Nicole Hober

GRAMMATICALIZATION AND VARIATION

THE CASE OF MAYAN MOTION VERBS

STUDIA TYPOLOGICA

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Studia Typologica

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Beihefte / Supplements
STUF – Sprachtypologie und Universalienforschung
       Language Typology and Universals

Volume 28

Universität Bremen

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"Grammar would appear to represent
the pinnacle of humanness."
(Edwardes 2010: 9)

Preface and Acknowledgments

This book is a revised version of my master's thesis submitted at the University of Bremen in March 2020. The work combines two of my greatest interests in linguistics: the indigenous languages of Mesoamerica and grammaticalization research. The starting point for this research endeavor was my involvement in a project dedicated to a crosslinguistic comparison of spatial deictic declaratives together with Julia Nintemann and Maja Robbers, the fruits of which have been published in the book-length publication *Here – Hither – Hence and related categories: A crosslinguistic study* (Studia Typologica 26) in July 2020. Amongst other things, I was entrusted with analyzing the Mayan languages. During data collection, it became clear that the motion verbs in several Mayan languages are in the progress of grammaticalizing into genuine spatial markers. Intrigued by this finding, and in the first phase of the research process, I conducted detailed empirical analyses on the Pan-Mayan motion verbs and their grammaticalized variants. In the second phase, inspired by a talk given by Holger Diessel based on his recent book *The grammar network: How linguistic structure is shaped by language use* at the 52nd Annual Meeting of the Societas Linguistica Europaea (21st–24th August 2019), I started to develop a Network Approach to grammaticalization which seeks to combine the meaning with the form level while being firmly grounded in cognitive and psychological facts. I applied the approach to the empirical findings on the Mayan languages. Naturally, the proposal is in its infancy. Although this study offers just a snapshot of the complexity we find for grammaticalization processes across the world's languages, I am confident that it contributes to a more comprehensive understanding of the phenomenon and hopefully entices further research on grammaticalization in this direction, i.e. at the interface of cognition, language use, and linguistic structure.

for taking the time and going to great lengths to help me get my hands on relevant literature. Last but not least, my thanks go to Beke Seefried (University Bremen) for her technical assistance, Xin Ai (University Bremen) for answering my questions on Mandarin Chinese, and Nomazulu Thata (University Bremen) for allowing me to learn about Zimbabwean Ndebele. Despite receiving support on various fronts, all errors are my sole responsibility.

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Nicole Hober, Bremen/Germany
November 2020

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List of Abbreviations and Notational Conventions

For each example sentence, a translation in English is given together with an interlinear morpheme-translation. For the interlinear abbreviations, the *Leipzig Glossing Rules* were applied throughout. Whenever no abbreviation suggestions were provided, the most commonly found option was chosen. All abbreviations are listed below. The interlinear glossing from the original sources was largely kept and only adjusted to conform to the *Leipzig Glossing Rules*, although a number of modifications were made to those elements that are relevant to the present investigation. Whenever the interlinear glossing and the idiomatic translation were given in a language other than English in the original source, the English equivalents were used instead.

A	set A pronouns (ergative)
ABS	absolutive
ACT	active
AD	adjunct
AFF	affirmative
AG	agent-like argument in a transitive clause
ALL	allative
ANI	animate
ANTIC	anticausative
ANTIP	antipassive
APP	applicative
ART	article
ASP	aspect
ASS	assertive
AUX	auxiliary
B	set B pronouns (absolutive)
BEN	benefactive
CAUS	causative
CFP	clause-final particle
CL	classifier
CMP	complement
COMP	complementizer
COMPL	completive
CON	continuous
COND	conditional
CONJ	conjunction
COP	copula
CS	category suffix
DAT	dative
DCM	discourse continuity marker
DCs	directional constructions

DEAG	deagentive
DEB	debitive
DEF	definite
DEIC	deictic
DEM	demonstrative
DEP	dependent status marker
DET	determiner
DIM	diminutive
DIR	directional
DIST	distal
DS	directional suffix
EMPH	emphatic
ENC	enclitic
EP	epenthesis
ERG	ergative
EVI	evidential
EXCL	exclusive
EXCLAM	exclamative
EXH	exhortative
EXI	existential
F	feminine
FOC	focus
FUT	future tense
HAB	habitual
HORT	hortative
IMM	immediate
IMP	imperative
INAN	inanimate
INCEP	inceptive
INCH	inchoative
INCOMPL	incompletive
INCORP	incorporated
INDF	indefinite
INF	infinitive
INST	instrumental
INT	intentional
INTENS	intensifier
INTR	intransitive
INTROV	introversive
IOPR	indirect object pronoun
IPFV	imperfective
ITER	iterative
LOC	locative
M	masculine
MID	middle voice
MOT	motion
N	neuter

NEC	necessive modality
NEG	negation
NF	non-finite
NMLZ	nominalizer
NP	noun phrase
NPT	noun phrase terminal
O	object
OST	ostensive
P	patient-like argument in a transitive clause
PASS	passive
PERF	perfect
PERS	person
PFV	perfective
PL	plural
POSIT	positional
POSS	possessive
POT	potential
PRED	predicative
PREP	preposition
PROG	progressive
PROSP	prospective
PROX	proximal
PROXI	proximate
PRS	present tense
PST	past tense
PTC	particle
PTCP	participle
PURP	purposive
Q	question marker/particle
REAL	realis mood
REC	recent past
RECP	reciprocal
RED	reduplication
REFL	reflexive
REL	relative
REM	remote
REP	repetitive
REPORT	reportative
RN	relational noun
SA	single argument in an intransitive clause
SBJV	subjunctive
SEQ	sequentiality
SG	singular
SPCL	second position clitic
SSF	status suffix
STAT	stative
SUB	subordinator

SUBJ	subject
T	tense
TEMP	temporal
TERM	terminative
TOP	topic
TR	transitive
TRR	transitivizer
TS	thematic suffix
TXT	textual marker
VB	verbal base
V1	first verb
V2	second verb

Symbols

For original language and interlinear morpheme translation:

x y	word boundary between x and y
x-y	morpheme boundary between x and y
x=y	x and y are joined by cliticization
(x)	x is optional

For original language only:

ø	null expression of meaning
x.y	x and y are grammatical or lexical (sub-)categories of one original language morpheme or lexeme

Ungrammaticality is marked by an asterisk (*). Uncertain analyses carry a question mark (?).

For interlinear morpheme translation only:

Structures to be highlighted are given in **boldface.** While other also important elements in the same sentence are <u>underlined</u>.

Notational conventions

Direct quotes are given without original boldface, capitalization, invertedness, or underlining. Any such indications found in direct quotes were added by the author.

The language designations are taken from *Glottolog 4.0* and thus changed from the designation used in the original source where necessary.

In the running text, language-particular lexemes or grammatical markers are generally given in *italics*, while the exact meaning of the linguistic elements is given in 'inverted commas' (e.g. Spanish *casa* 'house'). Upon the first men-

tion, technical terms are presented in *italics*. Afterwards, the terms are used without special highlighting.

Spelling conventions

The orthography used for the language examples was always taken from the respective sources and were only adopted in three respects. In the Mayan language examples, <ch> instead of <ȼ> is used to represent /tʃ/ and <'> is used to represent a glottal stop /ʔ/ irrespective of its position. The orthography used for the Mixe-Zoquean examples was adjusted in one respect, i.e. <'> instead of <~> is used to represent the glottal stop /ʔ/.

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https://doi.org/10.1515/9783110728613-206

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1 Introduction: Grammar and grammaticalization research

This investigation of the grammaticalization[1] of Mayan motion verbs is undertaken against the backdrop of a large body of studies on grammaticalization – both empirical and theoretical in nature. The earliest recognition of and work on grammaticalization dates back as far as the mid-18th century when the French philosopher Étienne Bonnot de Condillac first observed the development of independent lexemes into dependent grammatical formatives (cf. Heine et al. 1991: 5). Since then, philologists, typologists, and, more recently, cognitive and anthropological linguists have taken an interest in grammaticalization and tackled the topic from different angles. Thus, they arrived at an ever-growing understanding of the processes involved. In the heyday of modern grammaticalization research at the end of the 20th century, seminal work was produced that shaped and informed all following endeavors, amongst others Lehmann ([1985] 2004, [1995] 2002, 2015), Heine et al. (1991), Hopper (1991), Traugott and Heine (1991a, b), and Hopper and Traugott ([1993] 2003). Other noteworthy and advancing research on grammaticalization since the beginning of the 21st century includes, but is not limited to, Heine and Kuteva (2002), Traugott and Dasher (2002), Bybee (2003a, b, 2006), Bisang et al. (2009), Diewald and Bergs (2008), Stathi et al. (2010), Narrog and Heine (2011), Traugott and Trousdale (2010, 2013), and Bisang and Malchukov (2017). Among all these works there is growing agreement that grammaticalization should not only be viewed as 'reduction' but also as 'expansion'. Furthermore, in the past 10 years, a noticeable surge in the consideration of grammaticalization in light of Construction Grammar can be detected (cf. Diewald 2008; Traugott and Trousdale 2013) while the dimensions of directionality and (inter)subjectification have gained increasing prominence in the field (see Traugott 2003; Fischer et al. 2004; Van Olmen et al. 2016). Recent and novel findings, therefore, entice theorists of grammaticalization to reassess presupposed notions on grammaticalization.

One central aim of this study is to add to the ever-growing empirical base by conducting an intragenetic study on the grammaticalization of motion verbs in Mayan languages. Although the investigation of grammaticalized motion verbs

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1 There is some terminological variation regarding the phenomenon. Some scholars prefer 'grammaticization' over 'grammaticalization': "Some have seen in the -al- form the hint of a suggestion that the resultant forms are 'grammatical', i.e. part of 'the grammar', and they avoid the -al- form for this reason" (Hopper 1991: 34). I decided to use 'grammaticalization' as it is the most frequently employed term in the literature.

looks back on a rich history, the language family under scrutiny has not received much attention in this research paradigm, albeit lending itself to diachronic surveys given the comparable wealth of its documentation. In addition, Mayan languages are manageable in terms of size, situated within a well-defined geographical area, and have been in contact with Spanish (Romance, Indo-European) since the early and mid-16th century. The latter parameter is particularly interesting with a view to contact-induced grammaticalization or grammatical replication (cf. Heine and Kuteva 2003, 2005; Wiemer et al. 2012). Of course, contact has also occurred with languages other than Spanish; Mayan languages have been in contact with the languages of the Mesoamerican area, in particular with members of the Mixe-Zoquean phylum.

Examining variation in the grammaticalization of a predefined group of verbal lexemes within one phylum is a fresh approach that offers new insights into the phenomenon. Indeed, microvariation in grammaticalization has previously largely been neglected. I, however, contend that it is not only paramount to uncover how and why lexical formatives undergo grammaticalization but also if and why they do or do not. From my perspective, any variation in grammaticalization behavior on the macro- or micro-level concerning one language family has far-reaching implications for grammaticalization theory. All languages within one family stem from one Proto-language, thus exhibiting similar structures and sharing etymologically related words, i.e. cognates. Supposing that the explanations and mechanisms proposed in the literature are at play, one should be able to observe similar if not identical developments. However, if there is considerable variation, the current theories might not yet grasp grammaticalization in its entirety. This would leave us with two options. Either certain parameters within the models need to be adjusted or a new model needs to be devised. I believe that the former course of action suffices and propose that grammaticalization is best understood as working through a Grammar Network (cf. Diessel 2019).

Within the general framework of functionalism, I adopt a usage-based approach to language and understand language as a complex adaptive system (Ellis and Larsen-Freeman 2009). Grammar is defined as "the cognitive organization of one's experience with language" (Bybee 2006: 711) with usage frequency (i.e. repetition) and the context of a usage event (i.e. co-text) as key aspects of linguistic experience. It follows that grammaticalization and the products of language change as a whole are considered adaptive changes and the result of repeated, conventionalized instances of language use. An account of grammar as usage-based immediately invokes the notion of *emergent grammar* as coined by Hopper who defines grammar as "constantly under construction, and structured only by emergent patterns that come and go" (Hopper 1998: 172). The state and structure of grammar can thus be described as 'not being but

becoming'. This stance emphasizes the dynamic and ever-changing nature of grammar. Another intriguing account of grammar is offered by Chafe (2002: 395) who discusses the relationship between thought and language and how thoughts need to be adjusted to realize language. According to him (Chafe 2002: 397), ideas, i.e. events, states, and the referents involved in them, mirror human experiences. He argues that these "ideas are located within our thoughts in a variety of ways: in space, in time, epistemologically, in the context of other ideas, and with relation to the ongoing interaction" (Chafe 2002: 401). The orientation of ideas is facilitated by grammar. If grammaticalization refers to the process by which grammar is created, then grammaticalization creates (new) orientation(s). This view ties in with usage-based definitions of grammar. Orientations are ubiquitous and constantly activated, while ideas, being so manifold, surface infrequently by comparison: "A particular orientation is likely to be used again and again, no matter what is being talked about" (Chafe 2002: 408). Grammar derives from repeated instances of language use and serves to position ideas in discourse. Whatever the precise nature of grammar within an individual language, it owes much of its existence and shape to and can be explained by universal processes of grammaticalization, the comprehensive description of which constitutes a long-standing desideratum in linguistics.

Following a thorough outline of the motivation for this project, a review of the relevant literature on (i) characteristics of grammaticalization, (ii) constructions, (iii) universal cognitive processes, (vi) theories of grammaticalization, (v) and contact-induced grammaticalization is given in Section 3. Current issues in grammaticalization research are referenced throughout. Some open questions are considered at the end of the section. The methodology adopted and the data used for the empirical analyses are delineated in Section 4. The subsequent sections form the main part which commences with a brief overview of the Mayan language family itself, the genealogical classification, the socio-linguistic situation, and a brief typological sketch in Section 5. Section 6 is devoted to a description of the Pan-Mayan motion verbs. The result sections detail the grammaticalization of Mayan motion verbs into markers of motion, purpose, and trajectory (Section 7) as well as their further development into markers of Tense-Aspect-Mood (TAM), in particular future tense and inceptive/inchoative aspect, and into markers of more unusual targets (Section 8), such as evidentiality. In the same section, I further comment on the fate of the (grammaticalized) motion verbs in language contact situations. In Section 9, the implications of the findings are explored from a wider typological-functional perspective and in relation to the proposed Network Approach to grammaticalization. In the last section, I recapitulate the main points and findings of this study and offer concluding remarks and an outlook towards further research.

2 Motivation: Forging new paths in grammaticalization research

2.1 The ubiquity of grammaticalization

The general motivation for the perpetual interest in grammaticalization is perhaps best captured by the introductory quote: "Grammar would appear to represent the pinnacle of humanness" (Edwardes 2010: 9). It follows that grammaticalization processes, which yield grammar as their endpoint, lie at the very center of the human experience. Adopting an anthropological perspective, Edwardes (2010) investigates the origins of grammar and suggests that the sharing of social models is the prime motivator for the emergence of complex language. In his lengthy line of argument, he reviews evidence from grammaticalization studies and hereby refers to Heine and Kuteva's (2007) *The genesis of grammar: A reconstruction*. Grounded in research on the grammaticalization processes observed in modern languages, the authors reconstruct the evolutionary and gradual development of grammar in early language. Heine and Kuteva's account builds exclusively on hitherto compiled data on grammaticalization (cf. Heine and Kuteva 2002). Figure 1 gives the layers of grammatical evolution as proposed by the authors with nouns as the starting point in Layer I. Verbs are said to have emerged out of nouns in Layer II and, in turn, gave rise to adverbs (Layer III) or aspect and negation markers (Layer IV).

While this abstraction of grammatical development only depicts the most salient evolutionary pathways, it still invokes the presumption that lexical elements only travel certain prefigured grammaticalization paths. Recent research, which will be discussed in Section 2.3, indicates that there is more variation and a wider range of grammatical functions (cf. Devos and van der Wal 2014). Even more so, Heine and Kuteva's proposal is highly speculative as there is, of course, no historical empirical evidence to support the claim.

2.2 GO as a motion verb, COME as a gram

The data resorted to for the proposal on grammatical evolution is largely based on the *World lexicon of grammaticalization* (henceforth WLG) (Heine and Kuteva

2002).[2] In the first edition of the WLG, eleven motion verbs are listed as source items targeting primarily the TAM categories.
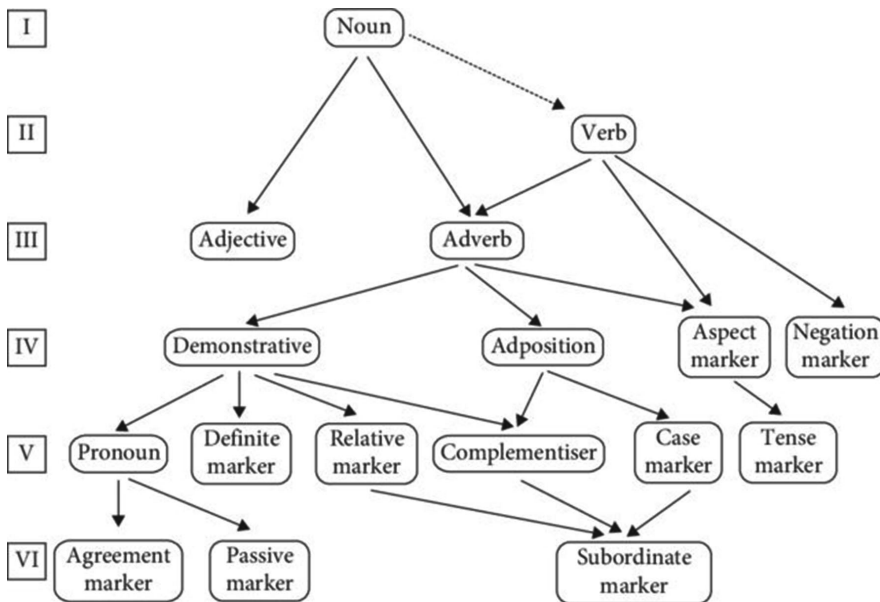
Figure 1: Layers of grammatical evolution (Heine and Kuteva 2007 in Heine et al. 2013: 381).

The grammaticalization paths "from verbs to tense/aspect/modality markers [and] the resulting grammatical meanings are largely predictable because they are already contained in the verbal meaning" (Heine et al. 1991: 109).[3] Consequently, the potential of motion verbs for the conceptualization of these categories has been frequently discussed in the literature (cf. Bybee and Dahl 1989; Bybee et al. 1994; Givón 1973; Heine and Kuteva 2002; Majsak 2005). The eleven directional motion verbs listed in the WLG are: ARRIVE, COME, COME FROM, COME TO, CROSS, DESCEND, GO, GO.TO, LEAVE, PASS, and RETURN.[4] Taken together, they give

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2 A new, revised, and updated version was released eighteen years later (Kuteva et al. 2020). The second edition keeps the A–Z format, includes a database of more than 1,000 languages, and provides evidence of over 500 processes of grammatical change. At the time of writing, the revised WLG was not available to me. Therefore, I only refer to the first edition of 2002.

3 This 'containment hypothesis' was initially proposed by Givón (1973).

4 I use small caps when referring to the class of verbs, i.e. types. The labels correspond to the respective English motion verb equivalents. The concrete item in a language is simply referred

evidence of 38 processes of grammatical change.[5] Among the 38 grammaticalization targets, nine may result from more than one motion verb. Intriguingly, some of these gram types can be derived from either GO or COME verbs, such as CONSECUTIVE, CONTINUOUS, and HORTATIVE.[6] Traditionally, any realization of lexical COME has been described as 'motion towards the deictic center' and lexical GO as 'motion away from the deictic center'. Yet, although still a prevailing (mis)conception, it has been established that these verbs do not always function as deictic oppositions (Wilkins and Hill 1995). I elaborate on the implications of this assessment in Section 2.3. What is more, the data on motion verbs in the WLG has a strong bias towards the African macro-area with 71 out of 125 languages (56.8 %) and thus towards the Atlantic-Congo phylum with 43 out of 103 languages (41.8 %). In addition to the relative overrepresentation in the sample, the temporal depth of African language documentation does not go very far. African linguistics and African language documentation did not gain momentum until the 20th century (Wolff 2019: 2). The evidence for a diachronic process is thus largely derived from synchronic data. This is not unproblematic. Table 1a and 1b offer an overview of the genetic and areal distribution of languages with grammaticalized motion verbs in the WLG. Note that Table 1a only gives those languages families with more than one representative language in Heine and Kuteva's sample.

Tables 1a: Genetic distribution of languages with grammaticalized motion verbs in Heine and Kuteva's WLG (2002).

Language family	Languages
Atlantic-Congo	43
Indo-European	12
Indo-European-based Creole	9
Austronesian	8
Afro-Asiatic	6
Pama-Nyunga	4
Sino-Tibetan	4

to as a lexeme and given in lowercase plus inverted commas for English items but in italics for non-English items.

5 For an overview of the relations between the source items and target domains, the reader is referred to Appendix I.

6 See Section 4 for a definition of 'gram' and 'gram type'.

Language family	Languages
Khoe-Kwadi	3
Mande	3
Turkic	3
Nilo-Saharan	2
Isolates	2
Nilotic	2
Uto-Aztecan	2
Total	103

Table 1b: Areal distribution of languages with grammaticalized motion verbs in Heine and Kuteva's WLG (2002).

Macro-area	Languages
Africa	71
Eurasia	25
Americas	17
Papunesia	9
Australia	3
Total	125

As can be deduced from Table 1a and 1b, more empirical data is needed especially from areas and languages families that have only been sporadically and at times superficially examined in relation to motion verbs. Mayan languages are only represented by Tzotzil in the WLG, where *ba't* 'to go' grammaticalized into a future tense marker (Heine and Kuteva 2002: 162).[7] The present contribution seeks to fill this gap. After having established why it is necessary to look at Mayan languages, I now demonstrate why it is equally worthwhile to continue the examination of (the grammaticalization of) motion verbs.

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7 See Section 8.1 for the discussion of Tzotzil *b'at* as a FUTURE auxiliary.

2.3 The semantics of motion verbs

With their paper entitled *When "go" means "come": Questioning the basicness of basic motion verbs*, Wilkins and Hill (1995) unequivocally show that GO and COME verbs neither constitute lexical universals nor encode a universal deictic opposition. Taking into account previous findings on typologically and areally diverse languages, e.g. Yucatec Maya (Yucatecan, Mayan) (Lucy 1994), English (Germanic, Indo-European) (Langacker [1990] 2002: 150), Hindi (Indo-Aryan, Indo-European) (Sinha 1972), and their own examination of the semantics and pragmatics of GO and COME in Mparntwe Arrernte (Arandic, Pama-Nyungan) and Longgu (Oceanic, Austronesian), the authors make several observations. They find that (i) there is cross-linguistic variation as to the semantics of GO and COME, (ii) GO does not always entail a deictic reading, (iii) while motion in the deictic sense can be expressed in all languages, there is variation in how it is encoded, (iv) although the motion encoded through GO must not be anchored in the deictic center (e.g. the speaker by default), it still strongly suggests motion away from an entity, and (v) GO and COME are part of a larger network of motion verbs (Wilkins and Hill 1995: 214–215). Furthermore, they conclude that the analysis of the concrete expressions within the class of motion verbs in any language is rendered more semantically and systemically complex than has been generally presumed. According to them, motion verbs do not constitute a definable or natural class that can be based on objective, formal criteria.

To elaborate, data on the Zimbabwean Ndebele language (Bantu, Atlantic-Congo) elicited from a native speaker support the observations made by Wilkins and Hill (1995). In order to investigate the encoding of motion verbs and spatial deixis in Ndebele, two types of tasks were designed, i.e. a questionnaire and a set of visual stimuli. The elicitation process was audio-recorded. Overall, 27 motion verbs were elicited asserting that Ndebele disposes of a vast network of motion verbs which both determines and confines the choice of motion verb (see Appendix II for an overview of the findings). In the following, I discuss two noteworthy observations. First, GO is used as a general motion verb MOVE. The verb may appear devoid of any deictic meaning (cf. 1b). Example (1a) gives the most frequently encountered usage of *-ya* 'to go'. Here, it functions as a deictically anchored motion verb and is followed by the distal deictic declarative *lapho* 'there'. Yet, it can also encode very specific movements. As shown in example (1b), my informant uses *-ya* for rendering the stimulus 'The ball is rolling'. It appears that *-ya* can be employed as an all-purpose verb of motion meaning 'move' which, depending on the context, may denote a more specified motion, i.e. a ball can, by default, only 'roll'. It follows that *-ya* 'to go' can be interpreted as 'to roll' or rather 'move in a typical ball fashion'.

(1)　　　GO in Zimbabwean Ndebele (Bantu, Atlantic-Congo)
　　a.　*-ya* encoding allatival motion
　　　　i-nkosikazi　　*i-**ya***　　　　　*lapho*
　　　　CL9-woman　　CL9-**go/move**　　there
　　　　'The woman goes (to) there.'
　　b.　*-ya* denoting specified motion
　　　　i-bhora　　*li-**ya***
　　　　CL5-ball　　CL5-**go/move**
　　　　'The ball is rolling (lit. The ball is going/moving).'

Second, GO and COME do not appear to be deictic opposites. Example (2) shows that *-za* 'to come' is employed to encode allatival motion. Based on the Ndebele rendering, the stimulus 'He is going there' must be back-translated literally as 'He is coming (to) there'. It appears that the deictic center was transferred.

(2)　　　COME in Zimbabwean Ndebele (Bantu, Atlantic-Congo)
　　　　-za encoding allatival motion
　　　　*u-**za***　　　　　*khona-ngapho*
　　　　CL1-**come**　　　there-thereabouts
　　　　'He is going there (lit. He is coming (to) there).'

In fact, there is no example in the elicited data where *-za* 'come' is used to encode ablatival motion. Both GO and COME are encoders of motion towards a goal. It seems that COME is predominately employed in deictic settings, whereas GO surfaces in deictic and non-deictic contexts. Ndebele speakers resort to *-vela* 'to come from' to express ablatival movement, see example (3).

(3)　　　COME FROM in Zimbabwean Ndebele (Bantu, Atlantic-Congo)
　　　　-vela encoding ablatival movement
　　　　u-mangoye　　*u-**vela***　　　*khona-le*
　　　　CL1-cat　　　　CL1-**come.from**　　there-DEIC
　　　　'The cat returns from over there.'

The findings point to the language-specific semantics of motion verbs and their intricate interplay within a semantic network. Naturally, the apparent lack of universality carries important implications for the study of motion verb grammaticalization regarding, for example, the role of lexical semantics, syntactic context (co-text), deixis, and 'futurity' in the explanation of grammaticalization processes. The anthology by Devos and van der Wal (2014) constitutes a first step towards comprehensively discussing and problematizing these implications.

2.4 Unusual grammaticalization paths

The papers collected in Devos and van der Wal (2014) offer insight into the unusual[8], lesser-known, or rarer grammaticalization paths travelled by COME and GO. Devos and van der Wal (2014: 15) rightfully state that "unusual targets almost automatically invite questions about the nature of the source items and in the case of 'come' and 'go' about the presupposed notions of basicness and deixis". In their approach, Devos and van der Wal (2014: 7) distinguish *direct* and *indirect grammaticalization paths.* Direct paths are associated with the development of a particular source item into a target item which retains much of the source's initial semantics, as is the case for GO (TO)> FUTURE (cf. Heine and Kuteva 2002: 161–163). Indirect paths, on the other hand, are argued to come in two forms. Type I relates to the functional expansion of an item that has already acquired grammatical status and continues to develop "new constructions or meanings that exhibit a greater degree of grammaticalization" (Haspelmath 2004: 33). In the literature, it is generally distinguished between 'primary grammaticalization' and 'secondary grammaticalization' whereby the indirect path falls under the latter. Type II of the indirect paths refers to instances where there has instantly been a considerable change in the semantics of the motion verb and the target is no longer associated with motion. Devos and van der Wal (2014: 7) acknowledge that it is not always possible to distinguish the two types. Indeed, I am unsure whether such a distinction exists. Rather, it might be the case that the usual target at the intermediate stage of Type II was lost, replaced, or simply did not prevail. I will return to this issue in Section 9.

An overview of the unusual targets discussed in Devos and van der Wal (2014) is provided in Tables 2a and 2b. The first column gives the source item, either COME or GO, while the second column provides the unusual targets that resulted from them. The third column indicates the language(s) for which the development was observed. Overall, the targets can be assigned to three broad categories: passives, mood/modality, and discourse markers.

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8 As the term 'unusual' is used throughout to describe the lesser-known grammaticalization paths in Devos and van der Wal (2014), I decided to employ the term as well, although 'rarer' is probably the more suitable descriptive term.

Table 2a: Unusual targets of COME discussed in Devos and van der Wal (2014: 321).

Source	Target	Language
COME	(model) passive	Italian (Romance, Indo-European) Romanian (Romance, Indo-European)
	copula	Romanian (Romance, Indo-European)
	directive marker	cross-linguistic
	non-epistemic necessive modality	cross-linguistic
	purpose	Shangaci[9] (Bantu, Atlantic-Congo)
	discourse marker of acceptance and conversation ending	Peninsular Spanish (Romance, Indo-European)
	discourse marker of disagreement	Peninsular Spanish (Romance, Indo-European)

Table 2b: Unusual targets of GO discussed in Devos and van der Wal (2014: 321).

Source	Target	Language
GO	(deontic) passive	Early Italian (Romance, Indo-European)
	directive marker	cross-linguistic
	non-epistemic necessive modality	cross-linguistic
	focus	Spanish (Romance, Indo-European)
	intensifier	Supyire Senoufo (Senufo, Atlantic-Congo)
	sequential (or episode boundary) marker	Shangaci (Bantu, Atlantic-Congo)
	discourse marker of disapproval	Shangaci (Bantu, Atlantic-Congo)

Tables 2a and 2b assert that COME and GO may give rise to the same unusual targets, i.e. directive markers or markers of non-epistemic necessive modality. To

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9 The language is listed as Nathembo in *Glottolog 4.2*.

exemplify, Bourdin[10] (2014) looks at the grammaticalization of the two motion verbs into non-epistemic necessive modality markers from a cross-linguistic perspective. He argues that these markers may be derived in two ways. First, in some languages, they are the result of Type I indirect grammaticalization (or secondary grammaticalization). In this case, they are a "functional offshoot, as the verbs at issue have primarily grammaticalized either into future markers or into markers of passive voice, with their use as necessive markers 'piggybacking', so to speak, on either of these two functions" (Bourdin 2014: 156). This group of languages includes, for instance, Lakota Dida (Kru, Atlantic-Congo), where the source verb is of the COME-type. In (4a), *yi* 'to come' assumes a future marking function, while it marks non-epistemic necessive modality in example (4b).

(4)   Lakota Dida (Kru, Atlantic-Congo)

[Marchese 1986: 211 in Bourdin 2014: 117]

  a.   COME as a future tense marker

  Kúdu **yi**   *ziki*   *sáká*   *li*

  Kudu   **FUT[<come]** tomorrow rice   eat

  'Kudu will eat rice tomorrow.'

  b.   COME as a marker of deontic necessive modality

  ɔɔ́   **yi**   *wa sáká*   *ɓlu*[11]

  3SG.F.NEG **NEC[<come]** PST rice   pound

  'She shouldn't have pounded rice.'

Second, the other route to non-epistemic necessive modality, which potentially qualifies as Type II indirect grammaticalization, refers to a development "whereby verbs of 'coming' have evolved into deontic necessives, by way of a *valuation-salient route*, or into markers of circumstantial, value-free coercion, by way of a *compulsion-salient route*" (Bourdin 2014: 156). One of the languages that Bourdin (2014) discusses in this regard is Scottish Gaelic (Indo-European), which uniquely displays both pathways. The result of the former route is facilitated by the [*air* NP]-complement as shown in example (5a), while the latter is rendered possible by a [*do* NP]-structure given in example (5b). Note that no

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10 Bourdin has contributed greatly to the description of the grammaticalization of GO and COME into lesser-known targets from a cross-linguistic perspective. In Bourdin (2008), the grammaticalization of the two motion verbs into markers of textual connectivity is discussed.
11 Bourdin (2014: 117) further states in relation to the example displayed in (4b) that this construction "is especially interesting as it features a counterfactual deontic, with counterfactuality being supported by the past tense".

complement structure is present in example (5c) due to the absence of an NP. A valuation-salient reading still becomes apparent.

(5)   Scottish Gaelic (Celtic, Indo-European)
        [MacAulay 1992: 188; Dwelly 1971: 947; Robertson 1897–1898: 25, in
                                                    Bourdin 2014: 134–136]

a. COME as a deontic necessive marker down the *compulsion-salient pathway*

thàinig		*air*	*Anna*	*an*	*leabhar*	*a*	*thoirt*	*do*
NEC[<**come**].PST		on	Anna	DEF	book	PTC	give.NMLZ	to

Mhàiri
Mhàiri

'Anna had to give the book to Màiri (lit. It came on Anna to give the book to Màiri).'

b. COME as a deontic necessive marker down the *valuation-salient pathway*

***thig**-eadh*	<u>*dhuit*</u>	*a*	*dhean-amh*
NEC[<**come**]-COND	<u>to.2SG</u>	3SG.M	do-NMLZ

'It would become you to do it.' or 'You ought to do it.'

c. COME as a deontic necessive marker down the *valuation-salient pathway*[12]

is	*e*	*a*	*Ghàidhlig*	*a'*	*chainnt*	*a*
COP.PRS	FOC	DEF	Gaelic	DEF	language	REL

***thig**-ead*	*bhi*	*anns*	*an*	*dùthaich*
NEC[<**come**]-COND	be	in	DET	country

'It is the Gaelic language that ought to be (spoken) in the land.'

The findings presented in Devos and van der Wal (2014) have valuable theoretical implications. The volume, despite its primary empirical focus, also addresses fundamental questions about the lexical semantics of motion verbs, their persistence in the course of the grammaticalization process, and the role of syntactic context (co-text). One of the questions makes direct reference to the considerations of Section 2.2 and concerns the basicness, generality, and frequency of COME and GO verbs. The basicness of the two motion verbs, in terms of lexical universality, was already discredited by Wilkins and Hill (1995). The data presented in the volume lends further support to the lack of lexical universality. For instance, Shangaci (Bantu) disposes of an unstable network of motion verbs

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12 According to Bourdin (2014: 137), *thig* 'to come' has travelled down the following path in examples (5b) and (5c): evaluative deixis > conformity with a standard > deontic necessity.

where "one motion verb can adopt the meaning of another" (Devos and van der Wal 2014: 322). The near-synonyms *etta* 'go (to)' and *lawa* 'leave (for)' both encode allative motion, prototypical GO properties. Generality, i.e. the abstractness of a source item which facilitates its occurrence in a wider range of context, and resultant (high) frequency appear to play a more decisive role. In Dehu (Oceanic, Austronesian), the general motion verb *tro* translated as 'move' can appear in a variety of dynamic constructions where the interpretation of the motion (verb) is context-dependent, as shown in examples (6a–c).

(6)   Dehu (Oceanic, Austronesian)

               [Moyse-Faurie 1983: 76, 103, 172 in Bourdin 2014: 112]

   a.   *eni   a   **tro**   (e)   Drehu*
        1SG   T   **move**   (to)   Lifou
        'I'm going to Lifou.'

   b.   *eni   a   pi   **tro***
        1SG   T   feel.like   **move**
        'I feel like leaving.'

   c.   *angeic   a   **tro**   the-ng*
        3SG   T   **move**   at.the.house-POSS.1SG
        'He is coming to my home.'

As for persistence effects, some lexical source meaning is retained in many of the newly developed grams. This is particularly true for the deictic component if it was initially present. Devos and van der Wal (2014: 323) cite Hopper (1991: 323) who states that persistence effects are apparent when "details of the lexical history [of source items are] reflected in constraints on [their] grammatical contribution". Mauri and Sansò (2014: 165–184) argue in their cross-linguistic analysis of directive markers that the deictic component of GO and COME leads to a construction preference. Second-person imperative constructions are favored by the former, as GO implies 'motion away from the deictic center', i.e. to the exclusion of the speaker. By contrast, the first-person plural hortative constructions are encoded by COME given the implied 'motion towards the deictic center', i.e. entailing the inclusion of the speaker. Devos and van der Wal (2014) conclude that some of the original lexical meaning persists in the unusual grams whose sources have travelled down indirect grammaticalization paths.

    As mentioned above, the deictic component of COME and GO plays a role in grammaticalization. However, this role is not played on the level of lexical semantics but on that of pragmatic interpretation. The authors of the papers collected in Devos and van der Wal (2014) attribute varying importance to deixis. The first position holds that the deictic component does not trigger grammaticalization but limits the grams' usage scope. According to the second position,

it is within the initial stages of grammaticalization that deixis has a considerable effect on a source item's development. Yet another position, supported primarily by Bourdin (2014), finds that the deictic component is the only and single most vital factor in the grammaticalization of COME and GO. In Section 9, the findings of this study are discussed, and I will argue that while the deictic properties of motion verbs may inform the type of constructions in which their grammaticalized variants occur, deixis itself is only one of the motivating conceptual factors contributing to grammaticalization.

Since the advent of Construction Grammar in the 1980s, the importance of constructions in language has continuously been reinforced. It is emphasized that lexical items undergoing grammaticalization should not be analyzed in isolation but in relation to the wider syntactic context in which they occur (see Lehmann 1992: 406, for one of the earliest proponents of the approach). The investigations on the development of COME and GO into unusual targets reveal that auxiliation and serialization are the most common source constructions.[13] [14] It is thus asserted that "when 'come' and 'go' source items enter complex verbal constructions and subsequently grammaticalize, the grammatical meaning is derived not only from the meaning and morphosyntax of the source item but also from the morphosyntax of the co-text" (Devos and van der Wal 2014: 327).

While an immensely valuable contribution shedding light on the lesser-known grammaticalization paths, Devos and van der Wal's anthology presents a mere snapshot of aspects relating to the grammaticalization of motion verbs and does not offer a holistic picture of the processes involved.[15] A discussion of all grams derived from one source item in a given language and the consideration of the wider network of motion verbs, which might influence the lexical semantics and pragmatic interpretations of COME and GO, is missing. Further, the dis-

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13 This is also the case for the developments observed for the Pan-Mayan motion verbs (cf. Sections 7 and 8).

14 These source constructions are not necessarily required for the grammaticalization of motion verbs. The Spanish discourse agreement marker *venga*, for example, developed from a simplex verbal construction where Spanish COME surfaces in the optative (Daniels 2014: 219–248).

15 Other unusual targets of motion verbs have been found in North-Eastern Neo-Aramaic (Semitic, Afro-Asiatic) where the present tense form of GET UP, i.e. *qym* I *(qyāma)* 'to get up' in the form *qāyəm* 'he gets up', grammaticalized into a verbal prefix *qam-* marking the past perfective (Coghill 2019). A comparable unusual development is documented for the Catalan (Romance, Indo-European) GO-past (cf. Detges 2004). What is more, in Mojeño Trinitario (Southern Maipuran, Arawakan), the verbal root *po* 'to walk' has undergone polygrammaticalization. It probably gave rise to the perfective marker *=po,* the associated motion and progressive/distributive markers *=poripo* and *=pori'i,* the motion presentational copula *-opo,* and the discourse marker *-po* 'also' (Françoise Rose, p.c.).

tinction between the two types of indirect grammaticalization paths outlined at the beginning of this section is problematic as the authors themselves admit and thus lacks strong descriptive or explanatory force. Additionally, the chosen terminology, i.e. 'indirect', might be misleading as it implies that direct paths are more straightforward and constitute a distinct category subject to different mechanisms; possible implications that ought to be avoided. Ideally, any type of language change including grammaticalization can be explained within the same theory or model, unless there is compelling evidence to do otherwise. The models and theories devised since the dawn of modern grammaticalization research are delineated in the following.

3 Literature review: Where do we come from and where do we go from here?

The first mention of grammaticalization in the modern sense can be found in Meillet (1912: 131) who describes the process as "[...] l'attribution du caractère grammatical à un mot jadis autonome" whereby novel grammatical forms are derived from autonomous words. The new line of scholarly interest exceeded the neogrammarian focus on sound change, analogy, and etymology prevalent during the 19th century and presented a starting point for investigations on the history of grammar and structure. 50 years later, Kuryłowicz (1965: 69) formulated a general definition of grammaticalization. According to the author, the process "consists in the increase of the range of a morpheme advancing from a lexical to a grammatical [primary grammaticalization] or from a less grammatical to a more grammatical status [secondary grammaticalization], e.g. from a derivative formant to an inflectional one" (Kuryłowicz 1965: 69). The process is gradual and the arguably slowest type of language change. At present, it is generally described as a usage-based phenomenon.[16]

This section contains several subsections, each dedicated to specific issues within the grammaticalization research paradigm. Through the ample discussions, I hope to show both where we come from and point to where we (should) go from here.

3.1 Characteristics of grammaticalization

First of all, a (working) definition of grammaticalization has to be given. Venturing from Kuryłowicz cited above, researchers have offered various accounts of the grammaticalization process, the overall tenets of which largely overlap. I adopt the definition offered by Hopper and Traugott[17] ([1993] 2003: 18) where grammaticalization comprises

> the change whereby **lexical items and constructions** come in certain linguistic contexts to serve grammatical functions, and once grammaticalized, continue to develop new grammatical functions.

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16 There are also generativist approaches to grammaticalization (e.g. van Gelderen 2004). I do not discuss these here.

17 Traugott (2001: 1) puts grammaticalization in more neutral terms and describes it as "a subset of crosslinguistically recurring changes, that involve correlations across time between semantic, morphosyntactic (and sometimes also) phonological changes".

I ascribe, as have many other grammaticalization researchers, particular importance to the construction part of the definition. It follows that I support an approach which takes the constructional history of a grammaticalizing element into consideration. I further agree that the universal cross-linguistically widely observed process is gradual, continuous, and gradient (Hopper 1991: 33) and that it is unidirectional (Haspelmath 2004). Moreover, I regard meaning change as primary and form change as secondary. A form-meaning reanalysis takes place first, while (phonological or) structural changes follow. In my view, meaning change thus precedes and brings about form change. Traditionally, it was suggested that semantic change in the course of grammaticalization entails a loss of meaning, i.e. *semantic bleaching*, *attenuation* (*weakening*), or, as I shall refer to it, *desemanticization*. More recently and, in my opinion, much more accurately, the emphasis has been placed on *polysemy* "a chain of related meanings or uses" (Croft 2003: 262). The polysemous meanings or uses can be situated along a continuum of more content/lexical meaning to more abstract/grammatical meaning.

During the initial stages of meaning change, two mechanisms are of central importance, namely *reanalysis* and *analogy*. At the start of any language change instance, a form-meaning reanalysis, or form-function reanalysis in Croft's terms (2003), occurs. This reanalysis entails "a change in the mapping between form and meaning" which is "non-intentional and derives from pragmatic (contextual) factors" (Evans and Green 2006: 123). In a situation requiring reanalysis, the hearer falls back on *abductive reasoning*, one of the three types of reasoning according to Peirce (1931); the other two are *induction* and *deduction*. The goal of abduction is to find "a (tentative) explanation for some data (...) therefore abduction means a) inferring a (typically theoretical) law such that b) the data may be *deduced* from it" (Itkonen 2002: 413). Through abduction, new meaning(s) may be created, and grammaticalization initiated. Hopper and Traugott ([1993] 2003: 42) state that the hearer applies abduction as a problem-solving strategy in a communicative situation and accordingly extrapolates "from the form of what is said to the intent of what is said". The authors further argue that "the guesses are processes of reasoning based on universal principles, the basic goal being the construction of a grammar (the case) that in some way conforms to the observed data (the result)" (Hopper and Traugott [1993] 2003: 42). Reanalysis can occur for single lexical items as well as entire constructions and always refers to the syntagmatic axis of linear constituent structure. The second mechanism analogy can be situated along the paradigmatic axis. Analogy entails an extension of the usage context of the reanalyzed structure or item and the generalization of the new linguistic structure. This rule-

generalization is overt and provides evidence that reanalysis has indeed taken place. The example of the near future Spanish where [*ir a*] developed from a directional phrase to a marker of the near future clarifies the two mechanisms, see Figure 2.

Syntagmatic axis; Mechanism: reanalysis

Stage I	*ir*	[*a la piscina*]	[*para nadar*]
	go	[DIR.CLAUSE]	[PURP.CLAUSE]
	'go to the swimming pool to swim'		
Stage II	*ir*	[*a nadar en la piscina*]	
(by analogy)	go	[PURP.CLAUSE]	
	'go in order to swim in the swimming pool'		
Stage III	[*ir a*]	*nadar en la piscina*	
(by reanalysis)	FUT	V_{ACT}	
	'going to swim in the swimming pool'		
Stage IV	[*ir a*]	*sentirse mal*	
(by analogy)	FUT	V	
	'going to feel bad'		

Paradigmatic axis; Mechanism: analogy

Figure 2: The development of the near future in Spanish.[18]

At Stage I, the motion verb *ir* 'to go' is followed by a purely directional phrase introduced by the preposition *a* 'to' and a location NP. From Stage I to Stage II, analogy takes place. Conceptually, an action is understood as a location where something is happening. At Stage II, the motion verb *ir* precedes a purposive clause introduced by *a* 'to' which now functions as a preposition-conjunction hybrid marking a new clause, not an NP. Stage III is the result of reanalysis

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18 The figure is modeled on Hopper and Traugott's ([1993] 2003: 69) illustration for English [*be going to*], the development of which is largely analogous to that of Spanish [*ir a*].

whereby the future auxiliary [*ir a*] occurs with action verbs. In Stage VI, the variable slot in the construction is extended to all verb types, indicative of analogy. Through analogy the usage frequency of the construction increases. This increase of the novel analytic future also brings about a decrease in the usage of the synthetic future, which is now primarily resorted to for expressing epistemic modality predicates (Bybee et al. 1994: 224).

To enable a further and more detailed description of the diachronic development, Hopper (1991: 22) proposes five principles of grammaticalization which account for the change of a lexical to a grammatical formative. These are displayed in Table 3.

Table 3: The five principles of grammaticalization (adapted from Hopper 1991: 22).

	Principle	Definition/Description
(1)	*Layering*	"Within a broad functional domain, new layers are continually emerging. As this happens, the older layers are not necessarily discarded, but may remain to coexist with and interact with newer layers."
(2)	*Divergence*	"When a lexical form undergoes grammaticization to a clitic or affix, the original lexical form may remain as an autonomous element and undergo the same changes as ordinary lexical items."
(3)	*Specialization*	"Within a broad functional domain, at one stage a variety of forms with different semantic nuances may be possible; as grammaticization takes place, this variety of formal choices narrows and the smaller number of forms selected assume more general grammatical meanings."
(4)	*Persistence*	"When a form undergoes grammaticization from a lexical to a grammatical function, so long as it is grammatically viable some traces of its original lexical meanings tend to adhere to it, and details of its lexical history may be reflected in constraints on its grammatical distribution."
(5)	**Recategorization*[19]	"Forms undergoing grammaticization tend to lose or neutralize the morphological markers and syntactic privileges characteristic of [Nouns and Verbs], and to assume attributes characteristic of [Adjective, Participle, Preposition, etc.]"

Although the principles were suggested almost 30 years ago, the vast majority of them are still accepted by the grammaticalization research community and

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19 Hopper (1991: 22) uses the term *decategorialization*. I follow Lehmann (2005: 164) who uses the term *recategorization* excluding the reductive nature implied by decategorization.

supported by empirical evidence. The purposive constructions in Coatzospan Mixtec (Mixtec, Otomanguean) serve as a case in point. There are three motion verbs *kishi* 'to come', *ndihshi* 'to come back', and *kishìn* 'to go' in Coatzopan Mixtec which gave rise to three related auxiliaries, each of which may appear in either of the Mixtec aspect forms, i.e. potential, continuative, completive, and incompletive (Small 1990: 314). Any of the three auxiliaries may occur in a motion-cum-purpose construction (*Principle of Layering*) where "the first sentence usually contains a motion verb, and the second one often contains an equivalent motion auxiliary, which expresses purposes in addition to motion" (Small 1990: 430), see examples (7a) and (7b). The first sentence must not be employed in Contemporary Coatzopan Mixtec, although it is still frequently found. The second sentence suffices to render an 'in-order-to' meaning, see (7b), (7d), and (7e). The (iterated) auxiliary precedes the verb nucleus of the (second) sentence which always appears in the potential aspect.

(7)   Coatzospan Mixtec (Mixtec, Otomanguean)

[Small 1990: 431 (a, c), 315 (b, d, e)]

a.   *kakihshi*   *tún*   **kakish**   *kwiin*   *tún*
     come.CON   3SG.F   **PURP[<come.CON.AUX]**   buy.POT   3SG.F
     tuun   *íha*
     charcoal   here
     'She comes to buy charcoal here.'

b.   **kīsh**   *kakshí*   *(tun)*
     PURP[<come.COMPL.AUX]   eat.POT   (3SG.F)
     '(She) came to eat.'

c.   *kwéhen*   *na*   *kūchaña*   **kú**   *kadá*
     go.INCOMPL   3SG.M   Tehuancán   **PURP[<go.CON.AUX]**   do.POT
     tsiñu   *na*
     work   3SG.M
     'He has gone to Tehuancán to work.'

d.   **ki**   *kwiín*   *(tun   nuni)*
     PURP[<go.POT.AUX]   buy.POT   (3SG.F   corn)
     '(She) will go to buy (corn).'

e.   **ndīsh**   *kiji*   *(na   Ø)*
     PURP[<come.back.COMPL]   take.POT   (3SG.M   INDF)
     '(He) came back to get (it).'

Thus, there are 2x3 layers which can be employed to express the purposive in Coatzospan Mixtec. There is the supposedly older motion-cum-purpose con-

struction of the form F1 and the newer layer of the form F2. The index $_i$ indicates that the motion verb and the motion auxiliary must be of the same type.

F1:   [Motion Verb$_i$ + Pronoun + Motion auxiliary$_i$ + Verbal Nucleus.pot]
F2:   [Motion auxiliary$_i$ + Verbal Nucleus.pot]

The motion verb or motion auxiliary slot may be filled by forms of the three motion verbs or motion verb auxiliaries, e.g. [*kakihshi* + Pronoun + *kakish* + Verbal Nucleus.pot] (cf. 7a) or [*kīsh* + Verbal Nucleus.pot] (cf. 7b). The example of the Coatzospan Mixtec purposive is also a case of *Divergence,* the second principle of grammaticalization which Hopper (1991: 24) describes as a special case of *Layering*. The *Principle of Divergence* entails that lexical forms, here the three Mixtec motion verbs which grammaticalize into auxiliaries and perhaps later into clitics or affixes, still persist as autonomous lexemes. Further, the grammaticalization process of the Mixtec purposive construction may be situated at the beginning of the *Specialization* stage where "a variety of forms with different semantic nuances may be possible; as grammaticization takes place, this variety of formal choices narrows and the smaller number of forms selected assume more general grammatical meanings" (Hopper 1991: 22). To express the purposive in Mixtec, speakers have multiple options. This results in what I call *intraconstructional competition.* In a situation of intraconstructional competition, several lexemes or morphemes compete for the invariable slot, which is occupied by one specific, invariable item only in a fully grammaticalized structure. Hypothetically, one of the markers that develop from the auxiliaries will prevail and fill the invariable slot in the Mixtec purposive construction and consequently function as a genuine and neutral purposive marker. Next, the *Principle of Persistence* stipulates that some of the lexical meaning of the source items is retained, if structurally permitted. This lexical meaning has ramifications on the item's grammatical distribution. In relation to the grammaticalization of the Mixtec motion verbs, one may accordingly argue that the purposive meaning is a continuation of the 'motion in time and space'-meaning encoded by the motion verbs proper. While I am in complete agreement with the first part of Hopper's definition, particularly as he leaves room for unusual targets where there is no apparent semantic link, I believe that it is not only the lexical history that "may be reflected in constraints on its grammatical distribution" (Hopper 1991: 22) but also, more importantly, the constructional history. For instance, the three Mixtec motion verbs encode very different types of motion, i.e. *kishi* 'to come', *ndihshi* 'to come back', and *kishɨn* 'to go', and it is only through the motion-cum-purpose construction outlined above that the purpos-

ive reading is induced.[20] Last, the development of the motion verbs into auxiliaries (and potentially affixes or clitics) in Mixtec instantiates the *Principle of Recategorization*. According to this principle, verbs lose their verbal properties and assume functions characteristic of more abstract categories, i.e. recategorization "involves a loss of the optional markers of [verbal or nominal] categoriality" (Hopper 1991: 30). Table 4 provides an overview of the common recategorization patterns based on cross-linguistic evidence.

Table 4: Common grammaticalization patterns (Croft 2003: 254 in Evans and Green 2006: 710).

Recategorization path
content verb > auxiliary > tense-aspect-mood affix
verb > adposition
noun > adposition
adposition > case affix
adposition > subordinator
emphatic personal pronoun > clitic pronoun > agreement affix
cleft sentence marker > focus marker
noun > classifier
verb > classifier
demonstrative > article > gender/noun class marker
demonstrative or article > complementizer or relativizer
numeral 'one' > indefinite article
numerals 'two' or 'three' > dual/paucal/plural affix
collective noun > plural affix
demonstrative > copula
positional verb > copula

The common grammaticalization patterns illustrated in Table 4 form *grammaticalization chain*s or *clines*. According to Kuteva (2001: 10), a grammaticalization chain is "a structure where the different stages of the lexical-to-grammatical development of linguistic entities correspond to successive, intermediate links". For instance, the development from a lexical verb to an auxiliary and the subsequent development of an auxiliary into an affix constitutes such a chain (lexical

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20 The role of the motion-cum-purpose construction in the grammaticalization of Mayan motion verbs is subject to a detailed discussion in Section 7.1.

verb > auxiliary > affix). The change is not abrupt, but it includes a series of intermediate stages or transitions (cf. Figure 2).

As mentioned above, several form changes generally follow and accompany meaning changes, some of which are also symptomatic of the recategorization process. Most generally, free morphemes develop into bound or fused morphemes in a given construction with various intermediate stages in between. Diewald (2008: 225) succinctly states that

> fully grammaticalized categories are maximally free of contextual restrictions, display a high degree of paradigmaticity and are largely obligatory [...]. Therefore, the existence of restrictions indicates that the process of grammaticalization is not yet completed.

To classify the degree of grammaticalization of an item within a construction, I follow Lehmann ([1985] 2004: 303–312) in applying six parameters which describe the formal changes: (i) integrity, (ii) paradigmaticity, (iii) paradigmatic variability, (iv) scope, (v) bondedness, and (vi) syntagmatic variability. The first three relate to the paradigmatic aspects of a sign, while the last three target syntagmatic properties. Table 5 displays the parameters and their realization during weak and strong grammaticalization stages as well as the processes involved to arrive from the former at the latter.

Table 5: Parameters and processes of grammaticalization (Lehmann [1985] 2004: 307).

