-a'n+k'iin	enter-RES+sun	'dusk'	the time between <i>òok k'iin</i> and <i>e'saméen</i>
e'same'n	black?:RES	'nightfall', 'night'	
áak'ab	night	'night'	
ahab(-il)	wake.up?(-REL)	'between midnight and dawn'	(for some speakers synonymous with <i>áak'ab</i>)
≈ chúumuk+áak'ab	center+night	'midnight'	

hot part, *yáax k'iin* 'first sun' covering the time until the beginning of the rainy season in May. The "cold" time is called (*ich*) *ke'l'il* '(in) the cold', or *xaman+ka'n(-il)* north+sky(-REL) '(the time of the) northern sky'. The transition between the rainy season, *ha'-ha'l'il* RED-water:REL, and the dry season, covering roughly the months of September and October, is sometimes called *u k'iin-il u ba'teh iik* 'the time the winds fight', as it may already show the impact of the northern, but is also the season of tropical storms and hurricanes originating in the Caribbean Sea. In the cycle of slash-and-burn agriculture, *yáax k'iin* is the time of clearing and burning, *ha'-ha'l'il* the time of planting and (*ich*) *ke'l'il* the time of the harvest, provided the harvest has survived the stormy season. However, the expressions mentioned are used only for reference to the seasons, their weather conditions, and the occupations people typically engage in as a consequence of the weather conditions. The seasonal terms are not used to identify calendrical periods as temporal locations of events which are conceived of as independent of the season.

Some of these expressions have alternative realizations fused with the *-(he)ak* suffix (cf. §7.2.1), such as *òoknahk' iin(ak)* < *òok-a'n-ak + k' iin(ak)* and *áabeak* < *áak' ab-heak*. All items listed in F47 can be categorized as nouns by virtue of their being capable of occurring as heads of numeral phrases, as in *hun-p' éel áak' ab* one-CL.IN night 'one night'. The examples below show that the non-metrical time-of-day terms are combined with the general preposition *ti* when used in isolation and marked as definite (*ti* is blended with the definite marker *le* in E402), but they are framed as adverbial noun phrases when used indefinitely, as in E403, or when in apposition with another calendrical interval, as in E404. E405 shows an occurrence of a time-of-day term as a predicate, i.e. a time-of-day term in focus position. In all instances E403 to E405, an alternative construction with the general preposition *ti* is possible, though not preferred, while in E402, the construction with *ti* is obligatory.

- E402. *Hach máan ka'n-a'n-en, tuméen desde káa h*
 really INTENS tire-RES-B.1.SG CAUSE since káa PRV

líik'-en te ha'tskab+k' iin-a',
 lift/CAUS-B.3.SG LOC:DEF early+sun-D1

pùuro mehen+hàan-al k-in mèet-ik.
 pure make.ATP+eat-INC IMPF-A.1.SG make-INC(B.3.SG)

'I'm really very tired, because ever since I got up this morning, only cooking is what I have been doing.' (Proga 81)

- E403. *Hun-p' éel e'saméen-ak-e'*
 one-CL.IN star:earlier.today:RES-ak-TOP

h tàal Pedro u xímbat-en.
 PRV come(B.3.SG) Pedro A.3 walk:APP-B.1.SG)

'One night, Pedro came to visit me.' (Sat)

- E404. *Ho'lheak áabeak-e' ma' h wéen-en-i'.*
 yesterday night:ak-TOP NEG PRV sleep-B.1.SG-D4
 'Last night, I did not sleep.' (Lex)

- E405. *Behe'la-a' hach húul+pirima'*
 today-D1 really irradiate/CAUS+early.morning

káa h líik'-en meyah.
 káa PRV lift/CAUS-B.1.SG work

'Today, it was really at the crack of dawn (when) I got up to work.' (Lex)

In addition to located intervals, a calendrical system also comprises pure duration units. Loan terms prevail in this area, too, in YM, cf. *miniuto* 'minute', *òora* 'hour', *diya* 'day', *semàana* 'week', *mèes* 'month', *àanyo* 'year', *dekàada* 'decade'. Competing expressions of native origin are *k' iin* 'sun' (for days), the mostly outdated *ha'b* 'year' and the obsolete *uh* 'moon' for the lunar month. Units of metrical time in general serve three different purposes: they measure the duration of an interval (cf. *within/for three days/weeks/years*), or its metrical distance from a given reference point (cf. *in three days/weeks/years, three days/weeks/ years ago/before/earlier/later*), but they can also be located in time themselves (cf. *last/next week/year*). YM offers predicates to accomplish all three functions. These were briefly discussed in §7.1.3. Aside from that, the duration of an interval or its distance from topic time can also be stated by adverbial noun phrases and prepositional phrases. Prepositional phrases expressing temporal distance or duration are at issue in the following section. Below, some examples of adverbial noun phrases denoting the duration or distance of an interval are given. *Kiinse diyas* 'fifteen days' in E406 may be interpreted as expressing either distance or duration, depending on whether the target event is understood to be punctual ('A newborn pup opens its eyes *after* fifteen days') or durative ('A newborn pup opens its eyes *within* fifteen days'). In E407a, the same expression *kiinse diyas* is used to denote a metrical distance of fifteen days in the future of coding time (*in fifteen days*), whereas in E407b, *kiinse diyas* refers to the duration of an interval located in the future of coding time (the distance interpretation is excluded by the locational adverbial *te mèes ku tàalo* 'next month'). In E408a, the adverbial noun phrase *kiinse diyas* is used to express a distance of fifteen days past coding time (*fifteen days ago*). A duration reading is ruled out by the presence of the duration specification *Tu bisah tèen chéen óox-p' éel k' iin* 'It took me only three days'. In E408 in turn, *kiinse diyas* measures the duration of a past time interval, while a distance interpretation is discarded due to the locational adverbial *te àanyo h màano* 'last year'. In E407, and especially in E408, the prepositional occurrence *ichil ti' kiinse diyas* is somewhat preferred over the use of the bare noun phrase. The point to be made here is that no matter whether or not a preposition is used, there is neither a segmental nor a constructional distinction of the expression of duration from that of temporal distance. Nor is the expression of temporal distance accompanied by any segmental or constructional specification of a temporal relation that gives the "direction" in which to measure the distance, as it were. The second point is revealed by a comparison of E407a with E408a.

- E406. **Kiinse diiya-s-e'** k-u p'fil-il uy ich.
 fifteen day-PL-TOP IMPF-A.3 open-INC A.3 eye
 '(A new born pup) opens its eyes after fifteen days.' (Fcp 34)

- E407 a. Le meyah he'l-a' h ts'o'k hun-p'éeel semāana
 DEF work PRSV-D1 PRV end(B.3.SG) one-CL.IN week

kāa t chun-ah,
 kāa PRV-A.1.PL start-CMP(B.3.SG)

i he' k ts'o'k-s-ik **kiinse diiya-s-e'**.
 and ASS A.1.PL end-CAUS-INC(B.3.SG) fifteen day-PL-D3

'This work here, it is a week ago that we started it, and we will finish it in fifteen days.'

- b. Le meyah he'l-a' yan k chun-ik
 DEF work PRSV-D1 OBL A.1.PL start-INC(B.3.SG)

te mēes k-u t̃aal-o',
 LOC:DEF month IMPF-A.3 come-D2

i he' k ts'o'k-s-ik **kiinse diiya-s-e'**.
 and ASS A.1.PL end-CAUS-INC(B.3.SG) fifteen day-PL-D3

'This work here, we will start it next month, and we will finish it within fifteen days.'

- E408 a. Le meyah he'l-a' t-in mēet-ah
 DEF work PRSV-D1 PRV-A.1.SG make-CMP(B.3.SG)

(ichil ti') **kiinse diiya-s**.
 in LOC fifteen day-PL

T-u bis-ah tēen chēen óox-p'éeel k'lin.
 PRV-A.3 go:CAUS-CMP(B.3.SG) me only three-CL.IN sun

'This work here, I did it fifteen days ago. It took me just three days.'

- b. Le meyah he'l-a' t-in mēet-ah
 DEF work PRSV-D1 PRV-A.1.SG make-CMP(B.3.SG)

(ichil ti') **kiinse diiya-s** te àanyo h m̃aan-o'.
 in LOC fifteen day-PL LOC:DEF year PRV pass(B.3.SG)-D2

'This work here, I did it in fifteen days last year.'

7.2.4. Prepositional phrases

Prepositional phrases are used in YM mainly in constructions dealing with calendrical time. That is to say, prepositional phrases are used only marginally to anaphorically trace events in the discourse representation (cf. English *After that, she never talked to him again*), or to subordinate nominalized clauses that express reference events (cf. *After his remark about her opinions, she never talked to him again*). There is some anaphoric temporal usage of the basic prepositions *ti'* and *ich(il)*. These constructions are dealt with as temporal connectives in §7.3.6. The only other relevant use of prepositional expressions in non-calendrical time reference involves the relational nouns *tāan* 'forehead', 'front' and *p̃aach* 'back(side)', 'surroundings'. The temporal expressions derived from *tāan* and *p̃aach* are discussed first in this section. Then, the use of prepositions in calendrical reference is dealt with.

Tāan 'forehead', 'front' is used in combination with the relational suffix *-il* as an adverb referring to the first event in a sequence.

- E409. **Tāan-il-e'** t-in p'at-ah in
 front-REL-TOPPRV-A.1.SG leave-CMP(B.3.SG) A.1.SG

kāal-tal, bisyo leti' domināar-t-ik-en ka'ch-il.
 intoxicated-PROC.INC vice it dominate-APP-INC-B.1.SG formerly-REL

Despwes¹⁸⁹ chamal, k'úuts.
 afterwards cigarette tobacco

'First, I quit drinking, the vice that had been dominating me. Afterwards cigarettes, tobacco.' (Hijo 31-32)

Tāan-il is thus used to express event order, but it does not lexicalize a two-place event order relation. *Tāan-il* is a one-place operator that indicates the first event in a sequence, but does not specify with respect to which other event(s) the target event is the first. The claim that event order is not lexicalized in YM, with some marginal exceptions, is restricted to two-place event order relations, and is therefore not affected by the semantics of *tāan-il*.

¹⁸⁹ The use of temporal connectives borrowed from Spanish, such as *despwes*, is discussed in §8.

Aside from referring to the first event in a temporal sequence, *táan-il* is used to express prematurity of events, in particular in compound verbs such as of the type *táan-il+pàak'al* front-REL-plant\ATP 'to plant prematurely'. Similarly, *pàach-il* is used to express belatedness, e.g. *pàach-il+pàak'al* back-REL+plant\ATP 'to plant belatedly'.

Táanil and *pàachil* represent the closest YM comes to an instance of spatial metaphors in the expression of event order (cf. Bohnemeyer 1997). Moreover, since they are the equivalent of words that are grammaticalized as expressions of event order in so many different languages across the globe, *táanil* and *pàachil* also need to be discussed in connection with Wierzbicka's hypothesis that equivalents of English *after* and *before* are semantic primitives and lexical universals. Goddard & Wierzbicka (1994: 54) offer a number of 'canonical contexts' as diagnostics of 'after' and 'before':

- E410 a. They live in X now. Before this, they lived in Y.
 b. After this, she got very sick.
 c. X was born before/after Y.

Of these, the first two are translated in YM by use of phasals, aspectuals and modals, without any ordering relator appearing.¹⁹⁰ Only the last type of sentence is different. Most consultants prefer a rendition that makes use of the phase verb *ts'o'k* 'to end' in the translation of *after* (E411) and of the construction negation plus subjunctive in the translation of *before* (E412).

- E411. Yáax *táan-il-e'* Pedro h sfi'h-ih. Káa h ts'o'k-e',
 small front-REL-TOP Pedro PRV be.born-B.3.SG káa PRV end(B.3.SG)-TOP
 káa h sfi'h Pablo. Káa h ts'o'k-e',
 káa PRV be.born(B.3.SG) Pablo káa PRV end(B.3.SG)-TOP

¹⁹⁰ Context E410a may also be translated using the deictic adverb *ka'ch* 'formerly', one of the few exceptional instances of (lexical) time relators in YM. In Wierzbicka's framework, *ka'ch* may be rendered as 'before now'. Notice, though, that in a semantic metalanguage based entirely on YM itself, there would be no way to extract a 'before' component out of the monomorphemic *ka'ch*. Taking *ka'ch* as the exponent of 'before' in YM would thus clearly violate the principle of 'Expressive Equivalence' of all exponents of a presumed semantic primitive across languages (Goddard 1994: 12). The most natural YM rendition of E410c does not actually make reference to events at all, but instead simply uses the terms *suku'n* 'older brother' (or *kikik* 'older sister') and *its'in* 'younger sibling'.

káa h sfi'h José, h-t'u'p.
 káa PRV be.born(B.3.SG) José M-youngest.sibling(B.3.SG)

'First of all, Pedro was born. (When) this ended, Pablo was born. (When) this ended, José was born, the youngest one.'

E412. Ma' sfi'h-ik José-e', káa h sfi'h Pablo.
 NEG be.born-SUBJ(B.3.SG) José-TOP káa PRV be.born(B.3.SG) Pablo

Ma' sfi'h-ik Pablo-e' káa h sfi'h Pedro.
 NEG be.born-SUBJ(B.3.SG) Pablo-TOP káa PRV be.born(B.3.SG) Pablo

'José was not born (yet), (and) Pablo was born. Pablo was not born (yet), and Pedro was born.'

However, at the same time most of the consultants accept the following rendition:

E413 a. Pedro-e' h sfi'h *táan-il* ti' Pablo,
 Pedro-TOP PRV be.born(B.3.SG) front-REL LOC Pablo

Pablo-e' h sfi'h *táan-il* ti' José.
 Pablo-TOP PRV be.born(B.3.SG) front-REL LOC José

'Pedro was born first (lit. in front) with respect to Pablo, Pablo was born first (lit. in front) with respect to José.'

b. Pablo-e' h sfi'h *pàach-al* ti' Pedro,
 Pablo-TOP PRV be.born(B.3.SG) back-REL LOC Pedro

José-e' h sfi'h *pàach-al* ti' Pablo.
 José-TOP PRV be.born(B.3.SG) back-REL LOC Pablo

'Pablo was born last (lit. behind) with respect to Pedro, José was born last (lit. behind) with respect to Pablo.'