Parameter	Weak grammaticalization	Process	Strong grammaticalization
integrity	bundle of semantic features; possibly polysyllabic	attrition	few semantic features; oligo- or monosegmental
paradigmaticity	item participates loosely in a semantic field	paradigmaticization	small, tightly integrated paradigm
paradigmatic variability	free choice of items according to communicative intentions	obligatorification	choice systematically constrained, use largely obligatory
scope	item relates to constituent of arbitrary complexity	condensation	item modifies word or stem
bondedness	item is independently juxtaposed	coalescence	item is affix or even phonological feature of carrier
syntagmatic variability	item can be shifted around freely	fixation	item occupies fixed slot

Because Table 5 already offers detailed descriptions and I refer to the parameters/processes and report their manifestation throughout the results sections, I refrain from discussing them in more depth here. It ought to be mentioned, however, that while the parameters have generally stood the test of time, they cannot be ascribed equal importance or centrality. For example, not all instances of grammaticalization are accompanied by *attrition*, the process central to the *integrity* parameter, as will be shown in the results sections. Indeed, the nature and usefulness of the parameters is still an issue up for discussion in grammaticalization research (Detges and Waltereit 2002; Norde 2012). This is especially true for the "notorious parameter of structural scope" (Norde 2012: 126), as research indicates that there appears to be no favored direction in scope change, i.e. reduction or expansion (Norde 2009: 126). For the purpose of this study, I apply the framework as it was initially devised by Lehmann as a mere taxonomic tool without assigning explanatory force to the parameters or supposing that all parameters must apply.

In the same paper introducing the grammaticalization parameters, Lehmann also touches upon the *channelization of grammaticalization*. He states that there are only a select number of items that may give rise to new grammatical formatives. Their selection depends on "certain requirements of semantic aptitude imposed on the elements which are to be grammaticalized" (Lehmann [1985] 2004: 311). In the literature, these source items are typically referred to as basic, general, and frequent. Only the first two properties make reference to the semantic aptitude postulated by Lehmann. Heine et al. (1991) declare that source concepts are culturally independent and relate to the human experience. Section 2 already introduced the paper by Wilkins and Hill (1995) and the anthology by Devos and van der Wal (2014) which question these tenets in relation to the motion verbs GO and COME. Both works conclude that it is generality and the resulting high frequency which account for GO and COME's susceptibility to grammaticalization. The findings of the present investigation of Mayan motion verbs lend support to this stance, as will be discussed in Section 9. Nonetheless, there undoubtedly are only certain universal grammaticalization paths travelled by specific lexical items in general and motion verbs in particular, irrespective of what properties might motivate their selection.

As mentioned in Section 2.2, Heine and Kuteva (2002) collected over 500 universally observed grammaticalization paths in over 1000 languages. Grammaticalization pathways as such are indicative of collective changes in usage preferences. These usage preferences are universal. The same grammaticalization path can be found in genetically or areally unrelated languages. From that, one may reason that there must be universals of change, i.e. *From space to*

time (cf. Haspelmath 1997) or *Survival of the frequent* (cf. Bybee 1985: 199). One particular universal of grammaticalization that has been proposed has attracted much heated debate and controversy in recent years, namely the *unidirectionality* of grammaticalization. The unidirectionality hypothesis postulates that lexical formatives develop into grammatical formatives and that grammatical formatives become even more grammatical – not vice versa. Although the unidirectionality of grammaticalization is not a main concern of this study, I agree with Haspelmath (2004) and Hopper and Traugott ([1993] 2003) who demonstrate that unidirectionality is at least a statistical universal which has "the most important constraints on morphosyntactic change" (Haspelmath 2004: 35). Indeed, there is only little empirical counterevidence to the claim, i.e. genuine cases of *degrammaticalization*. The findings of this study do not add to this already vanishingly small set of counterexamples.

Another such universal of change, which is vital to the theory of grammaticalization devised by Traugott (1988, 2003), is the proposed tendency towards *subjectification* and subsequent *intersubjectification*. This tendency builds on the universal of unidirectionality as it in itself is unidirectionally structured, i.e. objectification > subjectification > intersubjectification – not vice versa. The central claim is that "any semantically subjective lexeme or grammatical morpheme can be hypothesized to have originated semasiologically in a form with nonsubjective meaning" (Traugott 2003: 126). In other words, the meaning of lexemes or morphemes becomes centered in the speaker's subjective perspective. At the subsequent intersubjectification stage, the meaning shifts to the addressee's perspective and focuses on the speaker-addressee dyad. I find Traugott's account intriguing because it emphasizes the role played by language use and, more importantly, language users. The merits of the subjectification hypothesis are further discussed in Section 3.4.2.

Last but not least, a few remarks on grammaticalization, as opposed to *lexicalization*, are in order. Within the realm of language change research, the two terms "have been used in very different and often confusing ways" (Himmelmann 2004: 21). This confusion is partly grounded in the way grammar and lexicon are defined and the dispute about which categories belong where. Himmelmann (2004: 23) refers, amongst others, to Hopper and Traugott ([1993] 2003) in this regard who explicitly state that derivational formatives belong to the lexicon and the development should, therefore, be a case of lexicalization. Yet, they use various examples of emerging derivational morphology as cases of grammaticalization. They also provide the abstraction *lexical item > morphology* as a grammaticalization chain. The umbrella term *morphology* includes both derivational and inflectional morphology. The former should not be analyzed as

an instance of grammaticalization in Himmelmann's view. Himmelmann reviews the primary uses of the two terms and points to major inconsistencies, misconceptions, and problems. One such problem is the traditional element-based view of grammaticalization. He stresses, and I strongly agree, that "it is never the grammaticizing element that undergoes grammaticalization. Instead, it is the grammaticizing element *in its syntagmatic context* which is grammaticized" (Himmelmann 2004: 31). From that, several consequences arise. It becomes pivotal to consider the entire construction within which the element grammaticalizes. Moreover, instead of function-expansion, it is *context-expansion* that takes center stage in the definition of grammaticalization. Context-expansion occurs on three levels: the class of items that may enter the variable slot of a construction is expanded (*host-class expansion*)[21], emerging grams may become obligatory in syntactic contexts where they were not featured before (*syntactic context expansion*), and the usage contexts may be expanded (*semantic-pragmatic context expansion*) (cf. Himmelmann 2004: 32–33). Himmelmann raises the question of whether all three types of expansion must have occurred for grammaticalization to have taken place. He subsequently argues that semantic-pragmatic context expansion should be regarded as "the core defining feature" (Himmelmann 2004: 33). Changes that occur on the level of the element are considered to be epiphenomena. As for lexicalization, Himmelmann finds that there are two types of lexicalization in particular that need to be distinguished from grammaticalization: *fossilization* and *univerbation*. Univerbation is more widespread and relates to "the emergence of new lexical entries from collocation" (Himmelmann 2004: 34). The results of univerbation entail not only the formation of new words (e.g. German *laubfegen* from *Laub* 'foilage' + *fegen* 'sweep.INF') but also the rise of phrases, idioms (e.g. Spanish *estar como una cabra* 'to be a little crazy' [lit. 'to be like a goat']), and proverbs. It follows that while grammaticalization entails a set of lexical items, lexicalization is restricted to an individual element. However, the two do not constitute total opposites, as is the case for grammar and lexicon. There, too, is a continuum between grammaticalization and lexicalization. Himmelmann (2004: 36) concludes his argumentation by comparing the two concepts and succinctly writes that

> [t]he major commonality is that the two processes have a common point of origin, i.e. the spontaneous and productive combination of lexical items in discourse [...]. They differ in what happens in the next step(s): In lexicalization, only one member of the A-class of items starts to form a unit with the B-element, the syntagmatic context may or may not change, and the semantic-pragmatic contextual change are non-directional. In grammaticization, on the other hand, the B-element starts to form a unit with *a set* of A-class items (host-class ex-

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21 Host-class expansion may be understood as the result of analogy.

pansion), the syntagmatic context usually is expanded, and the semantic-pragmatic contextual changes are directional in that they always involve an expansion.

There are several commonalities between the two diachronic processes, but there is also a major difference between them. During lexicalization, a string of words is conventionalized. In grammaticalization, a construction featuring at least one specific and fixed element is conventionalized. The variable slots may be filled by an increasing class of elements. In other words, lexicalization exhibits rather low lexical generality, while grammaticalization results in high lexical generality (see Bybee 1985: 16ff. on lexical generality).

To conclude this section on the characteristics of grammaticalization, I have presented several concepts and key notions that aim at identifying instances of grammaticalization and distinguish them from other types of change, i.e. lexicalization. At various stages, it was stressed that there is still disagreement on some of the parameters, processes, and universals proposed to be definitional characteristics of grammaticalization. I have positioned myself and my research in relation to most of them. What hopefully transpired throughout the discussion is the importance of considering any grammaticalizing element in its constructional context. The following subsection, therefore, offers some remarks on the nature and properties of constructions and their role in language change.

3.2 Constructions

The beginning of the 21st century marked the rise of the usage-based approach to grammar situated within the wider framework of cognitive linguistics – although Langacker already introduced the usage-based view in the 1990s. Within the (back then) novel approach, as opposed to the 'old' generative tradition, previous assumptions on grammar were challenged such as the stark division between competence (language system) and performance (language use), the partition of synchronic and diachronic research, and the existence of Universal Grammar (cf. Diessel 2015: 297). Within the usage-based approach, constructions gained prominence (cf. Bybee 2010; Goldberg 2006; Hilpert 2014; Langacker 2008; Tomasello 2003), so much that a family of construction grammar theories was developed, e.g. *Cognitive Grammar* (Langacker 2008) or *Radical Construction Grammar* (Croft 2001).[22]

In the following, I review properties of constructions and their role in language change in general, i.e. without making reference to a specific theory. To

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22 Yet, there are also a handful of construction-based theories that are not part of the usage-based paradigm (cf. Fillmore and Kay 1999; Michaelis 2013).

begin with, a construction can be defined as a linguistic unit in which a particular function or meaning is associated with a specific structure. This account builds on the Saussurian notion of the sign, a two-sided psychological entity, divided into the *signifier* (form) and the *signified* (meaning) (cf. Saussure [1916] 1994: 67). The term previously used exclusively in connection with lexical expressions was extended to cover grammatical entities such as constructions as well. Figure 3 provides an illustration.
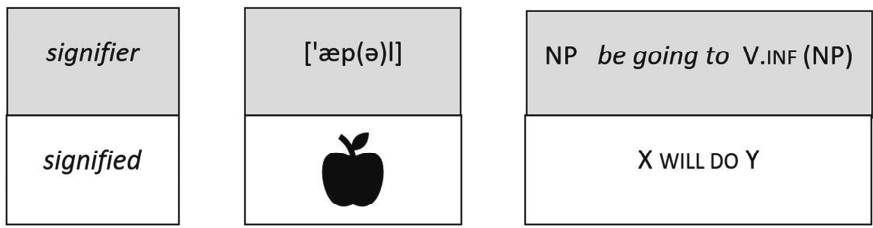
Figure 3: The linguistic sign, the concept of 'apple', and the [*be going to*]-construction.

Constructions may be situated along a continuum of schematicity from more concrete constructions, such as idioms containing *invariable* slots only, e.g. [*the grass is always greener on the other side*], to more abstract constructions entailing *variable slots* for abstract or grammatical categories, such as the [*be going to*]-construction in Figure 3. These variable slots may be filled by elements of certain expression classes, e.g. noun phrases and verbs in the infinitive (cf. Figure 3). Note, however, that "these slots are usually associated with particular words by probabilistic link" (Diessel 2015: 312). This means that some items are more likely to be used than others. Furthermore, the minimum for a construction is usually set to at least two elements (cf. Diessel 2015: 312).

Constructions are linked in the mental lexicon and grammar. The links between constructions are of four types according to Diessel (2015: 303):
– constructions at different levels of abstractness [taxonomic links]
– constructions at the same level of abstractness [horizontal links]
– constructions and syntactic categories [syntactic links]
– constructions and lexical expressions [lexical links]

I briefly review each link type.[23] First, *taxonomic links* relate to the hierarchical structure of grammar, according to which "constructions are schematic representations of linguistic structure that are instantiated in concrete utterances, sometimes referred to as 'constructs' [cf. Fried 2010]" (Diessel 2015: 303). The construct [*The woman is going to eat (an apple)*] is an instantiation of the construction [NP + *be going to* + V.INF (+ NP)], while the construction [NP + *be going to* + V.INF (+ NP)] is a schematization of the construct [*The woman is going to eat (an apple)*]. In the usage-based approach, constructions are said to result from the generalization of concrete instances of strings of words or, as Bybee (2006) proposes, from exemplar representations of constructions. By abstracting from these concrete instances, increasingly abstract constructions on different abstractness levels emerge. Second, *horizontal links* pertain to the relationship between constructions on the same abstractness level (Diessel 2015: 306), e.g. the relationship between [NP + *be going to* + V.INF (+ NP)] and [NP + *will* + V.INF (+ NP)] in English. Third, the relationships between syntactic categories and constructions are referred to as *syntactic links* (Diessel 2015: 309). Syntactic categories themselves are not pre-given, but they are derived from experience with constructions during language use (cf. Croft 2001). Fourth, *lexical links* relate to the associative connections between constructions and lexical expressions (Diessel 2015: 312). Certain lexical expressions are associated with certain constructions. The English dative alternation serves as an example. Diessel cites Gries and Stefanowitsch (2004) who conducted a corpus-based collostructional analysis and show that while the ditransitive verb *give* exhibits a strong preference for the ditransitive construction, i.e. *Marie gave John a flower*, the reverse is the case for *bring* which is more likely to occur in the *to*-dative construction, i.e. *Maria brought the flower to John*. From that, it can be deduced that the associative link between *give* and the [NP + V + NP + NP]-construction is stronger than that between *give* and the [NP + V + NP + *to* + NP]-construction. The opposite is the case for *bring*. The interconnection of constructions through the different types of links described above result in what can be called a "network architecture of grammar" (Diessel 2015: 203). In Section 3.4.3, I propose a Network Approach to grammaticalization based on the idea of grammar as a network.

Before considering constructions in light of language change and grammaticalization, a few words on phrase structure are in order. There is no large body of research on constituent structure from a usage-based perspective. However, Bybee (2002) notably contends that phrases can be analyzed as "processing units"

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23 For a detailed discussion, the reader is referred to Diessel (2015).

which are based on two facets of language use, namely *semantic coherence,* i.e. speakers tend to use semantically related items together, and *automatization,* i.e. frequently occurring strings of words are reanalyzed as units and stored as chunks. Recall the example of Spanish [*ir a*] provided at the beginning of Section 3.1. Through semantic coherence, *ir* and *a* frequently co-occur as both carry meanings of goal-orientedness and motion in space and time. The frequent combined usage of the two items leads to their automatization and storage as a unit (see Figure 2 where the square brackets indicate the chunking).

In the remainder of this subsection, I discuss what happens to constructions during grammaticalization. To offer a concrete example, Bybee (2006: 719–721) explores the rise of the [*be going to*]-construction as a future marker in Modern English. For most of the 16th century, the structure primarily surfaced in purposive clause constructions of the form [NP + (*be*) V-*ing to* + V]. Bybee (2006: 720) cites *going* as the exemplar for the V-*ing* slot of the purpose clause construction. Other possible candidates for the slot were *returning, travelling,* and *journeying.* But with increasing usage frequency, the representation of *going* in the construction strengthened. The frequent sequence then became autonomous and the recurrent pragmatic inferences and meanings came to be attached to it. These pragmatic inferences include readings of intention and future. Through the frequent usage of the construction with an intention- or future-inviting reading, the new meanings came to be associated with the form. Subsequently, the sequence underwent phonological reduction and categorical changes. The development instantiates Givón's (1971) maxim: "Today's morphology is yesterday's syntax".[24]

To recapitulate the previous two subsections, I discussed the essential characteristics of grammaticalization processes with a view to the linguistic material involved. Further, I introduced the key notion of constructions within the usage-based approach to grammar and argued that lexical elements grammaticalize within a particular construction, not in isolation. In the next section, I take a step back and point to the universal cognitive processes and abilities operative during language change in general and grammaticalization in particular.

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24 In the past fifteen years, the role of constructions in language change has sparked some renewed research interest. Noteworthy works include Diewald (2008), Diewald and Bergs' anthology (2008), and Traugott and Trousdale (2013).

3.3 Cognitive processes and abilities underlying grammaticalization

In the cognitive and usage-based view, the cross-linguistically observed, universal trends in language change and grammaticalization are again the result of cognitively and communicatively universal mechanisms that are not confined to language. According to Bybee (2003b: 165), the basic cognitive principles include but are not limited to:

(i)   the ability to automate neuromotor sequences through repetition,
(ii)   the ability to categorize recurrent linguistic elements,
(iii)   the tendency to infer more than is actually said, and
(iv)   the tendency to habituate to repeated stimuli.

In the following, each of the mechanisms is presented in turn. During the discussion of the cognitive processes, special reference to constructions is made where feasible. Firstly, 'the ability to automate neuromotor sequences through repetition' relates to the automatization of sequences of linguistic elements or constructions that display a high usage frequency (cf. Boyland 1996; Bybee 2006; Haiman 1998). Boyland (1996) argues that automatization occurs on both the linguistic and non-linguistic level, i.e. it applies to all motor-related activities.[25] Both the frequent repetition of performing a particular action and of using a certain string of words leads to automatization and renders the motor activities 'ready-made'. In other words, "with repetition, sequences of units that were previously independent come to be processed as a single unit or chunk" (Bybee 2003b: 153). Let me first provide a non-linguistic example. A pianist practices a new piece of music. In the beginning, the pianist would have to read the sheet music thoroughly and place their fingers on the right keys respectively. They would have to think carefully about each musical note that follows another and about the finger movements that need to be carried out accordingly. The initial phase would entail hitting each note separately and moving on to the next slowly. After practicing and repeating the sequences, the finger movements lose

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25 Note that Liebermann (2007), adopting an evolutionary perspective, supports the idea of a strong association between motor skills and grammar. Indeed, he states that the "neural circuits linking regions of the cortex with the basal ganglia and other subcortical structures regulate motor control, including speech production, as well as cognitive processes including syntax" (Liebermann 2007: 39). Grammar is often said to constitute a case of *exaptation* whereby "the purpose that a particular brain area is put to today may not be what it evolved for" (Edwardes 2010: 56). It is conceivable that the same cognitive mechanisms operate during non-linguistic and linguistic (motor) activities.

their independence and are processed and produced as units or chunks. The speed with which the piece is played increases. The pianist neither has to think about which key follows another nor look at the sheet music to coordinate movements as these have become automated. The same principle applies to linguistic automatization, i.e. "[g]rammatical constructions of all types are automatized motor routines and subroutines that can be strung together or embedded in one another to produce fluent speech" (Bybee 2003b: 153). To exemplify, Bybee (2003b: 153) cites the phrase [*going to* + V] as a structure that has been "repackaged as a single processing unit" and reduced to [*gonna* + V]. *Gonna* is not analyzed as two components but as a single one.[26] Of course, [*going to* + V] belongs to the class of English secondary modals, including [*ought to* + V] or [*want to* + V], that have undergone the same changes and formal reductions that are symptomatic of their grammaticalization.

Secondly, 'the ability to categorize recurrent linguistic elements' allows speakers to classify positions within a construction. As outlined in Section 3.2, constructions have variable and invariable slots. In a construction such as [*going to* + V], the invariable slot(s) must be occupied by a fixed string of words, here *going to*, while the variable slot can be filled by items of the verb class. Speakers must be able to categorize the overall type that may enter a variable slot in a given construction and establish whether an item belongs to that type based on linguistic experience, i.e. experienced identity, similarity, and difference among (potential) members of a certain category. Speaker may create new utterances and derive new meanings by using constructions productively and innovatively. The ability to categorize is a general cognitive skill also employed in all kinds of non-linguistic tasks, e.g. selecting edible foods, finding material for building a house etc.

Thirdly, 'the tendency to infer more than is actually said' refers to what has been established as *pragmatic inferencing*. The concept of pragmatic inferencing is central to the *Invited Inferencing Theory* (Traugott 1988; Traugott and Dasher 2002). This approach to grammaticalization and the respective concepts are detailed in Section 3.4.2. For the purpose of this section, it suffices to stress that the human capacity to make inferences in communicative situations enables if not initiates (linguistic) change. According to Bybee (2003b: 156), "[w]hen the same pattern of inferences occurs frequently with a particular grammatical construction, those inferences can become part of the meaning of the construction". Recall, for example, the motion verb *yi* 'to come' in Lakota Dida (Kru, Atlantic-

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26 Relatedly, Bybee (2003b: 152) also finds that "children are often surprised to see that *gonna* is actually spelled *going to*".

Congo). In example (4a), *yi* functions as a future marker, whereas it indicates necessity in example (4b). On the way of its development into both of these grams, hearers frequently inferred from the [*yi* + (NP) + V]-construction that the action expressed in an utterance is either carried out in the future (cf. 4a) or has to be carried out as a rule or a precondition for the fulfillment of another action (cf. 4b). The inferences of future and necessive meaning have thus become part of the construction meaning.

Fourth, 'the tendency to habituate to repeated stimuli' entails that repetition reduces the expressive strength of a word, a phrase, or a construction. The construction, in turn, becomes generalized due to the high frequency with which it occurs. Consequently, it may be used in a wider range of contexts. At the same time, the repeated, expanded usage adds to the total frequency of the generalized construction initiating a source item's journey down a grammaticalization path.

Overall, it becomes apparent that frequency (as a result of repetition) has far-reaching effects on how grammar is stored and shaped in the mind. Different kinds of effects on language processing and storage, i.e. the way that language changes and grammar arises from repeated instances of language use, have been widely observed and discussed in the literature (Bybee 2006; Behrens and Pfänder 2016). A general distinction must be made between type and token frequencies because they affect linguistic structure differently. As Behrens and Pfänder (2016: 8–9) summarize, *type frequency* relates to "the number of distinct items that can fill a slot in a particular construction", while *token frequency* makes reference to "the number of occurrences of a concrete form (or of a lemma) in a corpus or in the input in general". The former determines the productivity of a given construction – the higher its type frequency, the higher a construction's productivity. The effects of the latter can be subdivided into three types, namely the *reducing effect,* the *conserving effect,* and the *autonomy effect* (cf. Bybee 2006: 714–715). First, the *reducing effect* renders words and phrases that exhibit high token frequencies phonologically reduced (e.g. [*I am going to* + V] reduces to [*Imma* + V]). Bybee (2006: 715) explains the effect by stating that "the articulatory representation of words and sequences of words is made up of neuromotor routines. When sequences of neuromotor routines are repeated, their execution becomes more fluent". Second, the *conserving effect* prevents or at least slows down changes to the morphosyntactic structure of a phrase: the higher the frequency of a particular string of words, the greater the entrenchment in its respective morphosyntactic structure. Bybee (2006: 175) accounts for this tendency by arguing that the representation of the frequently occurring words or phrases is strengthened in the human mind, or more specifically in

memory, rendering the items or sequences more readily accessible and less susceptive to restructuring. This effect can be observed, for instance, in the regular/irregular verb formation in English where the high frequency irregular forms (*go, went*) did not develop the regularized *-ed* pattern found for low frequency regular forms (*walk, walked*). The third and last effect only applies to sequences of extremely high frequency.[27] The *autonomy effect* corresponds to the automatization process outlined above. The effects apply to initially morphologically complex words and phrases. The individual components lose their semantic and syntactic transparency and thus move away from their base form meaning. In Yucatec Maya, for example, the words *bin* 'to go' and *ka'h* 'do' moved away from their base word semantics of 'motion away from the deictic center' and 'general action' in the [*bin … ka'h* + V]-construction. The discontinuous auxiliary serves as an indicator of immediate future in Contemporary Yucatec Maya (cf. Section 8.1.1).

In sum, the cognitive processes active during grammaticalization are grounded in domain-general cognitive abilities. In the following subsection, I review established theories of grammaticalization that consider the discussed processes only in passing. Therefore, I will suggest that the cognitive basis for language change is best understood by describing grammaticalization as operating within and through a network.

3.4 Theories of grammaticalization

Within the research paradigm of grammaticalization, three theories have, to varying degrees, prevailed. These are displayed in Figure 4. I evaluate the first two theories and point to their advantages and potential shortcomings at the beginning of this section. Note that the *Metaphorical Extension Approach* and *Invited Inferencing Theory* "are not mutually exclusive, but rather mutually enhancing [...]; however, they involve significantly different perspectives" (Traugott and Dasher 2002: 39). The former zooms in on the initial stages of grammaticalization and seeks conceptual explanations for the initiation of the process, whereas the latter focuses on the medial/final stages and emphasizes pragmatics and the communicative interaction between interlocutors. Langacker's *Subjectification Approach*, on the other hand, deviates from the

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27 In line with e.g. Bybee (2006), I do not quantify 'high' and 'low' or 'extremely high' and 'extremely low' frequency but merely use the terms as nominal descriptors for general frequency tendencies.

other two proposals as it adopts a synchronic rather than diachronic perspective to semantic extension in grammaticalization. While the Subjectification Approach presents an intriguing and largely complementary rather than competing suggestion, I believe that the other two approaches are more apt to capture the dynamic nature of the process. The proposal is therefore not discussed here. Yet, the interested reader is referred to Langacker (1999a, b) for an outline and a detailed description of how speakers construe conceptual representations of event structures and how these (different) construals relate to and inform grammaticalization. Some of Langacker's ideas are also picked up and integrated into the Network Approach.
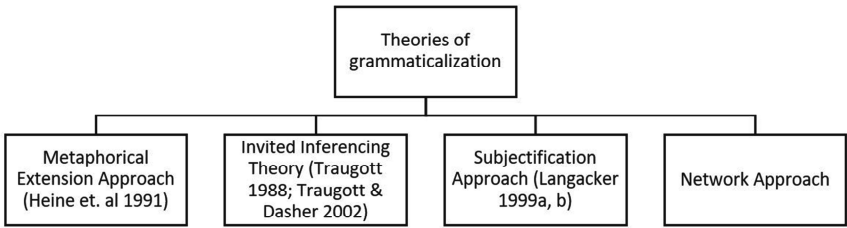
Figure 4: Theories of grammaticalization.

At the end of this subsection, I introduce a different account of grammaticalization based on the recent descriptions of grammar as a network (cf. Diessel 2019). I aim to show how ideas put forward by the Metaphorical Extension Approach and Invited Inferencing Theory (and the Subjectification Approach) can be subsumed within a Network Approach. The proposal might describe the grammaticalization processes more accurately than the previous theories, as it is grounded in cognition as a whole and combines the meaning with the form level. The account of language as a network of associations encompasses the dynamic nature of language and allows for its comprehensive analysis from both synchronic and diachronic perspectives – all within the same framework. A detailed description of such an approach remains subject to further work. The goal of this study is to initiate a debate related to the potentially insightful approach. But, as the title of this section proclaims, I first outline 'where we come from' to motivate 'where we can go from here'.

3.4.1 The Metaphorical Extension Approach

The Metaphorical Extension Approach has arguably received the greatest support in grammaticalization research. Heine et al. (1991) most prominently advocate this view. According to the authors, the speakers' creativity and problem-solving abilities, i.e. general cognitive abilities existing outside of language structure, give rise to new grammatical formatives and structures (Heine at el. 1991: 23, 31). It is further argued that the processes informing grammaticalization are metaphorically structured. All metaphors entail "a transfer, or a mapping of an image schema [...] from one domain of conceptualization onto another" (Heine et al. 1991: 46–47), i.e. from a source to a target domain. Yet, it is *dead* or *frozen metaphors* which originated at some point in the past that are considered in the approach. Frozen metaphors may manifest in grammatical forms. They result from particular instances of cognitive metaphorical mapping of 'living' metaphors but are rendered opaque through time and no longer clearly identifiable as metaphors.

Another distinction that the authors make is that between *categorical metaphors* (cf. Claudi and Heine 1986) and *conceptual metaphors* (cf. Lakoff and Johnson 1980[28]). Categorial metaphors are defined as clusters of conceptual metaphors. Take for instance the well-studied development of motion verbs into TAM markers. Here, the overarching categorical metaphor TIME AS SPACE is at play.[29] A concrete instance of a categorical metaphor, i.e. a conceptual metaphor, can be detected in the cross-linguistic attestation of the development of GO (TO) into a marker of future tense, along the lines of FUTURE AS MOTION TOWARDS A GOAL. This path is found, for example, in English, French, Spanish, Zimbabwean Ndebele, or Yucatec Maya.

Overall, as is acknowledged by most researchers of grammaticalization (cf. Bybee and Pagliuca 1985: 72), the authors agree that source items susceptible to grammaticalization display a high frequency and are of general use. The source concepts include concrete objects (e.g. body parts), processes (e.g. motion verbs), and locations. The common denominator evident in all these source concepts is the central feature of *embodiment* or *egocentricity* (cf. Johnson 1987

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28 Although Lakoff and Johnson's (1980) work was a great success and still informs linguistic research in various areas, it is worthwhile pointing out that one of the conceptual metaphors, AN INSTRUMENT IS A COMPANION, which had been attributed universal status, was proven to be largely Eurocentric by Stolz et al. (2006). This emphasizes once more that theory should follow empiricism.

29 The examples for Yucatec Maya under (8) instantiate the TIME AS SPACE metaphor.

on embodiment and its manifestations). The embodied experience of reality and resultant perceptions of analogies and similarities between concepts are used to construe that same reality cognitively and linguistically. Based on this experientialist view, Heine et al. (1991) propose a unidirectional hierarchy where any of the inner, more concrete categories can be conceptualized by any other outward, more abstract category. According to Heine et al. (1991: 53), "[u]nderlying [this hierarchy], there appears to be a cognitive activity that can be described in terms of egocentric distance, proceeding from the category that is closest (PERSON) to human experience to one that is most remote (QUALITY)".[30]
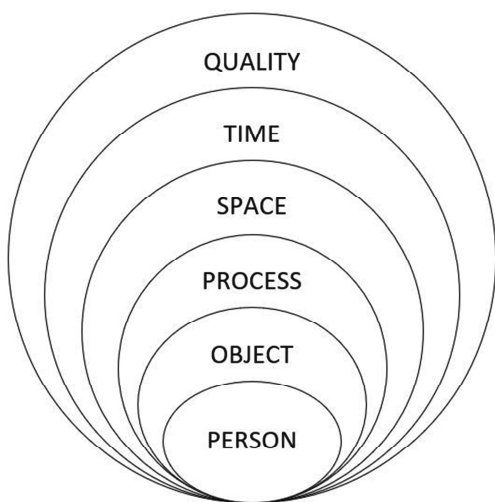
Figure 5: The metaphorical categories in an inward/outward progression (Heine et al. 1991: 55).

While Heine et al.'s (1991) proposal appears straightforward and sensible as it is grounded both in empirical[31] and cognitive research, it still bears several shortcomings. The authors themselves recognize that the grammaticalization continuum observed cross-linguistically from less to more grammatical meaning poses a potential problem to the Metaphorical Extension Approach. A continuum im-

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30 The authors admit that not all conceptual domains, such as POSSESSION, are readily locatable within the structure presented in Figure 5 (cf. Heine et al. 1991: 53).
31 The majority of data comes from African languages which do not, as pointed out in Section 2.2, boast a wealth of historical documentation. The authors try to compensate lack of diachronic evidence by grounding the explanation in cognition.

plies that "the transition from a less to a more grammatical meaning is gradual, whereas metaphor suggests a discrete transfer from one conceptual domain to another" (Heine et al. 1991: 70). Any intermediate steps are rendered problematic and difficult to account for by the model. Consider, for instance, the example cited above whereby GO (TO) grammaticalizes into a marker of future tense in many of the world's languages, including Yucatec Maya. In example (8a), Yucatec Maya *bin* 'to go' carries only allatival meaning, while it exclusively induces a future reading in example (8d). However, as shown in examples (8b) and (8c), it is also found in predictive future[32] or intentional constructions. Note that the motion verb still implies motion towards a goal in example (8b), whereas it is stripped of any motion component in example (8c). The two constructions constitute intermediate stages between the purely allative (source domain) and purely future (target domain) senses.[33] Heine (2002) refers to such cases as 'bridging contexts'.

(8)   Yucatec Maya (Yucatecan, Mayan)
        [Blair and Vermont-Salas 1965–67 in Bohnemeyer and Stolz 2006: 283
        (a); Lehmann 2017: 216 (b–c), 224 (d)]
        GO from less to more grammatical meaning

   a.   *tu'x*   *k-a*   **bin?**
        where   IPFV-A2   **go**
        'Where are you going?'

   b.   **bíin**   *suu-nak   [...]*
        FUT.INT.ALL[<go]   return-SBJV.B3
        'He is going to come back [...].'[34]

   c.   *[...] yéetel*   **bíin**=*in*   *wil-eh*
                 and   **FUT.INT[<go]**=A1   see-SBJV.B3
        '[...] and I am going to see him.'[35]

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32 The term 'predictive future' goes back to Lehmann (2017: 192).

33 Of course, I only refer to the functional properties of the element at this stage. The diachronic development of the grams in examples (8b–d) is discussed in the results section, including idiosyncratic phonological changes such as that of GO as an immediate future gram in examples (8b–c) whereby the auxiliary's close front unrounded vowel is lengthened and receives high tone.

34 The idiomatic translation provided in the original source is 'He will to come back [...]'. The auxiliary was changed to more accurately reflect the lexical source.

35 The idiomatic translation provided in the original source is '[...] and I will see him.' The auxiliary was changed to more accurately reflect the lexical source.

d. ***bin**=in*   *ka'h*   *kíim-il*
    FUT[**<go>**]=A1   do   die-INCOMPL
    'I am going to die.'

Another point of criticism is the neglect or marginalization of the role of constructions, as the explanatory force is predominately placed on the semantics of a single source item. Yet, as Lehmann (1992: 406) succinctly states, "grammaticalisation does not merely seize a word or morpheme [...] but the whole construction formed by the syntagmatic relations of the element in question". The significance and catalytic function of constructions in grammaticalization processes must therefore not be neglected (cf. Diewald 2008). Additionally, Devos and van der Wal (2014: 329) highlight another difficulty of the approach by asking: "What is the role of metaphor when less usual targets are considered?" In other words, which operating metaphor is, for instance, at play when GO/LEAVE FOR grammaticalize into a discourse marker with the function of encoding disapproval, as found for *lawa* 'leave (for)' in Shangaci (Bantu, Atlantic-Congo) (Devos 2014: 312). Synchronically, the Shangaci pragmatic marker *lawa* has different but related uses. These uses point to a unidirectional evolution of the gram, from the propositional over the textual to the interpersonal. The diachronic development of the repeated grammaticalization process may be reconstructed as follows:

GO > DEICTIC EXPLICATOR > SEQUENTIALITY/COHESION/EPISODE BOUNDARY MARKER >
MARKER OF DISAPPROVAL[36]

Devos' analysis asserts that the development of GO into a DISAPPROVAL marker in Shangaci is not direct but presents the interim last stage on a grammaticalization chain. We are, therefore, dealing with a case of repeated secondary grammaticalization which is grounded in already grammaticalized functions of GO. This is problematic for the Metaphorical Extension Approach. Heine et al. (1991) compensate these problems by adding discourse context or context-induced reinterpretation as a result of metonymy to the equation. Metonymy is suggested as the most important factor in grammaticalization in Invited Inferencing Theory propagated by Traugott (1988) and Traugott and Dasher (2002). Given that I discuss the mechanism involved in the next subsection, it shall suffice to point out that Heine et al. (1991) regard metonymy, at the microstructure level of grammaticalization, as a complement to conceptual metaphor, present on the macrostructure level. According to the authors,

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36 For a detailed discussion of the grammaticalization processes, see Devos (2014: 281–318).

metonymy and metaphor are considered by many scholars to be mutually exclusive phenomena of human conceptualization. While this is so in some instances of cognitive patterning [...], we will endeavour to demonstrate that, with reference to the structure of grammatical concepts, metonymy and metaphor, at least metaphor of the "emerging" type [...], are not mutually exclusive but rather complement each other – that is, that a development from a lexical item to a grammatical marker might not be possible unless there is an intermediate stage whereby distinct conceptual domains are bridged by means of a metonymical understanding. (Heine et al. 1991: 70)

An overview of the properties of the macro- and microstructure is given in Table 6. Heine et al. (1991: 102–103) assert that only one of the two structures is primarily targeted during any grammaticalization instance; they are complementary in the sense that they are not operating simultaneously. Thus, cognition domains are said to be central to the macrostructure, while pragmatics is of importance to the microstructure level.

Table 6: Macrostructure and microstructure in grammaticalization (Heine et al. 1991: 103).

Macrostructure	Microstructure
Conceptual domains	Context
"Similarity", "analogy"	Conversational implicatures
Transfer between conceptual domains	Context-induced reinterpretation
Metaphor	Metonymy

As I will argue in relation to the Network Approach, I do not believe this clear-cut distinction exists. Conversely, I contend that the structures represent overlapping and subsequent stages within the same grammaticalization process. Yet, before outlining the Network Approach, the Invited Inferencing Theory is discussed.

3.4.2 Invited Inferencing Theory

According to the Invited Inferencing Theory of semantic change, whose implications extend beyond the meaning changes in grammaticalization (Traugott 1988; Traugott and Dasher 2002), grammaticalized forms are brought about by contextualized and situated language use. In this approach, pragmatic inferencing takes center stage as a problem-solving strategy. The concept of (pragmatic) inference relates to the general decoding of a message during the inter-

pretation of an utterance by drawing on different types of cues[37] presented in a given speech situation. The notion of conversational implicature goes back to Grice (1975) and refers to the implicit or context-dependent meaning of an utterance. Consider the scenarios invoked in examples (9a) and (9b). From the statement made by B in example (9a), A might infer that B is hungry. A verisimilar implicature would entail that A offers B a piece of cake. As a result of the utterance in example (9b), A might infer that B is cold and conclude that B would like the window to be closed.

(9)   Inferences and implicature from context
    a.   *A puts a cake on the table.*
        B*:* "I have not eaten anything all day."
    b.   *A and B sit in a room with an open window.*
        B: "I did not bring my jumper."

An inference can be encouraged/invited by the context, i.e. through a cake on a table or an open window. Figure 6a and 6b schematically illustrate the development from (i) an invited inference, where an alternative interpretation to the coded meaning is invited by the context, over (ii) a generalized invited inference, where the conventionalized interpretation through inference may still be cancelled and the default interpretation adopted instead, to (iii) a coded meaning, where the initially invited inference becomes the default interpretation and cannot be cancelled. Note that "the distinction between an invited inference and a generalized invited inference is that a generalized invited inference is not simply constructed on line but is preferred without yet being conventionalized" (Evans and Green 2006: 721). The repeated invocation of the same conversational implicature, which proved true in the conversational contexts, leads to its conventionalization. This process is called pragmatic strengthening. Subsequently, the generalized invited inference serves to encode a new meaning. Pragmatic strengthening occurs when distinct meanings arise from the reanalysis of context-dependent inferences. As a consequence, a lexical item or grammatical structure acquires new conventionalized senses, i.e. from Stage I to Stage II (cf. Figure 6b).

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37 In psycholinguistic research on language processing, four different types of cues are traditionally distinguished (cf. Clark and Clark 1977). Syntactic cues include canonical word order, case, and agreement. Semantic cues entail e.g. animacy. Contextual cues refer to a visual scene. Lexical cues draw on verb bias and frequency. I would argue that any and all of these cues may be drawn upon during pragmatic inferencing. Sentence processing and processing cues are discussed in Section 9.4 with a view to the proposed Network Approach to grammaticalization.
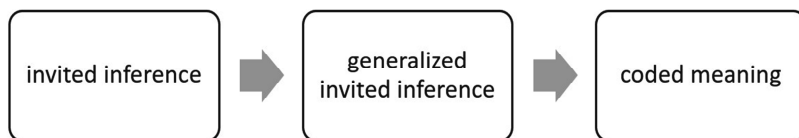
Figure 6a: From invited inference to coded meaning (Evans and Green 2006: 721).
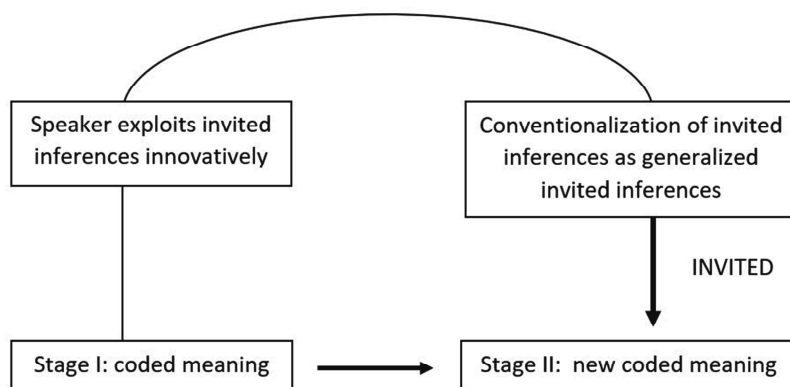
Figure 6b: The invited inferencing model (Traugott and Dasher 2002: 38 in Evans and Green 2006: 726).

There are two possible outcomes of the development. Either the coded meaning found at Stage I is lost or gradually falls out of use, or the coded meanings of Stage I and Stage II co-exist. The latter constitutes a case of polysemy where a lexical unit or construction displays several but related meanings, e.g. English *going to* or Yucatec *bin*. Of course, English *going to* and Yucatec *bin* are only two instances of the cross-linguistically frequently attested cases of GO > FUTURE. This points to universal mechanisms or thought processes that come to the fore during inferencing. As Bybee (2003b: 155) succinctly puts it:

> common paths of change [...] would not be attested across languages unless users of these languages made very similar inferences under similar conditions. That is, the repetition across languages of the change in meaning from 'movement towards a goal' to 'intention' is evidence that speakers in different cultures tend to infer intentions; similarly, changes from temporal sequence [...] to causation indicate that language users are prone to infer causation.

In contrast to Heine et al., Traugott (1988: 406) follows Levinson ([1983] 2005) in that metaphor is a pragmatic rather than a semantic phenomenon and consti-

tutes, along with metonymy, a type of inferencing. According to Traugott (1988: 413), "metaphorical change involves specifying one, usually more complex, thing in terms of another not present in the context. Metonymic change involves specifying one meaning in terms of another that is present, even if only covertly in the context". Both inferencing types can be described through the same model (cf. Figures 6a & 6b). Traugott and Dasher (2002: 27ff.) further contend that the importance of metaphor in grammaticalization has been overestimated and oversimplified in the sense that only the start and endpoint of the process are considered, i.e. Stage I and Stage II in Figure 6b, not the syntactic and semantic processes driving the change. Without a doubt, metaphors play a vital role in many cases, such as the spatio-temporal metaphor in the development of temporal markers from spatial lexemes, e.g. the grammaticalization of motion verbs into tense or aspect markers. However, other cases, where connectives, scalar particles, or evidentials are targets, stem from metonymical processes. Metonymy mainly serves a referential function and permits speakers to use one entity, or part of that entity, to represent another (cf. Lakoff and Johnson 1980: 36); it indexes part-whole relationships. For example, in Wari' (Waric, Chapacuran), *mao* 'to go' travelled down two grammaticalization paths. It developed both into a marker of sequentially 'and' (cf. 10a) and into a negation marker (cf. 10b–c). Although a detailed analysis goes beyond the scope of this study, I assume that the two grammaticalized functions of Wari' GO are an instance of *polygrammaticalization* (A > B, A > C; cf. Heine 2018: 27). Radial grammaticalization structures underlie polygrammaticalization, whereby one source item gives rise to independent grammaticalization paths, i.e. here, GO > SEQUENTIALITY and GO > NEGATION. Note, however, that I do not believe that polygrammaticalization and unidirectionality are mutually exclusive (cf. Heine 2018: 28 for a similar view). Of course, further research is required to validate the claim.

(10)   Wari' (Waric, Chapacuran)   [Everett and Kern 1997: 471, 36, 171]

    a.   GO > SEQUENTIALITY

        [...]   *'ep*   *toc*   ***mao***   *cacama-in na*
        [...] grind   drink   **SEQ[<go]**   3PL.F-3SG.N   3SG.REAL.PST/PRS
        '[...] Then they ground and drank it (the corn).'

    b.   GO > NEGATION in (mild) IMPERATIVE

        'Ara mip   ***mao***   *hwe-in*   *naran*
        do   force   **NEG[<go]**   2PL-3SG.N   light
        'Turn up the light a little (lit. You are not doing forcing the light).'

    c.   GO > NEGATION

        'Awi   ***mao***   *ne*
        good   **NEG[<go]**   3SG.N
        'It isn't good.'

Considering the latter development of Wari' GO into a negation marker, the conceptual motivation is probably the emphasis on the negation component of the motion encoded through *mao*.[38] If something 'goes away (from the deictic center)' or if something is 'gone', it is implied that something is no longer present. Indeed, the grammaticalization of LEAVE into a negation marker has been observed in the Kru languages Dewoin, Kagbo, and Bété (Marchese 1986: 182–184). Here, the same metonymical motivation may be stipulated. This kind of part-whole relationship must thus not be understood in terms of a part standing for the whole but as attention-drawing to a particular part of the whole. At the initial stages of grammaticalization, a specific meaning component is strengthened through pragmatic inference, while at the later stages desemanticization occurs. The element concomitantly loses its semantic complexity, pragmatic significance, and syntactic freedom (cf. Heine and Reh 1984: 15).

Moreover, Traugott and Dasher (2002) argue that semantic changes, whether they are of a metaphorical or metonymical nature, can be best accounted for by a tendency towards (inter)subjectification, i.e. from objective to subjective meaning. This entails the grounding of the speaker's perspective onto a speech event.[39] Relatedly, Traugott (1988: 409–411) formulates three semantic-pragmatic tendencies. These are shown in Figure 7.

Semantic-pragmatic Tendency I:

Meanings situated in the external described situation > meanings situated in the internal (evaluative/perceptual/cognitive) situation

Semantic-pragmatic Tendency II:
Meanings situated in the external or internal situation > meanings situated in the textual situation

Semantic-pragmatic Tendency III.

Meanings tend to become increasingly situated in the speaker's subjective belief-state/attitude towards the situation

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Figure 7: Semantic-pragmatic tendencies (Traugott 1988: 409–410).

The third semantic-pragmatic tendency makes explicit reference to the subjectification process which is "in essence the historical result of the operation in Levinson's Principle of Informativeness: 'Read as much into an utterance as is

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38 While the examples are taken from Everett and Kern's (1997) grammar on Wari', the analysis of GO > NEGATION is entirely my own.

39 Grounding is used in the sense introduced by Langacker ([1990] 2002) here.

consistent with what you know about the world' [Levinson 1983: 146–47]"
(Traugott 1988: 411). This strengthening of informativeness can also be under-
stood as a type of problem-solving strategy, concerning any problems related to
being informative and relevant. In the data on the Mayan languages, I found
some evidence for the validity of this claim, as, for instance, the development of
evidentials and other discourse markers from GO-type verbs in particular (cf.
Section 8.2). Evans and Green (2006: 274) abstract from the argumentation by
Traugott and Dasher (2002: 2–23) and provide an overview of (inter)subject-
ification in grammaticalization.

Objective expressions	Subjective expressions	Intersubjective expressions
Mininally marked for modality or deixis	Overt spatial/temporal deixis	Overt social deixis
All participants expressed	Overt modality	Overt politeness markers
Quanity predomiates	Overt disource deixis	Relevance predominates
	Relevance predominates	
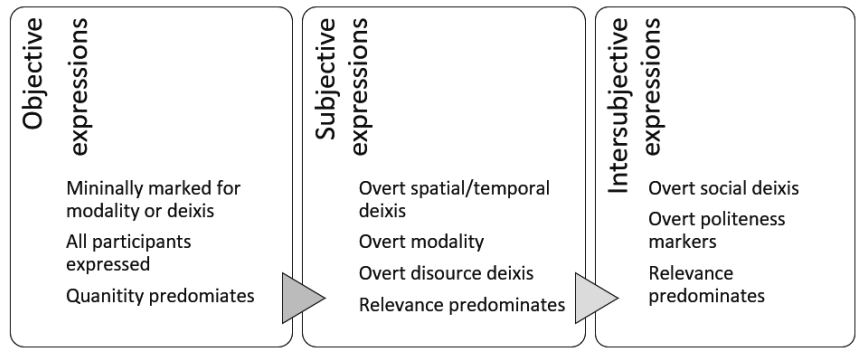
Figure 8: The evolution of subjectivity in grammaticalization (Evans and Green 2006: 724
based on Traugott and Dasher 2002: 22–23).

As shown in Figure 8, expressions are objective and neither marked for modali-
ty nor social deixis at the initial pre-grammaticalization stage. Additionally, all
participants of a speech event are given, and Grice's (1975: 45) *Maxim of Quanti-
ty* is predominant. According to the Maxim of Quantity, the speaker is required
to be as informative as required but not more than that. In the second stage,
where the expression became grounded in the speaker's subjective perspective,
it is temporal, spatial, and discourse deixis that is encoded, and the *Maxim of
Relevance* (Grice 1975: 47) takes center stage. This shift can be observed in, for
example, the development from ALLATIVE to FUTURE, ABLATIVE to NEAR PAST, or
LOCATIVE to CONTINUOUS. The Maxim of Relevance postulates that the speaker
ought to be relevant and offer information that is appropriate in a given context.
During the last stage where intersubjective expressions are located, the Maxim
of Relevance still prevails. Yet, instead of temporal, spatial, and discourse deix-
is, it is social deixis, in particular politeness, which is overtly encoded.

There is a growing body of work evaluating the subjectification/inter-subjectification hypothesis, with some empirical research supporting the claim (amongst others Davidse et al. 2010; Van Olmen et al. 2016). To my mind, subjectification would appear to be a concomitant feature of grammaticalization and the evolution of grammar. Language is primarily used for social functions, and grammar serves to share these social models (cf. Edwardes 2010). Subjective and intersubjective meanings are thus dominant in language use. Given the strong nature of the claim and current lack of a sound empirical basis, I refrain from casting a final vote. Other aspects also require some more attention within the framework, such as the role of hearer and speaker or the relationship between meaning changes and formal changes.

In a nutshell, I believe that neither of the two frameworks is entirely right or wrong because each approaches the phenomenon from a different perspective and targets different stages of grammaticalization. Both frameworks have contributed greatly to our improved understanding of grammaticalization but perhaps fail to describe it comprehensively – at least from my perspective. The question arises whether formal and meaning changes as well as synchronic variation and diachronic development can all be accounted for within the same descriptive model. As mentioned already, Diessel (2019) offers a fresh approach to grammar informed by usage-based linguistics and cognitive psychology. I apply the approach to grammaticalization abandoning partial explanations and trying to arrive at a cognitively grounded theory which encompasses all aspects of grammar.

3.4.3 The Network Approach

Before applying the ideas connected with the proposal of the Grammar Network to grammaticalization, I first outline the overall argument. For his theory, Diessel (2019) drew inspiration from a family of network models used for computational modeling in neuroscience. These have gained increasing prominence in cognitive-linguistic and psycholinguistic research over the last 20 years. Neural networks or connectionist models are built in analogy to the neural network in the human brain. Biological neurons are interconnected, and complex cognition is the outcome of their interactions. Likewise, linguistic units are interconnected, and language is the outcome of their interactions. Linguistic units, just like biological neurons, are understood as nodes connected through links. These links have different weights or activation values that are strengthened or weakened during language processing; "the more often a particular link, or a

particular pattern of links, is processed, the stronger are the weight(s) of the connections and the higher is the probability that these connections (or links) will be reused in the future" (Diessel 2019: 10). Figure 9 offers a very simplified abstraction of such a network for the English dative alternation mentioned in Section 3.2. The circles indicate the nodes, while the lines mark the links. Thicker lines between nodes indicate stronger links, whereas thinner lines show weaker connections.
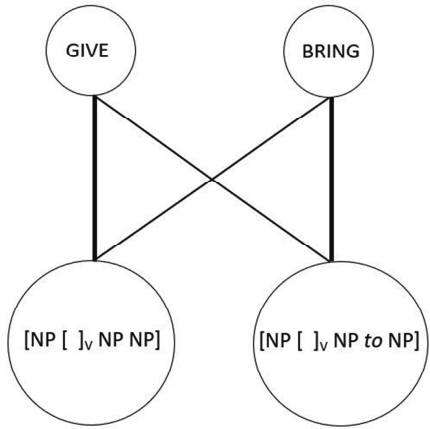
Figure 9: The English dative alternation as a network (modeled on Diessel 2019: 124).

As displayed in Figure 9, the link between *give* and the [NP + [ ] v + NP + NP]-construction is stronger than that between *give* and the [NP + [ ] v + NP + *to* + NP]-construction. The reverse applies to *bring*. Connections with stronger links are more likely to be reused in the future.

Within the Grammar Network, "all aspects of linguistic structure, including core concepts of syntax (e.g., noun, case, subject), are analyzed in terms of associative connections between lexemes, categories and constructions" (Diessel 2019: 2). These associative connections or links are formed and changed by language use and domain-general learning processes. The domain-general processes can be divided into *social cognition* (joint attention, common ground, audience design), *conceptualization* (Figure-Ground segregation, metaphor and metonymy, deixis and perspective, force dynamics), and *memory-related processes* (attention and flow of consciousness, categorization, abstraction, analogy, lexical and structural priming, exemplar learning, and automatization) (cf. Diessel 2019: 23–39). Discussing the processes separately and in detail exceeds

the scope of this work; I only mention them in passing. Also, their nature and interactions are still not entirely understood. It must be stressed, however, that all of them influence the short-term linguistic decision-making as well as the long-term development of linguistic structure. More specifically, domain-general processes determine the association strength between signs.

Traditionally, only lexemes were analyzed as interconnected signs organized in a mental lexicon and linked through multiple types of associations. Expanding on this idea and informed by findings from cognitive research, Diessel devises a theory of grammar with links between lexemes, categories, and constructions alike where all three parts of language are thought of as signs (cf. Figure 3). In Table 7, the six different types of relations that exist between them are given. I briefly review each relation type in turn.

Table 7: Overview of the six relation types in the Grammar Network (Diessel 2019: 22).

Signs as networks	
Symbolic relations	Associations between form and meaning
Sequential relations	Associations between linguistic elements in sequence
Taxonomic relations	Associations between representations at different levels of specificity
Networks of signs	
Lexical relations	Associations between lexemes
Constructional relations	Associations between constructions
Filler-slot relations	Associations between particular items and slots of construction

i. Symbolic relations

Symbolic relations tie a sound pattern to a certain meaning. The relations arise from the repeated activation of the same neural pathway. As a consequence, a specific sound cue licenses the activation of a specific concept, the figure node. Given that the figure node forms part of a wider network, other related concepts are always activated simultaneously. In this manner, different interpretations of a single phonetic cue are possible in different speech situations. Meaning is not inherent in the linguistic sign but created through communicative interaction and contextual embedding, and thus, it is subject to change. Figure 10 depicts the symbolic relation of the form-meaning pair ['æp(ə)l] – 🍎(APPLE) within its conceptual network. Darker shading and thicker link lines indicate stronger associations. Conceptualization and pragmatic inference are the key cognitive processes shaping symbolic relations because they assign meaning(s) to form(s).
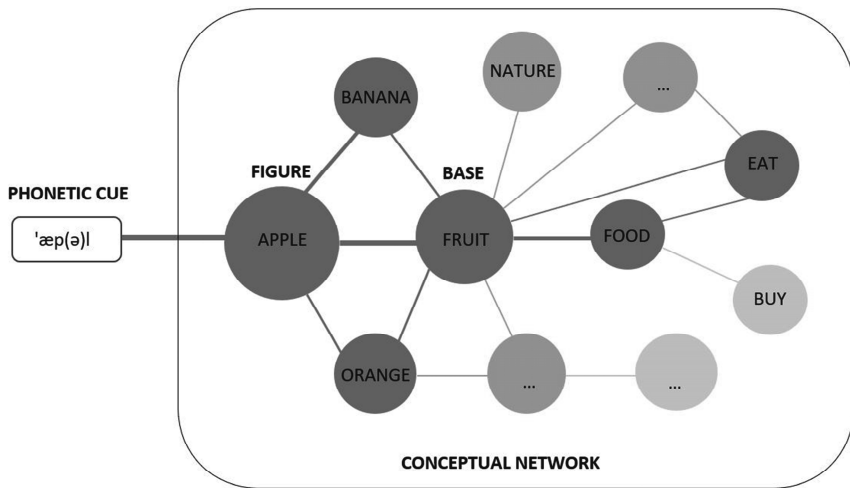
Figure 10: Symbolic associations: The example of APPLE (modeled on Diessel 2019: 14).

ii. Sequential relations

Sequential relations relate to the linear order of signs. Linguistic signs always have a forward orientation due to the time boundedness of speech. The sequential arrangement is "influenced by a wide range of cognitive factors including general principles of phonetic articulation, focal attention and common ground, but the strength of sequential relations is primarily determined by automatization" (Diessel 2019: 15). Frequently co-occurring entities are reanalyzed as units or chunks, as outlined in Section 3.3. For instance, expressions formerly consisting of three lexemes such as *in other words* or *for God's sake* are stored as chunks and readily retrievable as a unit. From that, it follows that hearers may predict or anticipate upcoming structures.

iii. Taxonomic relations

Taxonomic relations pertain to the hierarchical organization of signs "ranging from low-level generalizations over lexical sequences to highly abstract patterns of syntactic structure" (Diessel 2019: 16). The higher-level patterns are built by abstraction. Speakers recognize the similarity between concrete lower-level instances and create an abstract higher-level layer. Figure 11 offers an illustration of the taxonomic network of the possessive/genitive constructions in English. The square brackets indicate the variable slots. At the highest, most abstract level, the two constructions appear as a combined, subsumed schema. Moving down the hierarchy, the possessive and genitive constructions are

stored separately, shown to the left- and right-hand side of the figure. At the lowest, most concrete level, specific instances under both construction schemas appear, e.g. *my house* for [PRO + [ ]$_N$] and *woman's door* for [[ ]$_N$'s + [ ]$_N$].
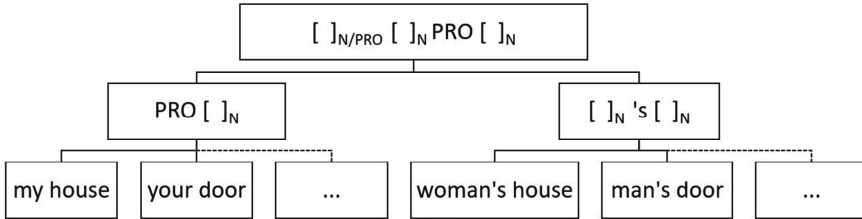
Figure 11: The taxonomic network of possessive/genitive constructions in English (modeled on Diessel 2019: 16).

Venturing from the presumption that individual linguistic experiences 'sculpt the mind' and that concepts and structures are built based on said individual experiences, it is conceivable that the mental lexicons and mental grammars of individuals differ, although much of the linguistic experience is of course shared and serves as common conceptual and communicative ground. Concerning the taxonomic relations, Diessel (2019: 17) notes that several recent studies challenge the idea that "native speakers share the same basic knowledge of grammar, [as] usage-based researchers have found substantial differences in the way individual speakers use and understand grammatical patterns". It follows that speakers, and more generally speech communities, are not equally exposed to the same linguistic experiences. A speaker owns or commands only certain aspects of a language. Not all structures are readily accessible to all native speakers alike.

iv. Lexical relations

The links between single lexical items are subsumed under the notion of lexical relations. These relations exist between semantically and/or phonologically related items, such as *house – door* (semantic) and *house – mouse* (phonological). They are shaped by classification/categorization. The lexical relations are strengthened through automatization and priming[40], that means that a word is

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[40] Priming is a "recency effect of activation in memory that is related to analogy" (Diessel 2019: 33).

recognized much faster after the confrontation with a related stimulus. Even though lexical relations primarily concern lexemes, they are also vital for the analysis of complex words, argument structure, and grammatical word classes (Diessel 2019: Chap. 5, 7, and 8).

v. Constructional relations

Constructional relations refer to associative connections between constructions in a system. The suggestion entails that "every construction has a particular 'ecological location' in the grammar network that is defined by its relationship to other constructions in the system" (Diessel 2019: 18), much like the arrangement of semantic concepts in the mental lexicon. A clear example comes from morphological constructions which form part of an inflectional paradigm. In contrast to the traditional analysis of paradigms as fixed, rigid, and stable, paradigms are viewed as shaped by language use in the usage-based network approach. They may emerge, become stable, change, or disappear. Consider, for instance, the constructional relations between the spatial interrogatives (SIs) and spatial deictic declaratives (SDDs) in Mundari (Mundaic, Austroasiatic).[41] In Figure 12, the constructional relations between the twelve morphological schemas of the Mundari SI and SDD paradigm are given. The 'color'-coding and the lines between the morphological constructions signal which forms or slots are formally related to each other. On the X-axis, the three spatial relations (SRs) are arranged: (1) Place, the location of an entity in space; (2) Goal, the endpoint of the movement of an entity in space; or (3) Source, the starting point of the movement of an entity in space (cf. Stolz et al. 2017: 1). On the Y-axis, the different deictic degrees (DDs) of the SDDs, near deixis 'here' (D1), medial deixis 'there' (D2), and far deixis 'yonder' (D3), as well as the SIs are given. The morphological construction at the intersection of SI and Place *okore,* for instance, can be translated as 'where?', while *okote* (SI/Goal) and *okoate* (SI/Source) mean 'where to/whither?' and 'from where/whence?', respectively. The highest-level abstract schema is of the form [DD-SR].

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41 Nintemann et al. (2020) conducted a large-scale cross-linguistic study on SIs and SDDs adopting a canonical morphological approach to describing spatial paradigms. The reader is referred to their work for more information on SIs, SDDs, and the study.

	PLACE	GOAL	SOURCE
SI	oko-**re**	oko-**te**	oko-**ate**
D1	ne-**re**	ne-**te**	ne-**ate**
D2	en-**re**	en-**te**	en-**ate**
D3	han-**re**	han-**te**	han-**ete**
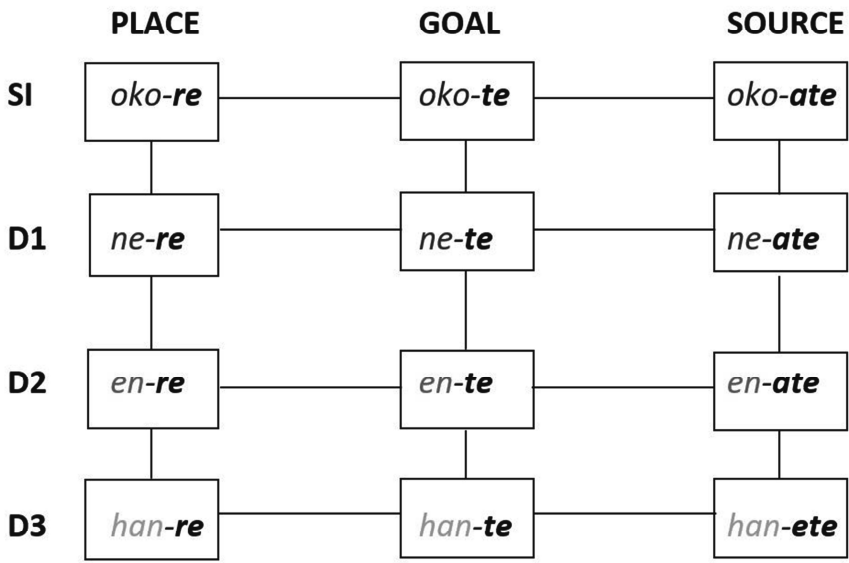
Figure 12: Constructional relations between twelve morphological schemas of the Mundari[42] (Austroasiatic) SI and SDD paradigm (based on Cook 1965 adapted from Nintemann et al. 2020: 26).

Figure 12 illustrates the constructional relations between the twelve morphological schemas in Mundari. All expressions carry morphological markings indicating that the construction is either an SI *oko-*, a D1 SDD *ne-*, a D2 SDD *en-*, or a D3 SDD *han-*, forming the horizontal constructional relations, and expresses Place *-re,* Goal *-te,* or Source *-ate*, forming the vertical constructional relations. Consequently, just as lexemes, constructions are situated within a wider grammatical network and related to other constructions through similarities (and differences).

vi. Filler-slot relations
The links between variable slots in constructions and single lexemes are referred to as filler-slot relations. Some lexemes are more prone to occur in a given construction than others. Although the distributional preferences, biases, and constraints between lexemes and constructions have a semantic motivation, the

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42 Notice that the case of Mundari is highly canonical. Each cell has a distinct form because there are separate morphemes for the SIs and DDs as well as the SRs. This is extremely rare among the world's languages (cf. Nintemann et al. 2020).

language user's linguistic experience with the combination possibilities and patterns is an equally important determinant of filler-slot relations. The lexical causative verbs in English serve as an example of the relation type in verb-argument schemas. The linguistic encoding of prototypical direct causation involves a causer, a causative verb, a causee/experiencer/patient, and an effect (Velupillai 2012: 260). One of the most prototypical structures features an NP before and another NP after the causative verb, i.e. *The drug causes drowsiness.*
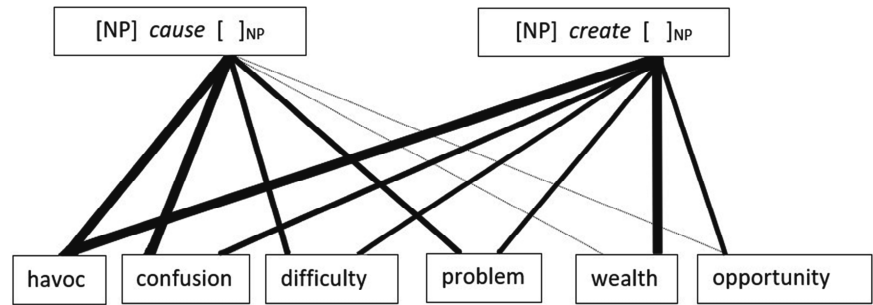
Figure 13: Filler-slot relations of two lexical causative constructions based on BNC data.

After conducting a quick and small corpus study with data taken from the *British National Corpus* (BNC), it transpires that some causative verbs are more likely to occur with certain lexemes than others. Exemplarily, the results for two of the investigated causative verbs, *cause* and *create*, and their second NP slot are shown in a simplified manner in Figure 13. The thickness of lines indicates the association strength between the constructions and the individual lexemes. The association strength was determined by the *Mutual Information* score (MI) which measures the relative frequency between the co-occurrence of words in a collocation and their independent occurrences (cf. Stubbs 1995: 31) – the higher the MI, the greater the association strength. As illustrated in Figure 13, *cause* has a strong association with *havoc* (MI=10.07) and *confusion* (MI=7.47), and medium association strength with *difficulty* (MI = 6.42) and *problem* (MI = 5.95), whereas the links with *wealth* and *opportunity* are weak to non-existent. By contrast, *create* exhibits the strongest association with *havoc* (MI=8.19) and *wealth* (MI=6.55), but there is also some association strength with *confusion* (MI=5.77), *opportunity* (MI=4.43), *difficulty* (MI = 4.23), and *problem* (MI = 3.32). Overall, it becomes apparent that the *cause*-construction exclusively favors NPs with a negative connotation, while the *create*-structure does not have as clear a

preference. Indeed, in the BNC, *cause* does not allow for a single positive and only a few neutral NPs.[43]

The six relations outlined above create the interlaced network structure of grammar. The associative connections operate on two levels, that of linguistic signs (symbolic, sequential, and taxonomic relations) and across linguistic signs (lexical, constructional, and filler-slot relations). The relations encompass symmetrical and bidirectional as well as asymmetrical and unidirectional associations (cf. Diessel 2019: 22). The associative connections are strengthened through repeated language use subject to an unconscious decision-making process which, in turn, is informed by an array of cognitive processes. These cognitive processes were already mentioned above and can be categorized into three basic types:

- Type I: processes of social cognition, which concern the interaction between the speech   participants;
- Type II: processes of conceptualization, which concern the cognitive structuring of experience;
- Type III: memory-related processes, which concern the storage, retrieval and processing of   linguistic information (Diessel 2019: 39).

The structure of the grammar network closely resembles the widely accepted network structure of the mental lexicon and crucially depends upon frequency. Yet, "lexemes provide access to an open-ended network of encyclopedic knowledge that hearers use to construct a semantic interpretation in a particular (linguistic and social) context, whereas constructions serve to guide hearers' interpretation of lexical expressions" (Diessel 2019: 251). The mental lexicon and the mental grammar are intrinsically connected. This becomes especially evident through grammaticalization whereby lexical items develop into grammatical formatives and transition from the lexicon network to the grammar network.

I already introduced the notion of *emergent grammar* as coined by Hopper in Section 1. According to this view, grammatical structures emerge, become stable, change, or disappear. Diessel (2019: 4) picks up on the idea and argues that

> if we conceive of grammar as an emergent system, all aspects of linguistic structure, including the core concepts of syntax, are subject to change, and in order to understand the nature of this system, one has to study language development [...] This explains why us-

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43 In the literature, this phenomenon is traditionally discussed under the notion of *semantic prosody* which refers to "a form of meaning which is established through the proximity of a consistent series of collocates" (Louw 2000: 57). The semantic prosody of a sign may be either positive or negative.

age-based linguists have emphasized the importance of grammaticalization for syntactic theory.

Diessel, therefore, acknowledges the centrality of investigating and understanding grammaticalization for the study of syntactic development(s) and devotes some of his work to outlining the implications of the network model for the study of language change. However, given the more general aim of his book, the author does not describe how grammaticalization may also be viewed through the network lens. In what follows, I hope to initiate a discussion related to this new, potentially insightful, approach to grammaticalization. A comprehensive description of the proposal remains subject to future work.

To begin with, conceptualization shapes the symbolic and lexical relations that link form and meaning. Thus, meaning is created through conceptualizations. Different possible conceptualizations of an event, or construals in Langacker's (1999a) terminology, lead to different meanings. It follows that the same scene or utterance may be conceptualized in multiple ways. This was shown throughout the literature review but is especially clear when looking back at the Yucatec Mayan examples under (8) where the concept of GO is closely but, depending on the co-text, varyingly linked to the concepts MOTION, INTENTION, and FUTURE (lexical relations). Indeed, the initial stages of grammaticalization are usually driven by metaphor, metonymy, and deictic projection. Instead of focusing on single conceptual processes as the primary motivators for grammaticalization, as done in the Metaphor Extension Approach and Invited Inferencing Theory, it appears more feasible to speak of general associative relations. These are rendered entrenched due to recurrent conceptualizations based on an array of conceptualization processes (Type II). I would argue that grammaticalized conceptualizations that are often activated, such as those that rely less on the immediate context, are frequently observed in the world's languages and have therefore been amply described in the literature (usual targets). Those that do not as strongly suggest themselves as possible construals, such as those that rely more on the immediate context, are less frequently attested cross-linguistically (unusual targets). It follows that both usual and unusual targets of grammaticalization are licensed by the creation of new symbolic associations and their subsequent strengthening. As for sequential relations, while grams are generally prone to occur in constructional schemas in accordance with their meaning, the linguistic experience of the language user also influences the strength of the associative connection between a gram and a schema. The "[l]exemes that do not fit the semantic specifications of a particular schema are coerced into a novel interpretation. If such nonmatching uses are frequent, they become entrenched in memory" (Diessel 2019: 171), allowing for a

continuum of more to less related meanings and the emergence of unusual targets. Pragmatic inferencing, and subsequent pragmatic strengthening, play a central role in this case. Within a network model, this mechanism, amongst others, is operative in hidden layers situated between the input and output layer. A speech stream is fed through the network system (input layer). The context supplied by the environment in a given speech situation informs the interpretation of the sequence (hidden layer[s]). The most probable interpretation based on previous linguistic experience and the context is returned (output layer). For convenience, only one hidden layer is displayed in Figure 14. The number of hidden layers is not specified or restricted.
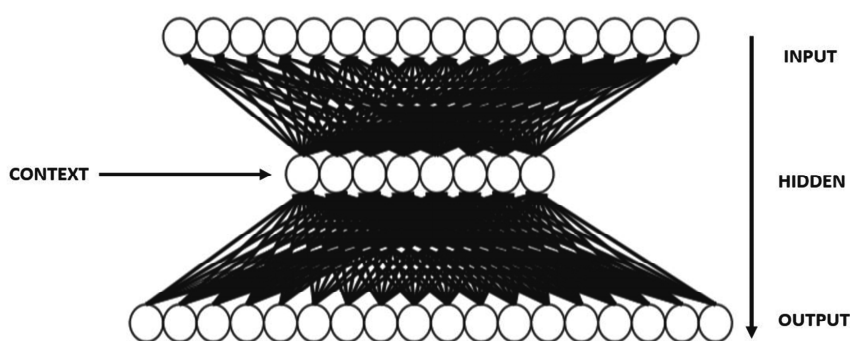
Figure 14: Layers in the Network Approach.

The system is inherently regenerative in the sense that if the output proves to be the desired interpretation of the input, the individual network path is strengthened. With repeated [+correct] returns, the link becomes increasingly entrenched in the hearer's and speaker's mind as (a.) the speaker recognizes that the intended meaning can be conveyed successfully through a given structure and (b.) the hearer realizes that a given structure may be used to convey a certain meaning. The structure may be reused in the future for similar communicative purposes. With repeated [−correct] returns, two scenarios may be imagined. On the one hand, the strategy would be unsuccessful, the links along the network path weakened, and the system more likely to feed an input through alternative paths in the future. On the other hand, the speaker may recognize that the hearer's interpretation is not entirely unrelated to the message that was supposed to be conveyed, based on lexical relations etc., and store the possible interpretation as an option for future communicative purposes. The built-in feedback loop enables the creation, change, or loss of associative connections

between signs. The system relies critically on usage frequency. It also factors in the negotiation between speaker intention and hearer interpretation.

Both speech participants are 'meaning creators' and 'language builders' (cf. Hagège 1993). A consideration of the concrete roles of speaker and hearer is generally missing from the previous theories on grammaticalization. Yet, their role becomes evident with regard to the Type I cognitive processes related to social cognition. For (successful) communication, speaker and hearer must be able to turn their attention to the same scene, object, or something introduced in the preceding discourse (Diessel 2019: 26). Moreover, their linguistic and non-linguistic common ground (shared knowledge and experience) constitutes the basis for the audience design of an utterance (Clark and Marshall 1981), according to which speakers construct their sentences in a way that caters to the hearer's needs. The choice of linguistic means, therefore, depends upon what the speaker believes the hearer knows or can infer (*theory of mind*; cf. Tomasello 2003). This explains why there are various possible paths and targets in grammaticalization, but only those developments that the speaker expects the hearer to understand occur. In addition to social cognition, memory-related processes play a decisive role in grammaticalization. Breaking with the traditional assumption of a clear distinction between long-term and working memory, memory has more recently been described as a unitary system. In this system, working memory functions as a time-bound attention mechanism that activates concepts. This focus of attention facilitated through the working memory is active during speaking and listening. It creates and updates an unrestricted number of activated and semi-activated elements; "since language unfolds in time, the focus of attention is moving and the whole cluster of activated elements is constantly in flux" (Diessel 2019: 31). The phenomenon is also referred to as *flow of consciousness* (Chafe 1994: 162–165). Recall that the connections between items are created through categorization, abstraction, and analogy based on structural and semantic similarity. Consequently, the attention of the hearer is drawn to specific aspects of an utterance in a given speech situation and the relevant concepts are activated respectively. For example, in the grammaticalization of FINISH > COMPLETIVE, the attention of the hearer is directed to the 'completeness'-component of FINISH.

While grammaticalization may be explained as a result of these processes, the emergence of constructional relations which arise through the diachronic development of schemas is also grounded in the mechanism of grammaticalization itself. Diessel (2019: 182) gives the example of word order correlations. The relationship between the orders V-O/O-V and AUX-V/V-AUX is based on grammaticalization. Auxiliaries are known to grammaticalize from verbs, in particular, verbs of motion and aspectual verbs occurring in construction with a verbal complement. In the course of the grammaticalization process, "the com-

plement-taking verb is downgraded to an auxiliary and the verbal complement is reanalyzed as the main verb of a periphrastic VP" (Diessel 2019: 183). As shown in Figure 15, the AUX precedes the 'new' main verb in the auxiliary construction in a VO language, while the AUX follows the main verb in an OV language. Throughout the results sections of this study, I provide ample evidence of this development. Mayan languages are predominantly verb-initial (cf. Table 10 in Section 5.2.1) and have thus grammaticalized motion verbs into pre-verbal auxiliaries.
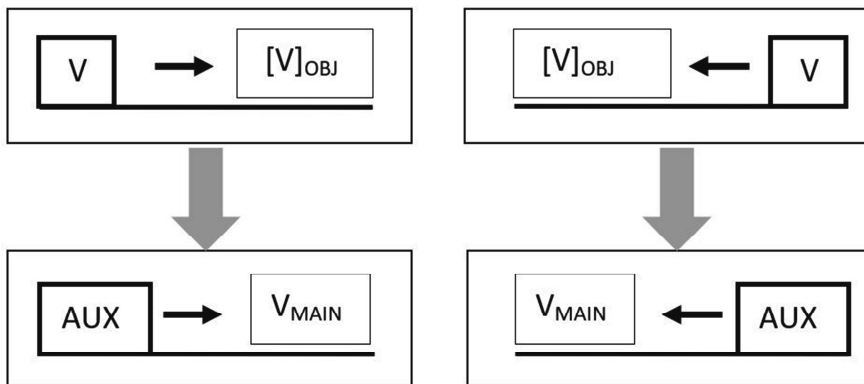
Figure 15: The diachronic relationship between V-O/O-V and AUX-V/V-AUX (Diessel 2019: 183).

Grammaticalization is one of the ways in which a network of constructions at different levels of abstraction is created. Figure 15 depicts a higher-order schema of an auxiliary construction. Yet, moving down the taxonomic structure of the network, the AUX slot may also be filled by concrete lexemes or grams serving a specific function, such as [*will* + V$_{MAIN}$] to denote FUTURE in English.

The diachronic development of grammar (and language) can be best described by accepting that the individual link types that make up the grammar network can emerge, become stable, change, or disappear. Usage and resultant usage frequency are among the most important drives of linguistic change and grammaticalization, along with the other domain-general processes mentioned above. In the following, I briefly describe the implications of the network structure of grammar for grammaticalization, while I offer a more concrete illustration based on this study's findings in Section 9.4.

At the outset, i.e. the initial stages of grammaticalization, symbolic and lexical relations are targeted. As shown in Figure 10, a phonetic cue activates a

figure concept, tied to a specific sign (symbolic relation), and with that a range of related concepts. The activation energy spreads through the network and stimulates those related concepts that have frequently been associated with each other. The stronger the lexical relation between two concepts is, the easier and quicker their mutual activation. In a grammaticalizing structure, the related concept is as strongly associated with the phonetic cue as the figure concept itself. This leads to polysemy where one phonetic form has multiple but related meanings.

The reanalysis of the sign is further licensed by sequential relations. For instance, the sequence [*go to* + NP] is likely to activate the concepts GO, MOTION, and LOCATION, while the sequence [*go to* + VP] stimulates GO, MOTION, INTENTION, and FUTURE. The two structures [*go to* + NP] and [*go to* + VP] are both related to a higher-order schema [V_{motion} + *to* + CMP]-schema (taxonomic relation). The latter structure developed from the former; the complement slot has been extended to verbal elements through analogy (constructional relations). At an intermediate abstractness level, the construction [*go to* + CMP] instantiates a filler-slot relation whereby GO fills the first slot in the [V_{motion} + *to* + CMP]-schema. As the most frequently employed motion verb in the construction, its association with the construction grows stronger in comparison to other motion verbs (cf. Bybee 2006: 719–721 in Section 3.2). GO's innovative usage as a future tense marker in the [V_{motion} + *to* + CMP]-schema becomes entrenched in the structural network through repeated usage. The formal changes observed in the subsequent course of the grammaticalization process are the result of related frequency effects and thus secondary to meaning change.

By describing grammaticalization as formed and informed by a series of associative connections, emergent grammar can not only be conceptually but also structurally explained. The flexibility of the system is of central importance. This will be succinctly demonstrated by the observed variation in the grammaticalization of Mayan motion verbs. Variation in grammaticalization behavior can be best accounted for if usage frequency and the language user's experience is emphasized. As Diessel (2019: 251) summarizes,

> many grammatical categories are motivated by semantic and pragmatic factors (which are ultimately based on cognitive processes of conceptualization and social cognition), but in addition to these factors, it is language users' experience with particular lexical and grammatical patterns that determines their choice of linguistic means and the organization of linguistic structure. One piece of evidence for this hypothesis comes from the many idiosyncrasies of grammar that cannot be explained by general rules but are readily explained by association learning.

What is more, the Network Approach outlined for grammaticalization proper may also be applied to contact-induced grammaticalization discussed in the next section. However, a description of contact-induced grammaticalization within the Network Approach is postponed to future work. In what follows, I concern myself with outlining the properties and features that distinguish contact-induced grammaticalization from ordinary grammaticalization.

3.5 Contact-induced grammaticalization

Up until Heine and Kuteva's (2003, 2005) first efforts to combine investigations on language contact and grammaticalization, the explorations of the two phenomena were part of different research paradigms and regarded as too divergent or even mutually exclusive (Heine and Kuteva 2003: 529). Yet, as Dahl (2000: 317) observes in his analysis of the tense and aspect systems in the languages of Europe, grammaticalization processes cluster not only in genetically related but also areally close languages. Heine and Kuteva (2003, 2005) suggest that while language contact may lead to either the replication of matter or pattern (cf. Matras and Sakel 2007a), it may also generate language-internal change. The term contact-induced grammaticalization is used to describe the latter and denotes "a process of distributional generalization and conventionalization following the contact-induced introduction of a new grammatical category or marker into the target language" (Gast and van der Auwera 2012: 383). At times, it is difficult to distinguish between pattern replication and contact-induced grammaticalization. To date, there is no profound understanding of the mechanisms operative during the two processes and in what aspects these operate differently. Note further that while Matras and Sakel (2007b) argue that grammaticalization can only be initiated by some kind of transfer, Heine and Kuteva (2003, 2005) claim that the process itself may be transferred which they call *replica grammaticalization*. I agree with Gast and van der Auwera (2012: 382), who devised an alternative framework, that the idea of replica grammaticalization ascribes a high level of linguistic meta-knowledge to language users which is not unproblematic and should be met with skepticism.

Given that I also consider contact-induced grammaticalization during the investigation of Mayan motion verbs,[44] some key concepts vital to a general understanding of the process and its differences compared to ordinary grammaticalization need to be established. To start with, Gast and van der Auwera

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44 At the end of Section 8, I offer some remarks on the sociolinguistic situation of Mayan languages by making special reference to contact with Spanish and the Mixe-Zoquean languages.

(2012) argue that *interlingual identification* initiates contact-induced innovation. They distinguish two types: the interlingual identification of signs and the interlingual identification of categories (Gast and van der Auwera 2012: 389). The former refers to the equation of two signs from two different languages in terms of their functional domain. The latter relates to the equation of a category from two different languages where some category values are transferred. The two processes may either occur in isolation or in combination resulting in three types of contact-induced innovation, see Table 8.[45] Note that they should be understood as triggers for grammaticalization from the individual speaker perspective, not as mechanisms relevant for the propagation or conventionalization of the innovation within the speech community (Gast and van der Auwera 2012: 390).

Table 8: Three types of contact-induced innovation based on interlingual identification.

	Interlingual identification		Processes involved
	of signs	of categories	
Type I	x	–	distributional assimilation
Type II	–	x	ordinary contact-induced grammaticalization
Type III	x	x	replica grammaticalization

The three types of interlingual identification correspond to three processes, as indicated in Table 8. Type I, where only signs are interlingually identified, entails *polysemy copying* (Heine and Kuteva 2003: 555–556) or *distributional assimilation*[46] (Gast and van der Auwera 2012: 384). The two-stage process is outlined in the following based on the discussion in Gast and van der Auwera (2012). Figure 16 illustrates a situation of distributional assimilation using the semantic map model. The elements n_1- to n_6 represent conceptual nodes. Each node is associated with a specific meaning or function. The rectangles span all nodes connected to a particular marker. Firstly, during Stage I, there are two markers X_1 and Y_1 from two different languages that either (a.) have an overlapping functional domain or (b.) one of the two markers, here Y_1, has a narrower functional range than X_1. Contact may bring about a change in one or both of the markers'

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45 Theoretically, there are four types. If Type IV occurs, the identification of neither sign nor category, nothing happens.
46 Note that the latter term does not impose an asymmetrical reading but allows for change in both contact languages.

functional ranges. In Stage II, one may observe that either (a.) both markers X_1 and Y_1 expand their functional domain and assume the functions initially only covered by the other language's marker or (b.) the marker with the narrower function range, here Y_1, expands to comprise the wider functional range of marker X_1. This expansion is indicated by the arrows and the dotted rectangles around the initial functional domains. In both cases, the functions assimilate, and the functional domains are rendered identical $X_2 = Y_2$.
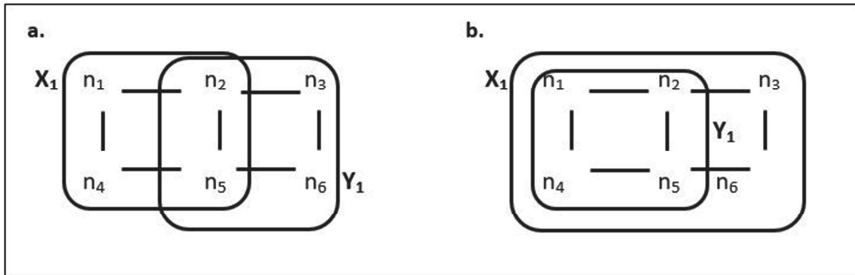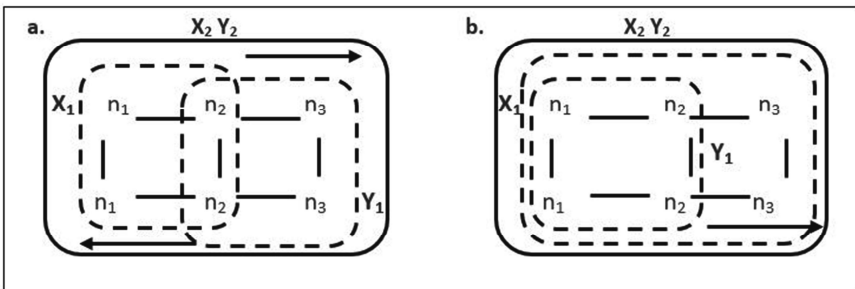
Figure 16: Semantic map illustrating distributional assimilation (based on Gast and van der Auwera 2012: 384).

Gast and van der Auwera (2012: 384–385) state that the process is principally "indifferent to the degree of grammaticalization exhibited by either linguistic sign involved. Still, it seems to work, in the majority of cases, in the direction of 'more grammatical'". An example of this kind of process is the realization of deontic necessity using a volitional verb in Tzotzil (Mayan, Cholan-Tzeltalan) and Zoque (Zoque, Mixe-Zoque). The emergence of the construction in Zoque was contact-induced and based on the development of Tzotzil *k'an* 'want' (Gast

and van der Auwera 2012: 412–413, 419).[47] In a volitional construction, the predicate, here *k'an,* generally takes two arguments assuming the roles of the Experiencer and the Desideratum. In its impersonal use, only the Desideratum appears, and "a propositional Desideratum […] is semantically akin to a proposition in the scope of a deontic necessity operator" (Gast and van der Auwera 2012: 419). The examples below illustrate the element's development from a volitional verb in its personal use to a marker of deontic modality. Note that two constructions are employed featuring deontic *k'an* with no apparent meaning difference. In example (11c), the auxiliary is followed by a finite clause marked for positive polarity. The complementizer *ti* may optionally introduce the finite clause (cf. 11b). Alternatively, *k'an* may be followed by the verb in the non-affirmative; the affirmative prefix *t(a)-* is omitted (cf. 11d). Gast and van der Auwera (2012: 413) refer to the latter encoding possibility as a 'secondary auxiliary'-construction. Correspondingly, the former is called a 'primary auxiliary'-construction.

(11)   Tzotzil (Mayan, Cholan-Tzeltalan)

[Gast and van der Auwera 2012: 412–413]

a. Personal use of *k'an* 'want'

*Mu   h-**k'an**   x-i-k'opoh*
NEG   A1-**want**   INCOMPL-B1-speak

'I don't want to speak.'

b. Non-deontic impersonal use of *k'an* 'want' in 'primary auxiliary'-construction

*(x)-s-**k'an**   ti   t(a)-x-a-'abteh-e   yo'   k'uxi*
(INCOMPL)-A3-**want**   COMP   AFF-INCOMPL-B2-work-ENC so   that

x-a-mak'lantas   o   a-ch'amaltak
INCOMPL-A2-support   PTC   2POSS-family

'You have to work in order to provide for your family.'

c. Deontic impersonal use of *k'an* 'want' in 'primary auxiliary'-construction

*yu'n   la   **(x)sk'an**   ta   (x)-s-pok***
because   EVI   **NEC[<(INCOMPL.)A3.want]**   AFF   INCOMPL-A3-purify

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47 The authors refer to and build upon Zavala Maldonado (2000, 2002) who investigates language contact between Mayan and Mixe-Zoquean languages and zooms in on three constructions: auxiliary constructions, constructions involving directional roots, and constructions with secondary predicates. All three constructions are found to have originated in the Mayan language family. Subsequently, they were introduced into the Mixe-Zoquean languages through contact according to Zavala Maldonado's (2000, 2002) analyses. The case of *k'an* falls under the first category.

        li   s-bek'tal-ik

        DET   3POSS-body-PL

        'Because they have to purify their bodies (in a ritual).'

  d. Deontic impersonal use of *k'an* 'want' in 'secondary auxiliary'-construction

        (x)sk'an   *(x)-h-tih-tik*   *ti   h-bin-tik-e*

        NEC[<(INCOMPL.)A3.want] (INCOMPL)-A1-play-1PL DET A1-pot-1PL-ENC

        'We have to make music with our pots.'

In example (11a), the volitional verb *k'an* appears in a personal construction. The first-person singular prefix of Set A attaches to the verb and the finite verb follows the predicate. In examples (11b) and (11c), *k'an* is used as a modal auxiliary which takes the third-person prefix of Set B, i.e. *sk'an* 'it wants' which may optionally be preceded by the incompletive prefix *x-*. *Sk'an* expresses non-deontic modality in example (11b), while it encodes deontic modality in example (11c). It may be argued that the originally independent elements were reanalyzed as an autonomous unit encoding deontic necessity. The reanalysis is neither described nor glossed as such by Gast and van der Auwera. Yet, I propose that it is not only *k'an* that has come to serve as a marker of deontic modality but the frozen third-person singular of Tzotzil 'want' (carrying the Set A person marker), i.e. *sk'an*.

    In Zoque, the same development may be observed for *sun* 'to love, to want'.[48] In example (12a), the volitional verb's personal usage is shown for the Copainalá dialect of Chiapas Zoque. Here, the incompletive aspect suffix *-pa* attaches to *sun*. The main verb *huy* 'buy' is marked overtly by the dependent suffix *-u* and the third-person ergative singular prefix *y-*. In example (12b), *sun*'s modal use is depicted where, in addition to the aspectual marking, the third-person ergative prefix *y-* attaches to the modal verb, not to the main verb. Analogous to the 'primary-auxiliary'-construction in Tzotzil (cf. 11b–c), example (12b) displays the same type of construction in Chiapas Zoque. The auxiliary is followed by a finite clause optionally introduced by the complementizer *wa'y* 'that'.

(12)   Chiapas Zoque, Copainalá dialect (Zoque, Mixe-Zoque)

                               [Gast and van der Auwera 2012: 413–414]

  a. Personal use of *sun* 'want'

        sun*-*pa   *y-huy-u*   *eyapʌ   ko'kʌyʌ*

        want-INCOMPL 3SG.ERG-buy-DEP   other   hut

        'He wants to buy another hat.'

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48 The verb alternatively appears with a word-final voiced alveolar plosive /d/ in some dialects instead of the alveolar nasal /n/, as shown for the Raýon dialect of Chiapas Zoque in (13).

b. Deontic impersonal use of *sun* 'want' in 'primary auxiliary'-construction

*y-***sun**-*pa*	*wa'y*	*mang-u*	*y-tu'nis-u*
3SG.ERG-**want**-INCOMPL	that	go.AUX-DEP	3SG.ERG-visit-DEP

'You have to go and visit her.'

The 'secondary-auxiliary'-construction can be found in the Raýon dialect of Chiapas Zoque, which is again constructed parallel to the structure described for Tzotzil (cf. 11d). The dependent marking on the lexical verb, here *me'ts* 'search for', via the dependent suffix *-a/-ʌ* is required by the *sud*-auxiliary (Gast and van der Auwera 2012: 414).

(13) Chiapas Zoque, Raýon dialect (Zoque, Mixe-Zoque)

[Gast and van der Auwera 2012: 414]

Deontic impersonal use of *sun* 'want' in 'secondary auxiliary'-construction

*y-***sud**-*pa*	*dʌ*	*me'ts-a*	*kʌbi*
3SG.ERG-**want**-INCOMPL	1PL	search.for-DEP	wood

'We have to find food (lit. it wants our finding wood).'

Again, the initially independent morphemes have been reanalyzed as a unit that becomes increasingly autonomous. Given that the grammaticalization process is not as advanced as that in Tzotzil, e.g. lower degree of phonological attrition, I refrain from glossing it as a ready-made, independent marker of deontic modality.

Note further that the Spanish dialect of Soyaló at the center of the Mayan-Mize-Zoquean contact zone also gives evidence of *querer* 'to want, to love' in an impersonal construction reminiscent of the Tzotzil 'primary-auxiliary'-construction.

(14) Spanish, Soyaló dialect (Romance, Indo-European)

[Gast and van der Auwera 2012: 415]

Quiere	*que*	*vayas*	*tu*	*mismo*
want.3SG	COMP	go.2SG.SBJV	2SG	EMPH

'You have to go yourself.'

The example of the grammaticalization of Tzotzil *k'an* with the subsequent contact-induced grammaticalization of the same sign in Chiapas Zoque (and Soyaló Spanish[49]) shows how Mayan languages may serve as model languages. The

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49 This analysis awaits further confirmation. There might be, contrary to Gast and van der Auwera's analysis, an inner-Spanish explanation for the construction (Thomas Stolz p.c.). The form *querer* + *infinitive* can not only be found throughout the contemporary Spanish-speaking world but also at earlier stages of the Spanish language (cf. RAE II 2009: 2125–2126). In medieval Spanish, however, it did not encode deontic modality but was used in a temporal sense

argument that Gast and van der Auwera make is that the contact-induced emergence of the deontic modality construction in Zoque can be best accounted for by the interlingual identification of signs, i.e. *k'an* and *sun* (and *querer*).

Type II of interlingual identification, where categories are interlingually identified, refers to instances of ordinary contact-induced grammaticalization. Heine and Kuteva (2003: 533) provide the following abstraction for the process where the replica language (**R**) copies some grammatical concept (**Mx**) provided by the model language (**M**):

Ordinary contact-induced grammaticalization
a. Speakers of language **R** Note that in language **M** there is a grammatical category **Mx.**
b. They develop an equivalent category **Rx**, using material available in their own language (**R**).
c. To this end, they draw on universal strategies of grammaticalization, using construction **Ry** in order to develop **Rx**.
d. They grammaticalize construction **Ry** to **Rx**.

To demonstrate, Pipil (Eastern Nahuatl, Uto-Aztecan), still spoken in El Salvador but on the verge of extension, acquired a new morphological category as a result of contact with Spanish. As is true for the majority of Mesoamerican languages, Pipil (**R**) did not dispose of adpositions for expressing locational phrases but resorted to relational nouns instead. Upon coming into contact with the Spanish (**M**), speakers of Pipil recognized the grammatical category of prepositions (**Mx**). Drawing on the available material that is functionally comparable, i.e. relational nouns (**Ry**), an equivalent category (**Rx**) was developed. Relational nouns grammaticalized into prepositions. This process is cross-linguistically frequently observed (cf. for instance TOP > UP and PROPERTY > ATTRIBUTIVE POSSESSION in Heine and Kuteva 2002: 299–300, 245–246). In Table 9, the Pipil relational nouns and the prepositions that grammaticalized from them are given. Other relational nouns could have lent themselves to grammaticalization, e.g. *-tech* 'beside, near, next to', but the process does not appear to have been initiated in these cases.

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denoting imminent future, a function that is now fulfilled by *ir a + infinitive* (RAE II 2009: 2126). This usage of *querer* is still preserved, although to varying extent, in the Spanish varieties of the Americas. The construction is often found with impersonal verbs referring to weather conditions, e.g. *Quiere llover* 'It will rain' (RAE II 2009: 2127).

Table 9: The grammaticalization of relational nouns to prepositions in Pipil (based on Campbell 1985: 59–61).

Relational noun		Grammaticalized preposition	
-(i)hpak	'on, upon, over, on top of'	*pak*	'on'
-pal	'possession'	*pal*	'of'
-wan	'with'	*wan*	'with'
-ihtik	inside	*tik*	'in, into, inside'
?-tan	'below, under, beneath'	*?ka-tani*	'below, under'

In example (15a), the novel construction featuring *pak* 'on' as a preposition is given for illustration. The old construction in example (15b) is reconstructed to allow for a direct comparison. Here, the relational noun in the possessed form is followed by a noun indicating the location which carries the absolutive suffix *-li*. The noun phrase is preceded by the determiner *ne*.

(15)   Pipil (Eastern Nahuatl Uto-Aztecan)

[Campbell 1985: 59 (a); constructed (b)]

    a.   Locational phrase post-Spanish contact

        pak   *kal*

        on   house

        'on top of the house'

    b.   Locational phrase pre-Spanish contact

        *i-**pak***   *<u>ne</u>*   *kal-<u>li</u>*

        3POSS-**on.top**   <u>DET</u>   house-<u>ABS</u>

        'on top of the house'

Harris and Campbell (1995) describe the development of relational nouns to prepositions in Pipil as syntactic borrowing or, in Matras and Sakel's (2007a) terms, pattern borrowing. More accurately, as put forward by Heine and Kuteva (2003), the case of Pipil is an instance of contact-induced grammaticalization. The difficulty, of course, lies in distinguishing pattern replication and contact-induced grammaticalization, as pointed out at the beginning of this section. However, this particular grammaticalization path is cross-linguistically frequently observed and exhibits well-known signs of grammaticalization, i.e. desemanticization, recategorization, and erosion. It is conceivable that speakers draw on universal strategies of grammaticalization to derive the novel category **Rx**.

Type III, where both signs and categories are interlingually identified, corresponds to the replica grammaticalization process which Heine and Kuteva (2003: 539) outline as follows:

Replica grammaticalization

a. Speakers of language **R** Note that in language **M** there is a grammatical category **Mx**.

b. They develop an equivalent category **Rx**, using material available in their own language (**R**).

c. To this end, they replicate a grammaticalization process they assume to have taken place in language **M**, using an analogical formula of the kind [**My** > **Mx**]=[**Ry** > **Rx**].

d. They grammaticalize category **Ry** to **Rx**.

As mentioned above, I concur with Gast and van der Auwera (2012: 387) that the notion of replica grammaticalization as proposed by Heine and Kuteva is problematic because a high degree of linguistic meta-knowledge is accredited to language users, i.e. knowledge about the diachronic development of lexical to grammatical formatives. Working within the framework proposed by Gast and van der Auwera according to which speakers identify both sign and categories interlingually in these cases, such developments can be explained without presupposing some vast linguistic meta-knowledge.

One of the examples for Type III is the development of a possession verb *get* (**Ry**) into an existential marker *got* (**Rx**) in colloquial Singaporean English (**R**) (Ziegeler 2000: 90). The novel marker is employed to express both existence and existential qualification (cf. Bao 2017). Two other constructions featuring a grammaticalized variant of *get* in Singaporean English, i.e. deontic [*have got to* + V] and passive [*get* + V-*en*], are clearly inherited from British English, which served as the input variety in the Singaporean context. Conversely, the usage of an existential 'got'-construction is unattested in British English. Therefore, it is highly probable that we are dealing with a case of contact-induced grammaticalization due to the influence of the locally dominant language Mandarin Chinese.[50] As for the contact-induced grammaticalization of *get* into an existential marker, the following scenario is proposed: the bilingual speaker interlingually identified both the sign and category of the item *yǒu* (有） in Mandarin Chinese (Sinitic, Sino-Tibetan) (**M**) in its usage as a verb of possession (**My**) and as a verb denoting existence (**Mx**). Based on the identification of both sign and cate-

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50 Notice that in 2010, according to the Singaporean census, 35.6 % of the population used Mandarin as their home language (Bao 2017). Other Chinese dialects (14.3 %), Malay (12.2 %) and Tamil (3.3 %) were declared to be used less frequently at home. English increasingly gains in importance. In the same year, 32.3 % of the total population declared English their home language, compared to 23.0 % in 2000.

gory, the speaker models the usage of **Rx** on that of **Mx**. Example (16a) illustrates the usage of *yǒu* (有) in a Mandarin Chinese possessive construction, while examples (16b) and (16c) show the verb in its grammaticalized existential use. In example (17), the usage of *get* in an interrogative existential construction in Singaporean English is given.

(16)   Mandarin Chinese (Sinitic, Sino-Tibetan)   [Xin Ai p.c.]
  a.   yǒu (有) used as a verb of possession (**My**)
        nǚrén **yǒu** yì *běn*   *shū*
        woman   **have** one CL   book
        'A woman has one book.'
  b.   yǒu (有) used as a verb of existence (**Mx**)
        shūbāo   *lǐ* **yǒu**   *yì* *běn* *shū*
        schoolbag   in **EXI[<have]** one CL   book
        'There is one book in the schoolbag.'
  c.   yǒu (有) used as a verb of existence (**Mx**)
        zaì *Zhōngguó*, *xuéxiào* *lǐ* **yǒu**   *rén*
        in   China   school   in **EXI[<have]** people
        'In China, there are people are in school.'

(17)   Colloquial Singaporean English (Germanic, Indo-European) (**Rx**)
                                                         [Ziegeler 2000: 90]
        In *China* *where* **got**   *people* *go* *to* *English* *school?*
        in   China   where **EXI[<(get]** people go   to   English   school
        'In China, where are people going to an English school?'

In sum, I outlined the different types of contact-induced grammaticalization and provided examples for illustration. Some of the examples already touched upon the languages of interest to this study, i.e. Tzotzil and Spanish, suggesting that contact might also play a role in the grammaticalization of motion verbs where Mayan languages are both M and R. The additional consideration of contact-induced grammaticalization allows for a more comprehensive understanding of why and how grammaticalization was initiated in some cases. Overall, it can be deduced that the main difference between language-internal grammaticalization and contact-induced grammaticalization lies in the innovation aspects resulting from contact. Indeed, "it is the co-existence of different linguistic systems in individual speakers that acts as a driving force and catalyst of innovations specific to the type of linguistic change under discussion [i.e. contact-induced grammaticalisation]" (Gast and van der Auwera 2012: 389). Individual speakers add innovative utterances to their linguistic repertoire. Through subsequent diffusion, these innovations may come to be used by the entire speech

community and might end up as genuine changes in the R's grammatical system. In Section 8.3, I demonstrate that indications for contact-induced grammaticalization of motions can be found for some of the Mayan languages under scrutiny.

3.6 Some open questions

To conclude the literature review, I raise some open questions. Perhaps the biggest open question is whether grammaticalization exists and whether it constitutes a separate type of language change. Many grammaticalization-sceptics or -critics, prominently voiced in a special issue of *Language Sciences* in 2001, firmly hold that the process "has no independent status of its own; it merely involves other kinds of changes and mechanisms of change which are well understood and are not limited to cases involving grammaticalization" (Campbell 2001: 117). In fact, grammaticalization is argued to be no process at all but a product, epiphenomenon, or result (cf. Brian 2001; Janda 2001). An even more critical view is voiced by Newmeyer (1998: 226) who proclaims that "there is no such thing as grammaticalization". I disagree. From my perspective, grammaticalization is a process that leads to a 'predictable' outcome. It is characterized by a largely determinate sequence of changes, and at the end of said sequence, we find a new grammatical morpheme (within a given construction). The process is advanced by the two mechanisms analogy and reanalysis, discussed in Section 3.1, which take place in iteration during grammaticalization. While the reanalysis of a construction transports a grammaticalizing item into a (more) grammatical role and thus targets the linear, syntagmatic organization of language, analogy has a bearing on the vertical, paradigmatic organization and opens up individual slots in the constructions for new categories resulting in context-expansion.

Nevertheless, I concede that the above-mentioned articles have some merit as they review a bulk of work on grammaticalization and point to the range of opinions, inconsistencies, and definitions. This, of course, is part of the reason why I devoted a chunk of this work to reviewing the literature and theory. As for some of the concrete criticisms expressed, grammaticalization certainly shares several mechanisms of change with other diachronic developments. Yet, its products are new ways of orientating ideas in language and thought (cf. Chafe 2002: Chap. 1) – not creating ideas themselves. Grammaticalization produces largely obligatory elements in set constructions that speakers must, or are at least very likely, to employ. This has ramifications on how ideas can be framed in a given language. If the same types of change on the formal and meaning level of an item occur for every grammaticalization instance, then the abstraction holds that we are dealing

with a regular, definable type of diachronic process. Grammaticalization is generally irreversible, and the same grammaticalization paths may be observed cross-linguistically. These universalities give good cause to consider grammaticalization a distinct type of linguistic change.

There are other open questions that still require answers. The findings of the present study hope to offer insights into some of these or at least function as signposts for further research directions. I will name just a few. First of all, (i) what motivates the actuation of grammaticalization? Is the process conditional upon synchronic factors and if so, what are they? And relatedly, (ii) what is the role of language contact? Is contact-induced change a subtype of the more general phenomenon or does it play a more fundamental role? Moreover, (iii) what are the precise roles of speaker and hearer? If pragmatic inferencing is associated with the hearer, does the speaker play a secondary role? Are creativity and the creation of new meaning the prerogative of the hearer and not the speaker? Also, (iv) can we refine and further specify both the nature of the mechanisms advancing grammaticalization and the essential properties that source concepts must possess?

Some questions require further, more fine-grained research, others may probably never be answered due to e.g. limitations in data availability. Nonetheless, the present contribution seeks to add to the growing empirical base which necessarily constitutes the foundation for tackling these theoretical issues.

4 Methodology and data

Considering how to approach any inquiry into the phenomenon of grammaticalization, Lehmann (2005: 175) writes that grammaticalization "is a unitary, but abstract concept. Just like any useful abstract concept, it has to be decomposed into more elementary and concrete concepts. In the last resort, it has to be operationalized". In this spirit, I try to be as transparent and comprehensible as possible by operationalizing and spelling out all relevant semantic, syntactic, and morphological parameters. In this section, I provide all the necessary information on methodology, data, and limitations thereof.

This empirical study is entirely qualitative and thus explorative in nature and adopts a panchronic perspective. I aim to generate new ideas and provide new insights. To investigate the intragenetic variation in the grammaticalization of motion verbs in Mayan languages, the following six guiding research questions (RQ) are addressed:

RQ1. Which grammaticalization paths do the motion verbs in Mayan languages travel? How do these relate to the original semantic and constructional profile of a given motion verb?

RQ2. What phonological, morphological, syntactic, and semantic developments or changes can be observed?

RQ3. Is a new category introduced or an old one extended?

RQ4. What are the possible intermediate stages? Which specific constructions facilitate the development of a gram? Are there construction types that bring about specific gram types?

RQ5. Are there instances of contact-induced grammaticalization of motion verbs in both directions, i.e. where Mayan languages serve as the model language and where they assume the role of the replica language?

RQ6. What does the intragenetic comparison reveal about the proposed universal tendencies of grammaticalization? And which aspects of the theories on grammaticalization appear more vital than others? Can the Network Approach be successfully applied to the findings?

Three of the operative terms used in the research questions require some elaboration, namely motion (verbs), gram/gram type, and intermediate stage(s). As noted in Section 2.1, *motion verbs* do not form a definable or natural class identifiable through objective, formal criteria. For the purpose of this study and reasons of comparability, I consider all motion verb types listed in the WLG (Heine and Kuteva 2002): ARRIVE, COME, COME FROM, COME TO, CROSS, DESCEND, GO, GO TO, LEAVE, PASS, and RETURN. I also add the motion verb types ENTER and EXIT. The

classification itself is based on a semantic feature analysis. The items must exhibit the features [+motion] and [+change of location]. The motion verb class primarily includes inherently directed motion verbs. At different stages of the analysis, I additionally include posture verbs and verbs that explicitly encode the lack or termination of motion. This decision is grounded in the observation that different lexemes may bring about the same gram type and may thus serve as a useful comparison. For instance, continuous aspect was grammaticalized from constructions with COME in Spanish (Romance, Indo-European) (Bybee and Dahl 1989: 58) and GO in Maricopa (River Yuman, Cochimi-Yuman) (Gordon 1986: 65), as well as from posture verbs such as LIE in Tamil (Tamiloid, Dravidian) (T. Lehmann 1989: 223), SIT in Bulgarian (Slavic, Indo-European) (Kuteva 1999: 195), and STAND in Italian (Romance, Indo-European) (Devoto and Oli 1971: 2347). All these verbs are generally intransitive but frequently have transitive usages, e.g. of a GO TO-type, expanding the motion verb's constructional profile.

Following Bybee and Dahl (1989) and Bybee et al. (1994), language-specific morphemes in a given language are referred to as *grams* while cross-linguistically observed grammatical categories are called *gram types*. For example, Dahl (1985) establishes the PERFECT as a gram type found in the languages of the world. In his sample of 64 languages, 23 have representative perfect grams. Their functional domains and distributional properties, however, vary from one language to another. The distinction between gram and gram type is important to arrive at a general understanding of these "building blocks" of grammar as Dahl (2014: 268) refers to them. I present gram types in capital letters and individual grams in lowercase.

Moreover, I use the term *intermediate stage* with reference to constructions. I aim to describe the incremental formal and meaning changes as the grammaticalization process advances. Intermediate stages or intermediate constructions can be perceived as steppingstones for new functions. They may include constituent re-ordering, loss of obligatory marking etc. In this respect, it is vital to consider the syntagmatic context of a grammaticalizing lexeme in a construction, as it profoundly contributes to the new meaning(s); "you shall know a word by the company it keeps" (Firth 1957: 11). Note further that a gram at the end-stage is said to be completely free of restrictions, contextual or otherwise. If this is not the case, the grammaticalization endpoint has not yet been reached (cf. Lehmann [1985] 2004: 307; Diewald 2008: 225). This does not entail, however, that such an endpoint must be or is reached by any given grammaticalizing element.