Literally, *táanil ti'* and *pàachil¹⁹¹ ti'* in E413 may be translated as 'first/last with respect to'. Wierzbicka (1994: 485) argues that 'it is clear that while in the case of a first-born child it may be difficult to distinguish these two meanings (BEFORE

¹⁹¹ Instead of *-il*, the relational suffix is realized as *-al* with *pàach* in E413. In Colonial YM, the relational suffix underwent vowel harmony whenever the function of the suffix was 'abstraction' (according to Smailus 1989: 111). *Pàach-al* may be a frozen relic of this abstracting derivation, in alternation with the regular *pàach-il*. It remains to be ascertained whether this form is restricted to uses in the temporal domain (E413 is the only instance of this form in the corpus).

and 'first'), in a case of a second or third child the word traditionally glossed in a given linguistic tradition as 'first' must in fact mean BEFORE." This point applies to *táanil ti'*, but not to *táanil* alone. At least some of the consultants accepted 'A was born *táanil ti'* B and B was born *táanil ti'* C', while all consultants rejected *'A was born *táanil* B', and even more the continuation *'... and B was born *táanil* C'. Wierzbicka might thus want to claim *táanil* to mean 'first' and *táanil ti'* to mean 'before'. However, *ti'* is just the kind of semantically maximally pale general preposition typical of Mayan and other Mesoamerican languages (cf. Kaufman 1990: 78). *Ti'* combines with noun phrases expressing a range of functions from any sort of spatial ground object (without distinguishing any source, goal or locative relation) to possessors, recipients, beneficiaries, and experiencers. It seems fair to say that the core function of this element simply consists in establishing a non-specific relationship between a predicate and a (non-deictic) adjunct. There appears to be no reason not to analyze *táanil ti'* in a straightforward compositional fashion as 'first with respect to'. Wierzbicka's stipulation that 'first' can only name the absolutely first event in a temporal sequence, no matter what part of that sequence is even coded, does not seem to apply to YM.

Notice furthermore that the temporal use of *táanil* and *pàachil* is limited to the contexts discussed so far. *Táanil* and *pàachil* are never combined with embedded verbal cores, and, except for the translation shown in E413 and the other two contexts mentioned before, they do not figure at all in the corpus of the present study.

Let us now turn to the utilization of prepositional phrases with calendrical intervals. Prepositional phrases occur with all subdomains of calendrical time reference, i.e. with time-locational specifications, as well as with specifications of duration and distance from topic time. The main aim of this section consists in showing that the prepositions used to fulfill these functions cannot be analyzed as encoding event order relations. This was already shown in the previous section with respect to the complex preposition *ichil ti'* used with extension expressions. For example, a phrase such as *ichil ti' k'inse diiyas* in LOC fifteen day:PL can be used to mean 'for/within fifteen days', 'in fifteen days (from now)', 'fifteen days ago', or 'fifteen days earlier/later'. In this section, the two components of this complex preposition, *ti'* and *ich(il)*, are dealt with.

It has been said that *ti'* is combined with time-of-day expressions whenever these are definite noun phrases and not in apposition with a definite calendrical expression which may occur by itself without *ti'*. Similar is the occurrence of *ti'* with calendrical expressions which by themselves lexicalize only duration, but which are used in the construction with *ti'* to refer to a definite time-location interval. This concerns nouns such as *semàana* 'week' in E414 and *àanyo* 'year' in E415. When such duration terms are used in reference to a temporal location, the duration interval is mapped onto the calendrical scale, and the duration term no longer designates *any* interval of the particular length, but a member of the ordered set of days, weeks, months, etc. that follow each other in the calendar. In order to make the expressions refer to a definite locational interval, one instance out of this ordered set of days, weeks, etc. has to be sorted out with respect to topic time TT. To this end, the determiner *he'l* 'other' is used in E414. In temporal contexts, *he'l* comes to mean 'next', i.e. it selects the instance of the particular interval that follows the instance that includes TT (in E414, this is the week following TT, and TT is coding time). In E415, the verb *máan* 'pass' is used, marked for perfective AM, to single out the year preceding topic time (which is again understood to be determined by coding time), literally the year that 'had passed' at TT (a calque from Spanish *el año pasado*). A similar strategy is the use of the motion verb *tàal* 'come' marked for imperfective AM to designate the instance of the interval named by the calendrical noun that follows TT. This use of *he'l*, *máan* etc. does not require an analysis in terms of event order relations, since they do not express a relationship between events, but only determine an instance of a calendrical interval with respect to TT. As the examples show, phrases formed with calendrical duration terms by the strategies outlined require the general preposition *ti'*.

E414.	Chéen	xi'k-ech	Chétumal t-u	he'l	semàana-o',
	only	go.SUBJ-B.2.SG	Chétumal LOC-A.3	other	week-D2
	hay-p'éel	k'iin	kéen	a	mèet-eh?
	how.many-CL.IN	sun	SR.IRR	A.2	make-SUBJ(B.3.SG)

'When you go to Chétumal next week, how many days are you going to spend?'

E415.	Te	àanyo	h	máan-o'	h	p'áat-o'n
	LOC:DEF	year	PRV	pass(B.3.SG)-D2	PRV	leave(AUS-B.1.PL)

mas ti' hun-p'ée! mées tu kàah-il Tulum.
 more LOC one-CL.IN month LOC:A.3 town-REL Tulum.

'Last year, we stayed (for) more than a month in the town of Tulum.'

Ti' is also used when time-locational units are formed according to the possessive pattern 'day/month/year of', which represents a stylistic variant in (primarily written) Spanish of the simpler construction in which the calendrical unit itself forms the head of a noun phrase. Compare E416a (the possessive construction, lit. 'the month of August') with E416b, the simpler construction with the bare noun phrase *agòosto* '(in) August'. E417 illustrates the possessive construction with date phrases.

E416 a. H tàal-en way t-u mées-il agòosto-e'.
 PRV come-B.1.SG here LOC-A.3 month-REL August-D3
 'I came here in the month of August.'

b. H tàal-en way agòosto-e'.
 PRV come-B.1.SG here August-D3
 'I came here in the month of August.'

E417. H sfih-en (t-u k'iin-il) beeyntiòcho
 PRV be.born LOC-A.3 sun-REL twentyeight

t-u mées-il febrèero.
 LOC-A.3 month-REL February

'I was born on the 28th of February.'

The final subdomain of calendrical reference that features *ti'* is clock-time specifications. These normally occur as bare noun phrases without a preposition; examples are E398 and E401 above. The only exception to this generalization comes from uses of clock-time specifications to locate the initial or terminal boundary of the target event, rather than the target event itself. In Indo-European languages, event-order relators are used to this end, e.g. in English the pair *from-to/until*. YM does not have any expression that fulfills this requirement. Instead, the preposition *ti'* is used to mark both the initial and the terminal boundary of the target event.

E418. Leti'-e' h xòok-nah ti' las dòos tak astàa
 it-TOP PRV read\ATP-CMP(B.3.SG) LOC two.o'clock even until

las sèeys, t-u xok-ah le pèeriyodiko te
 six.o'clock PRV-A.3 read-INC(B.3.SG) DEF newspaper LOC:DEF

las sèeys ti' tak las syèete, káa h hãan-ih,
 six.o'clock LOC even seven.o'clock káa PRV eat-B.3.SG

ti' las syèete ti' tak las òocho-i',
 LOC seven.o'clock LOC even eight.o'clock-D4

káa túun h bin túun leti' t-u kàama.
 káa CON PRV go(B.3.SG) CON it LOC-A.3 bed

'As for him, he studied from two to six, he read the paper from six to seven, then he had dinner, between seven and eight, and then he went to bed.' (Proga 72)

In E418, *ti'* partly alternates and partly combines with the adverb *tak* 'even'. The role of this adverb in time reference merits a brief clarification. In E419, the adverb *tak* is used in direct translation of Spanish *desde* 'since'. However, *tak* is also used in the same utterance to translate the converse relation *hasta ahora* 'until now'. *Tak* does not actually convey any particular inter- or intra-propositional relation; it is rather a general marker of "extreme points". It can be used to indicate the source or goal location in a motion event (e.g. *H binen tak México* 'I went as far as México'), the maximum extension or quantity of (sets of) objects (*tak syèete mèetros* 'up to seven meters') or, for instance, an unexpected (and in that sense extreme) extension of a set of referents involved in a particular proposition, or the unexpectedness of that proposition itself (e.g. *Tin kanah tak éespanyol* 'I learned even Spanish', or 'I even learned Spanish'). On a monosemous account, the last-mentioned reading should be considered the core function of *tak*, the more specific readings involving implicatures in specific contexts.

E419. Tak káa h sùut-nah t-u ts'don-è'
 even káa PRV turn\ATP-CMP(B.3.SG) LOC-A.3 shoot\ATP-TOP

tak be'dora ma' wèen-ek-en-a'.
 even now NEG sleep-SUBJ-B.1.SG-D1

'(Since) he returned from hunting, (until) now I have not slept.' (Cont 7)

Now, returning to *ti'*: Obviously, if *ti'* is used to mark both the initial and the terminal boundary of events, as in E418, it cannot distinguish them, and consequently, it does not behave like the English event order relators *since*, *from*, *to*, *until*, etc. that are used in such contexts. It should be clear that examples such as

E418 and E419 are highly artificial. In the corpus of this study, they occur only in translations. Since YM does not have any semantic equivalents of *since*, *from*, *to*, *until*, etc., separate location of both the initial and the terminal boundary of the target event is not done in one clause in spontaneous YM discourse, but in two subsequent predications. Consider E420, elicited as a translation of (the Spanish equivalent of) 'I only slept as long as Pedro was out hunting.'

E420.	Tèen-e'	chéén	káa	h	hóok'	Pedro-e',
	me-TOP	only	káa	PRV	exit(B.3.SG)	Pedro-TOP
	káa	h	wèen-en	hun-p'ít.	Le	káa
	káa	PRV	sleep-B.1.SG	one-bit	DEF	káa
						h
						k'uch
						arrive(B.3.SG)
	Pedro	káa	t-uy	ah-s-ah-en.		
	Pedro	káa	PRV-A.3	awaken-CAUS-CMP-B.3.SG		

'Me, only (when) Pedro left (lit. exited), I slept a little. (When) Pedro returned (lit. arrived), (and then) he woke me up.' (Cont 8)

Often, as in E421, both boundaries are referred to using phase verbs.

E421.	Pwes,	chéén	y-a'l	las dyèes-e',	pwes	hi'n
	well	only	A.3-say(B.3.SG)	ten.o'clock-TOP	well	ASS:A.1.SG
	wats'-ik		tak	hun-k'àan	wáal-e',	tak
	bend-INC(B.3.SG)	even	one-mecate	SUP-TOP		even
	las òonse-e',	pwes,	k-in	ka'	chun-ik	
	eleven.o'clock-TOP	well	IMPF-A.1.SG	REP	start-INC(B.3.SG)	
	u	lák'	Tak	las dòose	wáal-e',	
	A.3	other	even	twelve.o'clock	SUP-TOP	
	hi'n	p'at-ik	ka'-téen-e' (...)			
	ASS:A.1.SG	leave-INC(B.3.SG)	two-times-D3			

'Well, at (lit. as soon as it says) ten, well I'll probably bend one *mecate*, at eleven, well, I start another one. At twelve, probably, I'll stop again (...)' (Entrevis RMC & SBM 210-212)¹⁹²

The only remaining question to be answered by the analysis is whether the use of *ti'* with locational calendrical expressions such as in E414 and E415 above (and it may be safely assumed that *ti'* fulfills actually no other function in E418) involves at least an event order relation that relates the target event to the calendrical interval. There are three relevant points to be considered in connection with this question. First of all, even if the answer were to be affirmative, that would not damage the overall argumentation of the study, since the study asks for the expression of relations that locate the target event in time with respect to another event (including coding time), and not for relations that locate an event with respect to a calendrical interval. Secondly, it is not at all clear in theoretical terms whether event order relations are needed to account for the simple operation of providing an event expression with a time index. Of course, it is *possible* to represent pairs of events and time indices by locational relationships that locate the event within the calendrical interval, and presumably Indo-European languages have a bias for this strategy, as they provide primarily spatial relators such as *in* (*July*), *on* (*Monday*) and *at* (*noon*) to this end. However, on theoretical grounds, it seems that the representation of calendrical time indices does not actually require locational relations (in particular, event order relations), since calendrical indices to not really involve any ordering of the event with respect to the calendrical interval. But thirdly, there are independent grounds to believe that *ti'* does not lexicalize a locative relation even in spatial reference. It seems that *ti'* basically functions as an unspecific adverbializer which does not actually distinguish any particular semantic relation obtaining between the adverbial and the verbal core or clause (cf. §4.1).¹⁹³

Finally, the construction of the simple preposition *ich* with extension terms needs to be addressed. *Ich* occurs in the same contexts and with the same semantic behavior as the complex preposition *ichil ti'* discussed in the previous section. Consultants prefer *ichil ti'* over *ich*, while *ich* seems to occur with higher fre-

¹⁹² The ripe corn cobs are 'bent' down in order to protect them against windbreak, while one waits for the bean plants to ripen too before corn and beans are harvested at once (the bean stalks are supported by the maize plants while growing). A *mecate* is a unit of square measure used throughout Mesoamerica; it corresponds to about 400 square meters.

¹⁹³ And see in particular Bohnemeyer (1997), where it is argued that prepositions such as *ti'* and *ich(il)* and relational nouns such as *táan* 'frontside' and *pàach* 'backside', 'surroundings' do not lexicalize locative or 'path' relations (in the sense of Jackendoff 1983: 161-170 and Talmy 1972, 1985, 1991) even when used in spatial reference, but only serve to designate particular spatial *regions* of the referential ground, and hence are not likely grammaticalization sources of event order relators anyway.

quency in western YM sources.¹⁹⁴ E422 shows an example with *ich* expressing pure duration. In E423 and E424, *ich* combines with an extension phrase that expresses the distance of a future target event with respect to TT (which is understood to be coding time in both examples). The construction in E424, with the irrealis subordinator *kéen*, is preferred by the consultants; E423 is from a western YM source. In E425, *ich* is used to measure the distance of a past event to TT (which equals again coding time).

E422. K-u páah-tal a k'uch-ul
IMPF-A.3 be.possible-PROC.INC A.2 arrive-INC

ich ka'-p'éel òora xfimbai-il.
in two-CL.IN hour walk-REL

'You can get there in two hours walking.' (BVS 8.1.6)

E423. Pwes to'n-e' *ich* ts'e'ts'ek k'iin k hóok'-ol.
well us-TOP in a.few sun A.1.PL exit-INC
'Well, as for us, in a few days we will leave.' (BVS 8.1.32)

E424. Pwes to'n-e' *ich* ts'e'ts'ek k'iin kéen hóok'-ok-o'n.
well us-TOP in a.few sun SR.IRR exit-SUBJ-B.1.PL
'Well, as for us, in a few days we will leave.'

E425. Pwes to'n-e' *ich* ts'e'ts'ek k'iin hóok'-ok-o'n.
well us-TOP in a.few sun exit-SUBJ-B.1.PL
'Well, as for us, a few days ago we left.'