To answer the six research questions posed above, a general course of action was adopted to every grammaticalization instance. The step by step procedure is partly modeled on the proposal by Devos and van der Wal (2014: 332). The results of Step 1 to Step 5 are presented in Sections 7, 8, and 9, respectively.

Step 1. Describe the semantics of motion verbs and their derivative grams, including those travelling down unusual grammaticalization paths for each language individually. At the same time, consider the wider network of motion verbs in a given language.

Step 2. Offer, where possible, a diachronic account of all grammaticalization stages with a focus on constructions and constructional development.

Step 3. Consider influence from possible independently developing grammaticalization paths as well as language contact and resultant contact-induced grammaticalization.

Step 4. Compare the results intragenetically and formulate generalizations in relation to gram types.

Step 5. Apply the proposed Network Approach to grammaticalization to the findings.

For reasons of comparability, I investigated the motion verbs according to the six parameters of grammaticalization. I applied Lehmann's parameters as a taxonomic tool to establish the degree of grammaticalization. What is more, despite the overall exploratory nature of the study, I also pose concrete hypotheses. While H1 serves as an assessment of the overall research goal, H2-H4 target current theoretical issues in grammaticalization research outlined in Section 3. In Section 9.1, I argue if and why each of the hypotheses can be either falsified or verified based on the findings of this project.

H1. There is variation in the grammaticalization of motion verbs in Mayan languages.

H2a. The Mayan motion verbs that display the highest degree of generality[51] are more frequently recruited for grammaticalization than motion verbs with more specific semantics.

H2b. The Mayan motion verbs that display the highest degree of generality are more likely to travel further down the grammaticalization cline.

H3. The grammaticalization of motion verbs in Mayan languages is unidirectional.

H4. The grammaticalization of motion verbs in Mayan languages displays a tendency towards subjectification and subsequent intersubjectification.

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51 I refer to generality, not frequency, as I did not test for the latter given that no large corpora are available for all sample languages. However, as is commonly presumed, high generality manifests in high usage frequency.

The data used for this study were taken from various resources, including grammars, text collections, and corpora. Generally, I tried to consult all available synchronic and diachronic resources for each of the sample languages. This means that there is more (and more varied) information on some languages compared to others. There is a collection of folk texts featuring various Mayan languages with both the original text and free translations (Shaw 1971) as well as questionnaire-style collections of specific sentences and constructions (Yasugi 2003 for Mopán Maya, Chortí, Popti', and Q'anjob'al). Four of the Mayan languages, namely Huastec (Meléndez Guadarrama 2017), Chuj (Buenrostro 2009), Akateko (Zavala Maldonado 1992b), and Yucatec Maya (Stolz et al. 2012), are also featured in the *Archivo de Lenguas Indígenas de México* (ALIM) series.[52] Depending on the amount of available data and descriptions, more or less elaborate analyses of synchronic variation and diachronic development of the Mayan motion verbs can be given. I, therefore, selected 15 rather well-documented languages and subjected them to a thorough investigation. They are displayed in Figure 17 which shows the Mesoamerican area, consisting of Mexico, Belize, Guatemala, and Honduras. The numbers on the map correspond to the numbers on the left-hand side of the language designations in the caption and thus show where the individual languages are spoken. I tried to balance the sample by including languages from all family branches and most regions.[53] The aim was to compile a comparable database from which general conclusions can be drawn as to the intragenetic grammaticalization behavior of motion verbs and to stay clear of within-family biases.

Before delving into the analyses, I point to a major and two minor limitations or difficulties of this study. First of all, any analysis of diachronic changes should ideally be based on an adequate database which preferably comprises samples from different language stages, here including pre-grammaticalization and/or pre-contact, as well as different registers, most importantly spoken language. This desideratum can only be partially fulfilled given that the data vary in quantity and quality. For instance, Yucatec Maya is well-documented. It is listed with 114 reference entries in *Glottolog 4.0* (Hammarström et al. 2019; http://glottolog.org), Poqomchi' only registers with 60 reference entries.

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[52] The ALIM series launched 1976 is an ever-growing database for the languages of Mexico and Guatemala. Information on phonology, morphology, syntax, and lexicon is provided for each language. At the time of writing, 37 volumes were published.

[53] The reader is referred to Section 5.1 for the genealogical classification of the language family.
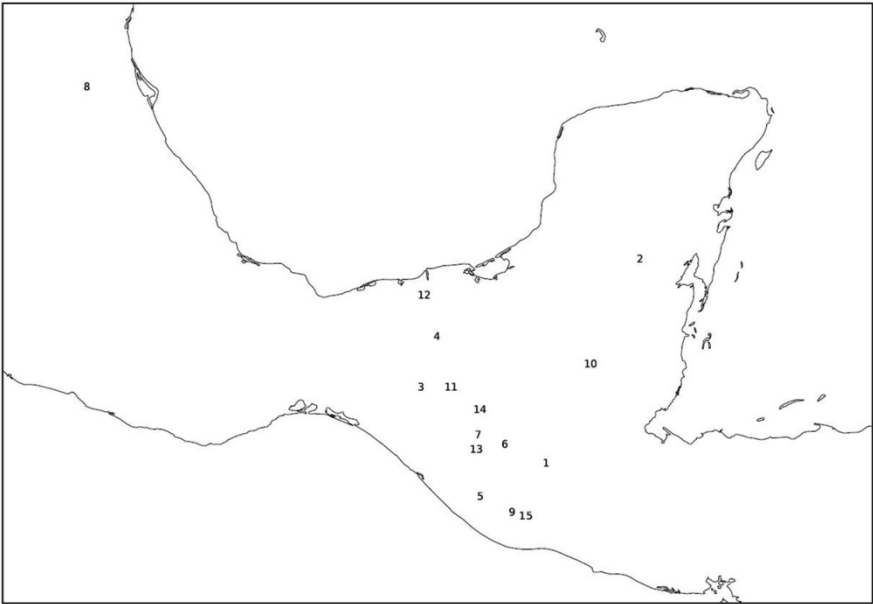
1	Poqomchi' (Poqom, Quichean-Mamean)	9	K'iche' (Quiche, Quichean-Mamean)
2	Yucatec Maya (Yucatec-Lacandon, Yucatecan)	10	Itzá (Mopan-Itza, Yucatecan)
3	Tzotzil (Tzeltalan, Cholan-Tzeltalan)	11	Tzeltal (Tzeltalan, Cholan-Tzeltalan)
4	Chol (Chol-Chontal, Cholan-Tzeltalan)	12	Tabasco Chontal (Chorti-Cholti, Cholan-Tzeltalan)
5	Mam (Mamean, Quichean-Mamean)	13	Akateko (Kanjobalan, Kanjobalan-Chujean)
6	Q'anjob'al (Kanjobalan, Kanjobalan-Chujean)	14	Tojolabal (Chujean, Kanjobalan-Chujean)
7	Chuj (Chujean, Kanjobalan-Chujean)	15	Kaqchikel (Cakchiquel-Tzutujil, Quichean-Mamean)
8	Huastec (Huastecan)		

Figure 17: Mayan sample languages.

As it is paramount to describe and analyze both the diachronic change and synchronic variation in the grammaticalization of Mayan motion verbs to arrive at convincing generalizations, the all too familiar 'data'-shortcoming problem must be accepted. Otherwise, any valid comparison would be rendered impossible as "comparing grammatical categories [and relationships between grammatical categories and constructions] across languages from only a synchronic per-

spective is something like comparing an acorn to an oak tree: they appear to have distinct and unrelated properties" (Bybee 2003b: 151). Second, notwithstanding the application of objective criteria to the description, grammaticalization is a continuum and some researchers might have classified the degree of grammaticalization differently. Also, the explanation(s) as to why a grammaticalization instance was initiated may differ depending on the theory that is adopted. In line with the suggested Network Approach, I regard metaphor, metonymy, deictic projection, and, more generally, inferencing alike as generators of conceptual links or associations. Each conceptual process is equally 'capable' of triggering grammaticalization. Third, I might have missed some grammaticalization instances because (a) they were not mentioned in secondary sources and (b) the link between source and target is so opaque that no convincing relationship could be established based on the available data. Naturally, there might be other problems that I have overlooked, in which case I hope that they do not have serious consequences for the analyses provided in the next sections.

5 The Mayan language family

The Mayan language family is well-documented. Since the 1970s, Mayan historical linguistics has progressed enormously. This becomes especially evident in the decipherment of ancient hieroglyphic writings which offer linguistic data from 1,000 years pre-Spanish conquest (cf. Law 2013: 141). Furthermore, there are several linguistic descriptions and grammars of individual contemporary Mayan languages. Some of these were compiled by native speaker linguists since the mid-1980s as a result of the 'Maya movement' (cf. England 2003: 734). Due to these and earlier efforts, the internal genealogical classification has been thoroughly outlined and is generally accepted (cf. Campbell 2017; Campbell and Kaufman 1985; McQuown 1956), although some unresolved issues remain. There have also been considerable achievements in the reconstruction of Proto-Mayan (cf. Kaufman 1990; Kaufman and Justeson 2003; Robertson 1992) which diversified approximately 4,200 years ago and whose speakers probably lived in the Southern Highlands of Guatemala (Diebold 1960; Kaufman 1976). Moreover, contemporary Mayan languages came to serve as valuable sources for typological and cognitive research, in particular concerning space, spatial deixis, and motion (cf. Bohnemeyer and Stolz 2006; Danziger 1994; Haviland 1991; Levinson 2003). An investigation of motion verbs and their grammaticalization thus builds and draws on pre-existing work that has paved the way for a comprehensive analysis. In Section 5.1, the genealogical classification of Mayan languages is outlined and information on the current status of some individual languages is given. A brief typological sketch entailing features relevant to the verbal domain is provided in 5.2. I introduce the Pan-Mayan motion verbs that are subject to the investigation in Section 6. Throughout Sections 7 and 8, I report the results of this study. The discussion commences with grams marking motion, purpose, and trajectory (Section 7) over elements situated in the realm of TAM to grams that are used to express other, rarer categories (Section 8).[54] In Section 8, I also zoom in on contact-induced grammaticalization with a view to contact with Spanish and the Mixe-Zoquean languages.

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54 Notice that the development of motion or space marking elements from motion verbs represents a borderline case between grammaticalization and lexicalization with some scholars describing it as the former and others choosing the latter terminology. In line with the distinction drawn between the two processes in Section 3.1, I strongly lean towards grammaticalization.

5.1   Genealogical classification of the Mayan languages

Today, some 30 languages belong to the Mayan phylum which comprises five subphyla in total: Huastecan Mayan, Yucatecan, Cholan-Tzeltalan, Quichean-Mamean, and Kanjobalan-Chujean (Campbell 2017: 45). Collectively, there are approximately five million speakers today, distributed over Guatemala, Mexico, Belize, Honduras, and diaspora communities in the US and Canada (cf. Law 2013: 141). The number of speakers varies significantly from one language to another. Two languages have already gone extinct, namely Chicomuceltec (Huastecan Mayan) and Cholti (Cholan-Tzeltalan). Other languages such as Itzá (Yucatecan) and Mocho' (Kanjobalan-Chujean) are highly endangered. According to *Ethnologue* (Eberhard et al. 2019; https://www.ethnologue.com), there were only 410 Itzá speakers (counted 2019) and 130 Mocho' speakers (counted 2013). Both languages are classified as moribund. The most thriving Mayan languages are Yucatec Maya (Yucatecan) with approximately 890,000 speakers counted in 2015 and K'iche' (Quichean-Mamean) with 1,050,000 speakers counted in 2019. The most widely accepted classification of the Mayan family is given in Figure 18. As mentioned above, some issues still require clarification. For instance, while some Mayanists contend that Tojolabal belongs to the Kanjobalan-Chujean branch, others argue that it ought to be situated within the Cholan-Tzeltalan subfamily (cf. Campbell 2017: 45). I follow the former classification and assume that Tojolabal's structural and lexical similarity to the Cholan-Tzeltalan languages is due to inner-Mayan contact. For the most part, the overall classification is accepted as it stands.

5.2   A brief typological sketch of the Mayan languages

This subsection provides a brief typological sketch of some structural properties of the Mayan languages relevant to the verbal domain. A comprehensive understanding of the grammaticalization of the (cognate) motion verbs can only be achieved by also considering related typological parameters, as these provide additional insights into the development of a verb into a gram, i.e. the loss of verbal morphology or the rearrangement of constituents within a clause. The features under scrutiny include basic order, agreement marking, and grammatical relations. Overall, the individual languages within the phylum behave similarly. They have fairly flexible, but prefer verb-initial, word order, are head-marking, synthetic, and mildly agglutinating. In line with Schüle's observation (2000: 81), they are discussed as a "uniform whole that can be positioned within cross-linguistic typology and for the time being ignore the few family internal differ-

ences". Where feasible I draw on reconstructed data for Proto-Mayan to describe diachronic changes which might have influenced and could potentially account for the variation in the grammaticalization of the Pan-Mayan (motion) verbs.
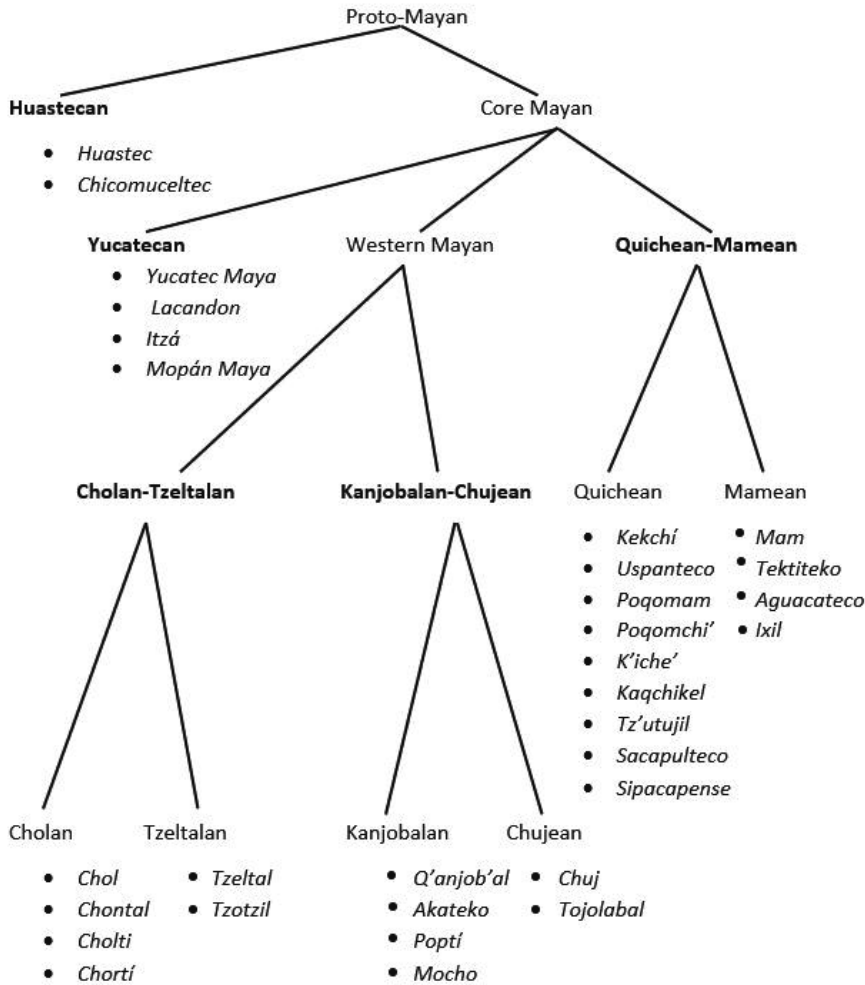
Figure 18: Classification of the Mayan languages (based on Campbell 2017: 45).

5.2.1 Basic word order[55]

There is uncontested agreement that Proto-Mayan had verb-initial word order. Yet, whether Proto-Mayan was VOS or VSO is less certain (Norman and Campbell 1978: 144). The contemporary VOS languages include Yucatec Maya, Itzá, Mopán Maya, Lacandon, Tojolabal, Tzotzil, San Juan and Santiago Tz'utujil, and Cotzal Ixil (England 1991: 545). Some of these languages also permit VSO order. They do so "usually when the O is marked for animacy, definiteness, or complexity" (England 1991: 484). Note further that most of the languages in this group allow for SVO word order as well. Chortí, Achi, and San Carlos Chontal Maya are the only languages that have been analyzed as SVO languages (Knowles 1984: 314; López and Iboj 1998: 199; Quizar 1979).[56] However, both Achi and San Carlos Chontal Mayan allow for other word orders, i.e. VOS and VSO in Achi (see López and Iboj 1998: 199) and OVS, VOS, and VSO in San Carlos Chontal Maya (cf. Knowles 1984: 314). But, in both languages, SVO is described as the most frequent and most basic word order. By contrast, Mam, Tektiteko, Aguacateco, Nebaj and Chajul Ixil, Q'anjob'al, Popti', and the San Sebastián dialect of Chuj have fixed VSO word order prohibiting VOS (England 1991: 451). Based on the relative distribution of the patterns, it was generally asserted that Proto-Mayan probably had VOS word order. This, however, raised (at least) two questions. The first relates to the change from VOS to VSO in the Kanjobalan and Mamean languages, while the second refers to the variation between VSO and VOS in Huastec, San Mateo Chuj, Kaqchikel, K'iche', San Pedro Tz'utujil, Akateko, and Mocho (England 1991: 545). After reviewing the diachronic evidence, Norman and Campbell (1978: 146) argue that Proto-Mayan probably had variable word order conditioned by hierarchically organized lexical features, the "unmarked order was VSO when S and O were equal on the feature hierarchy, VOS when S was higher than O". To exemplify, in Tenejapa Tzeltal, word order is VSO in example (18) as S and O have equal status on the feature or, more accurately here, animacy hierarchy, *Pedro* and *Juan* are human.

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55 A clause attesting basic word order must be (i) transitive, (ii) positive, (iii) declarative, (iv) pragmatically neutral, and (v) a main clause. Further, the arguments in that clause (i) are fully nominal, (ii) assume the semantic roles of agent and patient, and (iii) are of a definite interpretation. I am aware of the methodological problems of basic word order (cf. LaPolla and Poa 2006 for a discussion). Nonetheless, for the purpose of this study, it is helpful to consider basic word order for potentially establishing subtypes and trends in the grammaticalization of verbs.

56 Notice that England (1991) states that Chortí has been described as the only SVO language in the Mayan phylum. While a comprehensive grammar of (the San Carlos dialect) of Chontal Maya was not written until seven years later, England missed Achi as a language with SVO in the comparative analysis.

Conversely, the word order in example (19) is VOS because the S (human: Pedro) is higher on the hierarchy than the O (non-human: cow).[57]

(18) VSO in Tenejapa Tzeltal   [Smith 1975 in Norman and Campbell 1978: 145]
  la   s-mil   jpetul   te   jwa
  [58]PFV A3-kill Pedro   DET   Juan
  'Pedro killed Juan.'

(19) VOS in Tenejapa Tzeltal [Smith 1975 in Norman and Campbell 1978: 145]
  la   s-mil   báka   te   jpetul=e
  [59]PFV A3-kill cow   DET   Pedro=ENC
  'Pedro killed the cow.'

Norman and Campbell's (1978) hypothesis accounts for the different 'word-order'-directions into which the various branches and daughter languages have developed. The prominence of the feature hierarchy in the Mayan (conditioned[60]) ergative system is also in line with cross-linguistic findings on its relevance in ergative languages. While generally agreeing with Norman and Campbell's analysis for Proto-Mayan, England (1991) suggests VOS is more basic. The respective structure of the Proto-Mayan sentence, as shown in Figure 19, has two pre-verbal slots for topic and focus and a post-verbal slot for 'marked' objects.

TOPIC   FOCUS   [VOS]   REORDERED O

Figure 19: Sentence structure in Proto-Mayan (England 1991: 484).

Venturing from the Proto-Mayan, "daughter languages [either] maintained this structure, eliminated some derivation, or promoted some derivation at the expense of another" (England 1991: 484). The contemporary Mayan languages can be divided into four groups: (i) those languages that still predominately have VOS but at times also allow for SVO as a result of topicalization, (ii) those that permit both VOS and VSO based on the animacy features of the noun phrases,

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57 Other lexical features of the noun phrases apart from animacy can also affect word order. In K'iche', for instance, definiteness and object complexity govern word order, not animacy (England 1991: 469).

58 Glosses are mine; no (linear) glosses are provided by the authors.

59 Glosses are mine; no (linear) glosses are provided by the authors.

60 I prefer the term *conditioned* alignment in ergative languages as used by Zúñiga (2018) over the traditional notion of *split* alignment employed by Dixon (1994) because the former does not imply some previous unified stage from which the split occurred.

(iii) those that have promoted the {[V S] REORDERED O}-derivation to fixed basic word order status, and (iv) those languages which exclusively display SVO. The lexical features of the noun phrases in the languages with fixed word order, i.e. especially those in class (iii) and (iv), do not control word order any longer. Instead, one of the oscillating orders was generalized and functions as the default today. Table 10 assigns all Mayan languages to either of the four classes. The analyses where no source is given stem from England (1991), elsewhere the source is indicated.

Table 10: Word order in contemporary Mayan languages (based on England 1991).[61]

VOS (/SVO)	VOS/VSO	VSO	SVO
Yucatec Maya (Yucatec-Lacandon, Yucatecan)	**Huastec** (Huastecan-Mayan, Core Mayan)	**Mam** (Mamean, Greater Mamean)	**Chortí** (Chorti-Cholti, Cholan-Tzeltalan)
Itzá (Mopan-Itza, Yucatecan)	**Tzeltal** (Tzeltalan, Cholan-Tzeltalan)	**Tektiteko** (Mamean, Greater Mamean)	**San Carlos Chontal Maya** (Chol-Cholan, Cholan-Tzeltalan) [Knowles 1984: 314]
Mopán Maya (Mopan-Itza, Yucatecan)	**San Mateo Chuj** (Chujean, Kanjobalan-Chujean)	**Aguacateco** (Ixilan, Greater Mamean)	**Achi** (Quiche-Achi, Greater Quichean) [López and Iboj 1998: 199]
Lacandon (Yucatec-Lacandon, Yucatecan)	**Kaqchikel** (Cakchiquel-Tzutujil, Greater Quichean)	**Nebaj Ixil** (Ixilan, Greater Mamean)	
Tojolabal (Chujean, Kanjobalan-Chujean)	**K'iche'** (Quiche-Achi, Greater Quichean)	**Chajul Ixil** (Ixilan, Greater Mamean)	
Tzotzil (Tzeltalan, Cholan-Tzeltalan)	**San Pedro Tz'utujil** (Cakchiquel-Tzutujil, Greater Quichean)	**Q'anjob'al** (Kanjobalan, Kanjobalan-Chujean)	
San Juan Tz'utujil (Cakchiquel-Tzutujil, Greater Quichean)	**Akateko** (Kanjobalan, Kanjobalan-Chujean)	**Popti'** (Kanjobalan, Kanjobalan-Chujean)	
Santiago Tz'utujil (Cakchiquel-Tzutujil, Greater Quichean)	**Mocho** (Kanjobalan, Kanjobalan-Chujean)	**San Sebastián Chuj** (Chujean, Kanjobalan-Chujean)	

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61 For Chicomuceltec† (Huastecan-Mayan, Core Mayan) and Cholti† (Chorti-Cholti, Cholan-Tzeltalan), I found no reliable descriptions. Therefore, the two languages were excluded from the word order classification.

VOS (/SVO)	VOS/VSO	VSO	SVO
Cotzal Ixil (Ixilan, Greater Mamean)	**Chol** (Chol-Cholan, Cholan-Tzeltalan) [Vázquez Álvarez 2011: 21]	**Sipacapense** (Core Quichean, Greater Quichean) [Barrett 1999: 52]	
Sacapulteco (Core Quichean, Greater Quichean) [DuBois 1981: 238–239]	**Uspanteco** (Quichean-Mamean, Greater Quichean) [Can Pixabaj 2006: 510–511]		
Kekchí (Core Quichean, Greater Quichean) [Caz Cho 2007: 187–188]			
Poqomam (Poqom, Greater Quichean) [Santos Nicolás 1997: 170]			
Poqomchi' (Poqom, Greater Quichean) [Brown 1979: 101, 146]			

5.2.2 Agreement marking

In the Mayan languages, there are two sets of pronominal agreement markers which occur on verbs to index both subject and object(s). These are, in the Mayan linguistic tradition and as a result of American structuralism, referred to and grouped into Set A (ergative pronouns) and Set B (absolutive pronouns). Diachronically, the markers have grammaticalized from independent pronouns (Robertson 1992). It has to be acknowledged that "pronominal affixes in Mayan languages do not in the traditional sense agree with their lexical instantiations since the lexical core NPs are unmarked for case and tend to be more often absent than present" (Schüle 2000: 82). From a functional perspective, the markers still serve to index arguments on the verbal complex irrespective of whether the lexical NPs are absent because they are contextually implied or present. Therefore, they can justifiably be analyzed as agreement markers. As for their concrete functions, the affixes in Set B are employed to mark the single argument (SA) of an intransitive clause and the patient-like argument (P) of a transitive clause. By contrast, Set A is used for the agent-like argument (AG) of a transitive clause. Pronouns of Set A are also employed to mark the possessor of the

possessed NP and to index an NP on its governing preposition. Table 11 exemplarily gives the pronominal paradigm for Modern Yucatec. The glides presented in parentheses for Set A surface whenever the verb, possessor, or preposition hosting the index bears an initial vowel.

Table 11: Pronominal paradigms in Modern Yucatec Maya (Lehmann 2017: 181).

	Set A (Ergative Pronouns)		Set B (Absolutive Pronouns)	
	Singular	**Plural**	**Singular**	**Plural**
1.	*in (w-)*	*k(a)*	*-en*	*-o'n*
2.	*a (w-)*	*a (w-)...e'x*	*-ech*	*-e'x*
3.	*u (y-)*	*u (y-)...o'b*	*Ø*	*-o'b*

From the distribution of the pronominal forms, it follows that Mayan languages are ergative marking. The ergative systems are conditioned by different factors in the individual languages, i.e. person marking, aspect marking, subordinate clauses, or topicalized constituents. Examples (20a–d) show the ergative system in Yucatec Maya which is aspect-conditioned.[62]

(20)   Ergative system conditioned by aspect in Yucatec Maya
                                        [Lehmann 2017: 182 (a–b), 192 (c), 214 (d)]

  a.   <u>h</u>   <u>bin-**ech**</u>
       PFV   go.COMPL-**B2**
       'You went.'

  b.   <u>t=**u**</u>   <u>t'an-**ech**</u>
       PFV=**A3**   call.COMPL-**B2**
       'He called you.'

  c.   <u>k=**in**</u>   <u>lúub-ul</u>
       IPFV=**A1**   fall-INCOMPL
       'I fall.'

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62 Notice that all Mayan languages generally do not code for tense but aspect (cf. Kaufman 1990; Bohnemeyer 2009). Depending on the author and description, either distinctions between perfective vs. imperfective, completive vs. incompletive, or both are made. For the most part, I gloss the relevant morphemes in accordance with the glossing in the individual secondary sources. Bybee et al. (1994) define the distinction between perfective vs. completive. Completive marks an action that is done "thoroughly and to completion", while the perfective is used to refer to an action which is temporally bound (Bybee et al. 1994: 54).

    d.   *ba'l=e'*   *yan=**a**   <u>*bo'l*-t-*ik*</u>-***en***
        however=TOP   DEB=**A2**   <u>pay</u>-TRR-<u>INCOMPL</u>-**B1**
        'However, you must pay me.'

As shown in examples (20a) and (20b), ergative alignment is triggered by the completive status of the verb. The second-person singular pronominal suffix *-ech* of Set B attaches to the verbal base in both sentences. Yet, while it marks the SA in example (20a), it indexes the P in example (20b). Examples (20c) and (20d), one the other hand, are accusatively aligned because the verbal base appears in the incompletive aspect. The pronouns of Set A serve to indicate both the SA and the AG here. The first-person singular affix *-in* marks the SA of the intransitive clause in example (20c), while the second-person singular affix *-a* indexes the AG of the transitive clause in example (20d). The P is marked by the third-person singular affix *-en* of Set B. Figure 20 provides an abstraction of the Yucatec Maya ergative system conditioned by aspect.
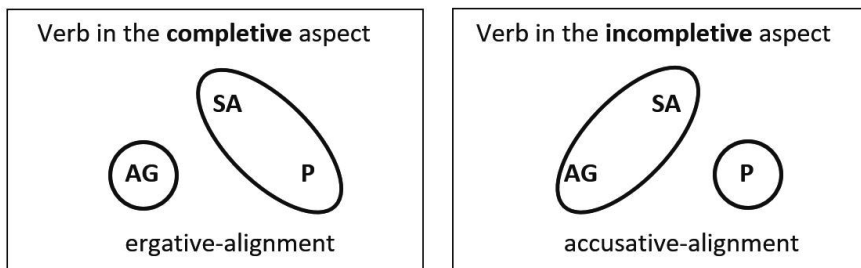
Figure 20: Ergative system conditioned by aspect in Yucatec Maya.

Mayan motion verbs, which are of interest to this study, function as prototypical intransitive verb stems. It follows that they co-occur with, depending on their aspectual properties, the pronouns of Set A or Set B in Yucatec Maya. Example (20a) above illustrates the usage of *bin* 'to go' in the completive aspect. A pronoun of Set B is employed. The same motion verb in the incompletive aspect is given in example (21) where the second-person pronoun of Set A *-a* attaches to the incompletive aspect marker *k-*.

(21)   Yucatec Maya (Yucatec-Lacandon, Yucatecan)
                                   [CABankYUC, Haviland n.d.]
        k**=**a   ***bin***   *tu*   *naj-il*   *este le*   *senyor jigante-o'*
        IPFV=**A2** **go.INCOMPL** 2SG house-POSS DEM DET.M mister giant-DIST
        'You go to that mister giant's house.'

Hypothetically, the two different constructions gave rise to different gram types. For instance, *bin* in the completive might have brought about the reportative evidential stressing the completeness of an action or utterance and with it the detachment of the speaker from the situation (cf. Section 8.2). *Bin* in the incompletive might have induced its development into a future gram (cf. Section 8.1.1). Here, either the ongoing or prospective nature of an action is foregrounded, or the completion of an action is situated in the future.

6 The Pan-Mayan motion verbs

The Pan-Mayan verbs of motion are unaccusative and non-agentive (cf. Polian et al. 2015: 172). They function as prototypical intransitive verbs in simple clauses, as described above, and serve as encoders of motion and path/trajectory. According to Zavala Maldonado (1993: 33–34), the dozen or so Pan-Mayan motion verbs may be assigned to either of two groups: lexicalized deictic or lexicalized ground-oriented motion verbs. While members of the former class make references to a deictic center, those in the latter category refer to an established ground. Zavala Maldonado provides paradigms of the intransitive motion verbs for 19 Mayan languages[63], 12 of which are also featured in this study's sample. The paradigms serve to collect the relevant intransitive motion verbs. Many motion verbs are cognates and developed from the same reconstructed Proto-Mayan form (cf. Kaufman and Justeson 2003).

Haviland (1991) provides an even more fine-grained classification for Tzotzil motion verbs. He differentiates between five notional subcategories: (1) deictically anchored motion, (2) point oriented motion, (3) enclosure or region oriented motion, (4) vertical axis motion, and (5) aspectuals. Haviland's classification for Tzotzil is given in Table 12.

Table 12: Tzotzil intransitive motion verbs (Haviland 1993: 37).

i. Deictically anchored motion		
	ba(t)	'go'
	tal	'come
	k'ot	'arrive there'
	yul	'arrive here'
ii. Point oriented motion		
	'ech'	'pass by'
	sut	'return'
	kom	'stay'
	jelav	'pass by'
	a(y)	'go and return'

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63 See Appendix III for the paradigms taken from Gómez Cruz (2017: 490) based on Zavala Maldonado (1993: 33) but with additional information on Proto-Mayan and seven other Mayan languages.

iii. Enclosure or region oriented motion		
	'och	'enter'
	lok'	'exit'
iv. Vertical axis motion		
	muy	'ascend'
	yal	'descend'
v. Aspectuals		
	lik	'arise, start'
	laj	'finish'

This classification applies to the intransitive motion verb sets of all other Mayan languages. For this study, it is advisable to distinguish these subcategories to establish which component of a motion verb's semantics motivates the grammaticalization process – that is if semantics really is a key factor. Recall that I pointed to the varying opinions on the relevance of the deictic component entailed in GO and COME verbs in Section 2.3. Also, supporting a Network Approach, it is pivotal to treat motion verbs not as isolated entities but as part of a wider, interconnected structure shaped by lexical relations.

In the following, I begin by discussing the Pan-Mayan motion verbs' development into motion auxiliaries in purpose constructions (Section 7.1) and into trajectory encoding directionals (Section 7.2). I continue by examining their grammaticalized functions as encoders of TAM categories and as markers of grammatical categories beyond motion and TAM (Section 8.1 and Section 8.2). Last, I shed light on language contact with Mixe-Zoquean languages and Spanish to discuss if and how contact is relevant to the motion verb domain (Section 8.3).

7 Grammaticalization of Mayan motion verbs into motion, purpose, and trajectory

The Mayan languages have been subject to extensive studies on space and spatial orientation (cf. Haviland 1991 on Tzotzil de Zinacantán; Danziger 1994 on Mopán Maya; Bohnemeyer and Stolz 2006 on Yucatec Maya), and they are prominently featured in Levinson's (2003) monograph on space and cognition. It was demonstrated that, in Mayan spatial orientation, the absolute frame of reference predominates and is "driven by cognitive skills of spatial orientation unattested with Euro-Americans, [which] has led to the assumption that space plays a more prominent role in Mayan culture and cognition than it does in Western culture and cognition" (Bohnemeyer and Stolz 2006: 273). This prominent role manifests in a rich inventory of spatial marking elements derived from motion verbs. Indeed, the Mayan languages have auxiliary and directional constructions containing motion verbs that serve to encode (i) tense and aspect as well as (ii) path and trajectory. Auxiliaries and directionals are used "to build space directly, as it were, into grammar" (Haviland 1993: 47). Although Haviland's observation holds for all Mayan languages as far as auxiliaries are concerned, neither Yucatecan nor Huastecan languages have developed directionals. Directionals are also absent from Tabasco Chontal (Osorio May 2005: 32). For those languages that have directionals and auxiliaries, the Mayan motion verbs travelled down two separate grammaticalization paths (polygrammaticalization), except for the Mamean languages where directionals grammaticalized directly from the already grammaticalized motion auxiliaries (repeated grammaticalization).

There are notable differences as to the degree of motion verb grammaticalization in the individual languages with regard to motion, purpose, and trajectory. I speak of grammaticalization although there is reasonable ground to argue that the developments present instances of lexicalization, especially in relation to directionals. Both terms are used in the relevant literature on the individual Mayan languages. Examples include: "The rich spatial concepts are particularly richly *lexicalized*" (Bohnemeyer and Stolz 2006: 273), "the *grammaticalisation* of motion (and time) in Tzotzil" (Haviland 1991), "the *lexicalization* of path information, that is, the *lexicalization* of the (relative) motion of a participant in the event denoted by the verb" (Henderson 2016: 555), or "the *grammaticalization* of verbs of motion as directional complements to main verbs" (Law

2017: 155).[64] At the end of Section 3.1, I discussed the similarities and differences between grammaticalization and lexicalization and referred to the defining properties of both. According to those, it appears more feasible to speak of grammaticalization, as an entire set of lexemes undergoes changes, not a single lexeme. For the more grammaticalized cases, the class of items that may enter the variable slot of the directional constructions is expanded (*host-class expansion*), that means that non-motion verbs may co-occur with the path marking elements. All this points to grammaticalization rather than lexicalization, but I am sure some would disagree.

Auxiliaries are generally defined as verbs that are subordinate to the main lexical verb and mark grammatical distinctions such as mood, aspect, voice etc. in the complex phrase verbs (cf. Crystal [1980] 2008: 46). As we will see in the course of the discussion, this description of subordination is neither always clear nor unproblematic. Structurally, it is rather the case that the lexical verbs are subordinate to the auxiliary. Of course, this points to the more general issue of gradience for defining and using linguistic terminology. Probably, for the time being, it is more advisable to merely classify the relationship as asymmetric. In any case, auxiliaries display a different grammatical behavior than lexical verbs. The Mayan motion auxiliaries are functional verbs lacking syntactic structure (cf. Aissen 1994). Their auxiliary status can be established through four factors: (i) Defective argument structure, (ii) lack of main verb properties, (iii) closed group status, and (iv) the subject of the passivized construction, surfacing as an oblique NP (cf. Haviland 1991, 1993; Aissen 1994). *Directionals*, on the other hand, lack a precise definition in the literature. They usually refer to elements indicating the trajectory of a motion event. The difficulty is that the notion of 'auxiliary' is primarily defined on morphosyntactic grounds, whereas 'directional' relates to semantic or functional properties. In line with the Mayan literature, I use 'auxiliary' to refer to the pre-verbal elements that carry aspect. I resort to the term 'directional' to describe post-verbal elements[65] that appear without any person or TAM marking but may feature non-finite suffixes.

Following Anderson (2006: 7), I define auxiliary constructions as "a mono-clausal structure minimally consisting of a lexical verb element that contributes lexical content to the construction and an auxiliary verb element that contributes some grammatical or functional content to the construction". Haviland (1993: 47) uses 'AUX constructions' to refer to both grammaticalized motion structures, those with auxiliaries and those with directionals. I distinguish the

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64 Italics were added for emphasis.

65 The two Mamean languages Mam and Aguacateco are an exception in this regard. Their directionals may precede the the lexical verb.

two by the grammaticalizing element's relative position to the lexical verb. The first construction takes the shape V1V2 and is called *motion-cum-embedded construction,* with V1 comprising the motion auxiliaries, while the second appears as VDIR and is referred to as *directional construction,* with motion verbs in DIR position.[66]

As mentioned above, the Mayan languages do not behave homogenously as to the grammaticalization of motion verbs into auxiliaries and directionals. Consequently, I posit three types: (1) grammaticalization of motion verbs into auxiliaries only, (2) grammaticalization of motion verbs into both auxiliaries and directionals, and (3) grammaticalization of motion verbs into directionals from auxiliaries. The individual Mayan languages are assigned to one of the three types, see Table 13.

Table 13: The grammaticalization of Mayan motion verbs into auxiliaries and directionals.

Type I	grammaticalization of motion verbs into auxiliaries only	Yucatec Maya, Itzá, Huastec, Tabasco Chontal
Type II	grammaticalization of motion verbs into both auxiliaries and directionals	Chol, Tzotzil, Tzeltal, Poqomchi', Kaqchikel, K'iche', Akateko, Q'anjob'al, Chuj, Tojolabal
Type III	grammaticalization of motion verbs into directionals from auxiliaries	Mam

In the following detailed discussion of the findings, I first consider the grammaticalization of motion verbs into auxiliaries and subsequently examine directionals. A broad overview of the results is given in Appendix IV, V, and VI; they do not, however, present an exhaustive list.

7.1 Auxiliaries in motion-cum-purpose constructions

There are three *motion-cum-embedded constructions* (McECs) found across the Mayan languages with the motion verb as the grammaticalized matrix verb: *motion-cum-purpose*, *motion-cum-manner*, and *motion-cum-positional*. The highest degree of variation between the individual languages is found in the motion-cum-purpose construction (McPC) which "expresses an event understood to be spatio-

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66 Again, Mam and Aguacateco cannot be analyzed in this way because their directionals may also appear in pre-verbal position, i.e. DIRV.

temporally contiguous with the motion event" (Bohnemeyer and Stolz 2006: 300). Therefore, and for the reason that it is described in some detail in the literature, the present investigation focuses on this McEC type. Indeed, the analysis builds on several previous studies on motion verb auxiliaries in Mayan languages which were conducted, in particular, on the languages of three branches: (i) Kanjobalan-Chujean (Zavala Maldonado 1992b, 1993, on Akateko; Mateo Toledo 2008, 2013, on Q'anjob'al; Gómez Cruz 2017, on Tojolabal); (ii) Tzeltalan (Haviland 1991, 1993; Aissen 1994, on Tzotzil;, Brown 2006; Polian 2013a, b, on Tzeltal), and (iii) Mamean (England 1976, 1983, on Mam).

McPCs combine a (grammaticalizing) motion verb with a purpose clause. Robertson (1980) was the first Mayanist to compare the Mayan McPCs. The development of intransitive motion verbs into pre-verbal auxiliaries featured in McPCs appears to be common among all Mayan languages (cf. Zavala Maldonado 1993). Yet, the degree of integration of the respective motion verbs into the verbal complex differs not only from language to language but also from motion verb to motion verb. To exemplify, in Poqomchi' only five of the entire set of intransitive motion verbs may appear as the V1 and head the matrix clause of the McPC. The five motion verbs have acquired genuine auxiliary status (Brown 1979: 127). The auxiliaries include *ooj* 'go away', *chaal* 'come towards', *poon* 'go there', *k'uul* 'come here', and *iik'* 'pass by'. They are used in the completive or incompletive aspect and have received vowel lengthening as compared to the roots of the lexical source verbs, *oj*, *chal, pon*, *k'ul*, and *ik'*, respectively. The addition of phonological substance appears to oppose Lehmann's parameter of integrity whereby some phonological material is lost or reduced rather than added when a source item moves down the grammaticalization cline. The vowel lengthening can be explained by the morphological properties of the Poqomchi' intransitive verb. Intransitive verbs obligatorily receive an intransitive suffix *-ik* in phrase-final position. But if the intransitive verb does not appear phrase-finally, the suffix may be omitted. In these cases, the final vowel of the root is lengthened when it is followed by a single consonant (cf. Brown 1979: 70–71). The five intransitive motion verbs that provide the input for the Poqomchi' McPC meet both requirements, meaning that they do not appear phrase-finally when they are used in V1 position, and they are of a (C)VC structure. Notice, however, that if the motion verbs surface in other aspects or moods, the lexical root is retained and the respective TAM morpheme attached, e.g. progressive (*oj-i* 'is going'), perfect (*oj-onaq* 'has been going'), imperative (*oj-oq* 'Go!') (Brown 1979: 127). In completive and incompletive transitive clauses, the motion verb almost behaves like an infix and surfaces between the person markers of Set B (referencing the P) and Set A (referencing the AG), compare examples (22a) and (22b). All other motion verbs are exclusively used in constructions where they

appear as fully finite and are followed by the preposition *chi* 'for' functioning as a subordinator and overtly marking the purposive clause, which is expressed through a passivized verbal noun, compare examples (22c) and (22d). The same structural pattern emerges for perfect and imperative constructions (cf. Brown 1979: 129). There are significant structural differences if the directional verb is used in progressive aspect. Here, the motion verb behaves more like a lexical verb, and the two clauses are not integrated but appear as juxtaposed independent clauses (cf. 22f). The motion verb is expressed directly after the aspect particle *na* and carries the AG rather than the P marker; the remainder of the transitive phrase is retained (cf. 22e).

(22)   Poqomchi'   [Brown 1979: 128]
   a.   *x-at-ni-yuq'eej*
        COMPL-B2-A1-call
        'I called you.'
   b.   *x-at-**chaal**   ni-yuq'eej*
        COMPL-B2-**come**   A1-call
        'I came to call you.'
   c.   *x-in-**k'uul**   aw-ilow*
        COMPL-B1-**arrive.here**   A2-see
        'You came to visit me.'
   d.   *x-at-**ok**-ik   chi   w-il-mij-i*
        COMPL-B2-**enter**-INTR   SUB   A1-see-PASS-NMLZ
        'You entered to visit me (lit. You entered for my being seen).'
   e.   *na   k-aat   qa-k'a'sa-m*
        ASP   INCOMPL-B2   A1PL-wake.up-SSF
        'We are going to wake you up.'
   f.   *na   **qa-k'ul-i**   k-aat   qa-k'a'sa-m*
        ASP   **A1PL-come-PROG**   INCOMPL-B2   A1-wake.up-SSF
        'We are going to come to wake you up.'

In intransitive clauses, on the other hand, the Poqomchi' motion verbs are used as main verbs inflected for both aspect and person. The verb of the subordinate clause is only marked by the dependent suffix *-oq*, compare (23a) and (23b) to (23c). In contrast to transitive clauses, there are no structural differences determined by aspect and mood.

(23)   Poqomchi'   [Brown 1979: 129]
   a.   *x-in-b'eh-ek*
        COMPL-B1-walk-INTR
        'I walked.'

b.   *x-in-ooj*
     COMPL-B1-go
     'I went.'

c.   *x-in-ooj*   *b'eh-**oq***[67]
     COMPL-B1-go   walk-**DEP**
     'I went to walk.'

The structural templates for these Poqomchi' McPCs can be represented as follows:

intransitive McPC: [ASP-B-V1 + V2-DEP]
transitive McPC: [ASP-B-V1 + A-V2]_{subset of motion verbs}

[ASP-B-V1 + SUB + A-V2-PASS-NMLZ]_{all motion verbs}

After having exemplarily outlined the possible structural details of McPCs, I now elaborate on the semantic intricacies by discussing Tzotzil in some depth. Subsequently, I describe the diachronic development of the constructions and point to synchronic variation between the individual languages and subgroups.

Haviland (1991, 1993) gives a detailed account of the grammaticalization of motion and the syntax of the grammaticalized motion verbs in Tzotzil de Zinacantán. The motion auxiliaries featured in the construction are the result of conversion (cf. Haviland 1993: 37). In contrast to the ordinary motion verb which carries both aspect and person markers, only person affixes attach to the main verb in an auxiliary construction. Aspect is marked on the auxiliary. According to Haviland (1991: 6), "[t]he resulting construction thus distributes the morphology of the single verb in a simple Tzotzil clause over two different elements; and the two elements, auxiliary and main verb, are closely bound together". They may be only separated by second position clitics, e.g. *xa* 'already' and *to* 'still' (Haviland 1991: 6). The same McPC may feature both intransitive (cf. 24a) and transitive (cf. 24b) V2s, contrary to what was shown for Poqomchi' above where the syntax of the two constructions differs. However, while the V2 surfaces in the dependent form marked by the subjunctive suffix, *-an* for the second person in (24a), the subjunctive status is not used with transitive verbs, as shown in example (24b).

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67 Note that *-oq* has a triple function in Poqomchi'. It marks (i) the imperative mood on intransitive verbs, (ii) the dependent status of the V2 in an McPC, and (iii) verbs in subordinate clauses which denote future events (Brown 1979: 73, 127).

(24)   Tzotzil   [Haviland 1991: 6]

      a.   <u>ch</u>-**ba**   yakub-an

           INCOMPL-**go.AUX**   get.drunk-B2.SBJV

           'You'll go and get drunk.'

      b.   *ja'*   *xa*   <u>ch</u>-**tal**   *s-kolta-on*

           EXCLAM already   INCOMPL-**come.AUX** A3-help-B1

           'He is the one who is already coming to help me.'

Syntactically, it is unclear by whom the motion is carried out, as person is not marked on the auxiliary. Intuitively, the motion encoded by the auxiliary should be associated with the agent of the respective clause. However, Haviland (1993) demonstrates that Tzotzil auxiliaries frame a scene as it presents itself and motion is assigned to the arguments through pragmatic inference rather than syntax, see example (25) where the main verb occurs in the passive voice.

(25)   Tzotzil main verb in passive voice   [Haviland 1993: 38]

       tal-*em*   *k-ik'-el*   *z-na*   *'a* *li*   *rey*

       come.AUX-STAT A1-take-PASS PREP.A3-house PTC ART   king

       'They've come to take us to the King's house ([68]lit. there is coming for us to be taken to the King's house).'

The literal translation indicates that there is no syntactic subject that the motion can be assigned to. The motion is understood to be carried out by an indefinite, unnamed entity 'they'. In the Tzotzil McPCs, the auxiliary precedes and governs the V2. In the intransitive variant, the V2 additionally bears overt subjunctive marking. The templates for the Tzotzil constructions looks as follows:

intransitive McPC: [ASP-V1 (+*xa/to*) + V2-SBJV-B]

transitive McPC: [ASP-V1 (+*xa/to*) + A-V2-B]

Notice that passivized transitive V2s may also be used in McPCs (cf. [25]; and see Aissen 1994: 665ff., for a detailed description). Their discussion goes beyond the scope of this study, but I exemplarily provide a more detailed account for all possible McPC variants including passive and antipassive forms for Tojolabal below (cf. [40] for transitives and [60] for intransitives).

    It also needs to be mentioned before continuing with the diachrony of McPCs that Haviland (1991) has some doubts regarding the 'motion-cum-pur-

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68 Literal translation added.

pose' classification of the construction.[69] The motion verb auxiliary is not required in Tzotzil grammar to induce a purposive meaning. The verbal forms above, that is the intransitive in the subjunctive and the bare transitive stem without aspectual marking, may be employed as complements and suffice to express 'in order to X' or 'for X to happen' (cf. Haviland 1991: 6). Motion verbs appear to be grammaticalized and implemented into the structure of the verb phrase to encode motion itself rather than purpose. Koch (1984) made similar observations for Kaytetye (Pama-Nyungan). He coined the term 'associated motion' for the phenomenon whereby different types of motion are grammatically encoded on the (action) verb and thus associated with the activity expressed through the verb. The auxiliary bestows

> its idealized spatial trajectory [onto] the resulting purposeful action. The auxiliary thus presents grammaticalization of the parent verbal root: it loses its ability to have a nominal argument, and it *may* [...] undergo both semantic generalization and formal erosion. (Haviland 1993: 40)

The formal erosion is exemplified in example (24a). Due to its high token frequency and the consequent reducing effect, the auxiliary *bat* 'go' surfaces as *ba* 'go.AUX'. The only other motion verb for which phonological reduction in the auxiliary has been identified is *ay* 'go and return' which appears as *a* 'go and return.AUX' (cf. Aissen 1994: 682). As for semantic generalization, I will show in Section 8.1.1 that the McPC featuring *ba* 'go' in V1 position is used to express intention or future. The already grammaticalized Tzotzil McPC initially used to encode motion serves as a steppingstone for *bat* 'go' to travel further down the universally known path from a motion verb to a TAM marker. But, in other cases, especially in the Core Quichean languages (and potentially Poqomchi' and the Kanjobalan languages), even more formally grammaticalized variants of associated motion can be found. Through the same construction, which I will continue to call motion-cum-purpose for convenience, with the same lexical items in the grammaticalizing slot, diverging meaning changes can occur depending on the

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69 Haviland (1991: 6) makes a valid point concerning this issue stating that "an interesting question is how to understand this construction syntactically and diachronically [...]". The same utterance may be translated as 'You'll go and get drunk' or 'You'll go to get drunk' with the former focusing motion and the sequentiality of events and the latter inducing a purposive reading. The problem with translating from one language to another should entice further discussion in linguistic research especially since linguists oftentimes exclusively rely on grammatical descriptions as well as the examples and the translations provided therein. Although literal translations are sometimes given, they present by no means the rule.

meaning component that is strengthened. Such variation can occur even within a language family, as I will demonstrate in the upcoming sections.

7.1.1 The diachrony of the Mayan motion-cum-purpose constructions

As for the diachronic development of the Mayan motion-cum-purpose constructions, "many complex structures in Mayan languages have been identified as the source of auxiliary constructions in which the matrix verb grammaticalizes as an auxiliary and the embedded verb functions as a lexical verb" (Aissen et al. 2017: 8). The matrix and embedded clause show varying degrees of integration across the Mayan languages. For instance, the embedded clauses can be finite or non-finite and may or may not be headed by a subordinator. Other diagnostic criteria include aspect, the distribution and allocation of pronominals as well as the degree of morphosyntactic fusion, that is whether other linguistic material may interject the V1V2 sequence. It is widely accepted that McECs are a subtype of complement clause (cf. Aissen et al. 2017: 8; Craig 1977, on Popti'; England 1983, on Mam). Overall, four types of complements are distinguished in the Mayan languages: finite complements with a complementizer (type 1), finite complements without a complementizer (type 2), complements with person inflection but without aspect (type 3, *aspectless complements*), and complements without person and aspect markers (type 4, *infinitival complements*) (Mateo Toledo 2008: 522; see also Aissen 2017: 260–261).

Functionally, Zavala Maldonado (1993: 46) suggests that the embedded clauses syntactically behave like locational phrases in that they occur in similar syntactic environments. His argument is further supported by the fact that the same preposition is used to head both location and infinitival purpose clauses in many Mayan languages, e.g. *ti* in Itzá and Chol, *ta* in Tabasco Chontal and Tzeltal, or *chi* in Poqomchi'. Concerning grammaticalization theory, the scenario presents a prototypical case of analogy operative during grammaticalization whereby the context of usage of the reanalyzed structure is extended and the new linguistic structure is generalized. To elaborate, the slot formerly occupied by NPs in locational phrases is extended to VPs. The analogous conceptualization underlying the process entails the construal of an action as a location. This development is cross-linguistically frequently found, cf. English [*go to*], Spanish [*ir a*], or French [*venir de*].

Based on my analysis which will be presented in the upcoming sections, and in line with the classification outlined in Mateo Toledo (2008: 522–525), there are two main, but not exclusive, possible structural ways to express mo-

tion-cum-purpose in the Mayan languages, one where the embedded clause surfaces as an infinitival complement (type 4), which often shares the properties characteristic of locational phrases, i.e. prepositions that function as subordinators, and another one where the embedded clause surfaces as an aspectless complement (type 3). The former is generally characteristic of intransitive embedded clauses, while the latter is predominantly found with transitive embedded clauses. It will be demonstrated in the course of the analysis that the constructions are often extended to take verbs of both valency types, or even trivalent verbs (host-class expansion). Yet, for some Mayan languages, the two constructions are used asymmetrically and are particular to intransitive or transitive V2s. In any case, the structural origin at the pre-integration and pre-grammaticalization stage lies in the juxtaposition of two independent finite clauses, but there are two possible pathways for the V1 motion verbs to travel and through which they may be grammaticalized. Indeed, the transitivity of the V2 influences the structure of the McPC which in turn informs the grammaticalization of the V1. This will become apparent in the asymmetry between the transitive and intransitive purpose clauses. Crucially, the structural specifics of the construction variants give clues about the grammaticalization history of the source items.

Zavala Maldonado (1993: 43) devised a continuum of clause integration that captures, or rather reconstructs, the diachronic developments of McPCs in various Mayan languages. The continuum also reflects the gradual grammaticalization process of the intransitive motion verbs.[70] Five idealized stages of clause integration ranging from less to more integrated are postulated, see Figure 21a. At Stage I, two independent clauses with two finite verbal heads are juxtaposed, the motion verb (V1) is used in the first clause. Both predicates take their respective aspect and person marking morphology. The two clauses may be interrupted by pronouns, full noun phrases, or adverbials. At Stage II, the second predicate does not carry separate aspect marking and thus shows first signs of subordination. Jumping ahead to Stage V, the motion verb has grammaticalized into a genuine affix that attaches to the main verb, the former V2. So far, the application of the clause integration framework is straightforward and unproblematic. But matters are more complicated for Stage III and Stage IV. Zavala Maldonado primarily models his proposal on the developments observed for Akateko which are outlined in (26). For constructions with a transitive V2, he posits that Stage III consists of the V1 being stripped off pronominals entirely;

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70 Indeed, Anderson (2006: 302) argues that all auxiliary constructions "derive historically either from serial verb constructions or from verb complement sequences of various types".

both pronominals attach to the V2. At Stage IV, a Set B marker re-appears on the V1. But, contrary to expectations, the absolute marker does not convey the AG but the P. The V2 now only carries the Set A marker indicating the AG. This Stage IV construction with transitive V2s is only found in a handful of Mayan languages, namely the Kanjobalan languages Akateko (Zavala Maldonado 1993: 92–95, 98–100), Q'anjob'al (Francisco Pascual 2007: 151), and Popti' (Gómez Cruz 2017: 407) as well as the Poqom languages Poqomchi' (Brown 1979: 128) and Poqomam (Smith-Stark 1983: 329–330, 363–365). In fact, it borders on a Stage V construction where it is an infix, as found for the Core Quichean languages. In all other Mayan languages, a comparable structure is not found. This leads Gómez Cruz (2017), for instance, to diverge from Zavala's categorization in his analysis of Tojolabal McPCs. He classifies all transitive V2 constructions where the V1 only takes aspect marking as Stage IV. Stage III, by contrast, is characterized by a finite V1, still carrying the AG pronominal, and a nominalized or non-finite V2 which bears the P pronominal. For intransitive V2s, the same categorization is applied with the distinction that no P argument is indexed on the nominalized V2 at Stage III. The assignment of an McPC to a stage on the cline must, therefore, take into account the structural facts of each language or at least each subgroup. In the latter group, it seems that the motion auxiliaries are on their way to grammaticalize into prefixes, not infixes, which would explain the differences in the distribution of the person markers in the monoclausal verb phrase. For this study, zooming in on the formal and meaning changes of the motion verbs themselves, it would be methodologically difficult to postulate that one subgroup of Mayan languages acquired motion auxiliaries at Stage III (Kanjobalan and Poqom) and another at Stage IV (the rest). I, therefore, decided to stick with Zavala Maldonado's original partitioning. All motion auxiliaries are in some way devoid of morphology typically used with ordinary intransitives at Stage III, while the motion auxiliaries either come to be preceded by the P argument (infix-like) or lose yet other auxiliary-typical characteristics such as TAM marking (prefix-like) and behave more like clitics at Stage IV. My classification of the constructions, therefore, necessarily diverges from Gómez Cruz's (2017). This might gloss over some of the more detailed developments as far as clause integration is concerned but more consistently and transparently captures the grammaticalization of the motion verbs in V1 position.

In Figure 21a, the stages of clause integration modeled on the proposal by Zavala Maldonado (1993: 43) are given. I further subdivided the classification according to the valency of the V2, transitive vs. intransitive. Whenever a verb's valency is altered through a valency-changing operation, the valency of the input form was considered for the analysis. For example, passivized V2s are discussed

under the transitive V2 section. Comparing the transitive and intransitive cline, Stage I and V are identical. Stage IV for the intransitive V2s is missing because no P argument is present in the construction. As for Stage II, Gómez Cruz (2017: 401) again diverges in his classification from that proposed by Zavala Maldonado (1993: 61) and postulates that Stage II is identical, i.e. both V2s, irrespective of their valency, should appear without TAM but with person marking, or more specifically an SA index (type 3, aspectless complements). I found no evidence for this construction type with an intransitive V2. Gómez Cruz, himself, asserts that such constructions are entirely ungrammatical in Tojolabal (Gómez Cruz 2017: 397), Tzeltal (Gómez Cruz 2017: 409), and Chuj (Gómez Cruz 2017: 409). Consequently, I follow the initial proposal by Zavala Maldonado and posit that Stage II with intransitive V2s entails additional non-finite or nominalizing morphology in the embedded clause which, however, lacks separate person marking (type 4, infinitival complements). In some languages, a subordinator additionally precedes the V2. The co-subject is only indexed on the V1. At Stage III, any formerly employed subordinators are also omitted. Stage II is thus divided into the two possible complement structures outlined above at the lesser integrated end of the spectrum, i.e. type 3 for transitives and type 4 for intransitives.

Because I am primarily interested in the grammaticalization of the motion verbs in V1 position, Figure 21b gives a continuum of the stages of motion verb grammaticalization. At Stage I and Stage II, the motion verb behaves like ordinary lexical predicates. At Stage III and IV, the motion verb has acquired auxiliary status. And at Stage V, it functions as a fully grammaticalized affix.

	Less ←————— Integration of clauses —————→ More				
V2	Stage I	Stage II	Stage III	Stage IV	Stage V
TR	juxtaposition of two independent clauses with two finite verbal heads	finite motion verb with embedded clause, no separate TAM morphology on V2	auxiliary and embedded clause, no pronominals on V1	auxiliary and embedded clause, (P marked on V1)	motion affix and main verb
INTR	juxtaposition of two independent clauses with two finite verbal heads	finite motion verb with embedded clause, no person marking on non-finite V2, (subordinator precedes V2)	auxiliary and embedded clause, (formerly present subordinator omitted)	-	motion affix and main verb

Figure 21a: Stages of clause integration (modeled on Zavala Maldonado 1993: 43).

Less ◆ — — — — — — —	Grammaticalization — — — — — — — — ➤	More
Stage I - Stage II	**Stage III - Stage IV**	**Stage V**
lexical motion verb	motion verb auxiliary	motion verb affix
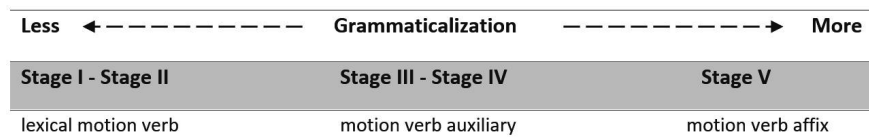
Figure 21b: Stages of motion verb grammaticalization.

The clause integration and grammaticalization continua necessarily function as an abstraction of a more complex reality which will be sketched in the upcoming sections. Yet, describing the clause integration for each language in detail goes beyond the scope of this study. I still try to give as complete a picture of the developmental variation as possible. What is more, Zavala Maldonado discusses the integration stages by making special reference to six parameters that serve as helpful diagnostics for clause integration: The allocation of (1) pronominal markers or clitics and (2) markers of finiteness, (3) the distribution of the co-referential subject[71] (co-subject) and adverbs, the presence of (4) non-finite markers on embedded predicates and (5) subordinators separating main from subordinate clause, and finally (6) the degree of fusion. These parameters determine the degree of integration. At several points of the discussion, I make explicit reference to them.

From a synchronic perspective, the majority of Mayan languages employs more than one of the five coding strategies corresponding to the five stages of clause integration. This presents a clear case of layering. To exemplify, Akateko has four McPCs types. Zavala Maldonado (1997: 445) refers to the two most prominent and most widely used variants of the construction as 'non-integrated' and 'integrated'. In the non-integrated variant (cf. 26b), the person marking on the V1 conforms with the requirements of a simple finite intransitive clause. The SA, marked by a Set B affix, and an aspectual prefix attach to the verb phrase. The V2, by contrast, exhibits first signs of subordination. Although it takes the person marking morphology required for transitive verbs, where the P is marked by a person affix of Set B and the AG is indicated by a person affix of Set A, no separate aspect marking is used. In the integrated variant (cf. 26d), "the absolutive affix referring to the patient does not appear on the semantically appropriate transitive verb, but rather on the semantically inappropriate (intransitive) auxiliary" (Zavala Maldonado 1997: 445). The reading of (26d) is,

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71 Zavala Maldonado uses the term '*equi*-subject'. Due to the theoretical baggage that the term carries, I opted for an alternative label.

therefore, 'I went looking for you' and not 'You went looking for me'. The observable clause integration[72] (or clause union) entails yet another intermediate stage (cf. 26c). It follows that, historically, the construction in example (26b) preceded the construction in example (26d). Overall, the distribution of the person markers over the two predicates demonstrates that they have become a monoclausal unit in the integrated variant. The auxiliary construction as a whole receives transitive marking. The non-integrated and integrated structures co-exist in Akateko, with the latter only being possible in some cases (Zavala Maldonado 1997: 445). These cases probably include the most general and arguably most frequently occurring motion verbs, such as *b'et* 'go' featured below. The co-existing strategies in Akateko can be situated along the continuum introduced above.

(26)   Akateko   [Zavala Maldonado 1997: 445 (b, d); constructed (a, c)]

        Stage I

  a. ***x*-*in*-*b'et***　　*an*　　*xin*　***x*-*ach*-*w*-*il***　　*an*
     COMPL-**B1**-go　CL　　　then　COMPL-**B2**-**A1**-see　CL
     'I went and then I looked for you.'

        Stage II (non-integrated)

  b. *x*-***in***-*b'et*　　　***ach*-*w*-*il***　　*an*
     COMPL-**B1**-go　　**B2**-**A1**-see　CL
     'I went and looked for you.'

        Stage III

  c. *x*-*b'et*　　　***ach*-*w*-*il***　　*an*
     COMPL-go　　**B2**-**A1**-see　CL
     'I went and looked for you.'

        Stage IV (integrated)

  d. *x*-***ach*-*b'et***　　***w*-*il***　　*an*
     COMPL-**B2**-go　　**A1**-see　CL
     'I went looking for you.'

Moving along the cline, example (26b) featuring the non-integrated variant can be situated at Stage II, while example (26d) with the integrated variant belongs

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72 Supporting a formal approach, Lehmann (1988: 183) lists six semanto-syntactic parameters which are operative during clause integration: (1) The explicitness of the linking, (2) the main clause syntactic level of the subordinate clause, (3) the hierarchical downgrading of the subordinate clause, (4) the desententialization of the subordinate clause, and (5) the grammaticalization of the main verb.

to Stage IV. Example (26a) constructed for illustration shows the pre-grammaticalization and pre-integration Stage I where we find two independent clauses each containing a finite verb. At Stage II, other elements may stand between the two clauses, such as locational and noun phrases. The V1 behaves like an ordinary main predicate in an intransitive clause. Examples (26c) and (26d) present increasingly grammaticalized versions of the V1. The degree of grammaticalization of the motion verb in example (26d) is higher than that of the motion verb in example (26c). At the intermediate Stage III, the V1 carries TAM but no absolutive person marking which is required for lexical intransitive verbs in simple clauses. The V2 bears the regular person marking morphology for transitive verbs. The ergative marker now also indexes the co-subject of the former intransitive clause. No material may interrupt the sequence. At Stage IV, the co-subject is marked by the ergative on the V2 while the P formerly marked by the absolutive on the V2 now attaches to the V1; "the motion verb is reanalyzed as an auxiliary that carries the TAME morphology and an absolutive marker that conveys not the actor of a motion (the semantic participant that accomplishes the motion) but the patient of the former embedded transitive verb" (Zavala Maldonado 1993: 44). At present, no Stage V McPC with fully grammaticalized motion verbs can be identified for Akateko. But given that some motion verbs already appear in an almost infix-like position, as is also the case for Poqomchi', it may be tentatively hypothesized based on the developments for the Mayan languages of the Core Quichean branch, K'iche', Kaqchikel, Tz'utujil, and Sacapulteco (cf. [49] for Kaqchikel and [50] and [51] for K'iche') that, as time progresses, the Akateko McPC might move further down the cline towards Stage V, at least for a select number of motion verbs, where the V1 undergoes erosion and becomes an inflectional affix.

7.1.2 Variation in the grammaticalization of the Mayan motion auxiliaries

I now zoom in on the variation identified for the grammatical structures of the McPCs across the Mayan language family. The discussion is organized around the grammaticalization and clause integration stages. Appendix IV provides a broad overview of (a) the motion verbs that participate in the relevant constructions and (b) the structural templates for McPCs for both intransitive and transitive V2s. I aim to provide an overview, not an exhaustive report, of some identified variations while simultaneously referring to the clause integration framework. I first examine the McPCs that have a transitive verb in the V2 posi-

tion. Subsequently, I offer some remarks on variation concerning intransitive verbs as V2s. The analysis ends with some overall observations on variation.

7.1.2.1   Motion-cum-purpose constructions with transitive V2

Aspectless complement clauses (type 3, cf. Mateo Toledo 2008: 522) serve as the main structural input for the further development of McPCs with transitive V2s. However, the extension of the infinitival complement structure (type 4), characteristic of embedded clauses with intransitive V2s, can also be identified for some of the sample languages. Layering for McPCs with transitive V2s can indeed be found in all Mayan languages of this sample, meaning that speakers resort to more than one strategy to encode motion-cum-purpose as a result of (recurrent) reanalysis. All five stages are never attested simultaneously, nor is one stage only. Usually, three stages can be attested, with some 'outlier' languages that allow two or four. For instance, as outlined in the previous section, the Kanjobalan languages give evidence of four stages (Stage I–IV). The Core Quichean languages permit Stage I, II, and V, thus excluding the stages where the motion verbs behave like auxiliaries. The Yucatecan languages have Stage I, II, and III. The Cholan-Tzeltalan languages display either three or two. Tzotzil permits Stage I, II, and III and Tabasco Chontal has at least I, II, and IV, whereas Tzeltal and Chol allow for Stage I and III only. Overall, it appears that with increasing integration of the construction, on the one hand, and grammaticalization of the motion verb, on the other, the set of motion verbs that may enter the V1 slot becomes more restricted.

7.1.2.1.1   Stage I: Juxtaposition of two independent clauses

Stage I, juxtaposing two finite clauses with the motion verb featured in the first clause, is always a possibility to express motion-cum-purpose in all Mayan languages. Because neither integration nor grammaticalization has set in, I will not dwell on this stage for too long. Stage I is characterized by its biclausal structure where both clauses are independent and their verbs take all the respective morphology required for finite verbs. The co-subject is indicated separately on both verbs. In addition, co-referential pronouns or noun phrases may be used overtly, thereby interrupting the V1V2 sequence. A range of other optional constituents may also be used, such as adverbials, locative phrases, and directionals. An example from Akateko exemplifying a Stage I McPC is shown in (27). The V1 motion verb is inflected for completive aspect by *x-* and person which is zero for the absolutive third-person singular. The verb phrase is followed by a pronoun

naj 'he' used to co-reference male human entities and a locative phrase *b'ey naj icham yaaw* 'at/to the place where the king is' indicating the goal of the motion. Oftentimes, as is also the case for the Akateko example, coordinating conjunctions appear, e.g. *xin* '(and) then' to mark the temporal or causal relationship between events.

(27)   Akateko   [Zavala Maldonado 1993: 43]

x-Ø-apni		*naj*	*b'ey*	*naj*	*icham*	*yaaw*
COMPL-B3-arrive.there		PRO:man	PREP	CL	old	chief
xin	**max**	*Ø-s-q'an*		*s-mulna'-il*	*naj*	*xin*
then	COMPL	B3-A3-preguntar		A3-trabajar-NMLZ	PRO:man	then

'Then he arrived there at the place where the king was and then he asked for work.'

It becomes apparent that the motion verb behaves like a prototypical intransitive verb in a main clause and shows no formal signs of grammaticalization. Still, the purposive component entailed in the motion action is already palpable at Stage I.

7.1.2.1.2 Stage II: Finite motion verb with embedded clause

Stage II McPCs, where the finite motion verb is followed by an embedded clause, appear to be a viable, although not necessarily equally frequently employed, option in most of the Mayan languages of this sample. The only languages where a Stage II McPC with a transitive V2 as an aspectless complement has not been reported or even deemed ungrammatical are Tzeltal and Chol (cf. Gómez Cruz 2017: 403 on Tzeltal, and Vázquez Álvarez 2011: 385 on Chol). Before looking at concrete examples, some general remarks are in order. At Stage II, just like at Stage I, the motion verb in V1 position still shows no signs of grammaticalization; it is used as a prototypical intransitive verb in a main clause. By contrast, the degree of integration has progressed. The V2 in the embedded clause bears no separate aspect marking but still carries the appropriate person pronominals. This means that no deletion of the co-subject has taken place yet. An additional marker may sometimes be used on the V2 to indicate its syntactic dependency. The V1 and V2 do not form a tightly bound constituent. Roughly the same elements that were eligible to interrupt the sequence at Stage I may also still appear between the more integrated two clauses.

    Let us turn to some concrete examples. In (28a), the Stage II McPC is given for Akateko. The V1 motion verb is inflected for the incompletive aspect and the first-person singular by *ch-* and *in-*, respectively. The V2 bears both pronominals

needed to index both the AG, which is co-referential with the SA of the motion clause, and the P of a transitive clause. While no separate aspect marking is attached to the V2, an additional dependent suffix *-on* is used to overtly mark its subordinate status. In (28b), which is the same example as displayed in (26b) and repeated here for convenience, no overt dependent status marking is used.

(28)   Akateko   [Zavala Maldonado 1993: 62; 1997: 445]
    a.   *y-et*   **ch-in**-*b'et-ey*
         A3-when   **INCOMPL-B1**-go-DIR:down[<descend]
         ***Ø-in**-tx'a-**on**-el*   *ko-pichil-ti'*
         B3-A1-wash-**DEP**=DIR:out[<exit]   A1PL-clothes-PROX
         'When I went to wash our clothes.'
    b.   *x-**in**-b'et*   ***ach-w**-il*   *an*
         COMPL-**B1**-go   **B2-A1**-see   CL
         'I went and looked for you.'

If we compare (28b) to (29) below, it becomes evident that the structure in Tzotzil is identical. The apparent lack of a dependent status marking morpheme is due to the morphosyntactic facts of the Tzeltalan languages. Dependent status is indicated by the subjunctive, which is zero-marked on transitive verbs but surfaces as *-uk* on intransitives. As mentioned above, a Stage II McPC with a transitive V2 in an aspectless complement structure is not permissible in Tzotzil's sister language Tzeltal. If one wanted to use a transitive V2 in a Stage II McPC in Tzeltal, the verb would need to appear as a nominalized passive marked by *-el* and modeled on the equivalent structure for intransitive V2s where a subordinator *ta* precedes the V2 (cf. [30]). In this construction, the P is marked on the V2, but the co-referential AG is omitted due to the valency decreasing operation. Polian (2013b: 348) suggests that it is the double function of the suffix *-el,* which synchronically marks both the passive and non-finite status, that allows for the P to act as the possessor of the passivized and nominalized transitive V2. A comparable construction is also found for e.g. Tojolabal (cf. 40b), where the passive and the nominalized form, however, are marked by separate suffixes and no subordinator precedes the V2.

(29)   Tzotzil   [Aissen 1994: 683]
    *l-**i**-muy-**otikotik***   *j-k'el-**Ø-tikotik***
    COMPL-B1-ascend-**1PL.EXCL**   **A1**-see-**B3-1PL.EXL**
    'We ascend to see it.'

(30)   Tzeltal   [Polian 2013a: 308]

     ya   *x-lok'-at*   ***ta***   ***s-pas-el***

     INCOMPL   INCOMPL-leave-B2   **SUB**   **A3**-do-**NF.PASS**

     'You are leaving to do it.'

Stage II McPCs also seem to be a preferred option in the Yucatecan languages and Tabasco Chontal, and they are also frequently found in the other Kanjobalan-Chujean languages. In the Yucatecan languages, the V2 oftentimes takes an additional subjunctive/dependent status suffix. The status suffix may be omitted under specific circumstances. In Yucatec Maya, the V2 is only overtly marked for subjunctive status on some transitive verbs, but it is zero-coded in the majority of other cases (Bohnemeyer 2002: 98), see example (31) with no overt subjunctive marking.

(31)   Yucatec Maya   [Bohnemeyer 2002: 99]

     chéen   *h*   *tàal-en*   *in*   *xíimbat-**Ø**-ech*

     just   PFV come-B1 A1 walk.APP-**SBJV**-B2

     'I only came to visit you.'

In the Yucatecan sister-language Itzá, an almost identical constructional behavior can be identified. A dependent suffix is regularly featured on transitives to mark subjunctive mood. The suffix is generally deleted if an overtly coded pronoun of Set B follows (Hofling 1991: 31), compare examples (32a) and (32b).

(32)   Itzá   [Hofling 1991: 47, 53]

    a.   *waye'*   *k-in-b'el*   *in-pak'-**t-Ø-eech***

        here   INCOMPL-A1-go   A1-await-**TR-DEP-B2**

        'It's here, I am going to wait for you.'

    b.   *b'el* *in-ka'* *in-käxan-**t-eh-Ø***   *u-laak'*   *in-wet'ok*

        FUT A1-go A1-seek-**TR-DEP-B3** A3-other A1-companion

        'I'm going to look for my other companion.'

Tabasco Chontal makes use of a similar construction where the subjects of the V1 and V2 are co-referential but carry separate person marking morphology, as shown in examples (33a) and (33b). Furthermore, both predicates bear aspect marking suggesting that the construction has not yet reached Stage II where no aspect would be indicated on the V2. But, as Vinogradov (2018: 268) explains, "transitive verbs normally take the incompletive suffix in contexts in which the intransitive verbs are marked by the subjunctive". In example (33a), the V1 is inflected for imperfective aspect and preceded by a person marker of Set A, while it surfaces in the perfective aspect requiring the suffixation of a Set B marker in example (33b). The V2 always takes imperfective marking irrespective

of the V1's aspectual status. From that, it follows that the imperfective *-an* functions as a subjunctive marker in the construction.

(33)   Tabasco Chontal   [Knowles 1984: 352, 353, 356]

a.   *'u   h-**e**   'u   h-ir-**an**-et*
     A3   go-**IPFV**   A3   A3-see-**IPFV-**B2
     'He is going to see you.'

b.   *'a   h-**Ø**-on   k-ir-**an**-et*
     ASP   go-**PFV**-b1   A1-**see-IPFV**-B2
     'I went to see you.'

c.   *'**u**   täk-e'-Ø   čen-**en-Ø-lop'***
     A3   begin-IPFV-B3   watch**-IPFV-B3-PL**
     'He begins to watch them.'

Knowles (1984: 351) lists five motion verbs that most commonly occupy the V1 slot, i.e. *te* 'to come', *he/še* 'to go', *biše* 'to go', *k'ot* 'to arrive', and *tuch'* 'to leave'. Most of them belong to the class of deictically anchored motion verbs. Notice that the McPC with *biše* 'go' seems to be the most grammaticalized, as the auxiliary appears reduced as *še* or *he,* respectively (cf. 33a–b), and may be used in a Stage IV McPC of the form [*še* + A-V2-IPFV-B] (cf. Vinogradov 2017: 275). It is also noteworthy that the Stage II construction but with aspectual verbs such as *täk* 'begin' or *tsup* 'finish' assuming the V1 slot has undergone co-subject-deletion, i.e. the AG is not indicated on the V2. The aspectual verbs thus moved further down the grammaticalization cline, see example (33c) for an illustration. The V2 still carries imperfective aspect marking only.

Overall, as demonstrated here exemplarily for Tabasco Chontal, the auxiliation process has oftentimes progressed further for aspectual verbs such as FINISH and BEGIN compared to the auxiliation of intransitive motion verbs in the Mayan languages. The morphosyntax of the resultant grammaticalized structure is identical. It is conceivable that "the reanalysis of 'finish' and 'start' as aspectual auxiliaries was motivated by the same process of clause integration" (Zavala Maldonado 1993: 83).

Stage II McPCs are also found as one of the prominent coding strategies among the Kanjobalan-Chujean languages Chuj, Tojolabal, and Q'anjob'al, as well as Akateko as shown above. In contrast to the Yucatecan languages and Akateko, there is no dependent marking on the V2 in the Chujean languages and Q'anjob'al. In relation to Chuj, Buenrostro (2007: 259) argues that the lack of the dependency marker *-an*, reported for constructions with phrasal/modal verbs, points to a higher degree of syntactic independency. Her argument is substantiated by the marking of transitive status on the V2, see example (34a). The

V1V2 sequence does not form a tightly bound unit, as the co-referential subject expressed by a full noun phrase may be used (cf. 34b). Instances of Stage II McPCs for Q'anjob'al are provided in (35), no dependent status marking is present here either. This possibly points to a lower degree of clause integration as compared to Kanjobalan sister language Akateko. In (35a), a status marking morpheme *-j* appears, which attaches to derived transitives, while none is featured on the root transitive in (35b), which would surface as *-V'* (vowel + glottal stop) in clause-final position (cf. Mateo Toledo 2008: 55–56). In both Chuj and Q'anjob'al, the status suffix on root transitives is omitted if the V2 appears in non-final position and remains thus unfollowed by another constituent.

(34)   Chuj   [Buenrostro 2007: 259; Gómez Cruz 2017: 403]

      a.   ***ix-in*-*ja'*   ***ach-in*-*say-a'***
            COMPL-B1-come   B2-A1-search-TR
            'I went to look for you.'

      b.   *ix=Ø-ul=ek'*   ***winh***   ***doctor***   *Ø-y-il*
            COMPL=B3-arrive=DIR:crossing[<cross]   **CL:man**   **doctor**   B3-A3-see
            ix   *in-nun*
            CL:woman   A1-mother
            'The doctor came to see my mother.'

(35)   Q'anjob'al
                [Francisco Pascual 2007: 151 in Gómez Cruz 2017: 404; Martin 1977:
                                                      416 in Zavala Maldonado 1993: 68]

      a.   *x-in='aj=toq*   *ach=in-tayne-**j***
            INCOMPL-B1=ascend=DIR:away[<go]   B2=A1PL-look.after-TR
            'I am ascending to look after you.'

      b.   *axa*   ***max-k-in*-*apni=ok***
            and then   COMPL-PST-B1-arrive.there=DIR:in[<enter]
            Ø-w*-*il   *xim*   *w-awal*
             B3-A1-see   CL   A1-corn
            'And then I arrived there to look at my corn.'

In Q'anjob'al, there is another alternating Stage II construction which is generally characteristic of McPCs with an intransitive V2 where an infinitival suffix attaches to the lexical verb. However, the structure is also a viable option with transitive V2s. Similar constructions are identified for K'iche', Poqomchi', and Mam (cf. Zavala Maldonado 1993: 71–72) as well as Tojolabal (cf. [60c]) and Akateko (cf. [64c]). In examples (36a) and (36b), the transitive V2 bears an infinitive suffix *-oj* and the P is realized only by full noun phrases *ixim* 'corn' and *si'* 'firewood', respectively. The AG is marked on the V1. In examples (36c) and

(36d), it is shown that the omission of either the infinitival suffix or the full nominal renders the construction ungrammatical.

(36)   Q'anjob'al   [Mateo Toledo 2007: 557 (a); 2008: 263 (b–d)]
  a. *ch'-Ø-ul*   *heb'*   *naq*   *say-**oj***   ***ixim***
      INCOMPL-B3-come   PL   CL   look.for-**INF** **corn**
      'They come to look for corn [...].'
  b. *max-in*   *toj*   *tzok'-**oj***   ***si'***
      COMPL-B1   go   cut-**INF**   **firewood**
      'I went to cut firewood.'
  c. **max-in   toj   tzok'_   si'*
      COMPL-B1 go   cut   firewood
      *'I went to cut firewood.'
  d. **max-in   toj   tzok'-oj   _*
      COMPL-B1 go   cut-INF
      *'I went to cut (something).'

This construction qualifies for Stage II. It meets the requirements for four of the parameters as postulated by Zavala Maldonado (1993: 55). A co-subject NP may still interrupt the V1V2 sequence (Parameter 2). The V1 carries all the morphology of a finite clause (Parameter 3). The V2 receives non-finite marking (Parameter 4). No subordinator is present (Parameter 6). More data is needed to cast a final vote on the first parameter referring to the allocation of pronominal markers. Parameter (5) pertaining to fusion is characteristic of Stage V and is thus not applicable. The main difficulty for a Stage II classification lies outside of the parameters. Through the omission of the patient NP, the entire construction becomes ungrammatical. A pronominal which indexes the P on the V2 is not sufficient. The structure, which is also found in Tojolabal is best classified as an object incorporating McPC where a transitive verb is syntactically treated like an intransitive verb (cf. [60c]). Due to the limited scope of this study, a more detailed account of this construction must be postponed. I suppose, however, as hinted at when I discussed example (30) on Tzeltal, that the structure is modeled on the intransitive V2 variant [ASP-B-V1 + V2-INF] and presents a case of analogy and structural extension.

Summing up on Stage II, the motion verbs in V1 position show no formal signs of grammaticalization at this point. At the surface, the motion verbs behave like their counterparts described for Stage I. But we can observe an increasing degree of clause integration between the V1 and V2, which both accompanies and facilitates the progressing grammaticalization of the motion verbs in V1 position. The V2 at Stage II does not take separate aspect morphemes, but the aspect indi-

cated on the motion verb has scope over the entire complex clause. Additionally, dependent marking may appear on the verb of the embedded clause which further reflects the move from a symmetric to an asymmetric relationship between the two constituents. From the next stages onwards, increasing degrees of motion verb grammaticalization become apparent and are overtly encoded. The motions verbs have acquired auxiliary status.

7.1.2.1.3 Stage III: Auxiliary with embedded clause, no pronominals on V1

At Stage III, the V1 motion verbs are only inflected for aspect and devoid of any person marking. They thus qualify as genuine auxiliaries and are followed by an embedded clause which takes both the AG and P, whereas the former is understood as co-referential with the SA and thus occurs only once in the clause. The Tzeltalan[73] and some Kanjobalan-Chujean languages give evidence of this type. Tzeltal arguably exhibits a higher degree of motion verb grammaticalization in its Stage III[74] McPC with a transitive V2 compared to its sister language Tzotzil. No elements, such as subject NPs, locative phrases, or second position clitics, may stand between the V1 and the V2 in Tzeltal. By contrast, second position clitics may still interrupt the V1V2 sequence in Tzotzil (cf. [24b]). The V1 and the V2 in Tzeltal "form a tightly bound constituent" (Brown 2006: 251). The V2 surfaces in the subjunctive form which is zero-coded on transitive verbs (Polian 2017: 641). Recall also that a Stage II McPC based on aspectless complements is not permitted in Tzeltal (cf. Gómez Cruz 2017: 403) but may still be used in Tzotzil (cf. Aissen 1994: 683). The structure in (37) is identical to that found for Tzotzil (cf. [24b]). The auxiliary, here *ba* 'go.AUX' which is a phonologically eroded form of the lexical motion verb *bat* 'to go', is only inflected for imperfective aspect by *x-* and preceded by an incompletive clitic *ya*. The transitive V2 appears in subjunctive mood which is zero-marked and carries the pronominal markers *k-* for the first person ergative and *-Ø* for the third person absolutive. The monoclausal nature of the construction is tangible. While it is aspect marked on the V1, it is person on the V2 that has scope over the entire complex clause. The full object NP *kala wakax* 'my little bull' is only allowed to appear after the V1V2 sequence.

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73 For an illustration of Tzotzil, the reader is referred to the beginning of this subsection.

74 Notice that Gómez Cruz (2017: 405–406) assigns the construction to Stage IV. Given that I follow the framework as it was originally proposed by Zavala Maldonado, I opted for a different classification. Such classificatory differences do not, however, affect my overall analysis because in both cases the motion verb is viewed as an auxiliary.

(37) Tzeltal   [Brown 2006: 251; Polian 2013a: 308]

ya	***x**-ba*	***k**-il-Ø-**Ø***	*k-ala*	*wakax*
INCOMPL	**IPFV-**go	**A1**-see-**SBJV-B3**	A1-DIM	bull

'I'm going to see my bull.'

In Chol, the auxiliaries still bear some lexical verb morphology. An intransitive status marker is suffixed to the V1, i.e. *-i* for a perfective V1 (38a) or *-el* for an imperfective V1 (38c). Any second position clitics occur after the aspectual marker (38b). An interruption of the V1V2 sequence is ungrammatical as is any occurrence of personal inflection on the V1, see example (38d) for an illustration of the latter. This means that similar to Tzeltal, a Stage II McPC with a transitive V2 is ungrammatical in Chol. The other respect in which the two languages are similar is that second position clitics may not appear between the V1 and V2 pointing to a higher degree of monoclausality.

(38) Chol   [Vázquez Álvarez 2011: 385]

 a.
tyi	*majl-**i***	*j-k'el-Ø*
PFV	go-**INTR.PFV**	A1-see-B3

  'I went to see him.'

 b.
*tsa'=**bi***	*majl-i*	*i-k'el-Ø-o'*
PFV=**REP**	go-INTR.PFV	A3-see-B3-3PL

  'It is said that they went to see it.'

 c.
mi	*tyäl-**el***	*a-k'el-Ø-ob*
IPFV	come-**INTR.IPFV**	A2-see-B3-3PL

  'You come to see them.'

 d.
★tyi	*majl-i-y-**oñ***	*j-k'el-Ø*
PFV	go-INTR.PFV-EP-**B1**	A1-see-B3

  ★'I went to see him.'

What is more, the two motion auxiliaries *majl-i/-el* 'go-PFV/-IPFV' and *tyäyl-i/-el* 'come-PFV/-IPFV' have phonologically eroded variants *ma* and *te* that appear in the Stage III construction. Crucially, *ma* may be used in both perfective and imperfective aspect, compare (39a) and (39b), while *te* is only permitted in the latter (cf. [39c–d]) (Vázquez Álvarez 2011: 387). I strongly presume this is due to the fact that *te* is a fused and phonologically eroded version of *tyäl* 'come' and the imperfective marker *-el*. Another short form *tyä* may, however, be employed in perfective aspect contexts (39e).

(39)　　Chol　　　　　　　　　　　　　　[Vázquez Álvarez 2011: 387–388]

　　a.　*tyi*　***ma***　　*i-cha'-k'e-ø*
　　　　PFV　**go**　　A3-again-see-B3
　　　　'He went to see it again.'

　　b.　*mi*　***ma***　　*i-tsuk'-ø-o'*　　　*ya'=i*
　　　　IPFV　**go**　　A3-burn-B3-PL　　there=ENC
　　　　'They go to burn it (the candle) there.'

　　c.　*mi*　***te***　　*i-tyä'l-añ-oñ*
　　　　IPFV　**come**　　A3-bother-DT-B1
　　　　'He comes to bother me.'

　　d.　* *tyi*　***te***　　*i-tyä'l-añ-oñ*
　　　　PFV　**come**　　A3-bother-DT-B1
　　　　*'He came to bother me.'

　　e.　*tyi*　***tyä***　　*a-tyä'l-añ-oñ*
　　　　PFV　**come**　　A2-bother-DT-B1
　　　　'You came to bother me.'

According to my analysis and treatment of the clause integration framework, Tojolabal gives evidence of three different McPC stages, Stage I, II, and III.[75] At Stage II, I identify two alternating structures with differing constructional origins. In (40a–b) and (40c–e), the Stage II McPC types are shown. The former is co-adapted from the Stage II McPC with an intransitive V2, the same was also argued for Tzeltal (cf. [30]), while the latter presents the integration process after Stage I with a transitive V2 in an aspectless complement clause. The variant shown in (40a–b), i.e. an infinitival complement structure, is the most frequently employed option and not subject to restrictions (Gómez Cruz 2017: 387). It has no paradigmatic gaps and can be used with all persons, aspects, and motion verbs in V1 position. The motion verb surfaces as a prototypical Tojolabal intransitive verb; it inflects for aspect and takes SA person marking, as well as the optional intransitive status marker *-i* and an epenthetic *-y*. The V2 is unmarked for the AG. The P acts as a possessor of the passivized verb which additionally occurs with the nominalizer *-el*. Speakers may also use the alternative Stage II construction where both the V1 and the V2 carry their respective person making morphology. But the usage is highly restricted. The structure

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75 See Gómez Cruz (2017: 348–419) for a more detailed description of Tojolabal McPCs, including constructions with an intransitive V2. Note again the differences in stage assignment. Gómez Cruz (2017: 373–401) analyzes Tojolabal McPCs with transitive V2s to give evidence of four stages (Stage I, II, III and IV), whereas I postulate two alternating variants at Stage II with differing constructional origins.

shown in (40c) where the V1 appears in the incompletive aspect is only permissible with subjects of the second- and third-person plural (Gómez Cruz 2017: 385). If the V1, however, is used in the completive, all but a special first-person plural marker which indicates that the subjects are speech act participants may be employed (Gómez Cruz 2017: 384), compare (40d) and (40e). The speech act participant first-person plural can only be used in the most productive and least restricted Stage II construction (cf. 40a).

(40)   Tojolabal   [Gómez Cruz 2017: 385 (a, e), 378 (b, c, f), 384 (d)]
         Stage II

a.   *jak-**tik**   y-il-**j-el***
     come-**1PL.SAP**   A3-see-**PASS-NF**
     'We (as speech act participants) came to see it.'

b.   *wa   la-k'ot-**i-y-on**   aw-il-**j-el***
     INCOMPL   INCOMPL-arrive.there-**INTR-EP-B1**   A2-see-**PASS-NF**
     'I arrive there to see you (lit. I arrive there for your being seen).'

c.   *wa   x-k'ot-**i-y-Ø-e'**   s-job'-**Ø-e'***
     INCOMPL   **INCOMPL**-arrive.there-**INTR-EP-B3-3PL**   A3-ask-**B3-3PL**
     'They arrive there to ask her.'

d.   *⋆jak-**tik**   k-il-Ø-**tik***
     come-**1PL.SAP**   A1-see-B3-**1PL.SAP**
     ⋆'We (as speech act participants) came to see it.'

e.   *jak-**tikon**   k-il-Ø-**tikon***
     come-**1PL.EXCL**   A1-see-B3-**1PL.EXCL**
     'We (but not you) came to see it.'

f.   Stage III
     *wa   x-waj   aw-il-**on***
     INCOMPL   **INCOMPL**-go.AUX   A2-see-**B1**
     'You come to see me.'

Note further that, as expected, the V1V2 sequence at Stage I may be interrupted by a pronominal phrase and thus does not constitute a tightly bound unit (Gómez Cruz 2017: 385). The same applies to the Stage II constructions. In example (40f), the most integrated Tojolabal McPC at Stage III is illustrated. Here, only second-person clitics may interrupt the V1V2 sequence, no adverbials or noun phrase may intervene contrary to the previous stages. The V1 only takes aspect marking, person marking exclusively appears on the V2. All motion verbs except for *sutx* 'return' may appear as the V1 in a Stage III McPC (Gómez Cruz 2017: 391), asserting that the subset of motion verbs that acquire auxiliary and potentially affix status is narrowed down.

The constructions found in Huastec are not easily classifiable due to the structural properties of the language itself. It may also be argued that the complement structure in Huastec is neither of an aspectless nor infinitival type but belongs to type 1 characterized by finite complements with a complementizer. According to Zavala Maldonado (1993: 67–68), Huastec is the only Mayan language where the motion verb does not carry any TAM markers "that have scope over the entire complex sentence" at Stage II. Unfortunately, he does not provide any examples substantiating the observation. Looking at the grammatical descriptions for Potosino Huastec (Edmonson 1988), Veracruz Huastec (Constable 1989; Meléndez Guadarrama 2017), and South-Eastern Huastec (Kondić 2012), the statement must be rectified. There are instances with and without TAM marking on the V1 showing that the TAM-less construction perhaps ought to be classified as Stage IV, granted that the analyses regarding Huastec McPCs are scarce to nonexistent. Kondić (2012: 362) mentions that McPCs are very common in South Eastern Huastec and offers some examples. But she neither describes the morphosyntactic properties nor mentions the motion verbs that participate in the constructions. Two of the examples of McPCs are given in (41a) and (41b). In example (41a), the V1 is inflected for completive aspect and preceded by the third-person plural marker of Set B. The V2 is preceded by a realis subordinator *t(i)-*, derived from a general locative preposition *ti,* which is prefixed to yet another agent marking third-person plural affix of Set B. The V2 itself is inflected for antipassive voice and incompletive aspect by the portmanteau morpheme *-im.* Here, we are dealing with a Stage II construction. The type of construction where the transitive V2 takes valency changing morphology appears to be the only one permissible in Huastec. This, of course, is reminiscent of some of the constructions presented above for Tojolabal (cf. [40]). The V2 in (41a) is rendered syntactically intransitive due to the antipassive marking. The V1V2 sequence is interrupted by an adverbial phrase and does not constitute a tightly bound unit. The genuine transitive construction, shown in example (41b), is at Stage III. The V1 is inflected for completive aspect. Here, the irrealis complementizer *k(a)-,* possibly related to the irrealis clitic *ak,* attaches to the third-person singular marker of Set A. The V2 is inflected for incompletive aspect.

(41)   South Eastern Huastec   [Kondić 2012: 363, 364]

Stage II

a.   ***up***   *k'al-**ej***   *altxik*   *an*   *te'*   *an*   ***t-up***
      B3PL   leave-**COMPL**   among   DEF   tree   DEF   **REAL-B3PL**
      *aal-**im***
      find-**ANTIP.INCOMPL**
      'They went to the bush to look for it.'

Stage III

b. *k'ath-**iy***   ***k-in***   aln-a-***al***   maax koo' taa' ak
   ascend-**COMPL**   **IRR-A3>B3**   see-SSF-**INCOMPL**   if   SPEC there   IRR
   k'waj-at   *an*   *k'wa'*
   be-INCOMPL   DEF   frog
   'He went up to see if the frog was there.'

The two constructions with either *k(a)-* or *t(i)-* as subordinating elements are frequently found together with the Huastec deictic motion verb *ne'ech* 'go' in V1 position. Note that if *ne'ech* co-occurs with the irrealis complementizer *k(a)-* and a completive V2, the action expressed in the subordinate clause has not yet happened or its execution is doubtful. If, however, the realis subordinator *t(i)-* and an incompletive V2 accompany *ne'ech,* the action is in progress or about to start (cf. Edmonson 1988: 570–572), compare examples (42a) and (42b) displaying data from Potosino Huastec where the auxiliary also shows signs of phonological erosion, i.e. *nech → ne'ech.* It needs to be emphasized for Huastec that is not the motion auxiliary that governs the dependent marking on the V2, either incompletive or completive aspect, but the type of subordinator. Stage IV is shown in the latter example where the motion verb no longer bears any inflectional morphology, the former example is a Stage II McPC. There is another GO-type verb *xe'ech* 'go.about' that may be used in the same Stage IV construction, compare (42c) where *xe'ech* is used as a lexical verb, takes a thematic suffix -*in,* and is preceded by a Set B pronominal, which is of the third person and thus zero, and (42d) where it is employed as an invariant auxiliary *xe'ech*. Functionally, the auxiliary encodes an action in progress. It requires the V2 to appear in the incompletive aspect and thus be preceded by realis *ti-* (cf. Edmonson 1988: 593).

(42)   Potosino Huastec   [Edmonson 1988: 595 (a, b), 596 (c, d)]

   a. *pos* <u>*nan*</u> ***'in***   ***nech***   ***t-in***   ***belele:l***   *'eba:l*
     well   1SG   **B1**   **go**   **REAL-B1**   **walk.about.INCOMPL**   up.above
     'Well, I am going to walk about up there.'

   b. *maš yaba* Ø *'ulich 'an 'a:b* ***nech*** *k-u*   ***cha'biy***
     if   not   B3 come   DET   rain   **go**   **IRR-A1>B3**   **visit.COMPL**
     'u   *ha'u:b*
     A1   friend
     'If it doesn't rain, I am going to visit my friend.'

   c. *na'*   Ø   ***še'ech-in***   *'an*   *lem*
     there   **B3**   **go.about-SSF**   DET   butterfly
     'The butterfly went fluttering about.'

d. ***še'ech***   *t-u*   *'aliy-al*   *'ani yab 'u 'ela:l*
   go.about   REAL-A1>B3 look.for-INCOMPL   and NEG A1   find
   'I go about looking for it, but I don't find it.'

A similar development may be observed in Veracruz Huastec (43), except for the apparent lack of phonological reduction.

(43)   Veracruz Huastec   [Constable 1989: 28]
       Stage IV
       ne'ech   ***k-u***   *k'apu*   *i*   *te'neel*   *chanak*ʷ
       go   **IRR-A1>B3** eat.COMPL   some   meal   beans
       '[76]I am going to eat some beans.'

Thus far I have not mentioned the marking of the P in Huastec McPCs. In Huastec, "Set A pronouns […] are used only when the object of a transitive verb is the third-person zero form. When the object of a transitive verb is non-third-person, a bireferential or portmanteau pronoun (Set A') is used to indicate both agent and object" (Edmonson 1987: 346). The usage of Set A pronouns is illustrated in the Huastec Stage I McPC in example (44). No subordinating element is featured. The V1 and V2 carry the respective aspect, status, and person marking morphology. The usage of the first-person singular Set A marker *'u-* on the transitive V2 simultaneously indexes the third-person zero P.

(44)   Veracruz Huastec   [Meléndez Guadarrama 2017: 128]
       'in=*k'al-e-**Ø***   ***'u***-*'a:ln-a'-**Ø***   *t*=*in*   *k'ima:'*
       B1=go-SSF-**COMPL**   **A1>B3**-search-SSF-COMPL   SUB=A1   house
       'I am going to see him in this house.'

Indeed, in most of the examples of Huastec McPCs, the P is realized by either a full noun phrase or a subordinate clause. Full noun phrases and subordinate phrases are zero-indexed on the verb requiring the usage of Set A pronouns to indicate both the AG and third-person zero P. In McPCs of Stage II–IV, the person markers surface together with the subordinating element of the construction. If, however, Set A' pronouns are present, the subordinating elements *t-* or *k-* are omitted; "the realis subordinator (*t-* or *k-*) can be considered to be fused with the transitive agreement marker *t-*" (cf. Kondić 2012: 363–364). This is shown in example (45a) where the Set A' pronoun *tuxu* is used to express that a first-person AG is acting upon a second-person plural P, and example (45b),

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76 The idiomatic translation provided in the original source is 'I will eat some beans […]'. The auxiliary was changed to more accurately reflect the lexical source.

where the Set A' pronoun *tin* indicates that a third-person AG is acting upon a first-person P.

(45) South Eastern Huastec [Kondić 2012: 364]

    a.   *jaachtaam an t-in txi'-ich* [***tuxu*** *visitaar-iy-al*]
           there   DEF REAL-A1 come-COMPL   **A'(A1>B2PL)** visit-TR-INCOMPL
           'This is why I came to visit you.'

    b.   *ut'-ey* [***tin*** *taw-n-al*]
           approach-COMPL   **A'(A3>B1)**   speak-MID-INCOMPL
           'She approached to speak to me.'[77]

The tentative structural templates for the Huastec McPCs are given below. Stage IV only applies to constructions where *nech* 'go' or *xe'ech* 'go.about' are featured.

intransitive McPC: Stage II,   [(B-V1-ASP + REAL/IRR-B + V2-ASP]
                       Stage III,   [(V1-ASP + REAL/IRR-B + V2-ASP]
                       Stage IV,   [V1 + REAL/IRR-B + V2-ASP]
transitive McPC: Stage III,   if B = Ø, then [V1-ASP + REAL/IRR-A + V2-ASP]
                                   else [V1-ASP + A' + V2-ASP]
                       Stage IV,   if B = Ø, then [V1 + REAL/IRR-A + V2-ASP]
                                     else [V1 + A' + V2-ASP]

In sum, the motion verbs have grammaticalized into motion auxiliaries at Stage III. They are devoid of person marking which is carried by the verb in the embedded clause instead. Phonological erosion with GO and COME motion verbs can be observed. The grammaticalization of motion verbs is in full progress.

7.1.2.1.4   Stage IV: Auxiliary with embedded clause

At the beginning of Section 7, I mentioned that the Kanjobalan and Poqom languages display special properties at Stage IV as compared to the other Mayan languages. A Set B index, marked on the V2 at the previous constructional stage, now re-appears on the V1. However, the absolutive marker does not, as is the case for typical intransitive verbs, mark the SA co-referential with the AG of the transitive V2 but comes to index the P of the entire monoclausal construction (cf. [26d] for Akateko). I suggested that the McPC borders on a Stage V construction with the motion verb's structural fate of becoming an infix. The motion

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77 Kondić (2012: 364) provides the translation 'She approached me (in order) to speak' which is misleading as it suggests that the Set A' pronoun belongs to the V1 rather than the V2.

auxiliaries incorporated into the complex verb phrase indeed have an infix-like position. However, they have not yet acquired all relevant characteristics of a motion affix found for the Core Quichean languages, namely reduction or fusion. The number of motion auxiliaries that may enter the V1 slot at Stage IV in Poqomchi' are only five of a potentially larger pool of ten. Vertical axis and enclosure or region oriented motion auxiliaries are not permitted but must be used with Stage II. The infix-development appears to be an areal trait. Poqomchi' as a Quichean language shares the construction with its sister languages K'iche' and Kaqchikel due to genetic and areal closeness. Looking back at Figure 17 which illustrated the areal distribution of this study's sample language, it becomes evident that the Kanjobalan languages are spoken in close proximity to Poqomchi'. Contact might have given rise to the construction which is still less restricted in the number of verbs that may enter the V1 position in the Kanjobalan languages and thus appears to be a more recent development. In fact, the category of associated motion, to which the Core Quichean affixes arguably belong, has been hypothesized to "be a highly diffusible category" (Guillaume 2014: 91).

In all other Mayan languages, a similar infix structure at Stage IV is not found. I suggest that this is not necessarily due to a lower degree of grammaticalization but because their motion auxiliaries are on their way to grammaticalize into prefixes, not infixes. This would explain the differences with regard to the distribution of the person markers in the monoclausal verb phrase. Also, the semantics of the grammaticalized items appear to differ depending on their position in the verbal complex. The infixes function as associated motion markers, while the (potential) prefixes assume TAM functions.

A prominent representative of Stage IV, apart from the Poqom and Kanjobalan languages, is Mam. I already discussed Poqomchi' and Akateko at the beginning of this section, see (22) and (26). Therefore, I only elaborate on Mam which behaves unlike any of the other sample languages – synchronically speaking. In Mam, directionals, not auxiliaries, occupy the V1 slot. This coding strategy of employing directionals in auxiliary slots is only found in the Mamean branch and remains undetected in any of the other Mayan subgroups. Mam directionals also grammaticalized from motion verbs.[78] Zavala Maldonado (1993: 136–137) argues that "the current pre-verbal directional morphemes […] developed from motion verbs preceding embedded clauses. […] there was an intermediate stage where the verbs of motion were functioning as auxiliaries of motion". Unlike the other constructions described for Stage IV which encode a

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78 Directionals generally surface post-verbally. They are discussed in Section 7.2.

complex event consisting of a motion event followed by a purpose event, the structurally analogous construction in Mam denotes a single event, see example (46) where the P and aspect are marked on the V1, while the V2 carries the AG marker only. The construction does not convey motion but the trajectory of the P. The directional stands in no semantic relation to the agent. Notice that in transitive embedded clauses, a directional suffix -*'n* must be used.

(46)   Mam   [England 1983: 175]

      ma   ***chi*-*ku'*-*tz***   *t*-*tzyu*-***'n***-*a*

      REC   **B3-DIR:down[<descend]-DIR:toward[<come]**   A2-grab-**DS**-2SG

      'You grabbed them [down toward here].'

Zavala Maldonado (1993) suggests that the pre-verbal motion verbs which were reanalyzed as auxiliaries in a majority of the Mayan languages at Stage IV were ultimately reanalyzed again as directionals in Mam. The directionals came to replace auxiliaries formed at the intermediate stages.[79] The post-verbal directionals already present in Mam were recruited for innovative purposes in the exiting McPC structure found at Stage IV.

    Nevertheless, there still is a genuine motion-cum-purpose encoding construction in Mam at Stage II. Here, the V1 and V2 are not tightly bound but may be interrupted by a co-subject NP, see example (47a). In addition, the V2 is nominalized and bears no person inflection. The AG is inferred from the context, and the P is encoded by an adpositional phrase (Zavala Maldonado 1993: 147). This construction is similar to that discussed for Q'anjob'al above (cf. [36]). The intransitive complement clause structure is possible with intransitive (47b) and transitive (47a) V2s alike.

(47)   Mam   [England 1983: 334, 124]

      a.   *ma*-*tzan*   *t*-*xi'*   <u>*Luuch*</u>   *q'am*-***al***   ***t*-*e***   ***t*-*uk'***   **patron**

            REC-well   B3-go   <u>Pedro</u>   tell-**NF**   **A3-RN**   **A3-RN**   **patron**

            'So, Pedro went to tell the patron.'

      b.   *ma*   *chin*   *uul*-*a*   *yoola*-***l***

            REC   1SG   come-1SG   talk-**NF**

            'I came to talk.'

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79 The interested reader is referred to Zavala Maldonado (1993: 137–147) for a more elaborate argumentation and diachronic description.

7.1.2.1.5 Stage V: Motion affixes

The Core Quichean languages K'iche' and Kaqchikel exhibit Stage V properties. Before I discuss them, it needs to be mentioned first that the five motion auxiliaries found at Stage IV in Quichean sister language Poqomchi' might also be on their way to Stage V. In Mó Isém (2011: 185), I found one example, i.e. *xponkiq'oreej* 'They went to visit him', where *pon* 'go.there' in V1 position was glossed and treated as a motion affix (48a), identical in structure to Stage V observed for the Core Quichean languages. In Brown's grammar (1979: 46), there is yet another example including *poon* as a motion affix, i.e. *xinpoonrisek'* 'He came to hit me' (48b). Both Mó Isém and Brown do not further discuss the motion verbs' affix status, and I was unable to find more examples or examples with any other motion affix for that matter. The affix status thus remains a hypothesis awaiting confirmation for now. What speaks against the hypothesis, at least for the other four candidates, is that in a clause in the imperative mood with a transitive V2, the intransitive imperative suffix *-oq* attaches to the motion auxiliary, not to the V2 (48c), pointing to the fact that the structure is not yet a monoclausal unit – otherwise, the intransitive affix would not have been used, but either the prefix *ch-* before a vowel or Ø- before a consonant would have attached to the entire verbal complex marking the imperative on transitives.

(48)　　Poqomchi'　　　　[Mó Isém 2011: 185 (a); Brown 1979: 46 (b), 129 (c)]
　　　a.　*re'　taqe w-ak'unn　x-Ø-**pon**-ki-q'or-ee-j　　　i　　yowaab'*
　　　　　DET　PL　A1-son　　COMPL-B3-**MOT**-A3PL-speak-TR-CS DET sick.person
　　　　　'My sons went to visit the sick person.'
　　　b.　*x-in-**poon**-ri-sek'*
　　　　　COMPL-B1-come-A3-hit
　　　　　'He came to hit me.'
　　　c.　*Ø-k'ol-**oq**　　　aw-ilow*
　　　　　B3-come-IMP　　A2-see
　　　　　'Come look at it!'