Ich does not distinguish between the function of expressing duration, the function of expressing distance to past events, and the function of expressing distance to future events, just as was shown with respect to *ichil ti'* in the previous section. The difference between reference to past events and reference to future events is reflected by the construction. All examples instantiate the time focus construction introduced in §4.2.1.5 (there are corresponding unfocused *ich* constructions with identical time reference in all instances). However, neither of the constructions expresses by itself past or future time reference. The occurrence of E425, with the verbal core inflected for subjunctive status, expresses perfectivity (cf. §6.1.2); the restriction that excludes future time reference with this construction simply instantiates the Modal Commitment Constraint formulated in §6.2.1.1. The con-

struction *kéen* plus subjunctive in its turn is not restricted to future time reference, but also occurs with habitual and generic reference (cf. §7.3.5).

As already mentioned in §5.1.2.4, the indiscriminateness of *ich(il ti')* with respect to event order relations may explain why, when heading duration or time-span adverbials, *ich(il ti')* is not sensitive to the telicity of the predicate. In Indo-European languages, relators that are used to form time-span adverbials (such as English (*with*)*in*, German *in(nerhalb von)*, Spanish *en*) typically do express (simultaneous) event order. Time-span adverbials appear to locate the target event in the time interval they denote, which gives rise to the entailment that the event time does not *exceed* that interval, and the implicature that it is identical to the interval (cf. *I wrote that book in two months. In fact, I did it in seven / *nine weeks*). The application of the containment relation presupposes that the target event has a 'quantized' structure (i.e. definite, if unspecified, boundaries), which explains the restriction to telic predicates (cf. Krifka 1992, 1998). Since *ich(il ti')* does not express event order, it occurs indiscriminately in time-span and duration adverbials, and thus is insensitive to the telicity of the predicate.

7.3. TEMPORAL CONNECTIVES

7.3.1. Preliminary remarks

The discussion of the grammar of time reference in YM is rounded up going back to the issue of temporal connectives. It was pointed out in §4.2.2 that YM has no subordinating or anaphoric conjunctions that express two-place relations of event order. However, YM does have a special kind of morphemes and phrases that occur in clause-initial position and whose function it clearly is to serve in the establishment and maintenance of temporal coherence. These elements are sensitive to aspectual and modal properties of the clause, and it is argued that they represent semantically one-place connectives that further adjust the aspectual and modal semantics of the clause to particular discourse structures.

7.3.2. The perfective connective *káa*

It was established in §4.2.2 that YM lacks temporal connectives expressing event order relations, such as English *after(wards)*, *before(hand)*, (*mean*)*while*. YM

¹⁹⁴ The main source of evidence is Blair & Vermont-Salas (1965-67).

does, however, show temporal connectives. First, it borrows temporal conjunctions and adverbs from Spanish. These loan connectives are, however, only optionally used, the remaining “purely native” system being functionally entirely complete. Hardly any borrowed time relators occurred during the TEMPEST sessions (cf §3.2.3). Moreover, there is a striking amount of calquing of non-time-relational semantics onto the loan relators, which can be explained as semantic adaptations of the source connectives to the different temporal discourse structure of YM (cf. §8). But secondly, the language has some semantically one-place connectives (even though the notion of ‘one-place connective’ seems to be a contradiction in terms).¹⁹⁵ Semantically, these elements behave like aspectual and modal operators, but are distinguished from the pre-verbal AM markers and the status suffixes by their clause-initial position. Just like temporal connectives in Indo-European languages, they are only used with a topic time determined in the discourse representation, not with reference to the speech situation. One of these elements is *káa*, illustrated in E426.

E426.	Pwes,	<i>káa</i> t-u		mach-ah		u		bèeh-el	
	well	<i>káa</i> PRV-A.3		seize-CMP(B.3.SG)		A.3		way-REL	
	le	xib+pàal-o’,	<i>káa</i> h	bin		y-éetel		uy	
	DEF	male+child-D2	<i>káa</i> PRV	go(B.3.SG)		A.3-with		A.3	
	a’l-a’l	péek’-o’b-o’.							
	say-PASS.INC	dog-PL-D2							
	<i>Káa</i> h	k’uch	t-u	hòol	hun-p’éel	kàah	(...).		
	<i>káa</i> PRV	arrive(B.3.SG)	LOC-A.3	aperture	one-CL.IN	live			

‘Well, and the boy hit the road, and he made his way with those would-be dogs. And he came to the entrance of a village (...).’ (Smailus 1975: 173).

Káa occurs exclusively with the perfective AM marker (*t-* with transitive verbs and *h* with intransitives); combinations with any other aspect-mood marker are straightforwardly ungrammatical.¹⁹⁶ The main function of *káa* seems to consist in

¹⁹⁵ A parallel construction in Lahu (Lolo-Burmese) is labeled ‘unitary conjunctions’ in Matisoff (1982: 398).

¹⁹⁶ However, *káa* is homophonous with the subjunctive subordinator mentioned in §§4.2.1.1 and 6.1.3. The diachronic and synchronic relation between these two particles is not well understood.

the resolution of the perfective-resultative ambiguity inherent to *t-/h*. Recollect from §6.2.1.1 that this AM category can have both the reading of a perfective aspect referring to a dynamic event in the discourse representation, and that of a resultative aspect referring to the post-state of the target event. The latter interpretation is excluded with *káa*. Used in perfective reference, *káa* occurs frequently with sequentially ordered events, such as in E426, where it introduces each of the clauses. Examples such as E426 exclude an analysis of *káa* as a generic temporal connective that tracks topic time in the discourse representation without specifying event order, such as English *when/then* (cf. §2.4.3): the topic time of the clauses in E426 is not identical, but ‘shifted’ from clause to clause.

But can *káa* be analyzed as expressing sequential event order (like English (*and*) *then*, under a reading of *then* different from the one just mentioned, but related to it)? The answer is negative: sequential ordering of events denoted by *káa*-clauses is a mere implicature, as can be seen by a comparison of E427a and b. The two events referred to in E427a were interpreted to be ordered sequentially by all five consultants presented with this example, whereas the clauses in E427b were judged to refer to simultaneous events by four out of five consultants. The difference between the two utterances which brings about this difference in temporal interpretation consists simply in the A-arguments of the two clauses being referentially identical in E427a, but disjunct in E427b. The consultants considered E427a to be ordered sequentially, because they considered a writing event and a smoking event unlikely to be conducted at one time by the same person.

E427 a.	Pedro-e’	<i>káa</i> t-u		ts’íib-t-ah		hun-p’éel	
	Pedro-TOP	<i>káa</i> PRV-A.3		write-APP-CMP(B.3.SG)		one-CL.IN	
	kàarta-e’,	<i>káa</i> t-u		ts’u’ts’-ah			
	letter-TOP	<i>káa</i> PRV-A.3		suck-CMP(B.3.SG)			
	hun-p’éel	chamal.					
	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)

b.	<i>Káa</i> t-u	ts’íib-t-ah	hun-p’éel	kàarta Pedro-e’,
	<i>káa</i> PRV-A.3	write-APP-CMP(B.3.SG)	one-CL.IN	letter Pedro-TOP

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

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

Káa can occur not only introducing every clause in a narrative sequence of indefinite length (and even the first clause in a new paragraph or the first clause of an entire text), but also in both the subordinate topicalized clause as well as the main clause in constructions such as E428.¹⁹⁷

E428. Le káa h náats'-nah-e',
 [DEF káa PRV near-CMP(B.3.SG)]-TOP
 káa t-u hach k'ahóol-t-ah
 káa PRV-A.3 really acquaintance-APP-INC(B.3.SG)
 ðeēke u pàal.
 SR A.3 child(B.3.SG)

'As (the prodigal son) approached, (his father) really recognized that it was his child.' (Hijo 116)

The proper analysis of *káa* is an intricate issue indeed. The available evidence is perhaps best summarized by saying that *káa* is an aspect-sensitive semantically one-place connective whose primary function is to mark perfectivity, and which therefore grammaticalizes the implicature that events referred to perfectly, aside from certain peculiar contexts, do not occur in isolation.¹⁹⁸ As is shown below, *káa* is not unique as an aspectual element grammaticalized to fulfill certain tasks in the structuring of discourse.

¹⁹⁷ In connection with this distribution, some further properties of *káa* need to be mentioned. Clauses formed with *káa* cannot be negated, and they never occur with a marked functional sentence perspective. In other words, *káa*-clauses never have a structural topic or focus of their own, irrespective of whether they occur in topic position or as main clauses. *Káa*-clauses share these properties with most types of adverbial clauses in Indo-European languages; however, what makes these features so peculiar in the case of *káa* is that they are maintained even in sequences of untopicalized main clauses introduced by *káa*.

¹⁹⁸ Vapnarsky's (1999) gloss, 'concatenative', seems to capture this nicely.

7.3.3. The non-perfective sequentializing periphrasis with *ts'o'k*

In E429, taken from an instruction on how to build a traditional Mayan house, the topics are 'resumptive' (cf. §4.2.2): 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.

E429. ^AK-a ts'a'-ik u báaloh-il túun.
 IMPF-A.2 put/give-INC(B.3.SG) A.3 cross.rafter-REL CON
^BK-u ts'o'k-ol a ts'a'-ik u báaloh-il
 IMPF-A.3 end-INC A.2 put/give-INC(B.3.SG) A.3 cross.rafter-REL
 túun, k-a ts'a'-ik u kàabalpàachnah-il.
 CON IMPF-A.2 put/give-INC(B.3.SG) A.3 low+back+house-REL
^CKéen ts'o'k-ok túun-e',
 SR.IRR end-SUBJ(B.3.SG) CON-TOP
 yan a kaxt-ik u láak' u pàachnah-il-o'b.
 OBL A.2 find-INC(B.3.SG) A.3 other A.3 back+house-REL-PL
^DK-u ts'o'k-ol túun a ts'a'-ik u
 IMPF-A.3 end-INC CON A.2 put/give-INC(B.3.SG) A.3
 kàabalpàachnah-il-o'b, k-a wa'l-kunt-ik u
 low+back+house-REL-PL IMPF-A.2 stand-FACT-INC(B.3.SG) A.3
 tisèerah-il-o'b. ^EK-u ts'o'k-ol-e' ...
 rafter-REL-PL IMPF-A.3 end-INC-TOP
 '^A(Then) you place the crossbar. ^B(When) you've finished placing the crossbars (then) you place the girder. ^C(Once) this is done, you have to find (the wood for) the other crossbars. ^D(When) you've finished placing the crossbars, you erect the rafters. ^E(When) this is done ...' (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 signaled by the irrealis subordinator *kéen/chéen*, 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 use of resumptive topic clauses, presumably because the number of propositions is high, and because 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 are not of much help in sequentializing the text; all they achieve is to signal that the interval determined by the resumed clause is the topic time of the main clause to follow. What is used to the end of establishing explicit temporal sequence is the 'phase verb' (or 'aspectual verb') *ts'o'k* occurring in each topic clause of E429. *Ts'o'k* asserts the terminal boundary of the event denoted by its complement verb, which 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. The construction of *ts'o'k* with imperfective AM or *kéen* plus subjunctive in resumptive topic clauses may thus be considered a periphrastic sequentializer. On account of the frequency with which this construction occurs in discourses of the type of E429, and considering the occurrence of reduced versions *le ku ts'o'k-ol-e' > ts'o'le'*, the construction of resumptive topic with *ts'o'k* appears to be in a grammaticalization process, the end point of which would be a marker of sequentiality. Nevertheless, *ts'o'k* 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 E427 above: 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.

- E430 a. Pedro-e' sáansamal-e' le k-u *ts'o'k*-ol
 Pedro-TOP RED:tomorrow-TOPDEF IMPF-A.3 end-INC
- u *ts'íib*-t-ik hun-p'éeł kàarta-o',
 A.3 write-APP-INC(B.3.SG) one-CL.IN letter-D2
- k-u *ts'u'ts'*-ik hun-p'éeł chamal.
 IMPF-A.3 suck-INC(B.3.SG) one-CL.IN cigarette
- 'Pedro, every day (when) he finishes writing a letter, he smokes a cigarette.'

- b. Pedro-e' sáasamal-e' le k-u *ts'u'ts'*-ik
 Pedro-TOP RED:tomorrow-TOPDEF IMPF-A.3 suck-INC(B.3.SG)
- hun-p'éeł chamal-e',
 one-CL.IN cigarette-TOP

k-u *ts'o'k*-ol u *ts'íib*-t-ik hun-p'éeł kàarta.
 IMPF-A.3 end-INC A.3 write-APP-INC(B.3.SG) one-CL.IN letter

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

Compare this to the English 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 to iconicity inferences, as it is fully determined by the application of *after*.

7.3.4. The inceptive periphrasis *káa h ho'p' > kap'*

E431 features another 'one-place connective', *kap'*, grammaticalized out of a combination of *káa* with the phase verb *ho'p'* 'begin'. *Kap'* occurs with a verbal core in inceptive status, just as *ho'p'* does. In E431a, which was elicited as a translation of (the Spanish version of) 'He has been sleeping (ever) since I have been writing this letter', *kap'* refers to the onset of the writing event just as *ho'p'* would; but in E431b, the writing event denoted by the *kap'*-clause is understood to overlap with the event of waiting expressed by the progressive clause. In this example, another consultant retranslated *kap'* into Spanish as *mientras* 'while'.

- E431 a. *Kap'* in *ts'íib*-t-ik le kàarta
káa:PRV:begin(B.3.SG) A.1.SG write-APP-INC(B.3.SG) DEF letter
- he'l-a', leti' xan, *káa h* wèen-ih.
 PRSV-D1 it also *káa* PRV sleep-B.3.SG

'(When) I started to write this letter here, he fell asleep / (While) I was writing this letter here, he was asleep.'

- b. Ho'l-heak-e' *kap'* túun u *ts'íib*-t-ik
 yesterday-heak-TOP *káa*:PRV:begin(B.3.SG) CON A.3 write-APP-INC(B.3.SG)
- le kàarta in suku'n-o',
 DEF letter A.1.SG elder.brother-D2
- tèen-e' táan in pa't-ik (...).
 me-TOP PROG A.1.SG await-INC(B.3.SG)

'Yesterday, my brother started writing that letter, I was waiting for him (...).'
 (Tama 28)

Kap' grammaticalizes the implicature from the onset of an event to its unbounded ongoingness. To this extent, it is a mirror image of *káa* discussed in the previous section: *káa* is a connective that marks perfectivity, while *kap'* is a connective that marks imperfectivity. That *kap'* does not lexicalize event order is straightforwardly demonstrated in the same way as has already been done with respect to *káa* and the topic clause with *ts'o'k* above.