Moving on to Kaqchikel, one of the two languages that have undoubtedly grammaticalized a small subset of motion verbs into genuine motion affixes. These include *(b')e-* 'go (to do)', *'ul-/(t)o-* 'come (to do)', and *ik'o* 'pass by (to do)', although the latter is rarely if ever used (García Matzar and Rodríguez Guaján 2001: 190–191). The monoclausal structure features phonologically eroded versions of former intransitive deictic motion verb roots, which functioned as auxiliaries at earlier stages. Semantically, the construction denotes a single event. Phonologically, it is realized as one word (cf. Zavala Maldonado 1993: 112). In example (49), an instantiation of the structural template [ASP-B-V1-A-V2-DEP] is given. In

some varieties of Kaqchikel, such as that of Semetabaj, the motion affixes appear after the Set A marker resulting in the structure [ASP-B-A-V1-V2-DEP] (cf. García Matzar and Rodríguez Guaján 2001: 190). Note that an additional suffix -*V'* is attached to the transitive verbal base in the example. This element obligatorily appears if a motion affix is used with a transitive V2 where it assumes the function of a dependent marker (cf. García Matzar and Rodríguez Guaján 2001: 190). Intransitive V2s do not take an overt dependent marker.

(49) Kaqchikel   [Blair et al. 1981: 452]
      *y-in-**o**-ru-ch'ya-**a'***
      [80]INCOMPL-B1-**come**-A3-hit-**DEP**
      'He comes to hit me.'

Example (49) illustrates the monoclausal structure. The motion affix is placed between the person markers. Its phonologically eroded form -*o* can be traced back to *ul-* 'come'.

   Similar developments are observable in K'iche'. Again, two deictic motion verbs *b'el* 'go' and *ul* 'come' grammaticalized into motion affixes and underwent phonological erosion. Phonological and dialectal factors influence the form of K'iche' motion affixes. For *b'ee* 'go', the grammaticalized surface forms include *b'e*, *e'-*, and *u'-*, while *u(')l-*, *a(')l-*, and *o(')l-* are found for *ul* 'come'. Similar to Kaqchikel, a dependent suffix is required by the incorporated motion affix in K'iche', it surfaces as -*a'* with transitive V2s and -*oq* with intransitive V2s. Examples (50a–d) give the motion affixes in context. Note that the motion affix based on GO is fused with the third-person Set A marker in example (50b), i.e. *b'e* + *u* = *u'*, while the COME motion affix and the third-person marker of Set B are fused in example (50d) resulting in a -*V'l* form (Can Pixabaj 2015: 242–243).

(50)   K'iche'   [Can Pixabaj 2015: 242–243]
      a. *x-in-**e'**-ki-k'am-**a'***
          COMPL-B1-**MOT[<go]**-A3PL-receive-**DEP**
          'They went to take me.'
      b. *x-Ø-**u'**-k'am-**a'***
          COMPL-B3-**MOT[<A3.go]**-receive-**DEP**
          'She went to take her.'
      c. *x-at-**al**-q-il-**a'***
          COMPL-B2- **MOT[<come]**-A1PL-see-**DEP**
          'We came to see you.'

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80 Glosses are mine; no (linear) glosses are provided by the authors.

d. *x-**u'l**-u-k'am-**a'***
COMPL-**MOT[<B3PL.come]**-A3-receive-**DEP**
'She came to take them.'

Can Pixabaj (2015: 243) reports a second McPC consisting of two finite verbs. The V1 is an intransitive motion verb. The V2 is a verb carrying the incorporated motion affixes outlined above. The V1 slot can be filled by any intransitive motion verb granted that it is semantically compatible with the V2 motion affix. In example (51a), this innovative McPC is given. The purpose sense is lost if the motion affix is absent from the V2, as illustrated in example (51b). Note also that because no motion affix is present in (51b), the suffix is changed from dependent indicating *-a'* to transitive status marking *-o*.

(51)   K'iche'   [Can Pixabaj 2015: 245–246]
    a. *x-e-pet-ik*   *x-ø-**ol**-k-il-**a'***
        COMPL-B3PL-come-SSF   COMPL-B3-**MOT[<COME]**-A3PL-see-**DEP**
        'They came to see her.'
    b. *x-e-pet-ik*   *x-ø-k-il-o*
        COMPL-B3PL-come-SSF   COMPL-B3-A3PL-see-SSF
        'They came, they saw her.'

This paratactic construction situated at Stage I is used to add emphasis to the 'purpose'-component of the utterance (Can Pixabaj 2015: 246). As grammaticalization progresses, the meaning of an item becomes more generalized or, in other words, the item is desemanticized. The 'purpose'-component acquired by the motion verbs at the initial stages of the clausal integration is lost in the Stage V construction, arguably contrary to expectations, shown in examples (51a) and (51b). The V1V2 sequence is understood as a single event. To re-introduce or emphasize a purpose meaning, a novel but familiar strategy was resorted to. A strategy that incorporates the former grammaticalized element and stands at the beginning of the clausal integration continuum. The small set of motion infixes in the Core Quichean languages (and arguably the infix-like motion auxiliaries in the Kanjobalan languages and Poqomchi') belong to the category of associated motion whereby a motion (sub-event) is adjoined to another event.

In sum, the McPCs of the Core Quichean languages of this sample exhibit Stage V properties with the motion verb having acquired affix status, while the Kanjobalan, Poqom, and Mamean languages are situated at Stage IV and have motion auxiliaries that display an infix-like character. Stage III with motion auxiliaries appears to be an option in most Mayan languages, except for the Quichean-Mamean languages and potentially Tabasco Chontal, although it is not resorted to with equal type or token frequency. Stage II McPCs are preferred

by the languages of the Yucatecan (aspectless complements) and Chujean (infinitival complements) branch, all of which, however, also frequently allow for more grammaticalized variants with a subset of motion verbs, generally belonging to the deictically anchored semantic class.

7.1.2.2 Motion-cum-purpose constructions with intransitive V2

Up till now, I discussed the varying degrees of clausal integration and motion verb grammaticalization in relation to transitive V2s which are predominately built on aspectless complement clauses (type 3). I now turn to the constructions with intransitive V2s where infinitival complement clauses (type 4) take center stage. First of all, recall that the Stage II properties of McPCs with an intransitive V2 differ from those with a transitive V2. The embedded clause in the latter is characterized by a lack of separate aspectual marking, but the person marking on a transitive verb is still intact, which means that the co-subject is encoded on both the V1 and the V2. For the intransitive V2 counterpart, this is not the case. Here, the co-subject is only indexed on the V1 and the V2 appears devoid of any person marking. Instead, the V2 carries inflectional morphology that overtly indicates its nominalized or non-finite status. Moreover, a subordinator derived from a locative preposition frequently heads the embedded clause. Stage III is again similar in that inflectional morphology typical for ordinary intransitives is lost on the V1. Stage IV is missing entirely as no P argument is present in the construction. At Stage V, the motion verb again has fully grammaticalized and serves as an affix. Recall that in Section 7.1.1 on the diachrony of the McPC, it was suggested that the embedded purpose clauses syntactically behave like locational phrases exhibiting the same syntactic distribution. In many of the Mayan languages, the same preposition is used to head both location and intransitive (and sometimes even transitive as a result of structural extension) purpose clauses. For the discussion of the McPCs with an intransitive V2, I, therefore, divided the sample languages into three groups: (1) those that have periphrastic constructions with subordinators, (2) those that alternate between subordinator-headed and monoclausal McPCs, and (3) those that employ periphrastic constructions without obligatory subordinators.

7.1.2.2.1 Group 1: Periphrastic constructions with subordinators

The first group is comprised of Huastec and the Cholan and Yucatecan languages. These languages exclusively allow for complex, periphrastic constructions with subordinators, although the subordinators may be omitted or only optionally employed as in Modern Yucatec Maya (cf. [55b]). The constructions

are all to be situated at either Stage II (with subordinator) or Stage III (without the optional subordinator) of the clause integration continuum. The constructions diverge structurally from their transitive V2 McPC counterparts; a clear asymmetry emerges. Huastec is an exception. It also employs obligatory subordinating elements with transitive V2s, as shown and discussed above (cf. [41]–[45]). In contrast to the other languages of this group, the construction in Huastec is not based on an infinitive complement (type 4) structure. Rather, the Huastec subordinators have grammaticalized into mood markers.

In Chol, auxiliary constructions at Stage III which contain verbs of motion in V1 position neither permit intransitive verbs nor passivized transitives as V2s (Vázquez Álvarez 2011: 388), see example (52a) for an illustration. The contrary, i.e. the permission of passivized transitives as V2s, is found for the Tzeltalan languages and Tojolabal. Instead, Chol intransitive and passivized transitive V2s surface as complements to the subordinating preposition *tyi* and take the non-finite suffix *-el*, related to the imperfective *-el* on intransitives, see example (52b).[81] Both elements are required; the omission of either results in the ungrammaticality of the construction. A Stage III McPC with intransitive V2s is therefore not possible in Chol. The matrix V1 appears as a finite verb. The Stage II structure not only allows motion and aspectual verbs to be used but also verbs of perception or manipulation. A purposive reading, however, is only induced with verbs of motion.

(52) Chol [constructed (a); Vázquez Álvarez 2011: 403 (b)]

  a. **tyi* *majl-i* *wäy-i-y-oñ*
      PFV go-SSF sleep-SSF-EP-B1
      * 'I went to sleep.'

  b. *tyi* *majl-i-y-ety* ***tyi*** *wäy-**el***
      PFV go-SSF-EP-B2 **SUB** sleep-**NF**
      'You went to sleep.'

Tabasco Chontal exhibits a parallel coding behavior. The preposition surfaces as *tä* and the intransitive imperfective suffix *-e* serves to mark the subordinate status of the embedded verb irrespective of the aspectual status of the matrix verb, compare the examples of the Stage II McPCs in (53a) and (53b), and thus assumes a nominalizing function. Indeed, Vinogradov (2018: 277) also finds that "the incomplete suffixes are also used as nominalizers in some contexts of syntactic dependency". Note that the two verbs in the construction do not con-

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81 The subordinator construction is ungrammatical with full transitive V2s (cf. Vázquez Álvarez 2011: 397).

stitute a tightly bound unit. A co-subject NP may intervene the sequence, as shown in (53b).

(53)   Tabasco Chontal   [Knowles 1984: 354]

a.   ‘a   h-e   **tä**   wan-**e**
      A1   go-IPFV   **SUB**   jump-**IPFV**
      ‘You’re going to jump.’

b.   ‘a   biš-i-Ø   ‘ah   mis   **tä**   wäy-**e**
      ASP   go-PFV-B3   M   cat   **SUB**   sleep-**IPFV**
      ‘The cat went to sleep.’

The Stage II McPC with the subordinator *tä* and the imperfective *-e* is the only permissible structure for intransitive V2s in Tabasco Chontal (Knowles 1984: 354). Structurally, this diverges slightly from what we know of the transitive V2s, the difference being that no subordinator is used in the latter. The remainder of the constructional behavior, i.e. the imperfective marking on the V2, stays the same. This suggests that the Tabasco Chontal transitive construction too stems from an infinitival complement structure where the subordinator came to be omitted.

For the transitive constructions with the GO-type motion verb *biš-*, I was able to identify Stage III, where the V1 is only marked by aspect, either *-i* for perfective or *-e* for imperfective, and IV, where the auxiliary surfaces as a phonologically eroded invariant unit *še* to encode future tense (see Section 8.1.1 for a more detailed discussion). The transitive V2 is marked for its subordinate status only by the imperfective. Knowles (1984: 353) explicitly states that “if, however, the complement is intransitive and/or a nominal, it is placed in a *tä* construction. A *tä* construction consists of the particle *tä* followed by an imperfective intransitive stem or nominal”. I was unable to find examples where the subordinator is omitted with an intransitive V2 (Stage III) or where the future auxiliary *še,* found for transitive Stage IV McPCs, appears without person marking (Stage IV). This can be considered negative evidence or may merely be due to data scarcity. But, Viorel (1978: 114–115) suggests that the future auxiliary replaces the Classical Chontal future suffix *-bel* only on transitive verbs. Based on this admittedly thin and indirect evidence, I propose the following the scenario: the future auxiliary *še* grammaticalized through the McPCs with a transitive V2 and therefore only appears in construction with transitive V2s. The V2 slot of the grammaticalized future construction might later open up to intransitive V2 through analogy. Until then, a Stage II construction is used with intransitive V2s.

In Itzá, “verbs of motion, the intransitive inceptive verb *kapiil* ‘begin’, and certain other intransitive verbs and statives take subordinate clauses that appear as incomplete status stems after the subordinator *ti*” (Hofling 2000: 523), see examples (54a) and (54b) for an illustration of the Itzá Stage II construction.

The incompletive status marker *-el* on intransitive verbs is cognate with the non-finite and imperfective marker found in Chol and Tabasco Chontal.

(54)   Itzá   [Hofling 2000: 523, 380]
  a.   *[...] k-u-b'el*   ***ti***   *tal-**el** ...*   *ti'*   *ich*   *k'aax*
        INCOMPL-A3-go **SUB** come-**INCOMPL** from   in   forest
        '[...] [it] is going to come from inside the forest.'
  b.   *te'   k-u-b 'el-oo'*   ***ti***   *wen-**el**-i'ij*
        LOC   INCOMPL-A3-go-PL   **SUB** sleep-**INCOMPL**-LOC
        'There they go to sleep.'

In Section 8.1.1, I describe the grammaticalization of GO into FUTURE in Itzá in some more detail.

In Colonial Yucatec Maya, a comparable construction was found (55). However, in Contemporary Yucatec Maya, the subordinator is no longer obligatorily employed. The loss of the overt subordinating elements is symptomatic of a higher degree of clausal integration and the construction's ongoing transition from Stage II to Stage III. Diachronically, the incompletive form of the V2 is again "the pure nominalized form." (Lehmann 2017: 223).

(55)   Yucatec Maya   [Coronel 1998a: 50 in Lehmann 2017: 222, 224]
        Colonial Yucatec Maya
  a.   *ben-el=in*   *ka'h*   ***ti'***   *han-**al***
        go-INCOMPL=A1 do   **SUB**   eat-**INCOMPL**
        'I am going to eat.'
        Modern Yucatec Maya
  b.   *bin=in*   *ka'h*   *kíim-**il***
        go=A1   do   die-**INCOMPL**
        'I am going to die.'

Relating the Yucatecan intransitive V2 McPCs to their transitive V2 counterparts, it becomes apparent that the transitivity of the V2 has an effect on the overall construction. In Section 8.1.1, where I describe the future grams that developed from Yucatec Maya GO in detail, it is shown that the lexical verb in V2 position always takes subjunctive marking. This suggests that the GO as FUTURE grammaticalized through the transitive McPC channel and was extended to allow for intransitive verbs as well. By contrast, the prospective future, instantiated in (55), is built on the infinitival complement structure characteristic of McPCs with intransitive V2s.

7.1.2.2.2 Group 2: Alternation between subordinator-headed and monoclausal construction

The second group includes languages that alternate between subordinator-headed and monoclausal McPCs. These languages are particularly interesting because they clearly point to the two different developmental structures of the grammaticalization of motion verbs. The latter is identical to the McPC with a transitive V2 and based on an aspectless complement structure. The Core Quichean sample languages K'iche' and Kaqchikel belong in this group. Zavala Maldonado (1993: 74) also reports the alteration between the periphrastic and monoclausal constructions in the other languages of the Core Quichean branch, namely Sipacapense, Sacapulteco, and Tz'utujil. The alternation between the two types of McPCs with intransitive V2s thus appears to be a Core Quichean-specific feature. In examples (56a) and (57a), the periphrastic McPCs at Stage II with the subordinators *pa* and *pan*, where the embedded clause surfaces as an infinitival complement, are given. The V2 bears status suffixes. Note that in example (57a), the transitive verb *etz'* 'play' carries an antipassive suffix *-n* allowing for the verb to be featured in the intransitive V2 slot. The periphrastic constructions are situated at Stage II of the clause integration continuum. The two clauses show little integration. The motion verbs in V1 position exhibit no signs of grammaticalization. Furthermore, the V1 slot may be filled by a number of verbs not limited to motion.

(56)   K'iche'   [Mondloch 1981: 80, 91 in Zavala Maldonado 1993: 75]
     a.   *k-uj-b'ee*   ***pa***   *ch'aaw-**ik***[82]
         INCOMPL-B1PL-go   **SUB**   talk-**SSF**
         'We go to talk.'
     b.   *x-uj-**ee**-ka'y-**oq***
         COMPL-B1PL-**go**-look-**DEP**
         'We went to look.'

(57)   Kaqchikel   [García Matzar and Rodríguez Guaján 2001: 218, 190]
     a.   *x-Ø-b'e*   ***pan***   *etz'-a-**n-em***   *ri*   *nu-chaq'*
         COMPL-B3-go   **SUB**   play-VB-**ANTIP-NMLZ**   DET   A1-small brother
         'He went to play with my (small) brother.'

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82 An analogous periphrastic construction with a transitive V2, again allowing for all motion verbs, can also be found in K'iche' (cf. Zavala Maldonado 1993: 72). This presumably constitutes a case of extension, whereby the V2 slot formerly reserved for intransitive verbs is opened up to transitive verbs.

b. *x-oj-**b'e**-wa'*
COMPL-B1PL-**go**-eat
'We went to eat.'

Examples (56b) and (57b) display the alternating monoclausal McPCs at Stage V of the structure [ASP-B-V1-V2-DEP] for K'iche' and [ASP-B1-V1-V2] for Kaqchikel. Only the grammaticalized and phonologically eroded motion affixes based on the deictic motion verbs *b'e* 'go' and *ul* 'come' are allowed in these constructions. All other motion verbs and the deictic verbs of motion in their long forms may only be used in the periphrastic constructions.

Other Mayan languages also have constructions with subordinators, but here the distribution, which too might be conditioned by the type of motion verb as identified for the Quichean languages, is less clear. Other factors such as person or TAM also influence the choice of McPC. For instance, Tzeltal has a Stage II McPC headed by a subordinator. In the construction, the subordinator *ta* obligatorily precedes the intransitive V2 to which a nominalizing suffix *-el,* which has a passive orientation if used on transitives, is attached (58a). The structure may thus also be used with passivized transitives (58b), as already described in Section 7.1.2.1.2 and shown in example (30) above. A construction such as that shown in (59b), which is permitted in sister language Tzotzil, is not grammatical. The reason lies not in the type of motion verb in V1 position but the aspect properties of the verb phrase. Motion auxiliaries at Stage III may only appear in imperfective and perfective aspect, or as per Polian's (2013a) usage incompletive and completive aspect, but they are impossible in perfect or progressive constructions (58c). In (58d), the motion verb is only inflected for imperfective aspect, while the intransitive V2 carries the person marker in addition to a dependent marking element, i.e. the subjunctive suffix *-uk*. The Stage III McPC is identical to that with transitive verbs at this stage where the subjunctive, by contrast, is zero-marked.

(58)   Tzeltal   [Polian 2013a: 825 (a), 311 (b,c); 2017: 641 (d)]
a. *bajt'-Ø*   **ta**   *nux-**el***
go.COMPL-B3   **SUB**   swim-**NMLZ**
'He went to swim.'
b. *lok'-em*   **ta** *s-le-**el***
leave-PERF.B3   **SUB** A3-search-**NF.PASS**
'He left to search for it.'
c. **Lok'-em-Ø* *s-le-Ø**
leave-PERF-B3A3-search-B3
*'He left to search for it.'

d. *ya*   ***x*-*tal***   *way-**uk**-**on***
   IPFV   **IPFV**-come   sleep-**SBJV**-**B1**
   'I come to sleep.'

For Tzotzil, no such Stage II construction with a subordinator can be found, although it would theoretically be possible. But, of course, constructions with passivized transitive V2s are feasible (cf. [25])[83], as are Stage II constructions in general.

   Before moving on to the third group consisting of languages which only have periphrastic constructions without subordinators, a few last notes on Poqomchi' are in order. In Section 7.1.2 on the diachrony of the McPC, I mentioned that type 4 complements, those without aspect or person inflection, are generally characteristic of intransitive V2. This also applies to Poqomchi'. In (59a), which is the same as example (23c) and repeated here for convenience, the finite V1 clause is followed by an intransitive V2 stripped off any person or aspect marking but bearing the dependent inflectional suffix *-oq*. This construction is the only viable option with the five motion auxiliaries that Brown (1979: 127) singles out. The same five motion verbs may be used in a Stage IV construction with transitive V2s (cf. [22b–c]). But all other motion verbs have to be used in a special periphrastic construction headed by *chi* where the transitive V2 needs to appear in a passivized and nominalized form, see (59b) which is the same example as (23d) and repeated here for convenience. Notice further that the motion verb in (59a) has auxiliary status, it does not take the intransitive status marker *-ik* obligatorily employed with lexical motion verbs in non-clause-final position.

(59)   Poqomchi'   [Brown 1979: 129, 128]

        Stage IV – aspectless complement
   a.   *x-in-ooj*   *b'eh-**oq***
        COMPL-B1-go   walk-**DEP**
        'I went to walk.'

        Stage II – infinitival complement

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83 There are three passive types in Tzotzil. For the first, a passive suffix *-e/-at* attaches to the embedded verb; subjunctive marking by *-ik/-uk* on the intransitive V2 is still required. The second type entails the presence of *-el* "which conflates the passive and subjunctive categories" (Aissen 1994: 667). In the third and last type, the motion auxiliary is followed by a passive complement where *-el* is used as well. All of these passive constructions may also be used with the motion auxiliaries at Stage III.

b. *x-at-ok-ik*   ***chi***   *w-il-mij-**i***
COMPL-B2-enter-INTR.PFV   **SUB**   A1-see-PASS-**NMLZ**
'You entered to visit me (lit. You entered for my being seen).'

For a construction with an intransitive V2, one would expect the embedded clause to take the form [*chi* + V2-NMLZ]. Yet, I was unable to locate an example or description of such a construction. At the surface, one would have to conclude that there is variation between the subordinator-headed and subordinator-less McPCs. But, the (at least synchronically observed) variation occurs for the transitive V2s, depending on the type of motion verb in V1 position, and not for intransitive V2s, as one would expect. Regardless, and doubtful of this scenario, I suspect that all other motion verbs appear in the hypothesized [*chi* + V2-NMLZ]-structure, especially since the same developments can be observed for Poqomchi's Quichean sister languages. The Core Quichean languages use the preposition *pa/pan* instead of *chi* in a majority of cases, but in K'iche' *chi* may also be used (cf. Mondloch 1981: 143). In K'iche', both *pa* and *chi* introduce locative phrases and function as subordinators in complement clauses, but while *pa* introduces an infinitival complement, *chi* introduces a finite complement (Can Pixabaj 2015: 84). *Pan* is also a preposition available in Poqomchi' but is used to denote 'in, during'. By contrast, it appears not to have grammaticalized into a subordinator.

7.1.2.2.3 Group 3: Periphrastic constructions without obligatory subordinators

The Kanjobalan-Chujean languages and Tzotzil do not feature subordinators in their periphrastic constructions. They form the third group. The V2 carries additional morphology marking its subordinate status in relation to the V1. In all constructions, the V1 is always inflected for aspect and person. Again, for some of the languages in this group, there is variation between intransitive McPCs derived or adapted from transitive aspectless complement clauses and infinitival complement clauses without subordinators but with the respective nonfinite marking morphology. The former can be situated at Stage III, while the latter is at Stage II.

Let us consider Tojolabal in some more detail which has as many as seven possible McPC constructions.[84] They are all given in (60). In (60b) at Stage II, the

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84 Note, however, that this is not to suggest that Tojolabal has more McPC constructions of one type at one stage than other Mayan languages, especially with regard to using transitive verbs in an intransitive manner and how this presents structurally. The wealth of data and description is only especially rich on Tojolabal because of the work done by Gómez Cruz (2017).

V2 is a full intransitive verb and only requires a non-finite suffix *-el* in order to function as the subordinate verb. No additional subordinator is needed. Notice that the Stage II construction found for Tojolabal McPCs with transitive V2s (cf. [39a]) would be ungrammatical. In other words, at Stage II, the aspectless complement is not permitted but the infinitival complement structure must be used. In (60c), we see a construction that we have encountered before in e.g. Q'anjob'al (cf. [36]), where the P, here *si'* 'firewood', is incorporated as a full noun. It neither appears with modifiers nor is it referenced on the V2 which is follows (cf. Gómez Cruz 2017: 397). The transitive root *le'* 'search' in V2 position must take the non-finite antipassive marker *-uj,* which is cognate with the non-finite *-oj* in Q'anjob'al. It seems that the incorporated-object structure would also be ungrammatical if the object noun were omitted, as was determined for Q'anjob'al. If speakers wish to leave the object unexpressed, the construction in (60d) must be resorted to. Here, the V2 obligatorily takes the antipassive *-wan* together with the non-finite *-el.* The V2 may also appear in the passive voice in the same construction, rather than antipassive *-wan,* passive *-j* surfaces (60e).

(60)   Tojolabal   [Gómez Cruz 2017: 396 (a), 379 (b–e), 380 (f–h)]

Stage II – aspectless complement

a.   * *wa*   *la-jak-i-y-on*   *way-**on***
      INCOMPL   INCOMPL-come-SSF-EP-B1   sleep-**B1**
      *‘I am going to sleep.’

Stage II – infinitival complement

b.   *wa*   *la-jak-i-y-on*   *way-**el***
      INCOMPL   INCOMPL-come-SSF-EP-B1   sleep-**NF**
      ‘I am going to sleep.’

c.   *wa*   *la-jak-i-y-on*   *le'-**uj***   ***si'***
      INCOMPL   INCOMPL-come-SSF-EP-B1   search-**NF.ANTIP.INCORP** **firewood**
      ‘I am coming to search firewood.’

d.   *wa*   *la-jak-i-y-on*   *k'el-**wan-el***
      INCOMPL   INCOMPL-come-SSF-EP-B1   look.at-**ANTIP-NF**
      ‘I am coming to look.’

e.   *wa*   *la-jak-i-y-on*   *il-**j-el***
      INCOMPL   INCOMPL-come-SSF-EP-B1   see-**PASS-NF**
      ‘I am coming to be seen.’

I mentioned in Section 4 that the availability of data varies greatly from one language to another, meaning that the degree of analytical elaboration on synchronic variation and diachronic development varies as well.

Stage III

f.   *wa*   *x-jak*   *way-**k-on***
       INCOMPL   INCOMPL-come   sleep-**IRR-B1**
       'I am going to sleep.'

g.   *wa*   *x-jak*   *k'el-**wan-uk-on***
       INCOMPL   INCOMPL-come   look.at-**ANTIP-IRR-B1**
       'I am coming to look.'

h.   *wa*   *x-jak*   *il-**j-uk-on***
       INCOMPL   INCOMPL-come   see-**PASS-IRR-B1**
       'There is coming so that I am seen.'

As already pointed out, the clause integration of the aspectless complement for Tojolabal McPCs with transitive V2s has progressed to the next stage and even allows for intransitive V2s. In (60f), the Stage III construction with an ordinary subordinate intransitive verb is shown. The V1 motion verb, now a genuine auxiliary, only carries aspectual marking. The V2 inflects for irrealis mood by means of the suffix *-(u)k* and carries the person marking for the SA, here the first-person singular Set B marker *-on*. The same construction can be used with an antipassivized (60g) or passivized (60h) transitive verb, in which case the V2 takes the additional respective inflectional morphology, antipassive *-wan* or passive *-j*, which surface between the verbal root and the irrealis marker. In the antipassive construction, the SA is co-referential with the (unexpressed) SA carrying out the motion action, 'I am coming to look'. This is not the case for the passive construction where the SA is not co-referential with the entity executing the motion, 'There is coming so that I am seen'.

Chuj is very similar to its Chujean sister language Tojolabal. First, it does not allow for a Stage II McPC based on the aspectless complement structure either (61a). Second, it has several parallel infinitival complement structures at Stage II, compare (61b) and (60b) for full intransitives, (61c) and (60c) for the incorporated object pattern, as well as (61d) and (60d) for the antipassive structure.

(61)   Chuj
         [Buenrostro 2007: 262 (b), Gómez Cruz 2017: 409 (a), 411 (c), 412 (d),
                                           414 (e, f) 410 (g), 415 (h)]

         Stage II – aspectless complement

a.   * *ix=in-xit'*   ***in**=noxw-**i***
       INCOMPL=B1-go   **B1**=bathe-**SSF**
       *'I am going to bathe.'
       Stage II – infinitival complement

b.   ***ix=in**-b'at*   *wa'-**el***
       COMPL=B1-go   eat-**NF**
       'I went to eat.'

c. *ayik*   *ix=in-xit'=ek'*   ***juk'-oj***
when   COMPL=B1-go=DIR:crossing[<cross]   **wash-NF.ANTIP.INCORP**
k'apak
clothes
'When I went to wash clothes.'

d. *ix=ach-k'och*   ***il-waj-el***
COMPL=B2-arrive   **see-ANTIP-NF**
'You arrived to see.'

Stage II – infinitival complement

e. **ix=in-k'och*   ***il-chaj-el***
COMPL=B1-arrive   **see-PASS-NF**
**'I arrived to be seen.'

f. *ix=in-k'och*   ***il-chaj-ok***
COMPL=B1-arrive   **see-PASS-IRR**
'I arrived to be seen.'

g. *toxo-nhej*   *ix=ach-ul*   ***cham-ok***
already-only   COMPL=B2-arrive.here   **die-IRR**
'You only arrived here to die.'

Stage III – aspectless complement

h. *(ix)-xet'*   *in=way-i*
(COMPL)-go   B1=sleep-SSF
'I went to sleep.'

But, contrary to Tojolabal (cf. [60e]) and also Tzeltal (cf. Polian 2013a: 315), Chuj does not allow for a passivized intransitive with the non-finite *-el*, see (61e). Instead, the irrealis suffix *-ok* which marks the dependent status on intransitive verbs must be used, as shown in (61f). The same irrealis suffix also attaches to some non-passivized intransitives, this construction is, however, considerably less productive compared to the *-el* pattern (Gómez Cruz 2017: 409). Last but not least, there is a Stage III construction where the V2 is used as an aspectless complement. The motion verb V1 appears without person inflection. In fact, aspect marking on the GO-auxiliary is only optional which indicates that the construction with this motion verb borders on Stage IV, where the motion verb has been reanalyzed as a TAM marker itself sufficient to modify the verbal clause. In contrast to Tojolabal and Tzeltal, for instance, Chuj does not require the irrealis index on the V2, but an intransitive status marking suffix *-i* is used if the complement appears clause-finally.

In sum, Tojolabal and Chuj behave strikingly similar in the domain of motion-cum-purpose, while they also share many characteristic properties with

Tzeltal. I now continue by briefly discussing Tzotzil followed by some remarks on the Kanjobalan languages.

In Tzotzil, the preferred option for intransitive V2s is a Stage III McPC identical to the aspectless complement clause found for transitive V2s. As illustrated in (62), the motion verb auxiliary is inflected for aspect, whereas the V2 takes the person marking and is inflected for the subjunctive by *-uk*. Notice that a construction such as that identified for sister language Tzeltal (cf. [58a]), where an infinitival complement structure is permitted with intransitive V2s using the non-finite suffix *-el*, is theoretically also possible for Tzotzil McPCs. But, it is not a frequently employed choice compared to the aspectless complement structure at Stage III displayed below, as far as I can judge based on the data and description. In fact, I came across no evidence of the structure where a subordinator *ta*, as found in Tzeltal, precedes an infinitival purpose clause. However, the role of infinitival complements in Tzotzil becomes especially apparent in the genesis of directionals, which will be discussed in Section 7.2.

(62) Tzotzil   [Haviland 1991: 6]
      ch-*tal*   *'ik'van-****uk-Ø***   *'un*
      INCOMPL-come   take.person-**SBJV-B3**   CL
      'They came to pick (one) up.'

The Kanjobalan languages Akateko and Q'anjob'al do not feature an overt subordinator, but their McPCs with intransitive V2s are all based on infinitival complement constructions. In Q'anjob'al, the subordinate status of the V2 is marked overtly by an infinitive suffix, *-oq* on intransitives and *-oj* on transitives. While the former, in any of it functions, may be omitted in contexts where the V2 surfaces in clause-final position (compare [63a] and [63b]), similar to Chuj *-i*, the latter must always be used (Mateo Toledo 2008: 57). The suffix *-oq* has three functions – whether they all are diachronically related has not been determined yet. It marks (1) the irrealis in potential clauses, (2) the non-finite status of intransitive verbs in infinitival complement clauses, and (3) dependent status on verbs. The role that it assumes in the McPC falls under function (2) (Mateo Toledo 2008: 58). Transitive verbs are marked by *-oj*, which "makes a base verb intransitive with an incorporated object" (Mateo-Toledo 2008: 57), which is identical to *-oj* in Chuj as shown in (61c). The suffix *-oj* is thus glossed as a nonfinite, antipassive, and incorporation marking suffix here.

(63)   Q'anjob'al
          [Martin 1977: 416, 425 in Zavala Maldonado 1993: 70, 74 (a,b); Mateo
                                                         Toledo 2013: 261 (c)]
      a. ***max-in****-ul=ek'*   *way*   *kaeb' aq'b'al*
          COMPL-B1-arrive=DIR:across[<pass.by-IRR] sleep   two   night

>   *b'ay*   *w-atut*
>   at   A1-house
>   'I came back to sleep for two nights at home.'
>
> b.   **chi-ach-**ul   *matz'-l-**oq***
>   **INCOMPL-B2-**arrive.here   look.at-INTR-**INF**
>   'You came to enjoy.'
>
> c.   *tol*   *q=on-toq*   **uqt-oj**   **no'**
>   INTENS   IRR=B1PL-go   **hunt-NF.ANTIP.INCORP**   **animal**
>   'This is because we are going to hunt animals.'

In Akateko, the same suffix *-o(j),* which again doubles as an irrealis marker, is employed in either construction type, see (64). Again, *-oj* is used only in causal-final position.

(64)   Akateko   [Zavala Maldonado 1993: 40, 62 (a,b); Craig 1977: 13]

> a.   **ch-in-***too*   *paxhal*   *naat*
>   **INCOMPL-B1-**go   ride   far
>   'I go to ride far away.'
>
> b.   **x-ach-***ok=toj*   *axhni-**oj***
>   **COMPL-B2-**enter=DIR:thither[<go-IRR]   bathe-**INF**
>   [85]'You entered thither to bathe.'
>
> c.   *chi-ø-too*   *eb'* *naj*   **jul-o**   **no'**
>   INCOMPL-B3-go   PL   CL:man   **hunt-NF.ANTIP.INCORP**   **animal**
>   'They are going to hunt animals.'

In the Akateko and Q'anjob'al constructions with intransitive V2s, the motion verbs in V1 position show no formal signs of grammaticalization. They appear as full intransitive lexical verbs.

Briefly summing up on McPCs with intransitive V2s, I hope to have demonstrated that a majority of Mayan languages resort to the infinitival complement structures to express the purpose of an action if that action is encoded by an intransitive verb, which stands in contrast to the predominating aspectless complement structures identified for the McPCs with transitive V2s. The intransitive embedded clause subordinate to the motion verb matrix clause is characterized by non-finite morphology. Different inflectional suffixes attach to the verb denoting the purposive action, all of which, however, serve the same function in the context of an McPC; they produce a non-finite form of the intransitive V2. They take the surface form *-V(l)* in the Cholan-Tzeltalan, Yucatecan, and Chujean lan-

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85 The idiomatic translation provided in the original source is 'You went in to bathe'. The directional meaning was changed to more accurately reflect the lexical source.

guages, as well as Huastec, Mam, and Poqomchi'. In the Kanjobalan languages, the suffix appears as *-oj/-oq,* while K'iche' uses *-ik.* These inflectional suffixes are often multifunctional (see Table 22 for an overview). For instance, in the Yucatecan languages, the suffix *-Vl* doubles as a marker of non-finite status on verbs and incompletive aspect on intransitives. Historically, the aspectual function is derived from the nominalizing function (Law 2017: 118). In addition to the bound morphology on the V2, a subordinator grammaticalized from a locative preposition heads the embedded clause in at least half of the sample languages. We find *tyi* in Chol, *tä* in Tabasco Chontal, *ta* in Tzeltal, *ti(')* in Itzá and Yucatec Maya, *pa(n)* in K'iche' and Kaqchikel languages, and *chi* in Poqomchi'.

As for the motion verbs in V1 position and their degree of grammaticalization, in the constructions with subordinators, it appears as though the motion verbs are used as prototypical lexical intransitives. They take both the SA and aspect marking. Pronouns or subject NPs may also appear between the matrix and the embedded clause. All these constructions are to be situated at Stage II, where the motion verbs behave like full intransitive verbs. It is clear that these structures are of an infinitival complement nature. We have also seen through a short diachronic analysis of Yucatec Maya, that the subordinators may come to be omitted (cf. [55]) and move further down the integration cline without any formal or categorical changes to the motion verb itself. But taking the entire constructions into account, the motion verb in the matrix clause already starts to acquire properties characteristic of auxiliaries through the integration process. The constructions where no subordinators are used point to a higher degree of clause integration.

The same structure found for transitive V2s is also found as an alternating option in the Quichean languages and as the predominant option in the Kanjobalan languages. Notice that this is only the case for those languages where the transitive McPCs have reached Stage IV or V and the motion verbs have been fully grammaticalized. The intricate interplay between the (often co-existing) two complement structures, infinitival and aspectless, and their diverging manifestations point to a network of motion-cum-purpose constructions that shapes and informs the grammaticalization of the motion verbs.

I provide an interim discussion of the Mayan McPCs both with an intransitive and a transitive purpose clause and make some general observations while elucidating how the variation encountered on the constructional level influences the grammaticalization of motion verbs in V1 position.

7.1.3 Interim discussion of motion auxiliaries

Abstracting from the detailed analyses presented above, several general observations can be made. To begin with, all Mayan languages have in common that

they utilize more than one integration stage of the construction to encode motion-cum-purpose. This asserts that the grammaticalization of motion verbs into auxiliaries, accompanying the clausal integration process, is gradual and results in various (intermediate) constructions, all of which are used for the same or a similar function. The continuum of clausal integration goes hand in hand with a continuum of motion verb grammaticalization. In other words, "in order to explain the development of lexical items into more grammaticalized items it is necessary to account for the changes of the entire constructions in which these target morphemes participate" (Zavala Maldonado 1993: 154). Layering, as well as polysemy in form and function, is a defining property of an ongoing grammaticalization process. As the clausal integration between the two VPs increases, the grammaticalization of the V1 progresses. The advancing grammaticalization of motion verbs takes place simultaneously with other formal changes, i.e. the loss or addition of inflectional marking on the V2, the presence or absence of subordinators, the possibility of constituents interrupting the V1V2 sequence etc. On a conceptual level, the V1 and V2 in the individual McPCs are iconically linked along the time axis, as illustrated in Figure 22.
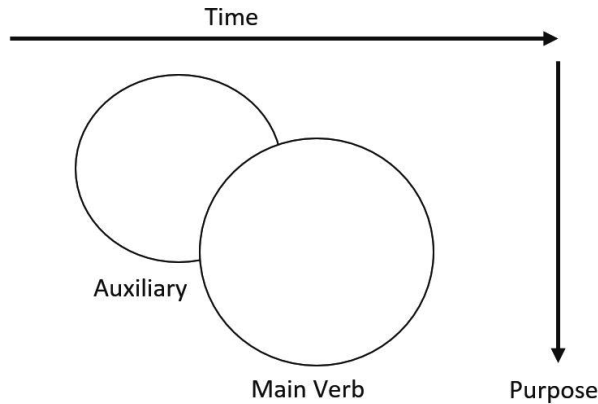
Figure 22: The motion-cum-purpose auxiliary construction (based on Haviland 1991: 13).

The execution of an action expressed through the V2 is dependent upon the initiation of a motion event encoded by the V1 auxiliary. In other words, the time of the event in the purpose clause lies in the future relative to the time of the action in the matrix clause. This presents a clear instance of mapping space onto time or, as described in the Metaphor Extension Approach, of the TIME AS SPACE metaphor.

Such complex constructions pave the way for more abstract functions that the grammaticalizing auxiliary may assume. These functions generally pertain to TAM marking, future tense in particular. The detailed examination of McPCs is, therefore, also essential for understanding the origins of the majority of TAM markers in Mayan languages. Nevertheless, the constructional changes themselves already provide valuable insight into the relationship between grammaticalization process and clausal integration on an intragenetic level.

But, crucially, this conceptual mapping does not need to take place or prevail throughout the grammaticalization process. The motion infixes in the Core Quichean languages (and arguably the infix-like motion auxiliaries in the Kanjobalan languages and Poqomchi') belong to the grammatical category of associated motion whereby a motion (sub-event) is adjoined to another event. Associated motion markers "prove that the 'fact-of-motion' can be encoded grammatically, by way of affixes or other grammaticalized elements" (Guillaume 2016: 83). This leads us back to Haviland's (1991: 6) doubts, delineated at the beginning of Section 7.1, regarding the classification of the constructions as 'motion-cum purpose'. Clearly, rather than the purposive component that is strengthened and subsequently grammaticalized, it is motion itself that comes to be grammatically encoded. Indeed, the motion affixes take up a position in the verbal complex distinct from all other inflections, as Mayan TAM markers appear as prefixes or suffixes, not infixes. This means that it does not have to be the motion component that is bleached in the course of grammaticalization, as the arguably most palpable component, but it may well be other more abstract categories, associated with the construction at the initial stages, that are lost. By contrast, many other Mayan languages, as we will see in Sections 8.1 and 8.2, follow the above-delineated scenario. Consequently, it appears that the same input constructions, but venturing form different stages of the clause integration continuum with their distinct stage proprieties, produce different outcomes even within the same language family that overall behaves like a "uniform whole" (cf. Schüle 2000: 81). To elaborate, at Stage III where the motion verbs appear as an auxiliary inflected only for aspect and thus occupy a position typical for TAM morphology, the more abstract notions are strengthened and the motion component is lost in the grammaticalization process. At Stage V, the motion verbs have grammaticalized into infixes that occupy a position in the verbal complex that is not occupied by any other grammatical categories. And thus, they are not coerced into temporal or aspectual interpretations.

Intragenetic coding tendencies are evident with regard to the degrees of clausal integration and motion verb grammaticalization. One way or another, (some of) the Pan-Mayan motion verbs have acquired auxiliary status. In

Poqomchi', Mam, and the Kanjobalan languages, the motion auxiliaries display an infix-like character, while the McPCs of the Core Quichean languages of this sample exhibit Stage V properties with the motion verb having acquired definite affix status. Stage III with motion auxiliaries is a preferred option in the Tzeltalan languages. It is resorted to with varying frequency and at least with a subset of motion verbs in most Mayan languages, except for the Quichean-Mamean languages. Stage II McPCs with infinitival complements are preferred by the languages of the Yucatecan and Chujean branch, all of which, however, also frequently allow for more grammaticalized variants with a subset of motion verbs, generally belonging to the deictically anchored semantic class.

McPCs featuring intransitive V2s were analyzed according to the presence or absence of a subordinating element, in addition to considering aspect and non-finite status marking. The presence of a subordinating element points to a lower degree of grammaticalization. Such constructions are found in the Cholan languages and Itzá. There is clear evidence that a subordinator was also employed in Colonial Yucatec Maya which came to be omitted in Contemporary Yucatec Maya. This development appears to substantiate the claim that a subordinator was initially employed for all McPCs with an intransitive V2 based on an infinitive complement structure. Further corroborating evidence comes from those languages that allow for both McPC types, i.e. monoclausal McPCs and those headed by subordinators. These languages include the two Core Quichean languages of this sample and possibly Tzeltal and Poqomchi'.

In the Core Quichean languages, only the phonologically reduced variant of the auxiliary, i.e. the arguably more grammaticalized form, may appear in the monoclausal version. In K'iche', only the eroded variants of GO and COME are permitted. In Poqomchi', only five motion auxiliaries may appear in the Stage IV construction. All other motion verbs surface as fully finite verbs in the periphrastic construction. From that, it follows that the set of motion verbs participating in a given McPC diminishes as the degree of clause integration increases. At the most integrated stages, only the deictic motion verbs GO and COME are found in phonologically eroded forms. This comes as no surprise and is expected based on previous research. In the majority of cases, the speaker aims at expressing that a motion was carried out for the purpose or with the intention of accomplishing another action. The specification of the type of motion is rarely the focus. The most general motion verbs thus appear to be better candidates to fulfil a purposive function.[86]

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86 Apart from GO and COME, on occasion other motion verbs appear in phonologically eroded forms across the clause integration continuum, such as *k'o(t)* 'arrive there' and *a(y)* 'go and

7.2 Directional constructions

The second path of grammaticalized motion in the Mayan languages gave rise to a closed class of directionals. But, instead of being grammaticalized as the matrix verb, directionals are grammaticalized from the verbs in the embedded clause. Motion verbs prototypically express the motion and trajectory of a figure, but "directionals retain only a schematic version of the meaning of motion verbs. Directionals only encode trajectory" (Zavala Maldonado 1993: 47), i.e. they are desemanticized. Directionals consist of virtually the same motion verb roots as auxiliaries. In contrast to auxiliaries, directionals bear no inflections characteristic of lexical motion verbs, and they are generally placed after the main verb[87]. Mam directionals are an exception in this regard, as they also appear in pre-verbal position and take person affixes. Diachronically, directionals were brought about by a reanalysis of the motion verbs in an infinitival complement structure of the type presented in 7.1. The Yucatecan languages, Huastec, and Tabasco Chontal did not derive directionals from motion verbs as encoders of trajectory. At the end of this section, I briefly outline their trajectory coding behavior for comparison. In the Tzeltalan and Chujean languages as well as Chol, directionals are transparently derived by adding a non-finite suffix -V(l). In Poqomchi', K'iche', and the Kanjobalan languages, directionals are formed by attaching the suffixes -oq/-oj or -ik. The directionals in Mam and Kaqchikel occur without an additional inflectional suffix. Moreover, while Kaqchikel, K'iche', and Poqomchi' only allow for a single directional to be featured in a clause, multiple directionals may co-occur in one clause in the other languages. Chaining of two directionals (DIR1 DIR2) is found in Tzeltal, Chol, Mam, and Tojolabal, whereas the other three Kanjobalan-Chujean languages permit up to three adjacent directionals (DIR1 DIR2 DIR3) in one clause. Haviland (1991: 28) reports the apparent possibility of combing up to five directionals in Tzotzil. There are semantic-based restrictions as to the combinability of the directionals. These will be delineated in the course of this discussion. The sets of directionals vary in size across the languages. Tzotzil and Tzeltal take the

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return' in Tzotzil or *kan(aj)* 'remain' in K'iche'. Moreover, in some Mayan languages, e.g. Tzotzil and Tzeltal, aspectual verbs may also occupy the V1 slot. These include START/BEGIN and FINISH/STOP. The aspectuals also carry a 'motion'-component but lack the change of location meaning and are therefore only mentioned in passing during the analysis.

87 Notice that not all motion verbs may co-occur with directionals, e.g. *tyälel* 'come' and *majlel* 'go' do not allow for directionals in Chol (Vázquez Álvarez 2011: 383).

lead with thirteen and twelve simple directionals, respectively,[88] while K'iche' brings up the rear with seven simple directionals. An overview of the findings for each language is given in Appendices V and VI.

7.2.1 Variation in the grammaticalization of the Mayan directionals

The discussion on variation in the grammaticalization of the Mayan directionals starts with languages that add a *-V(l)* suffix to the motion verb root, i.e. the Cholan-Tzeltalan and Chujean languages, followed by those that attach *-oq/-oj* or *-ik*, i.e. the Kanjobalan languages, Poqomchi', and K'iche'. Subsequently, the two languages without additional suffixes, Kaqchikel and Mam, are examined.

7.2.1.1 Directionals in the Cholan-Tzeltalan languages
First, Tzotzil, Tzeltal, and Chol add the full non-finite suffix *-Vl* to their intransitive motion verb roots to derive their closed set of directionals. In Tzotzil and Tzeltal, an aspectual verb that also occurs in McPCs serves as a source (cf. Haviland 1991: 37; Brown 2006: 252), i.e. *lik-el* meaning 'begin > beginning' in Tzotzil and *jajch-el* 'begin, arise > beginning, arising' in Tzeltal. No aspectual verbs as sources for directionals are reported for Chol (cf. Vázquez Álvarez 2011: 165). In examples (65), (66), and (67), the usage of the directional IN derived from combining the enclosure or region oriented motion verb ENTER with the non-finite suffix *-Vl* is exemplarily given as an illustration for each of the three languages.

(65) Tzotzil [Haviland 1981: 119]
[89]*ch-ø-jatav* **'och-el**
INCOMPL-B3-flee **DIR:in[<enter-NF]**
'He flees inside.'

(66) Tzeltal [Brown 2006: 253]
ya *j-tij-ø* **och-el** *xawin* *ta* *y-ut* *na*
INCOMPL A1-send-B3 **DIR:in[<enter-NF]** cat PREP A3-inside house
'I chase (the) cat into the house.'

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88 Only eleven directionals in Tzotzil and ten directionals in Tzeltal come from motion verbs, the rest is derived from aspectual verbs.
89 Glosses are mine; no (linear) glosses are provided by the author.

(67) Chol   [Vázquez Álvarez 2011: 168]

  mi   *k-wets'-ø=loñ*   ***och-el***   *tyi*   *koral*
  IPFV   A1-drive-B3=PL.EXCL   **DIR:in[<enter-NF]**   PREP   corral
  'We drive it (the horse) into the corral.'

Although all directionals usually appear post-verbally as exemplified above, Tzeltal vertical directionals *mo-el* 'up' and *ko-el* 'down' interestingly also surface in pre-verbal position (68a) or are preceded by the preposition *ta* (68b). The directional is treated like a locational adverb in example (68b). It is employed in a slot prototypically filled by location nouns and denotes 'to a place above'. This structure, of course, is reminiscent of the infinitival complement structure presented in Section 7.1 (cf. [58a] for Tzeltal). In (68b), there too is a motion matrix verb which is followed by a subordinator *ta* heading the infinitival complement. This structure presumably presents the diachronic origin of the directionals. A pre-verbal distribution of the directional such as that displayed for Tzeltal in (68a) is, to my knowledge, not possible or viable in Chol or Tzotzil.

(68) Tzeltal   [Brown 2006: 253]

  a. ***mo-el***   *a*   *bajt-ø*
     [90]**DIR:up[<ascend-NF]**   COMPL   go-B3
     'Up he went.'

  b. *bajt-ø*   *ta*   *mo-el*
     [91]go-B3   **SUB**   **DIR:up[<ascend-NF]**
     'He went up.'

Despite all directionals being an integral part of spatial coding, deictically anchored directionals appear to be the most frequent. Correspondingly, the respective directionals, which serve to indicate motion towards or away from the deictic *origo*, have phonologically eroded forms in all three Cholan-Tzeltalan languages, see Table 14. While the complex forms are still used in Tzotzil and Chol, only the fused or eroded forms are employed in Tzeltal (cf. Polian 2013a: 701).

All but one of the above-listed directionals are derived from deictically anchored motion verbs. In Tzotzil de Zinacantán, the directional denoting AWAY is not based on the expected verb *bat* 'go' but on the point oriented motion verb *'ech'* 'pass by'. Haviland (1991: 23) explains that *batel* is used as an aspectual directional in the Zinacantán variety of Tzotzil. The directional carries the meaning 'from time to time' or 'now and then, off and on', see example (69a). In other

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90 Glosses are mine; no (linear) glosses are provided by the author.

91 Glosses are mine; no (linear) glosses are provided by the author.

neighboring Tzotzil dialects, the expected directional *batel* is used for AWAY (Haviland 1993: 47). Having acquired a new, exclusively temporal sense in the course of its grammaticalization, *batel* was replaced by *ech'el* which now serves as an andative marker (69b).

Table 14: Forms of deictically anchored directionals in Tzotzil, Tzeltal, and Chol.

	Tzotzil de Zinacantán		Tzeltal		Chol	
	AWAY	TOWARD	AWAY	TOWARD	AWAY	TOWARD
Directional	*ech'-el, 'el*	*tal-el, tal*	*beel, bel*	*tal, tel*	*majl-e(l), maj-a, ma*	*tyäl-e(l), ty-el, t-el, t-e*
Source	*'ech'* 'pass'	*tal* 'come'	*ba(jt)* 'go'	*tal* 'come'	*majl* 'go'	*tyäl* 'come'

(69) Tzotzil de Zinacantán   [Haviland 1991: 25; 1993: 41]
    a. *yech   ch-ich'   cha'le-el **bat-el***
        thus INCOMPL.A3-receive treat-NF **DIR:from time to time[<go-NF]**
        'That's the way they get treated sometimes [fences to be constructed out of just leafy branches].'
    b. *ta   ka'   ch-ø-muy   **'ech'-el**   li*
        PREP horse INCOMPL-B3-ascend **DIR:away[<pass.by-NF]** DET
        y-ajval
        A3-owener
        'It is on horseback that the owners will go up away from here.'

Generally, the individual directionals have short and long forms. In Chol, the AWAY directional, for instance, surfaces as *majl-e(l), maj-a*, or *ma*. Moreover, there are five phonological forms for Chol TOWARD, i.e. *tyä-el, tyäl-e, ty-el, t-el*, and *t-e*, which reflect the different stages of phonological erosion. All forms in Table 14 appear to be used in free variation and are thus not subject to any contextual or syntactic constraints.

In Tzotzil, the two deictic directionals may be used to modify locative phrases where they assume a prepositional-like function (70a), or they co-occur with non-verbal expressions of location, e.g. relational nouns (70b). The structure in (70a) is also possible with other directionals.

(70)   Tzotzil   [Haviland 1993: 44]
    a. *le'   ta   'ach'eltik   **'ech'-el**   s-na-e*
        there PREP muddy.expanse **DIR:away[<pass.by-NF]** A3-house-ENC
        'His house is over there on the far side of the muddy place.'

b. *y-ak'ol*   ***tal***   *Nachij*
     A3-above   **DIR:toward[<come-NF]**   Nachij
     '(It is) above Nachij on this side (i.e. above coming).'

The phonological erosion and recategorization point to a higher degree of grammaticalization as compared to the other directionals. The formally advanced developments are only found for deictic directionals in the Cholan-Tzeltalan languages. Meaning changes occur for all directionals (desemanticization). For instance, if directionals are used with verbs of perception, no literal motion by an entity is implied. Instead, an orientation is imposed on the scene, see example (71) where "deictic *tal* 'coming' transposes the perspective adopted by the speaker onto that of the receiver of words: the gossip came HERE to him" (Haviland 1993: 42). Another example comes from Tzeltal where the perception verb *i(l)* 'see' combines with a vertical directional specifying the trajectory of the gaze (72).

(71)   Tzotzil   [Haviland 1993: 42]
           ja'   *taj*   *lo'il*   *i-y-a'i-ø*   ***tel***
           EXCLAM   DEM   gossip   COMPL-A3-hear-B3   **DIR:toward[<come-NF]**
           ta   *s-na*
           PREP   A3-house
           'That's the gossip that he heard at his house.'

(72)   Tzeltal   [Polian 2013a: 706]
           La   *y-il-ø*   ***mo-el***   *te*   *pak'al*
           COMPL   A3-see-B3   **DIR:up[<ascend-NF]**   DET   PROG.B3
           tel   *te*   *ja'al*
           DIR:toward[<come-NF]   DET   rain
           'I looked up (and saw) that rain is coming.'