E432 a. Pedro-e' káa t-u ts'fib-t-ah le kàarta-o',
 Pedro-TOP káa PRV-A.3 write-APP-CMP(B.3.SG) DEF letter-D2

kap' u ts'u'ts'.
 káa:PRV:begin(B.3.SG) A.3 suck\ATP

'Pedro, he wrote the letter, (and) he started smoking.'

b. Pedro-e' kap' u ts'u'ts'-e',
 Pedro-TOP káa:PRV:begin(B.3.SG) A.3 suck\ATP-TOP

káa t-u ts'fib-t-ah le kàarta-o'.
 káa PRV-A.3 write-APP-CMP(B.3.SG) DEF letter-D2

'Pedro, he started smoking, and he wrote the letter.'

In E432a, the writing event is understood by the consultants to precede the smoking event,¹⁹⁹ while in E432b, the events are understood to overlap. It is thus not the case that the event order in a *kap'*-construction could be interpreted independently of the order of mention. Therefore, *kap'* cannot be said to express the relative order of the two events denoted in the construction.²⁰⁰

¹⁹⁹ One consultant suggested that the smoking event might begin before the letter is finished in E432a. The principal difference between E432a and E432b is that in E432a, the initial boundary of the writing event precedes the initial boundary of the smoking event, whereas in E432b, exactly the opposite ordering of the beginnings of the two events is inferred.

²⁰⁰ Since *kap'* may constitute a morphosyntactically independent clause (as in E432a), unlike *kéen* to be discussed below, and combines with a verbal core, not with a clause, unlike *káa*, *kap'* satisfies the definition of the AM markers given in §4.2.1.4. It is nevertheless treated as a connective, rather than an AM marker, here in order to capture its functional similarity to *káa* and *kéen*.

7.3.5. The irrealis subordinator *kéen*

Kéen has been recurring throughout the description of time reference in YM. It was introduced in the discussion of the focus constructions in §4.2.1.5. In the focus constructions (including question-word questions) and in relative clause constructions, *kéen* and its portmanteau variants fused with the set-A or set-B cross-reference markers are used if the construction has future time reference or habitual/generic reference. An example is the time focus construction in E433 below. *Kéen* came up again in the following section (§4.2.2) in connection with clausal topicalization. *Kéen* with topic clauses is illustrated in E434 and E435 below. Again, topic clauses with future time or habitual/generic reference are introduced by *kéen*. In §6.2.1.2, *kéen* was mentioned in its function of taking over habitual and generic reference in focus constructions and topic clauses from the imperfective AM marker in main clauses. Similarly, in the discussion of the various modal AM markers concerned with future time reference in §6.2.2.2, *kéen* was referred to as the single counterpart of all these different AM markers (which are basically restricted to unfocused main clauses) in focus constructions and topic clauses. In §7.1.3, *kéen*-clauses were encountered in combination with predicates of temporal extension expressing the distance of future events to topic time TT.

E433b shows that *kéen* may serve to replace unfocused prospective AM *mukah* in the context of E433a. Moreover, E433b demonstrates that *kéen*, like *mukah*, does not entail event realization, and that it can be used with a TT in the past (or future, for that matter) of coding time, rather than being restricted to deictic reference.

E433 a. Káa h tàal-ech a x'fímbat-en te
 káa PRV come-B.2.SG A.2 walk:APP-B.1.SG LOC:DEF

semàana h máan-o', mukah-en ka'ch in
 week PRV pass(B.3.SG)-D2 PROSP-B.1.SG formerly A.1.SG

mèet óox-p'éeł k'iin Mérida. Chéen ba'l-e'
 make(B.3.SG) three-CL.IN sun Mérida only thing-TOP

ma' h bin-en-i', tuméen h tàal-ech tèech.
 NEG PRV go-B.1.SG-D4 CAUSE PRV come-B.2.SG you

'(When) you came to visit me last week, I was going to spend three days in

Mérida. Only I didn't go, because you came.'

b. Káa	h	tàal-ech	a	xímbat-en	te
káa	PRV	come-B.2.SG	A.2	walk:APP-B.1.SG	LOC:DEF
semàana	h	máan-o'	óox-p'éeł	k'íin	kéen in
week	PRV	pass(B.3.SG)-D2	three-CL.IN	sun	SR.IRR A.1.SG
mèet	Mérida	ka'ch-il.	Chéen	ba'l-e'	
make(B.3.SG)	Mérida	formerly-REL	only	thing-TOP	
ma'	h	bin-en-i'	tuméen	h	tàal-ech
NEG	PRV	go-B.1.SG-D4	CAUSE	PRV	come-B.2.SG
					tèech.
					you

'(When) you came to visit me last week, I was going to spend three days in Mérida. Only I didn't go, because you came.'

E433 establishes *kéen* as a semantic equivalent of the prospective AM marker, which deals with target events in the future of TT. This is also true of the modal AM markers, which are also replaced by *kéen* in focus constructions and topic clauses. For example, E434 below features *kéen* in the context of obligative AM *yan*. However, *kéen* also occurs with habitual and generic reference, e.g. in E435. This set of facts is compatible with at least four conceivable semantic representations of *kéen*. Firstly, *kéen* might be considered polysemous, covering future time reference and habitual/generic reference. According to this hypothesis, the fact that *kéen* is substituted for the prospective AM marker and the modal AM markers is explained with reference to the alleged expression of a posterior event order relation. However, this analysis is excluded: *kéen* cannot be said to entail such a posterior event order relation, because it does not entail event realization and hence cannot be said to locate the target event on the time line at all. This is shown by E433b above. A second possible analysis holds that *kéen* is wildly polysemous, covering the meaning of imperfective AM marker (habitual/generic reference), the prospective AM marker and all the modal AM markers. However, it is impossible to ascribe the same semantics to *kéen* that were ascribed to the modal AM markers in §6.2.2.2. This is because on the one hand, some of the modal AM markers (in particular, the obligative, assurative and predictive AM) are compatible with predictive modality. *Kéen*, however, occurs exclusively in subordinate clauses and is consequently never used in predictions. On the other hand, *kéen* does not out of context distinguish any of the deontic or epistemic readings of the modal AM markers. It is not possible to express desire, obligation, necessity, etc. with *kéen*. It is merely possible to refer with *kéen* to an event

which has been specified in context to be in the scope of a modal operator. It is therefore rather obvious that *kéen* represents a *pragmatic* equivalent of the modal AM markers (in that it can be used in the same contexts and with reference to the same events), but not a *semantic* equivalent.

Thirdly, *kéen* might be described as polysemous, covering a habitual/generic reading and a prospective reading. Under this analysis, the fact that *kéen* is used in certain constructions as a pragmatic equivalent of the modal AM markers is explained with reference to the prospective reading. The prospective reading shares with the semantics of the modal AM markers the relative posteriority of the target event with respect to TT. The problem with this analysis is that there are cases which can neither be accounted for in terms of prospective reference nor in terms of habitual or generic reference. Consider example E434. In both E434 a and b, it is understood that the construction of Pedro's house follows the termination of the 'measuring' of a new corn field (*milpa*) (cf. Hanks 1990: 356-358). The prospective AM marker refers to the pre-state of the target event. If *kéen* were to have pre-state reference in E434, it would have to be understood that Pedro will build the house while going to finish measuring, in other words, *before* he finishes the measuring.

E434 a. Pedro-e' le **kéen** ts'o'k-ok u p'fís-ik
Pedro-TOP DEF SR.IRR end-SUBJ(B.3.SG) A.3 measure-INC(B.3.SG)

u kòol-e', yan u k'ax-ik u nah-il.
A.3 clear\ATP-TOP OBL A.3 tie-INC(B.3.SG) A.3 house-REL

'Pedro, (when) he has finished measuring his *milpa*, he will build his house.'

b. Pedro-e' yan u k'ax-ik u nah-il, le **kéen**
Pedro-TOP OBL A.3 tie-INC(B.3.SG) A.3 house-REL DEF SR.IRR

ts'o'k-ok u p'fís-ik u kòol-e'.
end-SUBJ(B.3.SG) A.3 measure-INC(B.3.SG) A.3 clear\ATP-TOP

'Pedro, he will build his house, (when) he has finished measuring his *milpa*.'

It seems that the only option left is a *monosemous* analysis of *kéen* capable of accounting for both habitual/generic reference and any kind of future time reference, covering both the aspectual pre-state reference of the prospective AM marker and the various modal states expressed by the modal AM markers. Such

an analysis has to assume that the basic meaning of *kéen* is neither a temporal nor an aspectual one, but a modal one. The language-specific category of **irrealis** modality suggests itself. This category was first mentioned in §6.1.3 in the analysis of the subjunctive status inflection. The subordinator *kéen* triggers subjunctive status on the verbal core. The modal meaning of the subjunctive is 'non-assertiveness', and irrealis modality is treated here as one instance of non-assertive modality.²⁰¹ The semantic category of irrealis modality in YM covers any kind of event in the future of TT, as well as habitual and generic reference. Both adjustments are well justified in cross-linguistic perspective. Assertions about future events are classified as irrealis statements in many languages that have a clear-cut and prominent grammatical realis-irrealis distinction.²⁰²

The realis-irrealis distinction is not in all morphosyntactic environments obligatorily marked in YM. In particular, it is not marked in main clauses. Instead, in main clauses, specific AM markers serve to indicate habitual/generic or prospective reference or various types of deontic and epistemic modality. The irrealis subordinator *kéen* does not convey any of these semantically more specific functions. When *kéen* is used to refer to an event that if denoted by a main clause would require the imperfective or prospective AM marker or one of the modal AM markers, neither habitual/generic nor prospective reference nor any particular kind of obligation, necessity, desire etc. toward realization of the event is marked. Instead, the modality of the assertion is marked as irrealis, and from that, the listener may infer that the event is either in the future of TT or occurs habitually or generically at TT. An example with habitual reference is E435.

²⁰¹ Recent typological surveys of irrealis categories in the languages of the world include Givón (1994) and the contributions in Bybee & Fleischman (1995: ch. III). Fleischman (1995: 522) characterizes irrealis modality cross-linguistically by "a speaker's lack of belief in or lack of commitment to (a) the reality, realization, or referentiality of an event or sequence of events predicated in an utterance; (b) the realization of an agent's wishes, hopes or intentions, as expressed in the proposition of an utterance; (c) the authenticity of an utterance or chunk of discourse (i.e. a sequence of utterances); or (d) what for lack of a better term I will call the 'canonicity' or normalcy of a discourse or of a communicative situation".

²⁰² See for example Chafe (1995), Comrie (1985: 39-41, 45, 50-53), Mithun (1995), Palmer (1986: 217-218). For a discussion of why habitual/generic reference is done under realis modality in some languages, but under irrealis modality in others, see Givón (1994: 270-271).

E435 a. Pedro-e' sáan-sáamal-e' le **kéen/chéen** hàan-ak-e',
 Pedro-TOP RED-tomorrow-TOP DEF **SR.IRR/only** eat-SUBJ(B.3.SG)-TOP

k-u xok-ik le
 IMPF-A.3 read-INC(B.3.SG) DEF periyòdiko-o'.
 newspaper-D2

'Pedro, every day, (when) he eats, he reads the paper.'

b. Pedro-e' sáan-sáamal-e' k-u xok-ik le
 Pedro-TOP RED-tomorrow-TOP IMPF-A.3 read-INC(B.3.SG) DEF

periyòdiko-o', le **kéen/chéen** hàan-ak.
 newspaper-D2 DEF **SR.IRR/only** eat-SUBJ(B.3.SG)

'Pedro, every day, he reads the paper, (when) he eats.'

In E435, *kéen* is replaced by the adverb *chéen* 'only'. This can be done in all contexts of *kéen* except for the portmanteau realizations of *kéen* fused with the cross-reference markers (these portmanteaus occur in certain argument focus constructions, cf. §4.2.1.5). Put differently, unfused *kéen* and *chéen* are in free variation. Native speakers consider *chéen* in examples such as E435 to actually represent instances of the adverb *chéen* 'only'. However, at the same time, there is no apparent semantic difference between a construction with *kéen* and the same construction with *chéen* instead. It appears that the substitution of *chéen* for *kéen* is entirely phonetically motivated, and that *chéen* is understood in the constructions in question the same way as *kéen* is. The basic meaning of the adverb *chéen* might suggest an analysis of *chéen* in E435 as 'as soon as'. However, it is important to notice that the order of the eating event and the reading event is completely unspecified in E435, in line with the overall habituality of the reference in these examples. In both E435a and E435b, both the interpretation that Pedro usually eats after the reading the paper, the interpretation that Pedro usually reads the paper after having eaten and the interpretation that Pedro usually reads the paper at about the same time of day that he eats (without any routine in the relative order of these events being implied) are both equally consistent with the utterance. This holds independently of whether *kéen* or *chéen* is chosen. This also means that *kéen* cannot be analyzed as a temporal connective (a temporal connective signalling irrealis modality, how ever exotic that might appear to be) in E435, at least not one lexicalizing an event order relation. Just like the perfective connective *káa* discussed above is restricted to perfective AM marking, *kéen* is restricted to subjunctive status inflection, and semantically to irrealis modality.

In conclusion, *kéen* is a marker of irrealis modality in subordinate clauses occurring in relative clause constructions, focus constructions and topicalization. Irrealis modality is interpreted in these environments to cover reference to future events and habitual/generic reference.

7.3.6. Other

This section lists some more morphemes and constructions which serve as temporal connectives, but occur less frequently than the items discussed above.

One such construction is the general preposition *ti'* combined with the demonstrative *lelo'* referring back to an event mentioned before. *Ti' lelo'* (or *ti' le he'l-o'* LOC DEF PRSV-D2, with the presentative demonstrative *he'l-o'* instead of the simple demonstrative *lelo'*) always occupies topic position.

E436. Hach túun pek-kun-t-ik;
really PROG:A.3 lie-FACT-APP-INC(B.3.SG)

ti' lelo' k-u bin.
LOC DEM:D2 IMPF-A.3 go

'(The woman in white) was just putting (the letter) down; at that moment, (the woman in red) went off.' (Tempest antram III 1/4 r2 45)

Ti' lelo' might be understood to express that the target event (i.e. the event referred to by the sentence introduced by *ti' lelo'*) is temporally included in the event referred to by the preceding sentence, similar to English *meanwhile*. However, temporal inclusion of the target event can easily be defeated. In E437, the event of the hurricane hitting the house under construction cannot be understood to be included in the interval of the construction (or more specific, the roofing), since the hurricane is asserted to terminate the construction of this particular house, by destroying it.

E437. Pedro-e' túun mèt-ik hun-p'éel u nah-il
Pedro-TOP PROG:A.3 make-INC(B.3.SG) one-CL.IN A.3 house-REL
ka'ch-il. Ts'-u pak'-ik tuláak u che'-il-o'b-o',
formerly-REL TERM-A.3 plant-INC(B.3.SG) all A.3 wood-REL-PL-D2

túun	tsfik-t-ik	u	xa'n-il.	Ti'	lelo',
PROG:A.3	roof-APP-INC(B.3.SG)	A.3	palm-REL	LOC	DEM:D2
káa h	tàal	hun-p'éel	k'a'm-kach	lik',	
káa	PRV	come(B.3.SG)	one-CL.IN	loud-INTENS	wind
káa h	lúub-s-a'b	u	nah-il.		
káa	PRV	fall-CAUS-PASS.CMP(B.3.SG)	A.3	house-REL	

'Pedro, he was building a house. He had placed all the pillars and rafters, he was roofing the thatch. At that moment, a hurricane came (and) knocked down the house.'

The preposition *ichil* 'in' sometimes combines with a verbal core inflected for incomplete status in topic position, the verbal core resuming a previous clause. Temporal overlap of the event denoted by the verbal core with the event denoted by the main clause can be defeated the same way as was done with respect to *ti' lelo'* above: if a causal relation obtains between the two events, the second event might cause the first event to terminate. The preposition *ichil* in this construction is semantically very similar to the progressive AM marker. Like the progressive AM marker, *ichil* expresses imperfectivity, not an event order relation. However, *ichil* is extremely rare in combination with verbal cores, and it occurs only in contexts such as E438, i.e. in resumptive topic clauses (which is why it is treated as a connective here).²⁰³

E438. Tèen-e' ti' h máan-en ho'l-heak te k'áax-o.
me-TOP LOC PRV pass-B.1.SG yesterday-PAST LOC:DEF jungle-D2
Chéen *ichil* in màan-e', káa t-in
only in A.1.SG pass-TOP káa PRV-A.1.SG
ya'+che'-t-ah hun-túul kàan. Káa t-u
step+foot-APP-CMP(B.3.SG) one-CLAN snake káa PRV-A.3

²⁰³ *Ichil* may be replaced in contexts such as E438, but not in its ordinary spatial use, by the variant *ikil*, which is, however, considered obsolete by the consultants of the present study. Though infrequent in the present language, the combination *ichil* plus incomplete verbal core may once have been used more regularly (regularly enough to motivate the allomorph *ikil* that only occurs in this particular construction). This is supported by the occurrence of *ikil* in certain archaic greeting formulas such as *Ki'mak inw óol ikil in meyahtike* 'x 'I'm happy to be of service to you', lit. 'My heart is happy in my serving you' (BVS 2.1.21).

chi'-ah bite-CMP(B.3.SG)	in A.1.SG	péek+òok-e', move+foot-TOP	káa káa	túun CON	t-in PRV-A.1.SG
ch'a'-ah fetch-CMP(B.3.SG)	hun-p'éeł one-CL.IN	tunich, káa stone káa	t-in PRV-A.1.SG	ch'in-ah pelt-CMP(B.3.SG)	
le DEF	kàan-o', snake-D2	káa h káa PRV	kim-ih. die-B.3.SG		

'I went through the forest yesterday. (While) I was just walking about (lit. only in my walking), I stepped on a snake. It bit me in the thigh, so I grabbed a stone and threw it at the snake, and it died.' (Perfa 9)

The morpheme *káa* and the irrealis subordinator *kéen* described above are used in the calquing of a (Middle American) Spanish phrase which acts as a generic temporal anaphor 'at that moment': *káa t-y-a'l-ah-o'* *káa* PRV-A.3-say-CMP(B.3.SG)-D2 and *kéen y-a'l-o'* SR.IRR A.3-say(B.3.SG)-D2, literally 'it said/says that', derived from the verb *a'l* 'to say'.

E439.	Pedro-e' Pedro-TOP	táan PROG	y-òok-ol A.3-enter-INC	t-u LOC-A.3	nah-il-e', house-REL-TOP	káa káa
	t-y PRV-A.3	il-ah-e' see-CMP(B.3.SG)-D3	hach really	sùusyo dirty(B.3.SG)	u A.3	nah-il. house-REL
	Káa t-y káa PRV-A.3	a'l-ah-o' say-CMP(B.3.SG)-D2	ma' NEG	òok-ok-i'. enter-SUBJ(B.3.SG)-D4		
	Mukah PROSP(B.3.SG)	òok-ol. 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**.'

The final item to be mentioned here is *p'éeł(ak)*. Only two non-elicited instances of this item are found in the corpus of the present study, and the results obtained from elicitation are somewhat puzzling. A typical example of *p'éeł(ak)* is E440:

E440.	P'éeł-ak end-ak	u A.3	hàan-al eat-INC	Ramón-e', Ramón-TOP
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káa h káa PRV	tàal come(B.3.SG)	t'ään-bil. call-GIV
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'Pedro had just eaten, (when) (someone) came to call him.'

P'éeł(ak) combines with a verbal core inflected for incompletive status in topic or antitopic position. *P'éeł(ak)* is incompatible with a fully-fleshed clause (i.e. with either a stative predicate or a verbal clause with an AM marker), and it does not occur in isolation or in main clause position. Consultants translate *p'éełak u hàanal Ramón* in E440 as *Ramón acabó de comer* 'Ramón had **just** eaten'. Indeed, the feature of immediacy seems indefeasible. E441 is considered unacceptable by the consultants:

E441.	*P'éeł-ak end-ak	u A.3	ts'fib-t-ik write-APP-INC(B.3.SG)	le DEF	kàarta-o' letter-D2
	káa t-u káa PRV-A.3	túuch-t-ah. send-APP-CMP(B.3.SG)	Chéen ba'l-e' only thing-TOP		
	h máan PRV	òox-p'éeł mées pass(B.3.SG) three-CL.IN	month		
	káa t-u káa PRV-A.3	túuch-t-ah. send-APP-CMP(B.3.SG)			

'He had just written the letter, (and) he sent it off. However, three months passed (and then) he sent it.'

In the glosses, *p'éeł(ak)* is analyzed into a morpheme *?p'éeł* 'to end' and the suffix *-ak* introduced in §7.2.1. This analysis is supported by the following facts: for some consultants, *p'éeł(ak)* is preferred without */ak/* in utterances of habitual reference (E442), and */ak/* is excluded in examples with future time reference (E443). This is the distribution one would predict if the segment */ak/* was indeed the suffix *-ak* that combines with calendrical specifications of past and present time reference, but not with specifications of future time reference.

E442.	P'éeł(?-ak) end-ak	u A.3	hàan-al eat-INC	Ramón-e', Ramón-TOP
	bin k-u go IMPF-A.3	mèet-ik. make-INC(B.3.SG)		

'As soon as Ramón has eaten, he leaves', lit. 'Ramón has just eaten, he leaves.'

- E443. **P'éel(*-ak)** u hàan-al Ramón sáamal-e',
 end-ak A.3 eat-INC Ramón tomorrow-TOP

yan u bin Carrillo.
 OBL A.3 go Carrillo

'As soon as Ramón has eaten tomorrow, he has to go to Carrillo', lit. 'Ramón has just eaten tomorrow, he has to go to Carrillo.'

However, other consultants accept the segment /ak/ in E442 and E443 without reservation (though no consultant has /ak/ obligatorily in these utterances). Moreover, the suffix -ak is restricted to calendrical specifications and 'event counts' (of the type 'the first/second/last time'). It is not clear how *p'éel(ak)* might fit this requirement, in particular not if its syntactic occurrence is taken into account.

The glossing of the component /*p'éel*/ as 'to end' is based on the following considerations: Firstly, native speakers paraphrase occurrences of *p'éel(ak)* either with the immediate past AM marker *táant(ik) ...-e'* or with the phase verb *ts'o'k* 'to end'. Secondly, just like *ts'o'k*, *p'éel(ak)* is compatible with both atelic and telic verbal cores, and, when combined with telic verbal cores, it entails event realization. Thus, E444 is rejected by the consultants:

- E444. ***P'éel-ak** u ts'fīb-t-ik le kàarta-o',
 end-ak A.3 write-APP-INC(B.3.SG) DEF letter-D2

káa h èel u nah-il.
 káa PRV burn(B.3.SG) A.3 house-REL

Ma'ch u ts'o'k-s-ik le kàarta-o'.
 never A.3 end-CAUS-INC(B.3.SG) DEF letter-D2

'He had just written the letter, (when) his house burned down. He never finished writing the letter.'

But thirdly, and most crucially for the analysis presented here, *p'éel(ak)* behaves in discourse just like the phase verb *ts'o'k* 'to end', as described in §7.1.2 above. In particular, the interpretation of a *p'éel(ak)* construction depends on the order of the two clauses. If *p'éel(ak)* appears in a topic clause, the event referred to with the help of *p'éel(ak)* is interpreted to terminate before the main clause event initiates, as in E445a. If, however, *p'éekak* appears in antitopic position, termina-

tion of the event denoted by the *p'éel(ak)*-clause is understood to follow the main clause event, as in E445b.

- E445 a. Pedro-e' **p'éel-ak** u hàan-al-e',
 Pedro-TOP end-ak A.3 eat-INC-TOP

káa t-u ts'u'ts'-ah hun-p'éel chamal.
 káa PRV-A.3 suck-CMP(B.3.SG) one-CLIN cigarette

'Pedro, he had just eaten, (and) he smoked a cigarette.'

- b. Pedro-e' káa t-u ts'u'ts'-ah hun-p'éel
 Pedro-TOP káa PRV-A.3 suck-CMP(B.3.SG) one-CLIN

chamal-e', **p'éel-ak** u hàan-al.
 cigarette-D3 end-ak A.3 eat-INC

'Pedro, he smoked a cigarette, he (just) ate.'

This entails that *p'éel(ak)* does not out of context determine the relative order of the topic clause or antitopic clause event and the main clause event. In other words, *p'éel(ak)* does not express event order.

It may be concluded tentatively that *p'éel(ak)* lexicalizes temporal immediacy, and possibly terminal phase in addition to immediacy (recollect that the immediate past AM marker *táant(ik) ...-e'* resembles in formal respect a phasal operator; cf. §6.2.2.3). Moreover, *p'éel(ak)* is restricted to topic and antitopic clauses. This occurrence implies that the *p'éel(ak)*-clause determines the topic time of the entire sentence. In this way, the function of *p'éel(ak)* consists in maintaining temporal coherence, just like the function of the other 'one-place connectives' discussed in this section.

7.4. SUMMARY

In this chapter, lexical predicates expressing meanings in the domain of temporality have been discussed, and in addition temporal adverbials and conjunctions. Among the lexical predicates, phase verbs referring to the initial or terminal boundary of a higher-order event have been of particular interest. Phase verbs occur with significantly greater frequency in YM discourse than they do in Indo-

European (as suggested by the results of the TEMPEST study reported in Bohnemeyer (1998 [b], [d], 2000 [a]), which permits a comparison between German and YM discourses of the same representational content). Besides, phase verbs frequently occur in YM translations of Spanish sentences featuring event order connectives. Both facts suggest that phase verbs play a more important role in the temporal coherence in YM than they do in Indo-European languages. In line with this, YM phase verbs have been presented in this chapter as differing in their semantics from Indo-European phasal operators. YM phase verbs show fewer restrictions with respect to the lexical aspect of the embedded verbal core than do phasal operators of English and other Indo-European languages. All ingressive phase verbs of YM are regularly compatible with punctual predicates, and one egressive phase verb, *ts'o'k* 'to end', is compatible with punctual verbs, too, and in addition combines with both telic and atelic verbs. Due to this greater freedom of YM phasals vis-à-vis the semantics of the verbal core, the phasal operators of YM are better representatives of the 'logical' ingressive and egressive operators introduced in §2.3 than are Indo-European phasal operators, in that they are more concerned with the boundaries of the event in the discourse representation, whereas Indo-European phasal operators are relatively more concerned with lexical-aspectual semantics. In addition to phasal meanings, temporal extension is also expressed by verbs in YM, i.e. the duration of an event, or its distance from topic time TT. They are formally related to the AM markers of temporal distance, but differ from these in that they are not restricted to either past time or future time reference.

Among the simple temporal adverbs of YM, some of the principled exceptions are found to the claim that YM does not lexicalize event order. These are the terms that denote days determined with respect to coding time ('yesterday', 'tomorrow', etc.) and the two 'topic time shifters' *ka'ch(il)* 'formerly' and *be'dora ...-a'/-e* 'now'. However, these elements are both semantically and pragmatically too specific to represent event order in discourse with the generality of tenses or event order connectives in Indo-European languages. Prepositional phrases figure in the expression of temporality in YM in particular in translations of Spanish prepositional phrases expressing duration and temporal distance. However, unlike the corresponding constructions in Spanish and other Indo-European languages, the prepositional phrases of YM used in specifying the extension of time intervals do not distinguish event order. Moreover, prepositional phrases do not discriminate between the expression of duration and that of time spans, and thus are not

sensitive to the telicity of the predicate.

The chapter concluded with a discussion of temporal connectives of YM (autochthonous morphemes, as opposed to the connective borrowed from Spanish, to be discussed in the next chapter). These connectives do not grammaticalize event order, but aspectual and modal distinctions. Thus, one of the elements in question (*káa*) is restricted to perfective AM and marks perfectivity, while another one (*kap'*) expresses the beginning of the event denoted by the verbal core, and implicates its ongoingness. A third connective (*kéen*) triggers subjunctive status and marks irrealis modality. The existence of such connectives that express aspectual and modal meanings instead of event order provides further support for the general analysis advocated in this study, according to which temporal coherence in YM discourse is based almost exclusively on the assertion of aspectual and modal information, not on the assertion of event order.

THE USE OF BORROWED EVENT ORDER RELATORS

CHAPTER 8

YM borrows event order relators (conjunctions, prepositions, adverbs) from Spanish; e.g. *asta* (< *hasta* 'until'), *myèntras* (< *mientras* 'while'), *despwes* (< *después* 'after'). These have not been considered so far, as the aim was first and foremost to reconstruct the native resources of establishing and maintaining time reference and temporal coherence. This move is justified with reference to the results of the TEMPEST sessions reported in Bohnemeyer (1998 [b]; 1998 [d]: ch. 10; 2000 [a]) (cf. §3.2.3.). During the TEMPEST sessions, the loan relators hardly showed up at all. However, the borrowed event order relators also show a behavior strikingly deviant from that of their Spanish models, both in formal and in semantic perspective. In order to study this marked behavior, it is necessary to discuss the borrowed relators together, and separately from the rest of the YM grammar of time reference. This is done in the present chapter. The discussion reveals that the main source of the semantic change the loan relators have experienced is the lack of autochthonous semantic models and the different organization of temporal information in YM discourse caused by the lack of native event order relators. It is these two points that make a treatment of the loan relators particularly rewarding for the purpose of the present study. However, the discussion is confined to a broad survey, as the details have been described already in Bohnemeyer (1998 [a]).