As for the combinability of directionals in the Cholan-Tzeltalan languages, Chol and Tzeltal both allow for a chaining of two directionals in one clause. In Chol, the second slot in the directional sequence can only be filled by one of the two deictic directionals *majlel* 'away' and *tyälel* 'towards' (Vázquez Álvarez 2011: 167), see example (73) for an illustration of *tyälel* 'towards' in DIR2 position.

(73)   Chol   [Vázquez Álvarez 2011: 169]
           tyi   *i-chok-o-ø*   ***ju'b-el***   ***tyäl-el***
           PFV   A3-carry-TR-B3   **DIR:down[<descend-NF]**   **DIR:toward[<come-NF]**
           'He threw it down toward here.'

A similar picture arises for Tzeltal where the combining of two directionals is frequently observed (cf. Polian 2013a: 703). It appears that the second directional slot is usually occupied by a deictic directional as well (74a). Nevertheless, there are also instances of the reverse order. In example (74b), the deictic direc-

tional precedes the vertical directional. This points to a higher degree of syntagmatic variability in Tzeltal in comparison to its sister language Chol.

(74)   Tzeltal   [Polian 2013a: 703; Brown 2006: 270]
   a.   *ch'ajan* *ya*   *s-lik-ik*   **mo-el**
        rope   INCOMPL   A3-pull-B3.PL   **DIR:up[<ascend-NF]**
        tel
        DIR:toward[<come-NF]
        '(It is) with this rope (that) they pull it up.'
   b.   *nit-a*   **tal**   **ko-el**
        pull-IMP   **DIR:toward[<come-NF]** **DIR:down[<descend-NF]**
        tebuk   *yu' ma*   *ba*   *s-ta-ø*   *lum*
        a bit   because   NEG   A3-meet-B3   earth
        'Pull it downwards (vertically) a bit, because it doesn't touch the earth.'

Tzotzil also requires that the last directional in a chain be either *tal-(el)* or *'ech'-el*, with the exception of the two aspectual directionals *lik-el* 'beginning' and *bat-el* 'sometimes', the latter only applies to the Zinacantán variety. Acknowledging the rare textual evidence of chains with more than two directionals, Haviland (1991: 28) claims that chains may feature up to five directionals and that they appear in the following order: enclosure or region oriented < vertical < deictically anchored < aspectual. The position of point oriented directionals is unclear. They may either be placed before or after the vertical motion directionals. The proposed order of Tzotzil directional chains is shown in the constructed example (75) where the point oriented directional *kom-el* occurs in DIR3 position.

(75)   Tzotzil   [Haviland 1991: 28]
        ta   *x-ø-ich'*   **lok'-el**   **muy-el**
        INCOMPL   INCOMPL-B3-bring **DIR:out[<exit-NF]** **DIR:up[<ascend-NF]**
        kom-el   ***tal***
        DIR:motionless[<stay-NF]   **DIR:toward[<come-NF]**
        bat-el
        DIR:sometimes[<go-NF]
        'Sometimes he brings (something) up (from) out (of somewhere) to leave (here).'

Haviland (1991: 28) compares the directional sequencing in Tzotzil to the inherent ordering of attributive adjectives in English (VALUE > DIMENSION > PHYSICAL PROPERTY > SPEED > HUMAN PROPENSITY > AGE > COLOR; "with normal stress and intonation there appears to be a single preferred left-to-right ordering between adjectives from the different semantic types" Dixon 1982: 24). The way in which

the directionals are arranged suggests that the five notional categories or se-
mantic types according to which Haviland has classified the Tzotzil motion verb
roots also "have both syntactic and semantic salience in the language" with the
categories that are semantically most general coming last and the categories
that are more specific coming first (Haviland 1991: 28–29). Their combination is
clearly compositional. As applies to the preferred sequence of adjectives in Eng-
lish (cf. Flanagan 2014: 153), arranging the directionals differently probably
does not result in ungrammaticality. Grammaticality, of course, is a gradient
phenomenon. The order might merely sound odd and be judged less acceptable
by speakers. Given that directional chains with more than two directionals are
rarely employed, it would be reasonable to assume that the descriptions of Chol
and Tzeltal directionals were cut off at this point. However, Vázquez Álvarez
(2011: 167) compares Chol to Akateko where chains of three directionals are
permitted and explicitly states that Chol only allows for two. I return to this
issue at the end of this section.

In its maximal motion encoding form, the Cholan-Tzeltalan verbal complex
may include spatial auxiliaries and directionals both derived from the same set
of intransitive motion verb roots. Semantically, "there is an association between
the motion of the auxiliary and an understood (though possibly unexpressed)
purposive agent in the overall action. [...] the directional specifies a trajectory
that is construed as simultaneous with or subsequent to the action of the main
verb" (Haviland 1993: 45). Accordingly, there appears to be an iconic relation
between the two grammaticalizing elements which encode the two distinct
phases of the motion event in sequence, see examples (76) and (77).

(76) Tzotzil   [Haviland 1991: 39]
      ja'   *ch-**ba***   *s-man-ø*   ***'ech'-el***   *le'*   *'une*
      EXCLAM INCOMPL-**go** A3-buy-B3 **DIR:away[<pass-NF]** that CL
      'He'll go to buy that (and take it away).'

(77) Tzeltal   [Brown 2006: 253]
      ya   *x-**tal***   *k-ik'-at*   ***sujt-el***   *pajel*
      INCOMPL INCOMPL-**come** A1-fetch-B2 **DIR:back[<return-NF]** tomorrow
      'I will come fetch you back (i.e. returning) tomorrow.'

7.2.1.2 Directionals in the Chujean languages
The two Chujean languages, Tojolabal and Chuj, behave similarly to the Cholan-
Tzeltalan languages as far as directional constructions are concerned.
Tojolabal has as many as twelve directionals (cf. Gómez Cruz 2017: 466). If the

directional or aspectual adverb appears in phrase-final position, it takes a lexically conditioned final vowel (cf. Ramírez del Prado 2017: 585), which is a remnant of a former non-finite, nominalizing suffix *-Vl,* as found in the three Cholan-Tzeltalan languages. Two of the twelve Tojolabal directionals are complex and formed by combining either of the two vertical directionals and the deictic directional *jan(i)* (78). All directionals occur as free morphemes in a fixed post-verbal position.

(78)   Tojolabal   [Ramírez del Prado 2017: 584]
  jach'   *wa=x-waj*   *j-k'ul-tikon*
  thus   IPFV=IPFV-go.AUX   A1-make-1PL.EXCL
  k'e'n < ***k'e'-jan(i)***   *kambyar*
  DIR:up.towards[<ascend-come]   exchange
  'Thus, we used to move up here to exchange it.'

In Tojolabal, two directionals may be combined in one clause. The second position can only be assumed by either of the four deictic directionals, i.e. *waj, jan, jul,* and *k'ot*. The reader is referred to Gómez Cruz (2017) for a more thorough examination of the Tojolabal directional system.

Chuj directionals are derived from eleven motion verbs and occur as enclitics (cf. Buenrostro 1995). Buenrostro (2015: 104) explicitly states that there are three other Chuj motion verbs *jax* 'return here', *ja* 'come', and *meltzaj* 'go and return here' that do not form part of the directional paradigm. As is the case for several of the languages discussed above, an additional morpheme appears on the directional if it is employed in clause-final position. In Chuj, the intransitivity marking suffix *-i* fills that position (79a). It is conceivable that the full nonfinite marking suffix *-Vl* occurred on all directionals in Chuj at an earlier stage. Directionals may occur in chains with up to three elements (cf. Buenrostro 2015: 110). The first position closest to the stem is occupied by an adverbial directional. The second position is filled by the directional morphemes specifying nondeictic direction. A third position may be assumed by yet another clitic conveying deictically anchored motion, i.e. *b'at* 'to there', *ul* 'to here', and *k'och* 'to there'. An illustrating example with three directionals is given in sentence (79b).

(79)   Chuj   [Buenrostro 1995: 3, 2 in Gómez Cruz 2017: 430, 429]
  a.   *b'aj*   *ay=ø-tek-tek=**em-i***
      where   EXI=B3-stop-RED=**DIR:down[<descend]-INTR**
      'Where it stopped.'
  b.   *ix=ø=w-ik'=**pax=k'e'=ul***
      COMPL=B3=A1-
      load=**DIR:crossing[<cross]=DIR:up[<ascend]=DIR:to.here[<come]**

ixim   ixim.
CL   corn
'I brought back the corn to up here.'

There are two complex structures in Chuj which are used to encode an absolute frame of reference with the underworld as a focal point. *Ochih* is derived from the motion verb *'och* 'to enter' and *-ih*[92] 'away from the speaker' and means "to go west, i.e. in the direction in which the Sun enters [the underworld]" (Hopkins 2012: 28). *'Elih,* as a direct counterpart, is formed by *'el* 'to leave' and the same suffix *-ih*. It carries the meaning of "to go east, i.e. in the direction from which the Sun leaves [the underworld]" (Hopkins 2012: 15). The two elements appear to function as both directionals and as genuine intransitive verbs, compare examples (80a) and (80b). The latter development constitutes a case of (re)lexicalization.

(80)   Chuj   [Hopkins 2012: 28]
    a.   *tz-'och-**ih***
          [93]INCOMPL-enter-**away from speaker**
          'He is going westwards.'
    b.   *ø-xit'=**uchih***
          [94]B3-go.COMPL=**DIR:westwards[<DIR:in-away from speaker]**
          'He went westwards.'

7.2.1.3 Directionals in Poqomchi' and K'iche'

The directionals in Poqomchi' and K'iche' also serve to modify both verbal and non-verbal predicates. Their directionals all take a dependent status marking suffix *-oq* (or *-ik*). Poqomchi' has eight directionals which apparently surface as free morphemes. Seven of these are derived from intransitive motion verbs plus the dependent suffix *-oq*, which is generally used to mark intransitivity on main verbs. The eighth directional *je* is probably connected to a Quichean demonstrative *ruje* and denotes AWAY (FROM) (Brown 1979: 92). All Poqomchi' motion verbs derived from directionals show phonological erosion, except for *pon-oq* 'to there, thither' which retains the same phonological shape as its lexical source 'arrive there' plus the dependent suffix. In example (81a), the Poqomchi' directional *joq* denoting a downward trajectory surfaces as its phonologically eroded

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92 This element is not traceable to a motion verb.
93 Glosses are mine; no (linear) glosses are provided by the author.
94 Glosses are mine; no (linear) glosses are provided by the author.

variant. The directional stems from *qaj* 'descend' plus the intransitive marker *-oq* resulting in the full form *qojoq*. One of the phonologically eroded variants of the directional is *qoq*. As shown in example (81b), Poqomchi' motion verb auxiliaries and directionals may occur in the same clause. After the Stage IV McPC, the directional *ponoq* surfaces to qualify the trajectory of the patient involved in the purposeful action.

(81)   Poqomchi'   [Brown 1979: 130]
    a.   *x-ø-ooj*   **joq**   *i*   *ni-puneet pan ha'*
        COMPL-B3-go **DIR:down[<descend-DEP]** DEF A1-hat   in   water
        'My hat sunk down in the water.'
    b.   *x-ø-iik'*   *ri-k'am*   **pon-oq**
        COMPL-B3-pass.by   A3-carry   **DIR:thither[<arrive.there-DEP]**
        'He went carrying it to there.'

Poqomchi's Quichean sister language K'iche' has seven directionals which, as far as I can extract from the data and based on their morphophonological behavior, have grammaticalized into clitics. The directionals take a status suffix, which emerges as either *-ik,* which is only used with *be'e* 'go' to form *b'iik* 'away', or *-oq* with the remaining directionals. The suffix only appears at the end of an intonational phrase (cf. Can Pixabaj 2017: 478). Compare example (82a), where the directional denoting 'hither, towards' appears in phrase-final position and thus surfaces in its long form, and example (82b), where the directional is followed by a locative adjunct introduced by the preposition *pa* 'in' and therefore appears in its short form. Both example sentences feature non-verbal predicates.

(82)   K'iche'   [Can Pixabaj 2017: 478; 2015: 63]
    a.   *e*   *nim-'aq*   *chi=***uloq**
        B3PL   big-PL   PTC=**DIR:hither[<arrive.here-DEP]**
        'They came being big already.'
    b.   *oj*   *t'uy-ul=***ulo**   *pa*   *le*   *ch'iich'*
        B1PL   sit-PRED=**DIR:hither[<arrive.here-DEP]** in   DET   vehicle
        'We came (hither) sitting in the vehicle.'

As in Poqomchi', all directionals in K'iche' may appear in phonologically eroded forms with some directionals boasting up to four different variants each (cf. Table 15). The directional encoding 'to(wards) here, hither' exclusively surfaces in its phonologically eroded form *cho*. Historically, the element stems from *chal* 'come towards' plus *-oq*. Note that the short and long forms of K'iche' directionals apparently do not occur in free variation. Can Pixabaj (2015: 145) explains that employing the long form of a directional before a non-finite complement is ungrammatical, compare (83a) to (83b).

(83)   K'iche'   [Can Pixabaj 2015: 145]

     a.   *x-ø-r-eta'ma-j=**lo**   *b'in-eem*
           COMPL-B3-A3-know-ACT=**DIR:hither[<arrive.here-DEP]**   walk-NMLZ

           le   *ak'aal*
           DET   child
           'The child learned to walk.'

     b.   **x-ø-r-eta'ma-j=**loq***   *b'in-eem*
           COMPL-B3-A3-know-ACT=**DIR:hither[<arrive.here-DEP]**   walk-NMLZ

           le   *ak'aal*
           DET   child
           *'The child learned to walk.'

Other alternating grammatical morphemes in K'iche' exhibit the same syntactically conditioned restrictions, such as the particle *chi(k)* and the irrealis marker *ta(j)* (cf. Can Pixabaj 2015: 153). This shows that, in their arguably more grammaticalized short form, the directionals have been reanalyzed and categorically equated with other grammatical morphemes in K'iche'. In contrast to the three Cholan-Tzeltalan languages discussed above, Poqomchi' and K'iche' do not allow directional chaining. The two languages also feature much smaller sets of directionals. In K'iche', no directional OUT grammaticalized from EXIT – although the point oriented counterpart IN from ENTER is present. This does not mean that K'iche' speakers cannot express outwards trajectory. The lack of grammaticalization of EXIT does not point to a functional gap. The function of indicating an outwards trajectory may, for instance, be fulfilled by the deictic directional *(u)loq*, e.g. *pichpob uloq* 'take out (sliver from under skin)', *k'äq <u>loq-ib* 'get out of bed', or *poq'obisaj uloq* 'come out' (Christenson 1990: 264, 205, 181). The introduction of IN to the K'iche' directional paradigm appears to be an innovation or recent addition, meaning that it was registered in language use only after the Colonial period. In his work based on Colonial K'iche' texts, Dürr ([1987] 2003: 96) only identified six directionals. The directional *uk-oq* 'in' or its phonologically eroded variants *koq* and *ko* were not attested. In Modern K'iche, the four allomorphs of *uk-oq* are productively used as directionals. This asserts that the length of a gram relative to its source must not bear an indication of a gram's age, contrary to some suggestions put forward in the early literature (cf. Bybee et al. 1994). To elaborate, *apan-oq* 'to(wards) there, thither' was already detected in Colonial K'iche'. Only the first vowel is missing in its eroded form *pan-oq* found in Modern K'iche'. By contrast, *uk-oq* 'in' was introduced later to the paradigm but already features an eroded variant *ko* where both the first vowel and the last consonant of the source form are lost.

In Table 15, the sets of the Poqomchi' and K'iche' directionals are given. The majority of expressions are cognates. Note that while K'iche' has grammaticalized AWAY from the deictic motion verb GO, Poqomchi' probably used a Quichean demonstrative to derive the functional equivalent.

Table 15: K'iche' and Poqomchi' directionals.

K'iche' directionals	Poqomchi' directionals	
=ub'ik, =b'ik, =ub'i, =b'i	*je*	'away'
=uloq, =ulo, =loq, =lo	*cho*	'to(wards) here, hither'
=apanoq, =opanoq, =panoq	*ponoq*	'to(wards) there, thither'
=qajoq, =qaaq	*qojoq, joq, qoq*	'down'
=aq'anoq, =q'anoq, =aq'an, =q'an	*johtoq, toq*	'up'
=kanoq, =kan	*kahnoq, kahno*	'remaining'
=ukoq, =okoq, =koq, =ko	*koq, ko*	'in'
n.a.	*loq, lo*	'out'

7.2.1.4 Directionals in the Kanjobalan languages

Moving on to the Kanjobalan branch, the directionals in Q'anjob'al and Akateko also take the suffixes *-oq/-oj*. In contrast to Poqomchi', but in accordance with K'iche', the directionals are not free morphemes but have grammaticalized into enclitics. Mateo Toledo (2008: 109–151) dedicates much of his work to the discussion of directionals in his dissertation on complex predicates in Q'anjob'al. Therefore, I refer the reader to his work and only point to the main properties of Q'anjob'al directionals in the following. The closed subset of Q'anjob'al directionals includes eight elements which function as clitics subject to phonological changes. While the two deictic directionals always occur fused with the dependent suffix *-oq, =toq* 'away' and *=teq* 'toward', the other directionals only take the suffix if they surface in clause-final position, as was shown to be the case in K'iche'. Examples (84a) and (84b) illustrate the difference in meaning between a verb used in a biclausal McPC and the same verb used as a directional. The former is understood as a transitive clause "with an inferred 'to take' event. *B'et* indicates the motion of an unrealized agent of taking, and it does not apply to *jun no' tu*. Instead, *jun no' tu* is the argument of *kan* and the object of the inferred 'to take'" (Mateo Toledo 2008: 450). Conversely, in (84b), *b'et=kan* constitutes a single phonological word. The noun phrase *jun no' tu* 'that animal'

surfaces as the only argument of the single clause and necessarily functions as the agent. Q'anjob'al directionals may occur in chains with up to three elements (84c). In a chain exhausting the three slots, the first slot can only be filled by *kan* 'stay', while the third slot is only open to the deictic directionals *teq* 'toward X' and *toq* 'away from X'. The second position may be assumed by any of the other five directionals, *el* 'out', *aj* 'up', *ok* 'in', *ek'* 'pass', and *ay* 'down', or their phonologically eroded variants. Q'anjob'al directionals may also carry aspectual meanings. Table 16 summarizes the generalizations on the combinatory possibilities of DIRs into directional chains (DIRCs).

(84)   Q'anjob'al   [Mateo Toledo 2008: 450 (a, b), 110 (c)]

a.   *max-ø*   **b'et**   **kan**   *jun*   *no'*   *tu'*
     COMPL-B3   **go.return**   **stay**   INDF   animal   DEM
     'That animal was taken to be left there by someone.'

b.   *max-ø*   **b'et=kan**   *jun*   *no'*   *tu'*
     COMPL-B3   **go.return=stay[<stay]**   INDF   animal   DEM
     'That animal went before leaving or doing something.'

c.   *Max-ø*
     COMPL-B3
     *s-k'ux=**kan**=**aj**=**teq***
     A3-eat=**DIR:stay[<stay]**=**DIR:up[<ascend]**=**DIR:toward[<come-DEP]**
     no   *chej*   *ixim*   *nal*
     CL   horse   CL   ear.of.corn
     'The horse ate [upwards] the ear of corn [in relation to something else].'

Table 16: Generalizations on the combination of Q'anjob'al directionals (Mateo Toledo 2008: 233).

With two or more directionals: DIR1 + DIR2 (+DIR3)

DIR1 is independent of any lexical restriction (i.e. information from the main verb or other DIRs).

DIR2s and DIR3s are subject to lexical trajectory information from the main verb (e.g. motion, reference point, orientation, etc.).

DIR2 is subject to DIR3 in that DIR3 overrides its aspectual meanings. Thus, DIR2+DIR3 combinations have only trajectory meanings

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With three directionals: DIR1 + DIR2 +DIR3

Kan establishes a spatial or temporal relation between the DIRC with another event (E2).

DIR2 provides trajectory information associated with the DIRC. This can be aspectual information if there is no DIR3.

DIR3 introduces a temporal/spatial point from which the DIRC is viewed.

Three other motion verbs, *apni* 'to arrive there', *paxi* 'to return, go back', and *ul* 'to come and go back', have been proposed as sources for directionals in Q'anjob'al. Mateo Toledo (2008: 235–239), however, argues that these verbs do not function as directionals because they do not, for instance, attach to relational nouns or co-occur with non-verbal predicates; properties shared among all Q'anjob'al directionals. As for productivity and obligatoriness, "directionals are not licensed by a particular feature of the verb and they can occur with any predicate except where they are limited by compatibility restrictions. Although directionals are pervasive in Q'anjob'al, they are not obligatory except when they are lexicalized" (Mateo Toledo 2008: 23).

The Akateko paradigm consists of eleven directionals which also appear as enclitics attached to the verb stem. They obligatorily occur with transitive and intransitive verbs that do not indicate direction by themselves (Zavala Maldonado 1992a: 65). While *apni, paxi*, and *ul* did not give rise to directionals in Q'anjob'al, Zavala Maldonado (1994: 109–110) demonstrates that their cognate equivalents in Akateko do indeed function as directionals, see example (85) where =*ol* attaches to a copula verb.

(85)   Akateko   [Zavala Maldonado 1994: 109]
       *y-e=**ol***   *s-tiempoal* *y-el*   *toole*
       A3-COP=**DIR:arriving.here[<arrive.here]** A3-time   A3-leave   payment
       'The time for payment has come.'

Several directionals appear either in full form or as a reduced variant. In clause-final position, the dependent marking suffix *-oj* must be used. There may be chaining of up to three directionals in Akateko, as is the case for Q'anjob'al. Similar combinatory restrictions apply.

7.2.1.5 Directionals in Kaqchikel and Mam

Kaqchikel and Mam directionals generally occur without a non-finite suffix. They appear to be the result of conversion and are also described as such in some secondary sources (cf. Kaufman 1990: 81). Diachronically and comparatively, however, it is conceivable that they might have been marked for their subordinate status at an earlier stage. This becomes apparent when considering languages such as Chuj where the vowel *-i* is featured in clause-final position, similar to what was found for the Kanjobalan languages, K'iche', and Tojolabal. The claim, however, remains speculative and requires further research. Alternatively, it may well be that the verbal roots only gave rise to the directionals in Mam and Kaqchikel.

Kaqchikel has eight directionals that are derived from seven intransitive motion verbs. The intransitive motion verb *el* 'leave' gave rise to two form-identical directionals denoting OUT and AWAY, respectively. Either they are the result of polygrammaticalization, i.e. LEAVE > OUT and LEAVE > AWAY, or the grammaticalization chain LEAVE > OUT > AWAY underlies the development (repeated grammaticalization), see examples (86a) and (86b) for an illustration of the two usages. García Matzar and Rodríguez Guaján (2001: 192) suggest that this development is indicative of the former existence of a separate directional to denote AWAY based on GO, *b'ik* from the intransitive *b'e'ik* 'go', as is the case in Kaqchikel's Quichean sister language K'iche'. There is no solid, textual evidence to prove the validity of the claim, as far as I am aware.

What is more, if the intransitive motion verb has a final consonant, it is deleted to derive the directional. Elsewhere, the phonological form is retained (García Matzar and Rodríguez Guaján 2001: 191). Kaqchikel directionals appear in post-verbal position, and they probably have acquired clitic status – as far as I can extract from the admittedly scare data and limited descriptions. García Matzar and Rodríguez Guaján do not identify any Kaqchikel clitics as such in the examples and present them as free morphemes, but they comment briefly on their enclitical status (cf. García Matzar and Rodríguez Guaján 2001: 193). The proposed analysis is based on further indirect evidence and the behavior of other post-verbal clitics in Kaqchikel. For instance, in his discussion of constructions where adjuncts surface in a non-canonical pre-verbal position and a clitic *wi* follows the verb but precedes the direct object, Henderson (2007: 7) refers to a "field of clitics between [the verb] and the direct object [...] *wi* occurs immediately before the directionals, following all other postverbal clitics". Considering example (86c), it transpires that the directionals fall precisely within this field of clitics.

(86)   Kaqchikel
         [García Matzar and Rodríguez Guaján 2001: 192 (a,b); Henderson 2007: 7]

   a.   *x-at-el=**el***
        [95]COMPL-B2-leave=**DIR:away[<leave]**
        'You left (went away).'
   b.   *x-u-k'äq=**el***
        [96]COMPL-B3-throw=**DIR:out[<leave]**
        'He threw it out.'

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[95] Glosses are mine; no (linear) glosses are provided by the authors.

[96] Glosses are mine; no (linear) glosses are provided by the authors.

   c.   *pa*   *q'equ'm*
        PREP   darkness
        *x-Ø-b'e-ki-q'etej=yan=ta=chïk=**wi=pe***   *k-'i*
        COMPL-B3-MOT-A3-hug=PTC=IRR=PTC=**wi=DIR:toward[<come]**   A3-REFL
        'They had already been hugging again in the darkness.'

In Kaqchikel, three pre-verbal bound morphemes indicate movement unexpressed in the semantics of the verbal base. They include *b'e* 'go to do' (86c), *ul* 'come to do', and *ik'o* 'pass to do' and are derived from intransitive motion verbs (García Matzar and Rodríguez Guaján 2001: 190). The motion affixes were described in Section 7.1.2.1.5 on McPCs. The motion verbs that gave rise to the motion affixes were not recruited as sources for directionals. The verbal complexes incorporating both motion affixes and directionals are given in Figure 23 for both intransitive and transitive verbs. As for intransitive verbs, the motion prefix attaches directly to the verbal base and is preceded by TAM markers which are in turn followed by pronouns of Set B. In the transitive verbal complex, the MOT appears between the pronouns of Set B and Set A.

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intransitive:

<div align="center">TAM-B-MOT-V(=DIR)</div>

transitive:

<div align="center">TAM-B-MOT-A-V-SSF(=DIR)</div>

Figure 23: The verbal complex in a motion event in Kaqchikel (García Matzar and Rodríguez Guaján 2001: 193).

García Matzar and Rodríguez Guaján (2001: 190) state that all grammaticalized directionals and motion affixes are facultative, although they are highly productive and frequently employed. Especially the two deictic directionals *pe* 'hither, to here' and *apo* 'thither, to there' seem to be quasi-obligatory. Note that the chaining of directionals is neither described in the literature on Kaqchikel nor found in any of the primary data.

    Finally, Mam directionals are highly productive and almost always occur obligatorily. Twelve directionals are derived from a subclass of intransitive motion verbs. The intransitive motion verbs and the directionals that grammaticalized from them are presented in Table 17. Mam directionals appear without a non-finite suffix. A vast majority of expressions exhibits vowel shortening as a rule, compare e.g. *poon* 'arrive here' and *pon* 'here to there'.

Table 17: Intransitive motion verbs and directionals in Mam (England 1983: 167–169).

Intransitive motion verb		Directional	
xi'	'go'	*xi, x*	'away'
uul	'arrive here'	*ul*	'towards [+TELIC]'
kub'	'go down'	*kub', ka*	'downwards'
eel	'go out'	*el, e, al*	'outwards'
kyaj	'remain'	*kyaj, kaj*	'stay, motionless'
iky'	'pass by'	*iky'*	'passing, crossing'
tzaaj	'come'	*tzaj, tz*	'towards'
poon	'arrive there'	*pon, pan*	'away [+TELIC]'
jaaw	'go up'	*jaw, ja*	'upwards'
ook	'go in'	*ok, k*	'inwards'
aaj	'return'	*aj*	'returning, back'
b'aj	'finish'	*b'aj*	'complete'

Mam directionals may appear pre-verbally (87a), post-verbally (87b–c), and post-adpositionally (87c). Some directionals have long and short forms. Directionals that appear in final position surface in their short forms (England 1983: 169). The relevant construction with pre-verbal directionals was described in Section 7.1.2.1.4 on McPCs. Directionals in pre-verbal position are an innovation in Mam. Motion verb auxiliaries grammaticalized from intransitive motion verbs occupied the slot before pre-verbal directionals were innovated.

(87)   Mam   [England 1983: 176, 175; Gómez Cruz 2017: 432[97]]

    a. *ma*   *ø-**jaw***   *b'iit'j*
        REC   B3-**DIR:up[<ascend]**   explode
        'It exploded [up].'

    b. *chi*   *ø-tzyuu-n-**ka-tz**-a*
        B3PL 2SG.IMP-grab-IMP-**DIR:down[<descend]-DIR:toward[<come]-**2SG
        'Grab them (down toward here).'

    c. *pero*   *w-ok-**x***
        but   A1-enter-**DIR:to.there[<go]**
        *t-i'x-**ok-xi***   *Linda Bista*
        A3-exterior-**DIR:in[<enter]-DIR:away[<go]**   Linda Vista
        'But when I went to there much further than Linda Vista.'

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97 In Gómez Cruz (2017: 432), the example is indicated as taken from England (1983: 180). Yet, I was unable to find the sentence in the source.

As shown in examples (87a) and (87b), the deictic directionals *xi* and *tzaj* frequently co-occur with other non-deictic directionals adding the notion of 'away' or 'toward' to the (i) point oriented, (ii) enclosure or region oriented, or (iii) vertical trajectory (England 1983: 168). Only two elements are permitted in a directional chain. The compounding process is always accompanied by phonological reduction. The combination possibilities gave rise to eleven compound directionals that are used frequently and that are entrenched in the linguistic system, meaning that they are not derived ad hoc. This is indicated by their phonological fusion, e.g. *jaw* 'up' and *xi* 'away' to form *jax* 'up away'. Other complex directionals are used more rarely but are still formed as a result of the same formation process. Furthermore, if the directionals *xi* or *tzaj* occur with intransitive motion verbs, they may be suffixed to the verb in their short forms *-x* and *-tz,* respectively.

As for syntactic distribution, all directionals may be used with all Mam verbs, but they occur quasi-obligatorily with transitive verbs. England (1983: 170) states that "they are not yet fully obligatory in that most (but not all) transitive verbs can be elicited without directionals with repeated questioning, but to all intents, they are obligatory since Mam speakers do not like transitive verbs without directionals and will not use them".[98] Semantically, there are certain lexical restrictions between intransitive verbs and directionals. Also, some of the directionals have acquired secondary meanings that are often non-directional. Table 18 juxtaposes the primary and secondary meanings of Mam directionals showing that some elements have grammaticalized further into either (a.) specifiers of movement in terms of the absolute frame of reference (using the simplex directionals *el* 'motion to the west' and *ok* 'motion to the east') and the relative frame of reference (using the compound directionals *iky'x* 'motion from right to left' and *iky'tz* 'motion from left to right') or (b.) encoders of more abstract grammatical relations that are detached from directional movement. The latter developments are examined in Sections 8.1 and 8.2.

Table 18: The semantics of Mam directionals (England 1983: 171).

Directional	Primary	Secondary
xi	'away'	incipience
el	'out'	motion to the west

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98 *Aj-* 'want', *ky'i'-* 'not want', and *il-* 'see' are the only transitives that are used without directionals (England 1983: 170).

Directional	Primary	Secondary
ok	'in'	motion to the east
aj	'return from here'	motion behind or to the back
ajtz	'return from there'	repeated action
kyaj	'leave here'	completive
iky'x	'pass to other side'	motion from right to left
iky'tz	'pass to this side'	motion from left to right
b'aj	'complete'	cessation of movement

As for the secondary semantics of *el* 'out' and *ok* 'in' in Mam, a similar development in terms of the generation of markers that belong to the absolute frame of reference was already delineated for Chuj. However, while *el(ih)* means 'go east' and *och(ih)* denotes 'go west' in Chuj, the reverse appears to be the case in Mam. Here, *el* pertains to 'motion to the west' and *ok* to 'motion to the east'. In both Mayan languages, the meaning is derived from the motion of the sun. Yet, the underworld serves as a focal point in Chuj (Hopkins 2012: 15, 28), whereas the (over)world assumes that function in Mam.

Summing up on Mam, the obligatory, productive, and specialized directionals may be employed for both physical motion and the abstract notion of direction. Mam directionals appear to be the most grammaticalized in comparison to the directionals in other Mayan languages.

7.2.2 Interim discussion of motion directionals

After having investigated the individual Mayan directional constructions, I proceed by making general observations and pointing to some variational trends. The first two observations pertain to the meaning level, i.e. noteworthy or unexpected semantic developments and the inventory of intransitive motion verbs that served as sources, while the latter two relate to the formal level, i.e. the structure of directional chains and the degree of bondedness of the directionals. With Section 7.2.3, I conclude the discussion on directionals by describing the four Mayan languages that have not grammaticalized directionals from motion verbs.

First, the Mayan post-verbal[99] directionals serve as markers of trajectory rendering the encoding of space and direction highly specialized. Yet, as stated at several points of the analysis, directionals have also been desemanticized in many cases, they do not have to encode trajectory. Mayan directionals may assume very abstract functions in relation to the temporal and aspectual as well as discursive organization of events. These semantic developments are mostly in line with the expectations of grammaticalization theory. Still, in other, arguably fewer, cases, the meaning of a directional appears to constitute the opposite of generalization, i.e. specialization. As found in Chuj and Mam, directionals employed to signify IN and OUT acquired more specialized secondary functions of denoting 'motion to the east' and 'motion to the west', respectively. Although the same directionals derived from the cognate motion verbs *el* 'out < leave' and *och/ok* 'in < enter' are recruited, the target of eastwards motion is fulfilled by *el* 'out' in Chuj and *ok* 'in' in Mam. The target of westwards motion is covered by *och* 'in' in Chuj and *el* 'out' in Mam.[100] I already argued above how this variation probably came about. This asserts that the targets of a source item are manifold and no one predefined path must necessarily be travelled. However, it also suggests that 'not anything goes', but the target must be reasonably conceptually linked to the source. It may equally be assumed that there is some conceptual basis which determines that *iky* 'passing' + *x(i)* 'away' denotes 'motion from right to left' and *iky* 'passing' + *tz(aj)* 'toward' means 'motion from left to right' in Mam. Due to the lack of experimental or other data, I cannot offer a confident hypothesis as to what said conceptual basis constitutes.

Another interesting development is the replacement of *batel* [away<go-NF] by *echel* [away<pass-NF] in the Zinacantán variety of Tzotzil. The former acquired a temporal/adverbial function of denoting 'from time to time, on and off'. It appears that due to the advancing grammaticalization of *batel* in a direction devoid of any 'motion'- or 'trajectory'-component, a 'gap' in the paradigm occurred. This gap was then filled by the 'next-best-tool', i.e. the motion verb *ech*

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99 The pre-verbal directionals in Mam do not encode trajectory but motion-cum-purpose.

100 Schuhmann Gálvez (1993: 447) names two complex verbs that also encode eastwards and westwards motion in San Miguel Acatán Akateko. They are composed of *bey* 'walk' + *el* 'leave' + the directional clitic *=toh* for eastwards motion and *bey* 'walk' + *el* 'leave' + the directional clitic *=toj* for westwards motion. The same constructions are also found in Soloma Akateko where the same forms are used to encode the direct opposite. Schuhmann Gálvez (1993: 447) hypothesizes that the dialectal semantic variation is due to the current of the river and the relative position of the two speaker settlements to it. More research is needed to determine the complementary distribution and function of the absolute frame of reference directionals in Chuj and Mam.

'pass' which implies motion away from an entity/point. A shift in semantics is palpable. Formerly a point oriented directional, it now carries a definite deictic component. This development is unregistered for any of the other Mayan languages or for any other Tzotzil variety for that matter. In Zinacantán Tzotzil, the transitive motion verb *jelav* 'pass by, reach sth.' subsequently served as the source for a directional encoding 'through, passing' (cf. Aissen 1987: 10). Overall, the semantics of the initial intransitive motion verb are oftentimes preserved and merely stripped of the 'motion'-component in the primary functions (cf. Principle of Persistence, Hopper 1991: 22).

Second, the number of directionals derived from intransitive motion verbs in each Mayan language varies, as does the number of intransitive motion verbs in a given Mayan language which lies between ten and twelve. The number of motion verbs derived directionals ranges from seven to eleven. Table 19 gives the number of intransitive motion verbs and the number of directionals derived from them for each individual language. In Tzeltal, Chol, and Mam, all intransitive motion verbs gave rise to corresponding directionals, whereas one or two directionals are 'missing' in Tzotzil, Akateko, Chuj, and Tojolabal. Three or four motion verbs have not grammaticalized into directionals in K'iche', Kaqchikel, Poqomchi, and Q'anjob'al.

Table 19: Intransitive motion verbs and directionals in Mayan languages.

	Number of intransitive motion verbs (cf. Gómez Cruz 2017: 490)	Number of directionals from intransitive motion verbs	Missing from directional paradigm
Q'anjob'al	12	8	*'uli* 'arrive here' *'apni* 'arrive there' *paxi* 'go and return' *meltsoj* 'go and return here'
Akateko	12	11	*meltsu* 'go and return here'
Chuj	12	11	*meltzaj/jax* 'go and return here'
Tojolabal	12	10	*pax* 'go and come back' *sutx* 'go and return here'
Tzeltal	11	11	n.a.
Tzotzil	12	11	*ay'* 'go and return'

	Number of intransitive motion verbs (cf. Gómez Cruz 2017: 490)	Number of directionals from intransitive motion verbs	Missing from directional paradigm
Chol	11	11	n.a.
Poqomchi'	10	7	*'ooj* 'go'
			k'uul 'arrive here'
			'iik 'pass by'
K'iche'	10	7	*peet* 'come'
			'el 'leave'
			'ik' 'pass by'
Mam	11	11	n.a.
Kaqchikel	10	8	*'ul* 'arrive here'
			ik 'pass by'
			b'ee 'go from here to there'

Between 67 % and 100 % of a language's motion verb inventory is recruited for the directional building process. In the right-hand column of Table 19, the intransitive motion verbs that did not serve as input for directionals are given for the individual languages. The descendants of Proto-Mayan *suht* 'go and return here', Oriental Mayan *paax* 'go and return', and Central Mayan *'ik* 'pass by' did not grammaticalize in four and three of the languages, respectively. All three motion verbs belong to the group of point oriented motion. The remaining motion verbs that did not grammaticalize are deictically anchored, apart from the enclosure or region oriented motion verb *'el* 'leave' in K'iche'. I cannot explain with any confidence why these respective motion verbs did not lend themselves to the grammaticalization process. However. I assume that type and token frequencies and their varying effects play a role here. Two hypothetical scenarios may be imagined.

In the first scenario, all intransitive motion verbs were initially recruited as directionals. They were understood as dependent intransitive verbs in a verbal complex indicated by the inflectional suffixes. Some directionals were only infrequently employed. The frequently used directionals went down the grammaticalization cline and underwent, to varying degrees, attrition, paradigmaticization, obligatorification, condensation, coalescence, and fixation. The items in the newly formed closed subclass of grammaticalized directionals exhibited specific features that were no longer shared with subordinate verbs in a verbal complex. Infrequent items thus did not undergo the same process and were not reanalyzed and understood as directionals in the relevant input constructions. This hypothetical development might pertain to the point oriented

motion verbs mentioned above. On the other hand, some highly frequent directionals went further down a particular grammaticalization path. In these abstract, more grammaticalized states, they assumed e.g. temporal functions devoid of any trajectory, physical motion, or change of location meaning. Zinacantán Tzotzil *batel* 'from time to time', which is still formally identical to the other directionals, has been desemanticized to a great extent.[101] As the grammaticalization process advances, it might, at some stage, be entirely 'excluded' from the paradigm of trajectory encoding directionals and acquire morphosyntactic properties characteristic of other aspectual markers. Similarly, it is argued for Q'anjob'al that "*apni* 'to arrive' and *ul* 'to come here and go back' [...] participate in a V1V2 construction as aspectual markers [...], not as directionals" (Mateo Toledo 2008: 113). This might also explain why categories other than motion verbs served as input for directionals to fill functional gaps, as in Poqomchi' where a Quichean distal demonstrative *(ru)je* is used to denote AWAY.

In a second scenario, only a few intransitive motion verbs gave initially rise to directionals. The class of directionals was then gradually extended to fit with the speakers' needs for the encoding of motion. For example, as briefly touched upon above, the class of directionals only consisted of six items in Colonial K'iche' (Dürr [1987] 2003: 96). In Contemporary K'iche', however, an additional directional based on the intransitive verb *uk* 'enter' and the dependent suffix *-oq* is used. It may thus be the case that new items were introduced into the system by analogy.

In sum, the variation in the total number of directionals in the individual Mayan languages is either due to the reduction of an initially large paradigm or the extension of an initially small paradigm. As I will argue in Section 9.4, I deem the latter to be more plausible.

The assumption that the different directionals are used with varying frequency in the individual languages is supported by counts on their occurrence in narrative texts in Popti' (Craig 1993) and Chuj (Buenrostro 1995 taken from Gómez Cruz 2017: 430). Popti' is not a language of this study's sample but the distribution of its directionals, their morphosyntactic properties, and their semantic development are comparable to those of the Kanjobalan sister languages Q'anjob'al and Akateko. Also, it is the only language apart from Chuj for which

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101 The conceptual motivation for the development is probably connected to the motion verb's usage of denoting 'going (around) in general' and not 'going away from the deictic center'. GO does not always entail a deictic reading (cf. Wilkins and Hill 1995). Therefore, deixis must not always be a motivating component. In the case of *batel*, it is not part of the conceptual motivation.

frequency counts on directionals are reported in the literature. In Table 20, the findings on Popti' and Chuj are given. In selected narrative texts, 35 % of predicates occur with directionals in Popti', while 45 % of predicates surface with directionals in Chuj.

Table 20: Frequency counts of directionals in Popti' and Chuj narrative texts.

	Popti' (Craig 1993: 24) 35 % of predicates with DIR	Chuj (Buenrostro 1995: 1ff.) 45 % of predicates with DIR
Group 1 (adverbial DIR)	44 (28 %)	35 (21 %)
Group 2 (trajectory DIR)	52 (33 %)	72 (44 %)
Group 3 (deictic DIR)	63 (39 %)	58 (35 %)
Total	159	165

As can also be deduced from Table 20, the directionals in narrative texts were further evaluated according to three groups: (1) adverbial directionals, (2) (non-deictic) trajectory directionals, and (3) deictic directionals. Adverbial directionals (Group 1) are least frequent in both Popti' and Chuj. Yet, while deictic directionals (Group 3) are most frequently used in Popti', trajectory directionals (Group 2) exhibit the highest occurrence frequency in Chuj.

The first edition of the *Materiales de Lenguas Mayas de Guatemala* (Yasugi 2003), which offers the same questionnaire-style collections of specific sentences and constructions as the *ALIM* series (594 in total), contains data on Mocho, Chortí, Popti', and Q'anjob'al. While Mocho and Chortí' do not have any directionals, Popti' and Q'anjob'al display 175 and 151 directional tokens, respectively. The *ALIM* series includes data on Akateko, Chuj, Huastec, and Yucatec Maya. The latter two languages do not have directionals, but the former two, Akateko and Chuj, boast a usage of 302 and 205 directionals, respectively, in the questionnaire data. Accepting a usage-based account to language with an emphasis on frequency, the variation in the inventory and phonological shape of directionals might, therefore, be explainable based on the varying usage frequencies. Of course, this claim requires further substantiation.

Third, one of the formal characteristics of directionals is their combination into chains or sequences. In Kaqchikel, K'iche', and Poqomchi', directional chaining is neither reported in the literature nor was I able to find any indication of the possibility in the data. Chaining of two directionals is found in Tzeltal, Chol, Tojolabal, and Mam. Three directionals are permitted in Akateko, Q'anjob'al, and Chuj. As mentioned earlier, Haviland (1991: 28) claims that it is

in principle possible to combine up to five directionals in Tzotzil. Nevertheless, four or five directionals in a chain are rarely encountered. The combinability of the directionals is subject to restrictions. Generally, the last slot of a directional chain is occupied by a deictically anchored directional irrespective of how many directionals in a sequence are allowed in a given language, the exception being Tzotzil where aspectual directionals appear last. If there are three potential slots in a chain, then the first position is taken by an adverbial directional, e.g. *kan* 'motionless[stay]' in Q'anjob'al and Akateko. In two-directional chains, this slot coincides with the non-deictic trajectory encoding directionals. The order of directionals in two- and three-element chains points to the compositional conceptualization of a motion event. The directionals encoding the overall trajectory of an entity are always encoded before a specification of the trajectory in relation to a deictic center is given, e.g. *e-tz* 'out towards deictic' vs. *ok-tz* 'in towards deictic center' in Mam. This ties in with the view that the semantically most general categories appear last. The question that remains to be answered is why there is variation in the number of directionals that are permitted in a chain. Speculatively, a higher number of directionals in a chain, where each directional subclass occupies a fixed slot, points to a higher degree of grammaticalization of the overall directional construction. In reverse that would entail that the directional constructions in the three Quichean languages of this sample exhibit a lower degree of grammaticalization compared to those found in the other Mayan languages with directionals. I do not believe this to be the case, but rather assume that directional chaining points to a higher productivity of the construction as a result of high type frequency.

Fourth, in terms of the boundedness parameter, the grammaticalization degree of the directionals among the Mayan languages also varies. The classification that I outline here must be taken with a grain of salt due to data limitations, especially with regard to Poqomchi' whose directionals might well be clitics rather than free morphemes. In any case, the directional sets can be situated along a bondedness continuum. Broadly speaking, directionals surface as free morphemes in the Cholan-Tzeltalan languages, Tojolabal, and Poqomchi' (5/11). They appear as bound morphemes in the Kanjobalan-Chujean languages, the two Core Quichean languages, and Mam (6/11). Mam directionals can confidently be classified as affixes, whereas the other members of the 'bound morpheme'-category have clitics. Branch-specific coding behaviors are evident.

Similar branch-specific trends can be detected for the distribution of inflectional suffixes on the directionals themselves. As shown in Table 21, the inflectional suffixes on the directionals only surface in phrase-final position in all Kanjobalan-Chujean languages and K'iche'. They are absent if the directionals are employed in phrase-initial and phrase-medial position. This suggests that the

originally dependent status marking elements *-oj/-oq* in the Kanjobalan languages and K'iche' as well as the initially intransitive status marking suffix *-i* in Chuj were reanalyzed as markers of a clause boundary. On the other hand, inflectional suffixes always occur in the Cholan-Tzeltalan languages and Poqomchi' irrespective of the directionals' clausal position. This suggests that the element is still understood as a non-finite status marking suffix in these Mayan languages.[102] In Mam and Kaqchikel, no suffixes are used. Either, which I deem more plausible in light of the diachronic development of the other directionals, the non-finite marking suffixes were lost, or they were never employed in the first place.[103] Thus, phonological erosion is syntactically conditioned for some of the Mayan directionals suggesting that the length of gram relative to its source is not only dependent on frequency and the degree of grammaticalization but also on syntax. Indeed, Mateo Toledo (2008: 56–59) asserts for Q'anjob'al that most status suffixes, e.g. *-i* on intransitives, and all infinitival suffixes, e.g. *-oq* on intransitives, are context-sensitive and absent on the verbal root in phrase-initial and phrase-medial position; they are thus a reliable diagnostic for determining intonational boundaries. The same can be argued for all Mayan languages where the directionals show variation.

Table 21: Distribution of inflectional suffixes on Mayan directionals.

	Phrase-final	**Not phrase-final**
Kanjobalan-Chujean		
Q'anjob'al	*-oq*	Ø
Akateko	*-oj*	Ø
Chuj	*-i*	Ø
Tojolabal	*-i/-e*	Ø
Cholan-Tzeltalan		
Tzeltal	*-el*	*-el*
Tzotzil	*-el*	*-el*
Chol	*-e(l)*	*-e(l)*

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102 In Poqomchi', *-oq* has fused with the verbal roots in a majority of cases to form directionals, e.g. *cho* 'towards' (*chal* 'come' + *-oq*).

103 Note that it is never the case that an inflectional suffix surfaces only with directionals in phrase-initial and phrase-medial position but not in phrase-final position.

	Phrase-final	Not phrase-final
Quichean-Mamean		
Poqomchi'	*-o(q)*	*-o(q)*
K'iche'	*-oq/-(i)k*	Ø
Mam	Ø	Ø
Kaqchikel	Ø	Ø

K'iche' serves as a case in point for an illustration of the diachronic development. In his work based on the book of council *Popol Vuh* which was first translated in 1701 but provides data on pre-Conquest K'iche' (cf. Campbell and Kaufman 1985: 196), Dürr ([1987] 2003: 96) states that out of six directionals, *uloc* 'to here, hither, towards here' is the only directional which has an allomorph *(u)la* used in phrase-initial or phrase-medial position. All remaining Colonial K'iche' directionals occurred in long forms irrespective of their clausal position. In Contemporary K'iche', all directionals feature long and short forms, the latter of which share the distribution found only for *uloc* in Colonial K'iche'. This asserts that the allomorphs of all directionals were created based on analogy. As soon as all elements in the directional paradigm featured the syntactically motivated allomorph, the inflectional suffix present in the long form was reanalyzed as a clause boundary marking element.

7.2.3 Mayan languages without directionals

Before offering some final remarks on the grammaticalization of motion verbs with a view to both McPCs and DIRCs, I comment on the languages that do not feature directionals. Yucatec Maya, Itzá, Tabasco Chontal, and Huastec did not develop directionals from motion verbs. I exemplarily describe the path encoding of Yucatec Maya as a representative for the entire group. The Yucatec Maya spatial system has been described under the notion of path neutrality; no path distinctions are made on the Ground. To put it differently, the form of Ground-denoting phrases

> [...] does not reflect whether the figure is located at the ground object, or moves towards or away from the ground object [...], or whether the ground object marks the source or goal of the figure's trajectory [...], or a route ground passed by on the figure's trajectory. (Bohnemeyer and Stolz 2006: 283)

Similar applies to Itzá[104], Huastec, and Tabasco Chontal[105]. Motion is therefore not encoded in Ground phrases but exclusively in the semantics of inactive intransitive (and transitive) verbs. No other path indicating elements are recruited. The path neutrality in Yucatec Maya is illustrated by the interrogative constructions enquiring about Place ('where'), Goal ('where to'), and Source ('where from') of a location or an action in examples (88a), (88b), and (88c), respectively.

(88)   Yucatec Maya
             [Stolz et al. 2012: 79 (a), 139 (c); Blair and Vermont-Salas 1965–67 in
                                         Bohnemeyer and Stolz 2006: 283 (b)]

a.   *¿tu'x*   ***yàan-Ø***   *a*   *papah?*
     where   **exist**-B3   A2   father
     'Where is your father?'

b.   *¿tu'x*   *k-a*   ***bin?***
     where   IPFV-A2   **go**
     'Where are you going?'

c.   *¿tu'x*   ***hóok'-Ø***   *a*   *tàatah?*
     where   **exit-**B3   A2   father
     'Where did your father leave from?'

In all three examples, the same interrogative pro-form *tu'x* is employed. Note, in particular, that no additional path marking morphology is used to encode the allative in example (89b) or the ablative in example (89c). The path of the motion is implied in the semantics of *bin* 'go' and *hòok'* 'leave'. An identical coding behavior may be observed for declarative constructions entailing deictic or anaphoric forms, place nouns, and prepositional phrases (Bohnemeyer and Stolz 2006: 284), see (89a)–(89c) for examples with prepositional phrases.

(89)   Yucatec Maya   [Bohnemeyer 2017: 339]

a.   *Le=kàaro=o'*   *ti'=**yàan**-Ø*   *ich*   *le=kàaha=o'*
     DEF=cart=DIST   PREP=**exist**-B3   in   DET=box=DIST
     'The [toy] car, it is in the box.'

b.   *Le=kàaro=o'*   *h-**òok**-Ø*   *ich*   *le=kàaha=o'*
     DEF=cart=DIST   PFV-**enter**-B3   in   DET=box=DIST
     'The [toy] car, it entered (lit. in) the box.'

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104 The two other Yucatecan languages Mopán Maya and Lacandon, not included in this study, behave the same.
105 Cholan sister language Chortí does not give evidence of grammaticalized motion verbs functioning as path encoders either, neither do the Yucatecan languages Mopán Maya and Lacandon.

c. *Le=kàaro=o'*   *h-**hóok'**-Ø*   *ich*   *le=kàaha=o'*
DEF=cart=DIST   PFV-**exit**-B3   in   DET=box=DIST
'The [toy] car, it exited (lit. in) the box.'

Moreover, a path reading may be overtly encoded by combing so-called inactive motion verbs marking the location change and so-called active motion verbs indicating the manner of motion (cf. Bohnemeyer and Stolz 2006: 295), as shown in examples (90a) and (90b).

(90)   Yucatec Maya   [Bohnemeyer 2017: 337]

a. *Le=ch'iich'=o'*   ***xíiknal**-il-Ø h-úuch-Ø uy=**èem-el**-Ø*
DEF=bird=DIST   **fly-**REL-B3   PFV-happen-B3 A3=**descend-INCOMPL**-B3
te=che'=o'
LOC.DEF=wood=DIST
'The bird, it FLEW down from the tree [lit. in a flying manner is how it descended from the tree].'

b. *Le=ch'iich'=o'*   *h-**èem**-Ø*   *u=**xíiknal***   *te=che'=o'*
DEF=bird=DIST   PFV-**descend**-B3   A3=**fly**   LOC.DEF=wood=DIST
'The bird, it flew down from the tree [lit. it descended from the tree flying].'

In (90a) and (90b), the inactive motion verb *em* 'descend' and the active motion verb *xíinal* 'fly' are featured. In example (90a), the relational suffix *-il* attaches to the active motion verb which is thereby adverbialized resulting in a special manner-focus construction (Bohnemeyer and Stolz 2006: 298). In the other construction given in example (90b), "the active motion verb is subordinate to the inactive motion verb in a gerundial construction which expresses simultaneity of the two (sub)events" (Bohnemeyer and Stolz 2006: 298). In both constructions, the inactive motion verb *em* 'descend' indicates the path of the overall motion carried out.

Bohnemeyer (2017: 338) again raises the question of whether Yucatec Maya can be classified as lacking directionals. He offers two constructions which closely resemble the directional structures found in the other Mayan languages, see examples (91a) and (91b). Two change-of-location verbs co-occur in one clause. The first one is the main verb (underlined). The second one is the subordinate verb (bold font) marked as such by the *-Vl* suffix which, in Yucatec Maya, predominantly encodes incompletive aspect on intransitive verbs but also produces gerund forms.

(91)   Yucatec Maya   [Bohnemeyer 2017: 339]

a. <u>*K-u=ka'=tàal*</u>   ***uy=èem-el=e'***
<u>IPFV-A3=ITER=come.INCOMPL</u>   **A3=descend-INCOMPL=TXT**

'It comes descending again [i.e. it descends towards the speaker or hearer].'

b. <u>*K-u=máan*</u>   **na'k-al**   *y=óok'ol le=mehen*
    <u>IPFV-A3=pass.INCOMPL</u>   **ascend-INCOMPL**   A3=top   DEF=small
    búut'un=o'
    hill=DIST
    'It passes ascending over the small hill.'

However, in contrast to the directionals' usage in other Mayan languages, dependent change-of-location verbs may not be combined with manner verbs. They are not attested in the data. Moreover, speakers discard the possibility and grammaticality of the combination during elicitation (Bohnemeyer 2017: 340). This points to a lack of a productive directional system in Yucatec Maya. The constructed sentence in (92) exemplifies the unattested and by speakers rejected combination.