To begin, the syntax and semantics of the event order relators in the donor language, diagrammed in F48, need to be briefly considered. Let us assume that the event order relators primarily serve to locate the topic time TT with respect to some reference interval (cf. §2.4.3). The matrix maps the four basic event order relations of anteriority (TT precedes the reference interval), posteriority (TT follows the reference interval), simultaneity (TT is included in reference interval), and incidence (TT includes the reference interval) onto the three possible modes of givenness of TT: syntactic (the reference event is expressed by a subordinate clause or a noun phrase), anaphoric (the anaphor may be co-lexicalized with the relator, as is the case with *antes* and *después*, or the anaphor is morpho-syntactically combined with the relator, e.g. *desde entonces* '(ever) since then'), and calendrical. 'Calendrical reference' is used in a broad sense here, neglecting a possible additional deictic component (e.g. *desde ayer* 'since yesterday') or a possible deictic reading (e.g. *a las doce* 'at twelve o'clock'). Use of event order

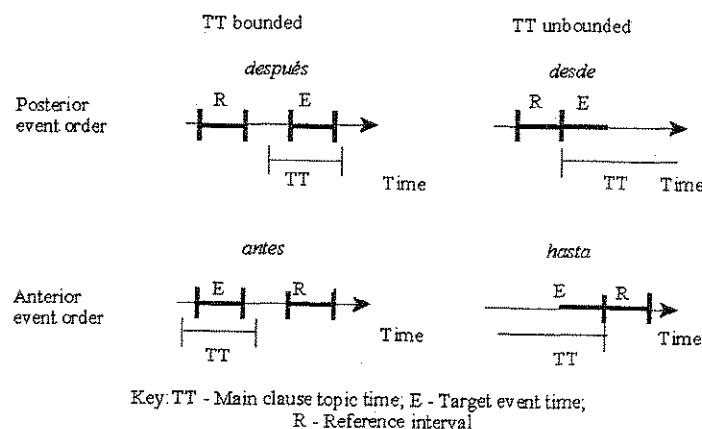
relators to express duration or temporal distance is neglected (e.g. *durante / dentro de / una hora* 'for / in an hour'; *dos días antes de la noche buena* 'two days before Christmas eve').

F48. The most important event order relators of Spanish

Event order relation	Mode of givenness of topic time TT	anaphoric (<i>sensu strictu</i> , i.e. the relator is an adverb or a 'coordinative' conjunction)	syntactic (TT is given by a subordinate clause (S) or noun phrase (NP) which intro- duces or takes up an event in discourse)	calendrical (TT is given by a noun phrase (NP) which refers to a calendrical interval)
anterior: target event is referred to	TT bounded	<i>antes</i>	<i>antes de NP</i> <i>antes (de) que S</i>	<i>antes de NP</i>
	TT un- bounded	<i>hasta entonces</i>	<i>hasta NP</i> <i>hasta que S</i>	<i>hasta NP</i>
posterior: target event is referred to	TT bounded	<i>después</i>	<i>después de NP</i> <i>después (de) que S</i>	<i>después de NP</i>
	TT un- bounded	<i>desde entonces</i>	<i>desde NP</i> <i>desde que S</i>	<i>desde NP</i>
simultaneous		<i>mientras tanto</i> , <i>entretanto</i>	<i>durante NP</i> <i>mientras S</i>	<i>en NP_{year}</i> <i>NP_{date / weekday}</i>
incidental		<i>entonces</i>	<i>cuando S</i>	<i>a NP_{hour}</i> <i>por NP_{time of}</i> <i>day</i> <i>en NP_{year}</i> <i>NP_{date / weekday}</i>

The sequential relators are subdifferentiated according to whether the topic time TT they modify is bounded or unbounded. Consider the diagrams in F49. *Antes* and *después* locate a bounded TT at an at an indefinite distance in the past and future of the reference interval, respectively (this distance can optionally be specified, e.g. *(dos horas) antes/después* '(two hours) before/after'). If TT is represented as unbounded, an anterior reference interval is implicated to determine the initial boundary of the target event (*desde*), and a posterior reference interval is implicated to determine the terminal boundary of the target event (*hasta*).

F49. Differentiation of Spanish event order relators in terms of the boundedness of the topic time interval



These implicatures can be canceled, as in E446:²⁰⁴

- E446. *Está lloviendo desde las seis. De hecho, comenzó antes.*
 'It has been raining *since* six o'clock. *In fact, it started earlier.*'

There are further differentiations in the system of the Spanish event order relators which have been neglected in F48, because they play a marginal role at most in the contact between Spanish and YM. Examples include the variants *apenas / así que / en cuanto / no bien / tan pronto como*, all roughly 'as soon as', which express posteriority plus immediate adjacency to the reference interval, as well as the habitual or 'indifferent' forms *siempre que* and *cada vez que* 'every time that', 'whenever'. There are also variants of those relators listed in F48 which are not attested in the contact varieties of bilingual speakers, such as *luego* and *tras* as

variants of *después*; *en lo que* instead of *mientras*; etc.

F48 also represents the construction of the relators. *Hasta* and *desde* are primarily spatial prepositions. *Antes* and *después* are basically temporal adverbs, from which complex prepositions are derived by combination with the attributor *de*, and complex conjunctions by combination with the subordinator (*de*) *que*. The only original temporal connective is *mientras*. *Durante* is an original temporal preposition, and *entretanto* an adverb based on a spatial metaphor. *Cuando* 'when' has two different uses, just like English *when*: it is used as an incidental anaphor (in which case the target event may be bounded or unbounded and hence coincide with or properly include the reference interval) and as a generic temporal connective, like English *when*. In the latter function, *cuando* only traces a topic time in discourse, without specifying an event order relation. The following discussion concentrates on syntactic and anaphoric relators; calendrical relators are only marginally considered.

In Bohmeyer (1998 [a]), the semantic and formal behavior of the temporal connectives borrowed from Spanish is accounted for in terms of a continuum of integration. 'Integration' is to be understood with reference to the models of the borrowed items. A morpheme or construction is considered maximally integrated if it fulfills the same function as the model in the donor language, but behaves morphosyntactically like morphemes or constructions of similar functions in the recipient language. Minimal integration does not mean maximal anomaly (i.e. maximal deviation from the model), but rather maximal redundancy, or a purely 'emblematic' use.²⁰⁵ In the case of the expressions of event order YM borrows from Spanish, emblematic use is displayed when a loan connective is added to a YM construction without affecting the temporal interpretation of the construction, which fully relies on the aspectual and modal information provided by YM grammar. If an emblematic use of a loan connective is at the same time fully compatible with the meaning of the model expression in Spanish, this use is considered minimally integrated. If, in contrast, the semantics of the loan connective are adapted to make it fit with the aspectual properties of the YM construction, this is considered a first step towards integration, even though this usage is

²⁰⁴ Compare the analysis of the English temporal connectives in §2.4.3. - If the reference interval is itself unbounded, it overlaps with TT, and either the initial (*desde*) or the terminal boundaries of the reference interval and TT are interpreted to coincide. The last-mentioned case, i.e. overlap with coincidence of terminal boundaries, is not covered by *hasta*, but expressed as a simultaneous relationship with *mientras*. English and German provide the specialized relators *as long as* and *solange* for this function.

²⁰⁵ 'Emblematic' refers to the use of borrowed elements for giving the discourse a more prestigious appearance, or to indicate group identity or social affiliation, etc; cf. Silva-Corvalán 1994: 13.

still redundant - the temporal interpretation of the construction remains unaltered by the presence of the loan connective. Further down the continuum, constructions with loan connectives appear in YM which would not have the same temporal interpretation without the loan connective. A loan connective is considered fully integrated in semantic perspective if its semantics are unchanged with respect to the model expression, and the temporal interpretation of the construction depends on the presence of the loan connective. It has been argued in §§4-7 that the decisive criterion for the presence of a two-place temporal connective is independence of the temporal interpretation from the order of mention, or in other words, the possibility of anti-iconic constructions. It should be noted right from the start that anti-iconic constructions with Spanish loan connectives occur only marginally, if at all. Put differently, full semantic integration of Spanish temporal connectives cannot be attested in YM.²⁰⁶

In what follows, the different levels of the integration continuum are illustrated with some examples. On the first level, the semantics of the model connective are transferred unchanged into YM, but the use of the connective is entirely emblematic. The borrowed connective contributes nothing to the temporal interpretation of the construction, which would be exactly the same without the loan connective. This only occurs with non-sequential connectives such as *myèentras* and *kwando*.²⁰⁷ Compare the topic clauses marked for progressive AM with (E447) and without (E448) *myèentras*, and compare the antitopic clause marked for imperfective AM and formed with *kwando* in E449 with the imperfective topic clause without *kwando* in E450 (the determiner *le* in E450 is optional).

E447.	(...) <i>myèentras</i> while	<i>táan</i> PROG	<i>in</i> A.1.SG	<i>páan-ik</i> dig.out-INC(B.3.SG)	<i>uy</i> A.3	
	<i>okom-al-e'</i> , <i>le</i> pillar-REL-TOP DEF	<i>okom-o'</i> , pillar-D2	<i>tu'x</i> where	<i>ken-o'n</i> SR.IRR-B.1.PL	<i>ts'a'</i> give/put(B.3.SG)	<i>le</i> DEF

²⁰⁶ The formal integration of the loan connectives into YM grammar is considered in Bohnemeyer (1998 [a]). A loan connective is considered minimally integrated if it occurs as a topic and maximally integrated if it behaves like a conjunction, preposition, or adverb in YM. However, in the present section, the semantics of the borrowed connectives are of primary concern.

²⁰⁷ All borrowed items are cited in YM orthography.

okom-o', *táan* *sus-ik* *wínik-il+che'*, (...) ^
pillar-D2 PROG:A.2 peel-INC(B.3.SG) person-REL+wood

'(...) while I (will be) digging out (the holes for) the pillars, the pillars, where we are going to place the pillars, you (will) remove the bark from wood for the walls (lit. peel the skeleton wood), (...)' (Casa sebsat II 67-68)

E448. *Tèen-e'*, *inw* *a'l-ik-e'*, *tèech-e'* *táan a*
me-TOP A.1.SG say-INC(B.3.SG)-D3 you-TOP PROG A.2

mèet-ik *le* *meyah he'l-o'*,
make-INC(B.3.SG) DEF work PRSV-D2

tèen táan in *súus-ik* *u* *che'-il-o'*,
me PROG A.1.SG peel-INC(B.3.SG) A.3 wood-REL-D2

'As for me, I'd say you, (while) you (will be) doing that work (placing all the rafters where they belong in the skeleton of the house to be built), it (will be) me who (will be) peeling the logs (i.e. removing the bark).' (Casa sebsat II 65-66)

E449. *T-in* *akompanyàar-t-ah* *Don Felipe Carrillo*,
PRV-A.1.SG accompany-APP-CMP(B.3.SG) Don Felipe Carrillo

kwando k-u *bin* *asàambleya* *ti'* *kàah-o'b* *bèey-o'*.
when IMPF-A.3 go assembly LOC live-PL thus-D2

'I accompanied Don Felipe Carrillo, when he went to assemblies in the villages.' (Fcp 10-11)

E450. *Le k-u* *tàas-a'l-e'*,
DEF IMPF-A.3 come:CAUS-PASS-INC-TOP

k-u *bo'l-t-a'l*.
IMPF-A.3 pay-APP-PASS-INC

'(When) it is brought, it is paid for.' (BVS 11.1.25)

Kwando is exclusively attested on this first level of integration. On the second level of integration, items are found which are still semantically redundant (the temporal interpretation of the construction stays the same if they are omitted), but which are adapted to the aspectual and modal properties of the YM construction, so that the meaning of the connective is changed with respect to the Spanish model. A straightforward example is the use of *despwes* in E451.

E451. **Despwes** **ts'-u** **sfih-il** **Pedro-e'**
 after TERM-A.3 be.born-INC Pedro-TOP

h sfih Pablo.
 PRV be.born(B.3.SG) Pablo

'After Pedro was born (lit. was in the state of having been born), Pablo was born.'

The terminative AM marker refers to the post-state of Pedro's being born (cf. §6.2.2.1.2), not to the event of Pedro's birth. The post-state of Pedro's being born is not ordered anteriorly with respect to Pablo's being born, but rather overlaps with Pablo's birth. Consequently, if *despwes* expressed anterior event order, as its Spanish model does, it should be incompatible with the terminative AM marker.²⁰⁸ A comparison of E451 with E452 reveals that the time reference in E451 does not depend on the presence of *despwes*. Note that the presence of the morpheme *káa* in E452 is optional (cf. §7.3.2). *Káa* may be optionally added in the perfective clause in E451 as well, and the example would even become more natural by that (it was collected by direct elicitation).

E452. **Pedro-e'** **ts'o'k** **u** **ts'u'ts'-ik** **hun-p'éel** **chamal-e'**
 Pedro-TOP TERM A.3 suck-INC(B.3.SG) one-CL.IN cigarette-TOP

káa t-u ts'fih-t-ah le kàarta-o'.
 káa PRV-A.3 write-APP-CMP(B.3.SG) DEF letter-D2

'Pedro, he had smoked a cigarette, and (then) he wrote the letter', 'Pedro, when he had smoked a cigarette, he wrote the letter.'

E453 below was produced as a translation of the contextualized stimulus sentence *Está lloviendo desde que me levantó* 'It has been raining since I got up':²⁰⁹

E453. **Pedro-e'** **káa** **t-uy** **a'l-ah:** **"(Deste)** **káa**
 Pedro-TOP káa PRV-A.3 say-CMP(B.3.SG) since káa

²⁰⁸ The absence of the subordinator *de que* might lead to the conclusion that *despwes* is an adverb in E451 and that it obtains a paratactic relationship with the terminative clause, rather than subordinating it ('Afterwards, Pedro had been born, ...'). This analysis is, however, excluded both by the context and by intonation.

²⁰⁹ However, to avoid interferences, the finite verb forms in the Spanish model were replaced by infinitives, following the methodology of Dahl 1985 (cf. §3.2.2).

h líik'-en-e', káa h káah
 PRV hñVACAUS-B.1.SG-TOP káa PRV beginVACAUS(B.3.SG)

u k'áax-al le ha'-o'.
 A.3 fall-INC DEF water-D2.

'Pedro, he said: "(Since) I got up, it started to rain."' (Cont 2)

The semantic conflict with the model comes from Spanish *desde* requiring an unbounded TT. This does not preclude perfective reference to the target event (e.g. *Since I got up, it (must have) started to rain (because it is raining now, and it wasn't raining then)*). However, the context of the stimulus utterance that elicited E453 actually specified that Pedro witnessed the onset of the rain at the very moment he got up. A native speaker of Spanish would use *desde* with an imperfective main clause, to relate the ongoing event of raining to Pedro's getting up. The consultant instead opted for a YM structure that implicates the beginning of the rain to coincide with Pedro's getting up. He volunteered the analysis that *deste* is optional in this example and that the construction would mean exactly the same without it. Spanish *desde*, at least on the analysis presented in F49,²¹⁰ would not fit here; it's presence would suggest that the rain started after Pedro's getting up. E454 shows the same use of *deste* with a calendrical interval.

E454. **Deste** **h** **ts'o'k** **òox-p'éel** **òora**
 since PRV end(B.3.SG) three-CL.IN hour

ho'p'-ok u wèen-el.
 [begin-SUBJ(B.3.SG) A.3 sleep-INC

'Since three hours ago, he slept in.' (cont 1)

Compare E455 for a similar construction without *deste*:

²¹⁰ In fact, however, similar uses of *hasta* and *desde* do occur in American Spanish. Compare *Desde el lunes llegó* 'He arrived (already) on Monday (and has been here ever since)'; *Hasta las doce almorcé* 'I did not have lunch until twelve' (Lapesa 1980: 592). There has been a long-standing debate on the question of whether such phenomena may be explained as substrate influences from Amerindian languages; cf. Zimmermann (1996). But even if the consultant merely used an American-Spanish model of *deste* in E454, it remains significant that he restructured his utterance with respect to the stimulus so as to avoid the imperfective reference to the rain.

E455. H ts'o'k xan táankoch òora ho'p'-ok
PRV end(B.3.SG) also half hour begin-SUBJ(B.3.SG)

u hóok'-ol k'i'k' t-in ni' xan.
A.3 exit-INC blood LOC-A.1.SG nose also

'It is half an hour ago that blood started running from my nose, too.' (BVS 16.1.12)

All connectives borrowed from Spanish are attested in YM with such semantic anomalies, except for *kwando*, which occurs only in the construction mentioned above.

One step further on the cline of integration, uses of borrowed connectives that preserve the meaning of the Spanish model and thus have an impact on the temporal interpretation of the construction are finally found. Compare *deste* in E456 with *deste* in E453. In E453, *deste* is combined with perfective reference, in conflict with the Spanish source. However, in E456, *deste* occurs with a progressive AM marker in the main clause. The interpretation (controlled by the manufactured context) is that María's leaving coincides with the initial boundary of Pedro's sleeping. This would not be a plausible interpretation of the construction if *deste* were omitted. Compare E456 with the otherwise structurally identical E457 where it is understood that the main clause marked for progressive AM refers to an event overlapping with the event expressed by the perfective topic clause.

E456. Deste káa h hóok' María-e',
since káa PRV exit(B.3.SG) María-TOP

táan u wèen-el.
PROG A.3 sleep-INC

'Since María left, he has been sleeping.' (Cont 1)

E457. Káa h k'uch-o'n way túun t-u káah-il
káa PRV arrive-B.1.PL here CON LOC-A.3 village-REL

x-Yaxley-il-e', táan u k'áax-al u ha'-il.
F-Yaxley-REL-D3 PROG A.3 fall-INC A.3 water-REL

'(When) we arrived in the village of Yaxley, it was raining.' (Rox ant 20)

However, the presence of *deste* in E456 is still syntactically optional. If *deste* is

omitted in E456, the interpretation of the construction changes, but the construction as such remains intact. In contrast, both semantic and syntactic integration is shown by *àantes* in E458. In E458, *àantes* occurs as a complex preposition with the simple preposition *ti'* and taking an embedded verbal core as complement. With this constructions, the question as to how *àantes* affects the temporal interpretation is meaningless, as the construction would not be possible without *àantes*.

E458. Tèen-e' in k'ahóol-t-mah leti'
me-TOP A.1.SG acquaintance-APP-PERF(B.3.SG) it

àantes ti' in tàal kàah-tal way-e'.
before LOC A.1.SG come live-PROC. INC here-D3

'Me, I had gotten to know her before I came to live here.' (Perfa 77)

On this advanced level of integration, only *àantes*, *asta*, and *myèentras* are attested in the corpus of this study. However, even *àantes* and *asta*, which are sequential operators and whose sources are perfectly usable anti-iconically, determining time reference independently of the order of mention, are not attested in anti-iconic constructions in the corpus. Moreover, using borrowed connectives in translating Spanish examples, consultants consistently restructure anti-iconic examples in order to achieve iconic matching between event order and clause order. One example is E456 above, which was collected as a translation of *Pedro está durmiendo desde que María salió* 'Pedro is sleeping (ever) since María left.'

The relevance of these findings becomes apparent once it is taken into account that structural incompatibility cannot be the source of the limited integration of Spanish temporal connectives into YM, as the example of *àantes* shows (and there are well-integrated non-temporal connectives as well, such as the causal *komoke* < *como que* 'because, since'). The limited integration of the loan connectives, the pervasiveness of purely emblematic usage, and the frequency of semantic anomalies can only be accounted for semantically. There are two semantic factors inhibiting the borrowing of temporal connectives. First of all, the lack of semantic models in YM code gives rise to vague and often "erroneous" analyses of the meaning of the Spanish event order relators. In numerous conversations, I have discussed with native speakers of YM how to express *antes/después/hasta* etc. in their language, and more often than not, such conversations would end up with

even a fluently bilingual consultant asking me in bewilderment: "Say, what exactly does this *antes/después/hasta* mean, anyway?". In this way, the behavior of temporal connectives borrowed from Spanish confirms clearly that event order relators are virtually absent from YM code.

Furthermore, the semantics of the temporal connectives of Spanish conflicts with the way temporal information is organized in YM discourse. This was shown above with examples such as E451 and E453, which may be considered 'pragmatic blends': the loan connectives are used to express what a monolingual Spanish speaker would express in this situation, but the rest of the utterance corresponds exactly to how a monolingual speaker of YM would verbalize the same situation. Though pragmatically compatible, the Spanish strategy of expressing event order by using a temporal connective and the YM strategy of implicating event order from aspectual and modal information often exclude each other semantically, since the Spanish event order relators entail boundary information which may be at odds with the aspectual information given in the YM construction. Hence, the pragmatic blends often cause semantic conflicts. Moreover, even when using loan connectives which are well integrated semantically and syntactically, native speakers of YM do not violate the principle of semantic iconicity that governs all of temporal discourse in YM.

DISCUSSION AND CONCLUSIONS

CHAPTER 9

This study has provided an in-depth description of the expression of temporality in a native language of Mesoamerica, Yukatek Maya (YM). It is time now to summarize the findings (cf. §9.1) and emphasize some significant implications for typology (§9.2), for time semantics (§9.3), and for general linguistic theory (§9.4).

9.1. OVERVIEW OF THE SYSTEM

Let us now take stock of the central findings the investigation of the grammar and lexicon of time reference and temporal coherence in YM has delivered up. The starting point was an investigation of the structure of the lexicon, the place where event concepts are lexicalized, as events are the central protagonists of the grammar of time reference. Event-denoting lexemes are divided into a system of eight formally distinct stem classes in YM, discussed in §5. Membership in these classes has been shown to be strongly motivated in terms of the event structure representations of the predicate. The most important determining factor in this system is the trichotomy of states, processes, and state changes. The distinction between stative and dynamic predicates is the topmost dividing line in the system, as exclusively dynamic predicates are inflected for status and marked for AM. The underlying semantic distinction is more clear-cut than in Indo-European languages, as there are no stative verbs in the language (with the exception of a few modal verbs). For instance, concepts in the domain of experience and mental states, such as love, hate, and knowledge, are lexicalized in relational nouns. Nouns and adjectives are but subclasses of the category of stative predicates, further subdifferentiated by additional syntactic privileges.

Verb stems are divided by the status allomorphs they occur with (not unlike Indo-European conjugation classes) into transitive stems and active, inactive, inchoative, and positional stems. The transitive-intransitive distinction is semantically motivated in terms of causativity: transitive stems denote causal chains between two subevents, each involving a separate participant role. Assignment to the various intransitive stem classes is motivated in terms of the process-change distinction. Active stems denote processes, while inactive, inchoative, and positional stems denote state changes. The extensions of the latter three classes

differentiate along the roots that predominantly produce them: inchoative stems are exclusively derived from stative roots, while the roots in inactive and positional stems are inherently change-denoting. Positional stems are produced from positional and transitive roots that lexicalize state changes in the domain of temporary spatial configurations and dispositions. Uncaused state changes that do not fall in this domain are denoted by inactive stems. An important finding delivered by the study of the lexical semantics in the verb stem classes is that while event structure features (causativity and the state-process-change trichotomy) align very closely with the extension of the stem classes, traits of lexical aspect (durativity and telicity) and participant structure (volitionality, control) only align with class membership to the extent that this is predictable from the event structure properties associated with the classes.

Turning now to expressions of event order, the only expressions encountered in the course of the investigation whose meanings cannot be represented in the time-semantic framework laid out in §2 without ascribing to them two-place relations of event order are:

- the deictic 'topic time shifters' *be'òora ...-a'/-e* 'now' and *ka'ch(il)* 'formerly' (§7.2.2)
- the terms locating days with respect to coding time: *ka'ho'lheak* 'the day before yesterday', *ho'lheak* 'yesterday', *behe'la* '...-e'/'-a' 'today', *sáamal* 'tomorrow' and *ka'beh* 'the day after tomorrow' (§7.2.2)
- some phrases used as generic temporal anaphors, such as *le káa tya'laho* or *le kéen ya'lo*, both literally '(when) it said that', and *ti' lelo*, lit. 'with respect to that', or 'at that' (§7.3.6).

This means that there are exceptions to the claim that event order is not expressed in YM. However, these exceptions are too specific in their semantics and pragmatics to allow for an expression of *any* event order in discourse; they are restricted to a few clear-cut uses. The generic temporal connectives only indicate that the topic time TT of the sentence introduced by them overlaps with the TT of the preceding sentence. They do not express a specific event order relation of anteriority, simultaneity, etc. Moreover, they are quite infrequent. Even during the TEMPEST sessions, when the consultants were forced by the task to be as precise and explicit about event order as possible, just seven tokens of the complex generic temporal connectives were produced, occurring in just 1% of the 'refer-

ence acts' in which the order of the events in the stimulus clips was at issue (cf. Bohnemeyer (1998 [b]; 1998 [d]; ch. 10, 2000 [a]); §3.2.3). The deictic day term expressions cannot be used to any other end than in calendrical reference to one out of five days around coding time. Neither the deictic day term expressions nor the topic time shifters can be used to establish the relative order of two events both of which are given in or introduced into the discourse representation. The topic time shifters express the order of the topic time TT at which an event is asserted with respect to *coding time*. However, the use of the TT shifters is restricted to marking that a certain state (expressed by a lexical predicate or by an AM predicate) obtains at TT (which overlaps with coding time with *be'òora ...-a'/-e* 'now' and precedes coding time with *ka'ch(il)* 'formerly'), with the implicature that the state does not hold at some other interval (with *ka'ch(il)*, at coding time). None of the expressions listed above has the capacity of locating any kind of event with respect to coding time, as the deictic (or 'absolute') tenses of Indo-European languages do, and none of these expressions has the capacity of locating events with respect to reference events in discourse, as temporal connectives (and the anaphoric or 'relative' tenses which have a hypothetical status in this study, cf. §2.4) in Indo-European languages do. If one simply takes any of the four principled event order relations of anteriority, posteriority, simultaneity, and incidence defined in §2.1.4, and combines it with one of the three principled modes of givenness of topic time (deictically, anaphorically and calendrically, cf., again, §2.1.4), and now asks for a morpheme or construction in YM whose meaning equals this combination - which, in other words, expresses e.g. anteriority of any target event with respect to coding time, or posteriority of any target event with respect to a reference event in discourse - the answer has to be that there is no such morpheme or construction. In this sense, there is no general expression of the event order relations in YM, and no exponent of the supposed semantic universals 'after' and 'before' of Wierzbicka's Natural Semantics Metalanguage Program (e.g. Goddard & Wierzbicka 1994: 45-46). (As for the third universal of time proposed by Wierzbicka, 'when', the complex general temporal connectives such as *káa tya'laho* may count as exponents of anaphoric 'when', but there is no representative of interrogative 'when' in YM.)

Among the things that the inspection of the expression of temporality in YM has *not* delivered are the following:

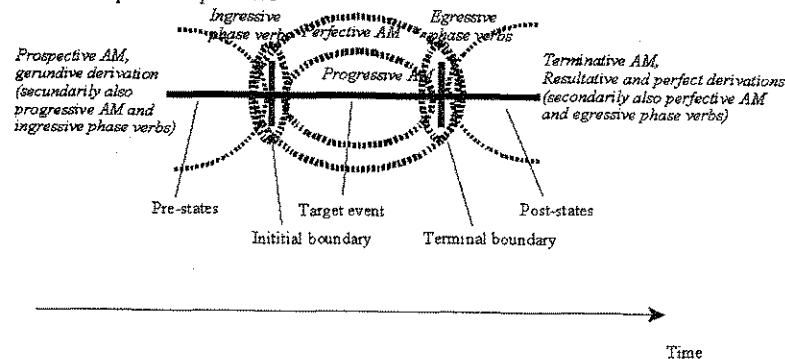
- There are no 'absolute' tenses that locate the target event (or the TT for

which it is asserted) with respect to coding time.

- There are no 'relative' tenses that locate the target event (or the TT for which it is asserted) with respect to a reference event in discourse.
- There are no connectives that express a specific event order relation obtaining between the target event (or the TT with respect to which it is asserted or questioned) and a reference event in discourse.

At the same time, the description in §§4-8 has presented a *wealth* of aspectual and modal operators, all serving in the establishment of time reference and in the maintenance of temporal coherence in discourse. Let us briefly consider these again, as this summary chapter offers the suitable location for a synopsis of what is actually expressed in the domain of temporality in YM. First of all, there are semantic representations of all six logical viewpoint operators introduced in §2.3; most of the logical boundary operators have actually multiple representatives. Consider F50 for a diagrammatic overview.

F50. YM aspectual operators



Four of the six notional viewpoint operators are expressed by combinations of preverbal 'Aspect-Mood' (AM) markers and status inflections on the verb. These combinations have been examined in §6.1. An analysis of the five status categories (completive, incompletive, subjunctive, extrafocal, and imperative) in terms of an aspectual perfective-imperfective contrast and a modal assertive-non-assertive contrast has been established. The status inflections form largely motivated, though not fully compositional constructions with the AM markers (and with lexical matrix predicates and focus constructions), which govern status inflection. It is the preverbal AM markers that ultimately determine the aspectual

viewpoint of a main clause. The target event itself, in its entirety, i.e. including the initial and terminal boundary, is referred to using the perfective AM marker. The progressive AM marker represents the target event imperfectively, i.e. it does not include the boundaries of the event in the scope of assertion. The boundaries themselves are referred to using phase verbs. Pre-states of the target event are expressed by application of the prospective AM marker. In addition, pre-states of punctual events can also be referred to by use of the progressive AM marker or any of the ingressive phase verbs, and pre-states of transitive verbs are accessible through the gerundive derivation. The most general way of referring to any kind of post-state (including the target state of a state change, but also experiential post-states) is the terminative AM marker and, again, the perfective AM marker (which is in itself vague between a 'perfective' reading - presenting the target event inside its boundaries - and a post-state reading). In addition, the resultative (with intransitive verbs, including passivized transitives) and perfect derivations (with transitive verbs) provide post-state reference, though these are mainly used with state-change verbs. (And reference to the post-state of egressive phase verbs entails reference to the post-state of the target event of these phase verbs as well.)

All AM markers are available with virtually all verbs, regardless of their event structure and lexical-aspectual semantics (with the exception of some modal verbs which mainly or exclusively occur with imperfective AM). All verbs are obligatorily marked for status in all syntactic environments, and every independent verb clause obligatorily contains exactly one AM marker. It is thus fair to say that not only are all aspectual viewpoints available with all dynamic events in YM, but at the same time, every independent verb clause is actually *marked* for an aspectual viewpoint. YM phase verbs have been shown to be of an astonishing semantic generality, coming considerably closer to being representatives of the logical ingressive and egressive boundary operators of §2.3 than phasal operators in Indo-European languages. YM phase verbs show less restrictions with respect to the event structure semantics of the embedded verbal core. Thus, all ingressive phase verbs and one egressive phase verb - *ts'o'k* 'end' - are compatible with any dynamic verb, regardless of its telicity or durativity. In line with the almost unrestricted compatibility of all verbs with all AM markers and phase verbs, there is no construction in YM that shows any sensitivity to telicity. Telicity is a purely semantic feature in YM. The event structure and lexical aspect of verbs (as opposed to stative predicates, which are excluded from status inflection and AM marking) has no impact on the availability of aspectual viewpoints in discourse.

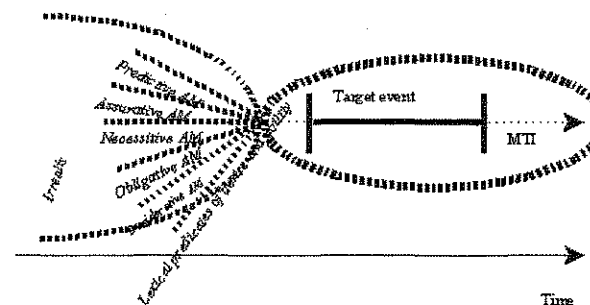
The viewpoint operators of YM function in the maintenance of temporal coherence by triggering boundary-to-order implicatures. The progressive AM marker invites inferences from imperfectivity to overlap (Tu in the typology introduced in §2.4.5 and discussed in more detail in Bohnemeyer (1998 [d]; 2000 [a], [b])); the perfective AM marker triggers implicatures from perfectivity to non-overlap (Tb), which is interpreted to the effect of sequential ordering in combinations of multiple perfective clauses. The ingressive phase verbs are used to implicate non-overlap with respect to events denoted in preceding discourse, and to implicate overlap with respect to events denoted in subsequent discourse (Tingr), while the egressive operators conversely implicate overlap with respect to events expressed by preceding clauses, and non-overlap with respect to events expressed by subsequent clauses (Tegr). Pre-state operators like the prospective AM marker and the gerundive derivation invite implicatures to overlap with the pre-state of the target event, and thereby to precedence with respect to the target event, while post-state operators such as the terminative AM marker and the resultative and perfect derivations trigger inferences to overlap with the post-state of the target event, and thereby to precedence of the target event. Boundary-to-order implicatures thus allow speakers of YM to communicate all event order phenomena in discourse by use of aspectual operators.

Reference to future time events, when these are asserted or questioned as (to be) realized, i.e. perfectly, requires specification of a modal attitude in YM. This fact has been captured by the Modal Commitment Constraint (MCC) stated in §6.2.1.1. In main clauses, compliance with the MCC is achieved by selection of one of the modal AM markers. These represent the target event as desired (desiderative AM), necessary (necessitive AM), or simply as 'scheduled' (obligative AM), or they mark the realization of the target event as 'agreed upon' between speaker and addressee (assurative AM). The predictive AM is pragmatically highly restricted; it is only used in reference to events which are not expectable within the ordinary course of things. (One further modal AM marker, the penative, has a counterfactual meaning, indicating failure of event realization.) The lexical predicates of ability and desire (briefly mentioned in §7.1.4) are used in reference to future time events as well. In addition, though somewhat marginally, the imperfective AM marker is used in future time reference. The core meaning of the imperfective AM is habitual and generic reference. In subordinate clauses, in particular in relative clauses, topic clauses, and focus constructions, the MCC is satisfied by the subordinator *kéen* which marks irrealis modality. The

kéen construction in its turn is also used for habitual and generic reference, which gives rise to the hypothesis that habitual and generic reference are subcategories of irrealis modality in YM.

The selection range of modal meanings to be specified in future time reference is represented in F51. None of these markers is itself restricted to absolute future time reference (with the probable exception of the predictive AM, which seems pragmatically odd with absolute past time reference; recollect from §6.2.2.2.5 that no elicitation work has been conducted on this marker, in view of its pragmatic constraints). All operators are asserted as states that temporally include TT. The target event itself follows the particular state in time. However, the realization of the target event is only given inside the scope of the modal operator, and consequently, the assertion does not introduce a temporal location outside the scope of the modal operators, which constitutes a referentially opaque context. Therefore, the target event is not ascribed a temporal location, but only a projective 'Modal Time Index' (MTI).

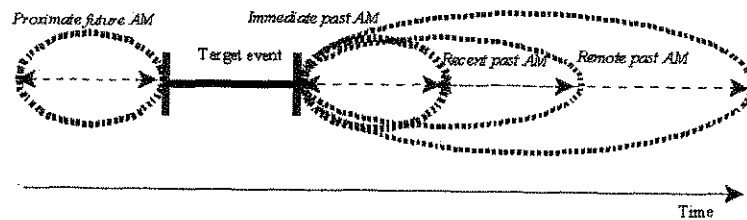
F51. Modal operators of YM



Finally, expressions of temporal extension, and in particular, of the distance of an event with respect to TT, play an important role in YM grammar and discourse. F52 represents only the four AM markers of temporal distance: the proximate future and the immediate, recent and remote past AM marker. The AM markers of temporal distance predicate proximity, immediacy, recency, and remoteness of the target event, respectively, as a state which temporally includes TT. The order of that state of temporal distance with respect to the target event is not itself asserted, but rather presupposed. In addition, there are lexical predicates dealing

with temporal distance, most of which are inchoative verbs (cf. §7.1.3). The recent and remote past AM markers have counterparts among these inchoative verbs, which express an interval of the particular magnitude as the target state of a dynamic event. These verbs are compatible with TTs in the future as well as in the past of the target event, as opposed to the AM markers of temporal distance.

F52. Operators of temporal distance in YM



In Bohnemeyer (1997), the lexicalization of event order in YM has been compared to the lexicalization of 'path' relations in the domain of motion event coding (cf. Jackendoff 1983: 161-170 and Talmy 1972, 1985, 1991). It is assumed in localist theories that event order relations are a subclass of (not necessarily metaphoric) path relations (cf. the references given in §1.7). An alignment of event order and 'path' in YM was indeed confirmed, by the surprising finding that path, in the sense of continuous locomotion of a theme (or 'figure') directed with respect to a referential ground, is also not lexicalized in YM. The adjuncts referring to the ground object in motion event constructions are indiscriminate with respect to dynamicity (stative location vs. location change) and role of the ground in the motion event (i.e. the distinction of 'source', 'goal', and 'via' roles). The verbs that head motion clauses lexicalize exclusively change of location, not durative locomotion. This may explain why there is no grammaticalization of event order relators out of path relators in YM; but it also points to the existence of a larger, unified lexicalization type instantiated in YM which covers the domains of space, time and motion.

9.2. TYPOLOGICAL IMPLICATIONS

There appears to be a general tendency among typologists to talk about 'functions' rather than 'meanings'. The reason, it seems, is a certain reluctance to make assumptions about semantic representations of morphemes or constructions in Non-Indo-European languages, which inevitably presupposes taking the pains to distinguish semantics from pragmatics. This requires access to primary data, i.e. field work. But even field workers often avoid investigations into the interactions of semantics and pragmatics, perhaps because they have philosophical or ideological reasons to doubt the validity of the distinction, or to doubt that the distinction can in fact be established in a reliable manner. It seems that this agnostic attitude towards semantics is quite widespread in present typology.

To all those who believe that it is not *possible* to distinguish semantics from pragmatics in a Non-Indo-European language of the Third World, I hope this study has given reasons to reconsider their assumptions. And for all those who believe that it is not *worth* attempting to distinguish semantics from pragmatics, I hope this study has turned up a number of typologically significant findings sufficient to make the point that applying Gricean pragmatics and truth-conditional semantics may reward the typologist with a considerable amount of new insights. These findings include:

- a language with a parts-of-speech system organized around a binary dynamicity split, rather than the more familiar tripartite distinction among individual-, property-, and event-denoting expressions (cf. Croft 1991);
- a language without tenses (though this is probably not a challenge anymore to most present-day typologists), but also:
- a language without connectives expressing event order, but instead:
- a language with aspect-based temporal connectives, which have no counterparts in Indo-European languages; also:
- a language with aspectual and modal operators which are generally not compatible with calendrical specifications of the event time (and thus clearly differ in behavior from the tense-aspect or tense-mood amalgams known from Indo-European languages), and:
- a language in which event structure and lexical aspect is completely overridden by a system of obligatory aspect-mood distinctions, and which shows no syntax sensitive to telicity and thus defies the customary *aktionsart* tests,

and last but not least:

- a language with phase verbs of a hitherto unattested type, indiscriminatory vis-à-vis the durativity and telicity of the embedded verb, and thereby assuming great power in maintaining temporal coherence in discourse.²¹¹

I thus hope that this study has contributed to broadening the awareness of the range of typological diversity "out there".

9.3. IMPLICATIONS FOR THE THEORY OF TEMPORALITY

From its beginnings, this study has been guided by, among other things, the following question: what would a framework for time semantics look like, if it were formulated by a native speaker of YM, using exclusively the resources of his or her native language? Descriptive linguists must be careful not to imperialize on their own native languages, using them as inadequate metalanguages for the semantic representation of the language they set out to study. The event order relations of anteriority, posteriority, simultaneity, etc., read off of Indo-European tenses and temporal connectives and assumed to be indispensable prerequisites to time reference and temporal coherence in current frameworks of temporality (e.g. Kamp & Reyle 1993: ch. 5; Klein 1994) have turned out to be almost not codable in YM. A native YM time semantics would very likely not start from these event order relations, which could be represented only imagistically, not in an algebraic language based on ordinary YM. Perhaps it would instead capitalize first on boundary information, secondly on the topological relations of sequence and overlap, thirdly on the implicative relationships between boundary patterns and topological relations, and finally on the fact that event sequences are ordered and that this order is iconically reflected in discourse.

However, there will be many time semanticists working on the expression of temporality in Indo-European discourse who do not find the argument from the YM viewpoint relevant to their research. But the study of temporality in YM

²¹¹ For typologists interested in discourse studies, another quite remarkable fact should be added: in YM discourse, events are represented in strictly iconic order, in semantic terms, at least within paragraph boundaries, lest the representation becomes incoherent; cf. especially §4.2.2 (and Bohnemeyer (in press [a])).

should have delivered at least one theoretical insight of use for the work of these researchers: the theory of inferences from aspectual information to event order as Gricean generalized conversational implicatures. The role of inferences to event order in discourse has received ever-growing attention in recent years.²¹² Yet, current treatments do not go beyond a set of unmotivated rules that state the impact of the inferences on the discourse representation *once they have been derived*, neglecting the non-monotonic nature of the inferences. The fact that an entire language - YM - can rely almost exclusively on non-monotonic aspect-based inferences for the representation of event order in discourse clearly points to the need for a theory that accounts for both the defeasibility and the default character of the inferences. Bohnemeyer (1998 [d]; 2000 [a], [b]; in prep.) attempts to propose such a theory - based on the YM facts.

9.4. IMPLICATIONS FOR GENERAL LINGUISTIC THEORY

For the records of general linguistic theory, this study has established in particular three points. The first concerns lexical semantics. The YM lexicon of eventuality-denoting expressions is divided into a system of eight morphosyntactic predicate classes. As shown in §5, the assignment of predicates to these classes is exclusively governed by the event structure representations associated with the predicates; in particular, the representation of causativity and the classification into state-, process-, and state-change-denoting predicates. In contrast, lexical-aspectual properties such as durativity and telicity and participant structure properties such as control and volitionality only align with the extension of the various predicate classes to the extent that they are predictable from event structure representations. This lends empirical support to the architecture proposed in §2.2.1 according to which only event structure representations form part of the lexical meaning of predicates, while lexical-aspectual and participant structure meanings are determined in part by event structures and in part compositionally.

²¹² Cf. Bach 1981; Boogaart (1999); Dowty 1986; Caenepeel 1995; Caenepeel & Moens (1994); Hinrichs 1981, 1986; Kamp 1979; Kamp & Rohrer 1983; Kamp & Reyle 1993: ch. 5; Lascarides & Asher 1992, 1993; Partee 1984; Sandström 1993; ter Meulen 1995; and many others.

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The second point concerns the proposed semantic primitives and lexical universals 'after', 'before', and 'when' (cf. Goddard & Wierzbicka 1994) - these have turned out not to be universals, because they are not part of truth-conditional representations in YM (except when entailed by expressions which are much more specific in both their semantics and their pragmatics). And the third point concerns the relation between semantic and cognitive representations. The results of the TEMPEST sessions documented in Bohnemeyer (1998 [b]; 1998 [d]: ch. 10; 2000 [a]) show that speakers of YM and speakers of German perform equally well at identifying and categorizing the event orders represented in the TEMPEST videos. Yet, as has been shown in the present study, YM offers almost no semantic representations of event order, whereas German does so elaborately. (Moreover, YM participants in the TEMPEST study made almost no use of the few resources their language provides to semantically represent event order, whereas the German consultants used expressions of event order pervasively.) This provides evidence against equations of cognitive and semantic representations (as proposed, e.g., in Jackendoff 1983, 1990, 1997 and Langacker 1987), or of assumptions to the effect that cognitive and semantic representations should be isomorphic, or closely mirroring each other. The present study has shown that a whole language can rely almost entirely on pragmatic inferences in the communication of a domain as fundamental as event order. If, as Grice (1975) suggests, speakers and addressees can rely on the pragmatic principles of communication in conveying their messages, then the burden of encoding the entire content of their mental representations is released from the semantic representations they exchange, and semantic representations are free to divide "the world" into semantic categories that may differ drastically across pragmatically equivalent representations in different languages.

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