(92)   Ungrammatical structure   [constructed]
       *<u>*K-u=xíiknal*</u>   **na'k-al**   *y=óok'ol   le=mehen   búut'un=o'*
       <u>IPFV-A3=fly.INCOMPL</u>   **ascend-INCOMPL**   A3=top   DEF=small   hill=DIST
       *'It flies ascending over the small hill.'

Based on the analysis, it must be argued that no grammaticalization has taken place – yet. The resulting question is: why not? I review the results on McPCs and DIRCs in the next section and consequently also offer some purely speculative ideas as to why the Yucatecan languages, Huastec, and Tabasco Chontal have not developed productive directional systems.

7.3 Auxiliaries and directionals: A comparison

First of all, the status and function of the motion verbs in the complex, initially biclausal structure determines the grammaticalized result. If the motion verbs appear in the clause matrix (V1), they grammaticalize into auxiliaries. But if they surface as the subordinated verbs in the embedded clause (V2), they grammaticalize into directionals. The former is characterized and advanced by increasing degrees of clause integration, while in the latter, the motion verb V2 is reanalyzed as a single unit. The Mamean languages are an exception to this general trend. The Mamean V1 motion verbs first grammaticalized into auxiliaries and were subsequently grammaticalized into directionals from them. In both cases, it is virtually the same set of motion verbs that serve as the sources, but as grammaticalization continues the set is generally narrowed down; possible single exceptions exist for directional system (cf. the discussion of K'iche' directionals in

Section 7.2.1.3). Auxiliaries and directionals both form a closed class of grammatical morphemes. They do not retain their motion verb counterpart's lexical characteristics, neither in form nor meaning. Auxiliaries (and affixes) have been found to either grammatically encode motion proper within the verb phrase or to express purpose and intention. The latter interpretation paves the way for more abstract functions in the realms of tense, aspect, mood, and discourse (cf. Sections 8.1. and 8.2), while the former pertains to the domain of associated motion. Directionals are employed to express trajectory or movement, aspectual, or adverbial meanings. The trajectory meanings may be regarded as primary from which the secondary aspectual and adverbial meanings are derived.

In contrast to directional constructions which come in one structural 'flavour' only, two types of motion-cum-purpose constructions through which the auxiliaries are grammaticalized can be distinguished in one and the same Mayan language: infinitival complements (type 4) and aspectless complement clauses (type 3; Mateo Toledo 2008: 522–525). Type 4 is typical of McPCs with an intransitive V2, whereas type 3 characterizes McPCs with a transitive V2. From the findings, it appears that the aspectless complement structures and with that the constructions where motion verbs co-occur with transitive V2s are the constructional source for a more grammaticalized version of the motion verbs. To exemplify, in Section 7.1.2.2, I briefly pointed to the asymmetry between constructions with transitive and intransitive V2s in the Yucatecan languages. The transitivity of the V2 affects the overall construction. As a lexical transitive verb, the V2 appears in the subjunctive. As a lexical intransitive verb, it takes an incompletive marker, historically traceable to a nominalizer, and a subordinator, which is still obligatorily employed in Itzá but came to be omitted in Modern Yucatec Maya. Crucially, the structural differences have implications for the grammaticalization history of the motion verb in V1 position itself, especially concerning the developments from Stage II to Stage III and IV, i.e. from a full lexical verb to an auxiliary. Comparing Stage III between the intransitive and transitive variants, there is no notable difference, the person marking is lost on the V1 in both cases. But, as we will see in Section 8.1.1 where I describe the future grams that developed from Yucatec Maya GO in detail, the lexical verb in V2 position always takes subjunctive marking. This suggests that GO as FUTURE grammaticalized through the transitive McPC channel and was extended to allow for intransitive verbs with the fully grammaticalized auxiliary.

As mentioned above, in contrast to most McPCs with a transitive V2, the intransitive equivalents almost always feature overt non-finite status markers characteristic of infinitival complement clauses. Table 22 juxtaposes the usage of non-finite marking morphology on intransitive V2s in McPCs and directionnals. The right-most column gives the functions of the suffixes in the individual languages.

Table 22: Non-finite suffixes on V2$_{INTR}$ in McPCs and directionals.

	V2$_{intr}$	Directionals	Functions
Kanjobalan-Chujean			
Q'anjob'al (cf. Mateo Toledo 2008: 57, 263)	*-oq*	*-oq*	– marks infinitival status on intransitives – potential marker in irrealis clause – indicates dependency
Akateko (cf. Gómez Cruz 2017: 447; Zavala Maldonado 1992a: 71)	*-oj*	*-oj*	– marks infinitival status on intransitives – potential marker in irrealis clause – indicates dependency
Chuj (cf. Gómez Cruz 2017: 447, 450; Buenrostro 2007: 253)	*-el* *-ok*	*-i*	– non-finite suffix on intransitives (*-el*) – marks intransitive status (*-i*) – non-finite suffix on affective intransitives – marker of irrealis mood
Tojolabal (cf. Gómez Cruz 2017: 31, 447)	*-el* *-(u)k*	*-i/-e*	– non-finite suffix on intransitives (*-el*) – marks intransitive status (*-i*) – marker of irrealis mood
Tzeltal-Cholan			
Tzeltal (cf. Polian 2017: 627, 641)	*-el* *-uk*	*-el*	– marks non-finite status on intransitives; produces deverbal nouns and infinitives – used as passive voice marker – marks intransitives in dependent clause; marker of subjunctive/irrealis mood
Tzotzil (cf. Polian 2017: 627, 641)	*-el* *-uk*	*-el*	– marks non-finite status on intransitives; produces deverbal nouns and infinitives – used as passive voice marker – marks intransitives in dependent clause; marker of subjunctive/irrealis mood
Tabasco Chontal (cf. Vinogradov 2017: 275, 277; Knowles 1984: 190)	*-e*	n.a.	– status marker indicating imperfective on intransitives – functions as nominalizer in some context of syntactic dependency
Chol (cf. Vázquez Álvarez 2011: 102, 165, 385, 396–403)	*-el*	*-e(l)*	– status marker indicating imperfective on intransitives – non-finite suffix
Quichean-Mamean			
Poqomchi' (cf. Brown 1979: 73, 127–128)	*-oq* *-i*	*-oq*	– marks imperative mood on intransitives – indicates the dependent status of intransitive V2s in McPCs – marks verbs in subordinate clauses which denote future events – marks verbal nouns; nominalizer

	V2$_{intr}$	Directionals	Functions
K'iche' (cf. Can Pixabaj 2015: 51, 242)	*-ik* *-oq*	*-ik* *-oq*	– status suffix on plain intransitive verbs – status suffix on dependent intransitive verbs
Mam (cf. England 1983: 123, 334)	-Ø *-(V)l*	-Ø	– dependent status of intransitives in McPCs – marks infinite status on both intransitives and intransitive
Kaqchikel (cf. García Matzar and Rodríguez Guaján 2001: 218, 190)	-Ø *- em*	-Ø	– dependent status of intransitives in McPCs – nominalizer
Yucatecan			
Yucatec Maya (cf. Hofling 2017: 710; Lehmann 2017: 185)	*-Vl*	n.a.	– status marker indicating incompletive on intransitives – dependent marker on incompletive intransitive, historically with nominalising function
Itzá (cf. Hofling 2000: 357; Hofling 2017: 710)	*-Vl*	n.a.	– status marker indicating incompletive on intransitives – dependent marker on incompletive intransitive, historically with nominalising function
Huastecan			
Huastec (Kondić 2012: 95)	*-Vl*	n.a.	– status marker indicating incompletive on intransitives

As indicated in Table 22, in nine of eleven Mayan languages that have directionals, the suffix on the directional is identical to or a phonologically eroded version of the non-finite suffixes found on intransitive V2s in McPCs. If two types of McPCs with differing structural properties are used, in which either of the two non-finite making suffixes occurs on the intransitive V2, two trends emerge. In the Chujean and Tzeltalan languages, the inflectional suffix featured in the construction that can diachronically be traced back to the infinitival complement structure prevails. Reflexes of Proto-Mayan *-*V:l* and *-*V:y* used as one of the strategies for nominalization are employed in this construction (cf. Robertson 1992: 91–93).

Conversely, in the Quichean-Mamean languages, the infinitival constructions prevail, where either dependent suffixes overtly code the subordination or dependent status is indicated through non-overt zero-marking. In reconstructed Proto-Mayan, there was a system of four status suffixes, which indicated transitivity and mood (cf. Kaufman and Norman 1984). In declarative/independent clauses *-*ik* was used with intransitives and *-*O* with transitives. In opta-

tive/dependent clauses *-oq* was used with intransitives and *-A'* with transitives (cf. Robertson 1992: 61). Note that K'iche' essentially maintains this pattern in modern usage. The other Mayan languages diverge from the system having lost some marking, i.e. the Tzeltalan languages did not keep the declarative/ independent but preserved the optative/dependent suffixes (cf. Polian 2017: 624), or altered, merged, or extended their functional domain. Interestingly, Robertson (1992: 62) argues that the declarative status morphemes *-ik* and *-O* already exhibit variation in Proto-Mayan in that they "only appear at the end of a breath group". It appears this variation was extended to the suffixes in optative/dependent clauses which manifests in the surface forms of the directionals in the Quichean and Kanjobalan languages (cf. Table 21).

To put it succinctly, the Proto-Mayan verbal morphology has taken on diverging developmental paths and serves different but related functions relevant to the motion-cum-purpose and directional domain in its descendants. This is mirrored in the variation that we find for the possible construction for McPCs and the emergence of directional systems, one historically linked to a nominalizing strategy and one related to the Proto-Mayan status suffixes. While structurally divergent, I posit the same conceptual motivation for the genesis of directionals.

In their source function, motion verbs are employed as prototypical intransitive verbs and used in slots open to full intransitive verbs, such as the V2 slot in an McPC. I, therefore, suggest that the development of all motion-cum-embedded constructions (McECs) preceded the genesis of directional constructions. The V2 marked as a non-finite verb was semantically reanalyzed as specifying the trajectory of the finite V1 in an McEC to derive the directional. Morphosyntactically parallel if not identical structures are frequently found in motion-cum-manner constructions (McMCs), compare the McMC in example (93a) and the McPC in example (93b) taken from Akateko. The two McECs are almost identical as far as their morphosyntactic properties are concerned. Yet, the McMC forms a more tightly bound unit; no other constituent may interrupt the sequence, otherwise, the utterance becomes ungrammatical. Further, the V1 and V2 serve to encode a single motion event, not two separate events. This is not the case for the Akateko McPC shown in example (93c) where the agent argument interrupts the sequence, and the V1 and V2 refer to separate actions. The two McECs belong to Stage II on the clause integration cline.

(93)   Akateko   [Zavala Maldonado 1993: 125; constructed; 127]
    a.   *ch-in-el=toj*   *hulul-oj* **an**
         INCOMPL-B1-leave=DIR:away[<go-IRR] run-IRR **CL1**
         'I go out running.'

b. **ch-in-el=toj*   ***an***   *hulul-oj*
INCOMPL-B1-leave=DIR:away[<go-IRR] **CL1**   run-IRR
**'I left running.'

c. *x-ø-'el=toj*   ***naj***   ***xhunik***   *b'ey-oj*
COMPL-B3-leave=DIR:away[<go-IRR] **CL**   **John**   walk-IRR
'John went out to walk.'

Indeed, I presume that an McMC enabled the creation of directionals. An intransitive motion verb in non-finite V2 position was reanalyzed as an encoder of the trajectory of the motion entailed in the semantics of the intransitive motion verb in the finite V1 slot, rather than serving as an encoder of the manner of the motion. Consider the constructed example (94). Probably, the 'motion'-component was bleached from an initial literal reading 'I go entering the house' leaving only the 'trajectory'-component encoded in the V2. This resulted in the reanalyzed reading 'I go into the house'. The class of possible verbs at the variable V1 slot in the newly formed directional construction was then extended to cover other types of verbs.

(94) Akateko   [constructed]
     x-in-b'et   ***ok-oj***   *nan an*
                     DIR:in-IRR
     COMPL-B1-go   **enter-IRR**   house CL
     'I go into the house.'

This might also explain why Yucatecan languages, Huastec, and Tabasco Chontal have not developed a directional construction. A host-class expansion did not take place a pointed out by Bohnemeyer (2017: 340) for Yucatec Maya, despite the availability of morphological material, namely dependent suffixes and a comparable input structure. In Yucatecan and Huastecan, the lack of directionals appears to be a branch-specific trait. Nevertheless, it has not been established in any literature on grammaticalization, as far as I am aware, that all languages grammaticalize at the same pace, even if they are genetically close. It may thus well be the case that at some point in the future fully-fledged directional systems may emerge in the synchronically directional-less Mayan languages. Indeed, Zavala Maldonado (2002: 181–183) contends that the variation within the Mayan family in relation to the emergence of a directional system suggests that the system is a relatively recent areal feature. Such a claim is substantiated by the observations made for the McPCs where the auxiliary constructions also exhibit varying degrees of clausal integration following intragenetic preferences, e.g. all Cholan-Tzeltalan languages show a preference for Stage III, whereas Yucatecan languages reside at Stage II. Relatedly, other

explanations apart from presupposing varying grammaticalization paces may be imagined. Considering the general functions of inflectional suffixes in the individual Mayan grammatical systems, it becomes apparent that in all languages that have directionals, the relevant suffixes either encode irrealis, non-finite status, or intransitivity. In Modern Huastec, Itzá, and Yucatec Maya, the *-Vl* status suffix serves to mark either incompletive or imperfective aspect on intransitive verbs. In Colonial Yucatec Maya, the suffix *-Vl* on intransitives, along with *-ik* on transitives, was used as a marker of dependent status with a nominalising function, as illustrated in example (95). In Modern Yucatec Maya, however, they both came to function as incompletive aspect markers (Lehmann 2017: 185), see example (96) for an illustration of *-Vl*.

(95)   Colonial Yucatec Maya
          [Coronel 1998a: 51; Beltrán de Santa Rosa 1746: §299, 132 in Lehmann
                                                                  2017: 184]

   a.   *in   k'áat-ih   a   ben-**el***
        A1   want-CFP   A2   go-**DEP**
        'I want you to go.'
   b.   *ethas-ak-ech   ti'=in   han-**el***
        just.in.time-PAST-B2   LOC=A1   eat-**DEP**
        'You arrived just in time (to meet me) at having my meal.'

(96)   Modern Yucatec Maya   [Lehmann 2017: 210]
       *le   kéen   ts'o'ok-ok=u   pa't-**al**=e' [...]*
       DEM   when.IPFV   finish-SBJV=A3   form.PASS-**INCOMPL**=ENC
       'When they have been formed, [...].'

The reanalysis of the inflectional suffix as an aspect marker presumably had consequences for the conceptualization of events encoded by the verbal complex. The separate indication of aspect on both verbal elements suggests that these are understood as two distinct although related events. By contrast, in all languages with directionals, the inflectional suffixes in their shared function as dependent status markers on the V2 allow for a conceptualization of the verbal complex as a single event. This, of course, is merely a tentative suggestion, but its possible validity would point to the importance of the constructional history of a gram. While this might constitute the main explanation for the Yucatecan languages and Huastec, the lack of directionals in Tabasco Chontal, whose Cholan sister language Chol has a fully fletched directional system, must have another underlying reason such as e.g. language contact or the lack thereof. One of the contact zones among the Mayan languages is situated in the Mayan lowlands and primarily comprises the Eastern Cholan and Yucatecan languages

(Law 2017: 166). The intense contact with the Yucatecan languages resulted in a number of shared characteristics between the two branches. The scope of contact between Tabasco Chontal and Yucatec Maya and the resultant diffusion is particularly striking. Indeed, "Chontal speakers in Tabasco believe that they speak a corrupt form of Yucatec Maya and do not feel that their langue is closely related to Chol" (Knowles 1984: 4–5). Inner-Mayan contact may thus have as strong an impact as universal tendencies and intragenetic affiliation on the parallel grammaticalization of motion verbs.

Overall, I have shown that there is variation among the Mayan auxiliary and directional constructions on both the formal and meaning level. Branch-specific behaviors and trends on a formal level are prominent and can be outlined transparently, emphasizing that grammaticalization follows not only universal but also intragenetically determined paths. As far as the meaning level is concerned, variation among the individual Mayan languages becomes more pronounced, especially regarding secondary functions of directionals. One of the reasons might be a meaning change in a contemporary Mayan intransitive motion verb in comparison to its Proto-Mayan source. To exemplify, the directional verb *uul* in Mam is cognate with *ul* in K'iche'. Both stem from Proto-Mayan *huul* 'arrive here'. The original meaning of 'arrive here' is preserved in Mam. Conversely, the directional verb's meaning is oftentimes changed to 'come' in K'iche'. The telicity component is lost in these contexts.

As far as the targets are concerned, although they sometimes slightly differ from language to language, a clear conceptual link can be established and some of the verb's semantics is usually preserved (Principle of Persistence). But this is not the whole story. It was demonstrated for the McPCs that despite all things being equal, i.e. the same constructional input and the same motion verbs in V1 position, the changes in meaning are not uniform. Different aspects of the source items in a given syntactic context can be highlighted. The motion component is emphasized in associated motion affixes in the Kanjobalan and Quichean languages, while intention, purpose, and futurity take center stage in other cases (cf. Section 8.1).

To conclude, I agree with Haviland (1993: 47) who states that the shifts in the semantics of motion verbs during the grammaticalization processes described in the course of this study "do not represent a dogged progression towards a TAM target, bleached of motion entirely. The highly schematized trajectories or paths encoded in AUX and DIR elements seem to be the target themselves". The developments pose a challenge to the traditional Metaphorical Extension Approach to grammaticalization whereby an abstract concept is mapped onto a concrete one. The intermediate stages, however, not only facili-

tate more abstract functions of the involved grams but are used as integral components in their own right in the grammar of space and motion. The identified variation among the Mayan languages regarding McPCs and DIRCs points to the vital roles of intragenetic affiliation, constructional history, and potentially contact in the generation of grams in addition to conceptual explanations. It was demonstrated in detail that "not only […] new constructions arise out of existing constructions, but also a further step is taken in that a lexical item within this construction takes on grammatical status" (Bybee 2010: 30).

8 A glance at the fate of the grammaticalized Mayan motion verbs: TAM, unusual targets, and language contact

This section offers a glance at the functional fate of the already grammaticalized Mayan motion verbs as outlined throughout Section 7. I discuss their development into TAM makers, focusing on FUTURE and INCEPTIVE (Section 8.1), and into unusual targets, briefly pointing to discourse-related functions (Section 8.2). I also comment on their fate and role in contact-induced grammaticalization (Section 8.3). Given the elaborate description of the grammaticalization of Mayan motion verbs into motion, purpose, and trajectory, I content myself with pinpointing only some of the variation observed in the aforementioned realms. An all-encompassing analysis considering the diachronic facts of the individual languages exceeds the scope of this study and has to be postponed to further research.

8.1 The grammaticalization of Mayan motion verbs into TAM markers

The grammaticalization of motion verbs into TAM markers has been widely observed cross-linguistically (cf. Bybee et al. 1994; Heine et al. 1991; Heine and Kuteva 2002). 38 gram types in total have been recognized as universal targets of motion verbs in the WLG (Heine and Kuteva 2002)[106], fifteen of which roughly belong to the TAM domain. Generally, it is accepted that these abstract, grammatical functions are a continuation of the motion verbs' initial lexical meaning. Among the Mayan languages, I found evidence of approximately ten TAM grammaticalization paths. The targets include COMPLETIVE, FUTURE and POTENTIAL, HORTATIVE, IMPERATIVE, INCHOATIVE and INCEPTIVE, INCOMPLETIVE, PROGRESSIVE/CONTINUOUS, and REPETITIVE. Some of these are not listed as targets of the individual motion verbs in the WLG, e.g. REPETITIVE is only listed for RETURN but not for PASS or DESCEND as found for Q'anjob'al directionals (cf. Table 24 in Section 8.1.2).

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106 The second and revised version (Kuteva et al. 2020: 463–475) lists 45 gram types as targets of motion verbs. This shows that we have by no means exhaustively described the possible grammaticalization paths in the world's language but are constantly adding new findings.

In the following, I exemplarily examine FUTURE and INCEPTIVE. Where feasible, I also point to other (lexical) resources that have been recruited for the development of the same gram type.

8.1.1 FUTURE (and related categories)

Motion verbs grammaticalize into future tense markers. The path is attested in many of the world's languages (cf. Heine and Kuteva 2002; Bybee and Pagliuca 1987; Bybee et al. 1994). It can also be detected for nine of the fifteen Mayan sample languages. Generally, FUTURE has been found to develop from auxiliary constructions denoting 'desire', 'obligation', or 'movement towards a goal' (Ultan 1978; Bybee and Pagliuca 1987).[107] The latter, movement towards a goal, is encoded in the Mayan McPCs described in Section 7.1 and serves as the constructional basis for the development of FUTURE, but I also found evidence of directionals serving a comparable function in Tzeltal and Q'anjob'al. The purposive meaning entailed in the McPCs is characteristic of the early stage of the grammaticalization path. At this stage, there is ambiguity as to the meaning of the motion verb (bridging context; Heine 2002). It is either used to indicate physical motion toward a goal, purposeful motion where an action is a goal, or that an action will be carried out in the future without requiring a preceding motion event. This ambiguity is vital to the generation of new meanings and appears to occur especially with general motion verbs such as GO. Apart from GO, which is the most frequently recruited source for the gram type in Mayan, ENTER might have served as source item in Mam. The latter motion verb has not been recognized as a potential input lexeme for FUTURE in the WLG (Heine and Kuteva 2002).

The FUTURE gram type encompasses "any prediction[s] on the part of the speaker that the situation in the proposition, which refers to an event taking place after the moment of speech, will hold" (Bybee et al. 1994: 244). There may be differences between individual future grams even within a language. For instance, Yucatec Maya derived both an immediate and a predictive future from GO but based on two diverging McPCs, namely the aspectless and infinitival complement structures. Among the Mayan languages, these fine-grained func-

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107 Bybee et al. (1994: 244) refer to futures where verbs of motion, obligation, desire, and ability as well as temporal adverbs are involved as 'primary futures'. Secondary futures, by contrast, are derived from other tense or aspect markers as 'aspectual futures'. These are also touched upon in this study but are not the primary focus.

tional specializations are only encountered in the Yucatecan and Huastecan languages. This is unsurprising as Mayan languages predominately rely on aspect rather than tense. However, note that already in the Early Classic Mayan Hieroglyphic Inscriptions around AD 200–600, "the most important grammatical feature first attested near the end of the Early Classic is the future suffix *-oom*" (Law 2006: 82). This determinative future marker was predominately used in contexts denoting the inevitability of a future event, i.e. in calendric contexts. It marks that something 'must happen', not 'might or will happen', see example (97) for an illustration.

(97)　　Early Classic Mayan　　　　　　　　　　[Law and Stuart 2017: 168]

*uht-**oo(m)**-Ø*　　*chan Ajaw*　*uxlajuun*　*Yaxsihoom*　　*tzu<h>tz-(a)j-**oom**-Ø*
happen-**FUT**-B3 four Ajaw　thirteen　Yax(Month)　finish-**PASS**-**FUT**-B3
u-ho'lajuun　　　　*winikhaab'*
A3-fifteen　　　　　k'atun
'4 Ajaw 13 Yax shall happen, the 15th K'atun shall be finished.'

In some Late Classic Mayan texts, the suffix is also used as an agentive nominalizer (Law 2006: 82). None of the closely related descendants of Late Classic Mayan, such as Classical Cholti, feature the suffix. Yet, a similar functional distribution can be found for the suffix *-el* and the verbal complex preceding particle *a* in Classical Cholti. The other future indicating elements found in Classical Cholti, i.e. *x-*(or *ch-*) which form part of the incompletive paradigm of the Cholan languages, are unattested in the inscriptions (Robertson 1992). According to Law (2006: 84), it is not surprising "that the only type of future expressions that would be memorialized in stone are the determinative type". In Proto-Mayan, future reference could also be made by combing the incompletive with the optative (Robertson 1992: 68–70). There are several remnants or reflexes of these future marking devices that have survived in Mayan.

　　Yet, in some contemporary Mayan languages, innovative constructions with an invariable grammaticalized motion verb are used to encode FUTURE. Most of these depart from the McPCs and DIRCs outlined in Section 7. In the majority of

cases, Stage III McPCs based on aspectless complement structures serve as the structural input. Here, the motion verb auxiliary is devoid of any person marking. There are slight functional differences between the individual grams irrespective of their structural near-identity. I review each of the five subfamilies in turn.

8.1.1.1 Cholan-Tzeltalan

Out of the four Cholan-Tzeltalan languages in this study's sample, two have grammaticalized GO into a marker of the future tense, namely Tzotzil and Tabasco Chontal. While Chol uses a similar periphrastic cum-purpose construction to encode prospective future, the V1 slot is occupied by BEGIN, see examples (98a)–(98d). The constructional point of departure is given in example (98a). Here, *kej-* 'begin' functions as the principal verb and indicates the prospective action. It carries the status suffix for intransitive verbs in the imperfective. The aspectual verb is followed by the subordinator *tyi* and an intransitive V2 marked for intransitive imperfective status by *-el*, which doubles as a non-finite status marker.

(98)   Chol   [Vázquez Álvarez 2002: 113 (a), 115 (b, d), 116 (c)]
　　　a.　*a-**kej**-el*　　　　*tyi*　　*uch'-el*
　　　　　A2-**begin**-INTR.IPFV　　SUB　　eat-NF
　　　　　'You are going to eat.'
　　　b.　***keje***　　　　　*k-wäy-el*
　　　　　PROSP.FUT　　　A1-sleep-NF
　　　　　'I am going to sleep.'
　　　c.　***keje**-oñ*　　　*tyi*　　*wäy-el*
　　　　　PROSP.FUT-B1　　SUB　　sleep-NF
　　　　　*'I am going to sleep.'
　　　d.　***keje***　　　　　*a-mek'-oñ*
　　　　　PROSP.FUT　　　A2-hug-B1
　　　　　'You are going to hug me.'

In example (98b), BEGIN functions as a genuine future auxiliary. It is devoid of any inflection. It appears that is has fused with the status suffix into a unit, *keje (<kej-el)*. The intransitive V2 takes the person marking as well as the obligatory status marking. It is ungrammatical to attach the SA marker to the auxiliary, as shown in example (98c). In a construction where the V2 is transitive, both the AG and the P attach to the V2. No status suffix is required in this case, see example (98d). The same periphrastic aspectual constructions are used for INCEPTIVE, which is marked by yet another BEGIN/LIFT auxiliary *tyech,* and TERMINATIVE, which is indicated by a

FINISH auxiliary *ujtyi* (cf. Vázquez Álvarez 2002: 117, 119–120). The structural templates for FUTURE[108] in Chol can be represented as follows:

Intransitive: [A-V1 + SUB + V2-NF → V1 + A-V2-NF]
Transitive: [V1 + A-V2-B]

Moving on to Tzotzil and Tabasco Chontal, a motion verb grammaticalized into a future marking auxiliary in these two Cholan-Tzeltalan languages through the same structural channel as BEGIN in Chol. In its function as a future marking device, GO expresses displacement in relation to the time-axis, not the space-axis. The GO element in the McPCs underwent semantic reanalysis and desemanticization. It was transferred from the domain of space to that of time. The transition is gradual with various semantically ambiguous intermediate stages (compare example [8a]–[8d] in Section 3.4.1 on Yucatec Maya). In Tzotzil, the FUTURE construction is modeled on a Stage III McPC. In the construction, the deictic motion verb *ba(t)* conveys a clear future meaning if it occurs in the incompletive aspect. This becomes especially evident in example (99a) where the auxiliary *ba(t)* in V1 position co-occurs with *tal* 'come' in V2 position. Given that the meaning of the two motion verbs is mutually exclusive, i.e. motion away from the deictic center vs. motion towards the deictic center, the only feasible interpretation of GO is temporal. The V2 is inflected for subjunctive status.

(99)   Tzotzil   [Haviland 1993: 46; 1991: 16, 17]
    a. *j-tak* *ta* *k'anele,* *yu'un* **ch-ba** *tal-uk*
       A1-send PREP wanting because **INCOMPL-go** come-SBJV.A3
       '(However much [liquor]) I send for, it's going to come.'
    b. *mi* *laje* **ch-ba** *k-ak'-be-Ø* *'antun*
       Q finish **INCOMPL-go** A1-give-BEN-B3 Anthony
       'When you've finished, I am going to give (it) to Anthony.'
    c. **Ø-ba** *s-ten-el* *ti* *bu-tik* *'a* *s-ten-el-e*
       COMPL-go A3-throw-NF CONJ where-PL been.AUX A3-throw-NF-ENC
       'They went to throw him wherever they threw him, [but he didn't die].'

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108 Note that Coon (2017: 667) argues that "like some of the other languages of the Mayan family, for example Popti' (Craig 1977) and Mam (England 1983), Ch'ol does not have dedicated grammaticalized tense morphology. Instead, temporal notions like past and future are marked via adverbs like *wahali* 'back then', *abi* 'yesterday' and *ihk'äl* 'tomorrow'". While these elements surely contribute to the encoding of FUTURE as well, I have demonstrated that there is emerging FUTURE morphology.

In example (99b), the V2 is transitive. Both the AG and the P are indexed on the V2. No additional inflectional marking is required. While structurally similar, a future reading is not induced in example (99c). This is due to the completive status of GO. Overall, Haviland (1993: 46) asserts that "*bat* stands at a rather standard point along the path from motion verb to tense/aspect marker". Given that FUTURE is only encoded if the incompletive marker *ch-* is attached to *bat* in the construction, I would propose that it is the complex form *chba* that stands at the starting point of the grammaticalization path. The resulting structural templates are identical to those described for Chol. Yet, instead of BEGIN, GO stands in AUX-position and additionally carries incompletive aspect marking.

For Tzeltal, a different picture emerges. According to Brown (2012: 5), "there is no grammaticized tense in Tzeltal, with adverbs one can discriminate a sequence of deictically anchored periods on a highly differentiated one-dimensional timeline". There are several ways to encode temporal reference in Tzeltal. The default ways to express future are either to use the second position enclitic *to* 'yet, still, until' or to give "a pre-or post-limit to an event or state" (Brown 2012: 4). It is also feasible to use time words and the two deictically anchored directionals *tal* 'coming (towards the speaker)' (100a) and *bel* 'going (away from the speaker)' (100b) grammaticalized from the respective motion verbs in DIRCs for the temporal framing of an event.

(100)   Tzeltal   [Brown 2012: 5]
    a.   *la*   *j-pas-tik=ix*   *ja'* *i*   *xemona* Ø   *k'ax-Ø*
         COMPL   A1-do-1PL=EVI   ASS DEIC week   COMPL   pass-B3
         tal   *i*
         DIR:towards[<come]   DEIC
         'We finished doing it (during) this week that's passed by coming (i.e. the week just before the one we are in now, reckoning from the past toward us in the direction of now).'
    b.   *s-k'an*   *to*   ***bel***   *wakeb*   *u*   *te*
         A3-want   still   **DIR:away[<go]**   seven   month   DET
         k'epelaltik=e
         dry.season=CFP
         'It's still six months till the dry season (reckoning awaywards from here/now – *bel* – into the future).'

The deictic directionals *tal/bel* are associated with the relative frame of reference which is "symmetric in past and future. [...] in [100a] the past event is in a week whose passing is construed as approaching 'now', and in [100b] the future months are construed as awaywards from 'now'" (Brown 2012: 6). There are very

few examples where one could interpret GO in an McPC as a marker of futurity, such as example (101a). The structure is almost identical to that found for Tzotzil (cf. [99a] and [99b]). However, in contrast to Tzotzil, an additional aspectual marker *ya* precedes the verbal complex, although the verbal nucleus is already marked for incompletive aspect by *x-*.

(101)   Tzeltal
         [Brown 2006: 251 (a); Robertson 1977: 110 in Gómez Cruz 2017: 12 (b, c)]

   a.   *ya*   ***x-ba***   *k-il-Ø*   *k-ala*   *wakax*
         INCOMPL   **INCOMPL-go**   A1-see-B3   A1-DIM   bull
         'I am going to see my bull.'

   b.   *tal*   *way-**k**-on*
         come   sleep-**SBJV**-B1
         'He came to sleep.'

   c.   *tal*   *way-**an***
         come   sleep-**SBJV.2SG**
         'You came to sleep.'

Structurally and semantically, a future reading of the sentence displayed in example (101a) suggests itself. Nonetheless, even in the recent comprehensive grammatical description of Tzeltal Oxchuc (Polian 2013a), the function of GO or any other motion verb as a genuine future auxiliary is not reported. Elsewhere, a subjunctive suffix *-(u)k* on the V2 is used to indirectly code future tense (101b). If the irrealis mood is used with the second-person, the imperative marker *-an* is employed instead (101c). This presents an innovation in the Tzeltalan branch.

   In Tabasco Chontal, the McPC also initiated the grammaticalization of GO. In contrast to Tzotzil, the future auxiliary in the imperfective aspect is still preceded by a person marker. The person marking is repeated before the transitive V2, see example (102a). This means that the two verbal elements are not a monoclausal unit at this point. The transitive V2 functions as a syntactically independent unit. Both the AG and the P, as well as aspect, are marked separately. In example (102b), the V2 is intransitive. While the V2 still carries aspect marking, the SA is indicated on the motion verb V1. Additionally, a subordinating element *tä* 'to' precedes the V2. As found in some of the data, GO has grammaticalized even further, which is shown in example (102c). Here, the auxiliary is devoid of any person marking, always precedes the V2, and is only compatible with incompletive marking on the V2. The construction is at Stage III on the clausal integration continuum. Accordingly, one could argue that the formerly morphologically complex structure has been reanalyzed as a single unit marking future tense.

(102)   Tabasco Chontal   [Knowles 1984: 355, 354; Vinogradov 2018: 275]
    a.   ***'a=h-e***   *'a=k'uš-e'-Ø*
          A2=go-IPFV[109]   A2=eat-**IPFV**-B3
          'You are going to eat it.'
    b.   ***'a=h-e***   *tä*   *wan-e*
          A2=go-IPFV   SUB   jump-**IPFV**
          'You are going to jump.'
    c.   ***xe***   *kä=käch-e'-Ø*   *aw=ok*
          FUT[<go-IPFV]   A1=tie-**IPFV**-B3   A2=foot
          'I will tie your feet.'

Indeed, in his comparison of Classical and Modern Chontal, Viorel (1978: 114–115) declares that the grammaticalized usage of GO in an McPC as a marker of future tense has replaced the usage of the future suffix *-bel* on transitive verbs which was found in Classical Chontal. In an analogous cum-purpose construction, the general action verb DO also grammaticalized into FUTURE (cf. Vinogradov 2018: 273). The DO auxiliary is used to denote proximate (undesirable) future, see example (103). The V1 *ch-* 'do' also occurs with the person markers required for ordinary transitive verbs and is inflected for incomplete aspect. If the V2 is intransitive, it is preceded by the subordinator *tä*.

(103)   Tabasco Chontal   [Vinogradov 2018: 274]
     a=bon   *tul-es-i-Ø*   *ni*   *a=chim*   ***u=ch-en-Ø***
     A2=very   fill-CAUS-PFV-B3   DEF   A2=net   **A3=do-IPFV-B3**
     u=ch'äktuk'-än   *u=ba*
     A3=burst-NMLZ   A3=RN.REFL
     'You filled your net too much; it is just about to burst.'

Although both auxiliary verbs carry a futurity component, the construction with GO is more frequent, more general in meaning, and used in various future contexts (Vinogradov 2018: 275). What is more, another auxiliary particle *dal(i)* derived from the temporal adverb 'now' is employed to denote proximate future tense. It precedes the verbal complex and requires incomplete status to be marked on the verb, see example (104).

(104)   Tabasco Chontal   [Osorio May 2005: 96]
     dal   *kä=kij-e*
     FUT.PROXI[<now]   A1=remain-**IPFV**
     'I will remain.'

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109 Vinogradov (2018) uses the gloss 'incompletive' and 'completive'. I follow Knowles (1984) in glossing the respective morphemes as 'imperfective' and 'perfective'.

The GO auxiliary, therefore, forms part of a larger functional paradigm encoding future tense. It is only one of the options to express FUTURE in Tabasco Chontal, but it is probably the most general or semantically least specific one. Nevertheless, all auxiliary verbs and particles discussed above are optional in the Cholan language. By contrast, in the other Mayan Lowland languages, i.e. the Yucatecan languages, the grammaticalized markers form part of an obligatory paradigm. Hence, they belong to the 'grammatical core' as put by Vinogradov (2018). The grammaticalized usages of lexemes in Tabasco Chontal must be regarded as belonging to the 'grammatical periphery' because "[their] only function [...] is in disambiguating the broad semantics of the tense/aspect/mood suffixes they trigger" (Vinogradov 2018: 273). Therefore, I now proceed to the Yucatecan languages to provide a direct comparison of grammaticalized motion verbs for TAM purposes at the grammatical periphery and the grammatical core.

8.1.1.2 Yucatecan

All Yucatecan languages grammaticalized GO into FUTURE. GO is the only motion verb in a Yucatecan McPC that has acquired full grammatical status. It is also the only motion verb that occurs in a Stage III (with aspectual marking) and Stage IV (without aspectual marking) McPC. All other motion verbs only surface in Stage I or Stage II McPCs, i.e. they are always preceded by a person affix. The grammaticalization of GO into a predictive future gram, based on the Stage III McPC with aspectless complements, and a marker of immediate future, based on a focused progressive construction, has been described for Yucatec Maya (Lehmann 2017: 214–227). The intricacies of the Yucatec Mayan McPC were already outlined in Section 7.1. The motion verbs filling the V1 slot "become irregular in their conjugation on their way to Modern Yucatec Maya. Specifically, they lose the -*Vl* suffix which marks their nominalization and would be expected in their incompletive status" (Lehmann 2017: 214). Moreover, *ben* 'go' found in Colonial and Classic Yucatecan becomes *bin* in Modern Yucatec Maya (Bricker 2018: 123), while it changes to *bel* in all other Yucatecan languages (cf. Hofling 2017: 709 on Itzá). The grammaticalized variant of GO marking predictive future can already be found in Colonial Yucatec Maya (cf. "futuro" in Coronel 1998a; "partícula de futuro" in Beltrán de Santa Rosa 1746: 128). In the grammaticalized future McPCs, the V2 appears in the subjunctive mood. The V1 slot only features the motion verb root without any person or aspect marking. As observed for the other Yucatecan auxiliaries, such as the progressive auxiliary *táan* derived from the relational noun *tan* 'front, middle', *bin* 'go' as an auxiliary was also subjected to an idiosyncratic phonological change whereby [i] is

lengthened and receives high tone (Lehmann 2017: 216). The usage of *bíin* in Modern Yucatec Maya is illustrated in example (105), which features both an intransitive and a transitive V2. The construction stems from the aspectless complement structure where the V2 is marked by a subjunctive morpheme, *-nak* with the intransitive and *-eh* with the transitive subordinate verbs, rather than an infinitival morpheme of the shape *-Vl*.

(105)   Modern Yucatec Maya   [Lehmann 2017: 216]

bíin	*suu-nak-Ø*	*yéetel*	***bíin**=in*	*wil-eh-Ø*
PRED.FUT[<**go**]	return-SBJV-B3	and	PRED.FUT[<**go**]=A1	see-SBJV-B3

'He will come back, and I will see him.'

Considering the development in the context of the six parameters of grammaticalization, the construction can be placed towards the intermediate or more grammaticalized end of the continuum. *Integrity:* The future auxiliary has been stripped of its 'motion'-component (desemanticization) and underwent phonological changes. It appears as monomorphemic. But, contrary to the proposed tendency towards phonological attrition, *bin* receives vowel lengthening and high tone. *Paradigmaticity: Bíin* enters the class of auxiliary elements that are featured in similar constructions by analogy. This becomes especially apparent through the idiosyncratic phonological change observed for all auxiliaries in Yucatec Maya. The motion auxiliary is no longer associated with the loose semantic field of motion verbs but with the tightly integrated auxiliary paradigm. *Paradigmatic variability:* The predictive future becomes part of the larger FUTURE paradigm in Yucatec Maya along with (i) the debitive future, which is the result of the grammaticalization of the existential verb *yaan* 'be', (ii) the immediate future, which is based on the focused progressive construction with *bin* 'go' and *ka'h* 'do', and (iii) the assurative future, which features a grammaticalized version of the demonstrative *he'el ...-e'* 'indeed, surely'. Out of the four, *bíin* as a predictive future gram is the most neutral and objective. Its impersonal character promotes its high occurrence frequency. It stands in direct contrast to the personal, subjective anchoring of the other futures which are in turn less frequently employed. *Scope:* The construction shows clear signs of condensation. Formerly part of a construction denoting two single events, i.e. a motion and a purpose event, GO now serves to modify a single clause designating a single event. *Bondedness:* The degree of coalescence is rather low for *bíin*. Focus constituents may precede the auxiliary (cf. Lehmann 2017: 217). Although already found in Colonial Yucatec Maya, the element still stands in clitic placement in Modern Yucatec Maya some 400 years later, i.e. *bíin* has not grammaticalized further into an affix. Also, the V1V2 sequence may be interrupted by a particle, such as the interrogative particle *wáah* in example (106).

(106) Modern Yucatec Maya   [Lehmann 2017: 217]

bíin	*wáah*	*p'áak-ak-en*	*hun-p'éel*	*k'íin*
PRED.FUT[<go]	Q	stay-SBJV-B1	one-CL.INAN	sun/day

he'bix-ech=a'
ever.how-B2=PROX
'Will I become like you one day?'

Syntagmatic variability: The gram occupies a fixed auxiliary slot in the construction. It occurs in an initial position and always precedes the verbal nucleus. All in all, the Yucatec Mayan predictive future auxiliary is "monomorphemic, impersonal and occupies the clause-initial position. In its grammaticalization, the motion-cum-purpose construction is forced into the Procrustean bed of the verbal clause expanded by an initial position, which is the template for the auxiliary construction" (Lehmann 2017: 2018). Interestingly, *bíin* does not serve to indicate immediate but predictive future tense, as is the case for the majority of future grams based on McPCs in the world's languages and as is also found for Huastec. The immediate function is derived by yet another process.

As mentioned above, the Yucatec Maya immediate future tense is based on a focused progressive construction whose development involved two phases. In the first phase, a verb focus construction brings about a focused progressive structure. The second phase entails the insertion of GO into the focused progressive resulting in the immediate future construction. For a detailed discussion of the process, the reader is referred to Lehmann (2017: 218–229). I only explore some of the changes relevant to the grammaticalization of GO. Placing the lexical verb in a focus position in verb-initial languages requires additional material to occupy or fill the lexical verb slot. The auxiliary *ka'h* 'do' is used for that purpose in the focused progressive construction. Indeed, the verb is rarely featured as a genuine lexical verb in simple transitive clauses meaning 'do' or 'make'. It almost exclusively occurs in the focused progressive. The focused progressive construction takes the shape: [V-ASP-PERS + *ka'h* (+ NP/PP)]. Examples (107a) and (107b) illustrate the construction in Colonial Yucatec Maya with an intransitive and a transitive lexical verb, respectively. The construction with intransitive lexical verbs is unproblematic "as their only actant is identical with the subject of *ka'h a*nd may thus safely be suppressed by the nominalization" (Lehmann 2017: 220). However, in order to accommodate a transitive lexical verb in the construction, the verb needs to be detransitivized through, for instance, an introvertive *-ah*. Further, the patient argument is demoted to a prepositional phrase introduced by *ti'*.

(107)   Colonial Yucatec Maya
                    [Coronel 1998a: 71; 1998b: 72 in Lehmann 2017: 219, 220]
   a.   *han-al=u*   **ka'h**
         eat-INCOMPL=A3   **do**
         'He is eating.'
   b.   *kambes-ah=in*   **ka'h**   *ti'*   *paal-alo'b*
         teach-INTROV.INCOMPL=A1   **do**   LOC   child-PL
         'I am teaching the children.'

In fact, in colonial texts, the focused progressive is more frequently found than the simpler progressive featuring *táan*. The focused progressive construction is neither found in Modern Yucatec Maya nor did *ka'h* grammaticalize into a progressive aspect marker (Lehman 2017: 222). Still, the merger of the focused progressive and the McPC survived in Modern Yucatec Maya and gave rise to an immediate future tense. In Colonial Yucatec Maya, both deictic motion verbs *tal(el)* 'come' and *ben(el)/bin(el)* 'go' are featured in a Stage II focused-verb-McPC. Both verbs induce a futurity reading, compare examples (108a) and (108b). The optionality of the incompletive suffix on the motion verb is indicated by the parentheses. The template for the construction is of the form: [V1(-ASP)=PERS + *ka'h*=PERS + V2-ASP=PERS (+NP)].

(108)   Colonial Yucatec Maya
         [Coronel 1998a: 69; de San Buenaventura 1684: 9 in Lehmann 2017: 223]
   a.   **tal-(el)**=u   **ka'h**=in   *bo't-ik=in*   *p'aax*
         come-(INCOMPL)=A3   **do**=A1   pay-INCOMPL-A1   debt
         'I would like to pay my debt.'
   b.   **bin-el**=in   **ka'h**=in   *kan-bes*   *paal-alo'b*
         go-INCOMPL=A1   **do**=A1   learn-CAUS.SBJV   child-PL
         'I am going to teach the children.'

The example sentences above illustrate the phenomenon that I call intraconstructional competition (cf. Section 3.1). In Modern Yucatec Maya, through the reduction of the paradigm, *bin* prevails as the only element permitted in a focused McPC. It won the intraconstructional competition. I presume that this is due to a higher type frequency as compared to constructions with *tal* 'come'. Moreover, the incompletive marker on the motion auxiliary is lost entirely in the modern immediate future construction, as hinted at by its optionality in example (108a). Also, the preposition *ti'* which was formerly obligatorily employed with intransitive V2s is omitted in Modern Yucatec Maya (109a). The V2 slot, now occupied by the full verb, is not required to be filled by an agentive verb but is open to the entire class of verbs. Furthermore, in contrast to *bíin* of the

predictive future, no clitic may interrupt the complex auxiliary *bin … ka'h*. This is shown in example (109c). Here, the interrogative marker *wáah* is placed after the discontinuous auxiliary.

(109)   Modern Yucatec Maya   [Lehmann 2017: 224 (a, c); 223 (b)]
  a.   **bin**=*in*   **ka'h**   *kíim-il*
        IMM.FUT[**<go>**]=A1   **do**   die-INCOMPL
        'I am going to die.'
  b.   **bin**=*in*   **ka'h**=*in*   *xíimba-t*   *yuum*   *ahaw*
        IMM.FUT[**<go>**]=A1   **do**=A1   walk-TR.SBJV   master/father   chief
        'I am going to visit the chief.'
  c.   *behe'la'*=*e'*   **bin**=*in*   **ka'h**   *wáah*   *túun*=*in*   *kíins-ech?*
        today=TXT   IMM.FUT[**<go>**]=A1   **do**   INT   then=A1   kill-B2
        'And now I shall kill you?'

From this, it follows that the initially complex structure has been reanalyzed as a structural unit with internal inflection. The auxiliary triggers different status markings on the full verb conditioned by the transitivity of the latter. If the full verb is transitive, subjunctive marking is required, in accordance with the pattern observed in the McPC (109b). If, however, the full verb is intransitive, the incompletive aspect must be employed. Lehmann (2017: 224) argues that the "intransitive morphology reflects the verb-focus construction". I propose an alternative account. As shown in Section 7.1, in a Yucatec Mayan McPC with an intransitive V2, incompletive marking, not subjunctive marking, is required. The status marking was initially required by the preposition *ti'* but lost on the way to Modern Yucatec Maya. Accordingly, while the feature of transitivity indeed conditions the status marking, the status split might not be a result of the "blending of two different constructions" (Lehmann 2017: 224) but a continuation of the already observable split in the McPCs.

What is more, the full form of the discontinuous auxiliary is rarely employed in colloquial Modern Yucatec Maya. Briceño Chel (1998: 82, 2000: 88f, 2006) lists *nika'h, naka'h,* and *nuka'h* as fused variants of *bin in ka'h* 'I am going to V', *bin a ka'h* 'You are going to V', and *bin u ka'h* 'He is going to V', respectively. Example (110) serves as an illustration.

(110)   Colloquial Modern Yucatec Maya
                            [Briceño Chel 2000: 99 in Lehmann 2017: 225]
        Ni-k=*in*   *hant*   *bak'*
        IMM.FUT[**<go>**].**A1-do**=A1   eat.TR.SBJV   meat
        'I am going to eat meat.'

In example (110), *bin* 'go' and the first-person clitic *=in* of Set A have been fused and phonologically reduced to *ni,* while *ka'h* 'do' appears as a phonologically eroded form retaining only its initial consonant. These developments, of course, point to the advancing grammaticalization of the immediate future in Yucatec Maya.

In the Yucatecan sister-language Itzá, similar but structurally slightly diverging developments can be identified. In Itzá, there exists no grammaticalized predictive future as advanced as in Yucatec Maya. However, a full Stage II McPC with *b'el* 'go' in V1 position may still assume a future function. The future interpretation of the sentence in (111) is tangible because of the employment of an inactive verb *pak't* 'wait' which is used in the subjunctive in the transitive V2 slot.

(111)   Itzá   [Hofling 1991: 47 in Lehmann 2017: 218]
    way=e'   ***k=in***   ***b'el***=*in*   *pak'-t-eech*
    here=TXT   **IPFV=A1**   **go**=A1   wait-TR.SBJV-B2
    'Here I am going to await you.'

In another Yucatecan language Lacandon, two structures are used to encode predictive future. The motion auxiliary exhibits a higher degree of grammaticalization in one of them. Lacandon *bin* 'go' grammaticalized into a genuine predictive future marker *bíin*; it entered the paradigm of aspectual auxiliaries and received idiosyncratic vowel lengthening (112b). The auxiliary requires the V2 to appear in the subjunctive. However, an McPC with lexical *bin* 'go' followed by an infinitival clause, historically headed by a preposition, is also still used to encode predictive future (112a).

(112)   Lacandon
               [Bruce S. 1974: 42; Bergqvist 2011: 247, in Lehmann 2017: 217]
    a.   *way*   ***k=u***   ***bin***   *p'at-al*   *t=in*   *meyah*
       here   **IPFV=A3**   **go**   stay-INCOMPL   LOC=A1   work
       'It will stay here for my work.'
    b.   ***bíin***=*a*   *kíin-s-en*
       PRED.FUT[<go]=A2   die-CAUS.SBJV-B1
       'You will kill me.'

All other things being equal, it is not unreasonable to suggest that the reduced auxiliary construction will also emerge in Itzá.

Like the immediate future based on the periphrastic construction, this grammaticalized function of GO (and DO) is also Pan-Yucatecan. In Table 23, the

constructions featuring third-person markers of Set A for each of the Yucatecan languages, are given.

Table 23: The Pan-Yucatecan immediate future construction (based on Hofling 2017: 709).

Gloss	Yucatec Maya	Lacandon	Itzá	Mopán Maya
IMM.FUT (INTR)	*n=u ka'ah* (INC)	*b'in u=ka' (ti)* (INC)	*b'el u=ka'ah ti* (INC)	*b'el u=ka'a ti* (INC)
IMM.FUT (TR)	*n=u ka'ah u=* (DEP[110])	*b'in u=ka' u=* (DEP)	*b'el u=ka'ah u-* (DEP)	*b'el u=ka'a u=* (DEP)

It becomes apparent from Table 23 that all Yucatecan languages have undergone the same process of merging the verb-focus construction and the McPC with GO in V1 position to derive the discontinuous auxiliary encoding immediate future. In all four languages, there is a split in the status marking on the V2 conditioned by its transitivity which is a continuation of the already observable split in the McPCs proper. Incompletive aspect is triggered in all intransitive contexts. Dependent/subjunctive marking is required in all transitive contexts. Yet, while Yucatec Maya and Lacandon exhibit advanced stages of grammaticalization, i.e. changes in the phonological form of the auxiliary and loss or optionality of the preposition *ti'* with intransitive V2s, the constructions in Itzá and Mopán Maya appear to be at early stages of grammaticalization. Zooming in on Itzá, this assumption needs to be slightly modified.

To begin with, the Itzá verb *b'el* 'go' surfaces in its full form in the focus position of the simple verb-focus construction in example (113a). Examples (113b) and (113c) show the merged verb-focus and motion-cum-purpose construction. The intransitive V2 is preceded by the preposition *ti* and marked for incompletive aspect (113b). The transitive V2 is not modified by a preposition and carries subjunctive marking (113c).

(113)   Modern Itzá
          [Briceño Chel 2000: 90; Bruce S. 1968: 91; Hofling 1991: 16 in Lehmann 2017: 227]

a.   ***(b'el)=u***   ***ka'a***   *ich=u*   *kool*
       (go.INCOMPL)=A3   **do/go**   in=A3   cornfield
       'He is going to his cornfield.'

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110 Hofling (2017: 709) indicates that the status marking triggered on a transitive V2 is also the incompletive aspect, which I disagree with, as shown above. For transitive V2s, dependent or more specifically subjunctive marking is required.

b.   (***b'el***)=u   ***ka'a***   ti   han-<u>al</u>
        (**go.INCOMPL**)=A3 **do/go** LOC   eat-<u>INCOMPL</u>
        'He is going to eat.'

c.   ***u-ka'ah***=u   b'et-<u>eh</u>=u-yotoch
        A3-do/go=A3   make-<u>SBJV</u>=A3-home
        'He is going to make his home.'

As indicated by the parentheses, *b'el* is only optionally used in all constructions. Lehmann (2017: 227) argues that "since [the] occurrence of the defective verb *ka'a* is all but limited to the construction with *b'e*l in focus, it assumes the sense of 'go' by syntagmatically mediated coding".[111] Indeed, in Hofling (2000: 372), the element *ka'a(h)* is glossed and translated as 'go' rather than 'do/make'. The usage of *b'el* 'go' in the construction is rendered redundant and the expression may be dropped, see example (113c). This is not only the case for the merged construction but also for the simple verb-focus structure, as illustrated by example (113a). The differences between Yucatec Maya and Itzá in the structural development of the immediate future construction are presumably due to syntactic constraints in the verb-focus construction and the merged verb-focus McPC by extension. In Itzá, *b'el* 'go' is the only V1 permitted in both constructions which facilitates what Lehmann (2014) calls *syntagmatically mediated coding* (cf. Figure 33 in Section 9.4 for more information and discussion). The notion of futurity initially encoded by *b'el* 'go' is transferred to the co-occurring auxiliary *ka'ah* 'do'. In Yucatec Mayan, *bin* is only one of the items that may enter the V1 slot. It is, however, the most frequent choice. Both the phonological reduction and the fusion with the various person indices are indicative of its high token frequency. Frequency of occurrence in terms of type frequency appears to have an effect if there are other less frequently applied options; it is best analyzed as a relative measure and compared to other type frequencies. In Itzá this does not seem to apply. *B'el* is presumably the only viable choice. Consequently, it is neither more nor less frequent than other choices.

Before moving on, it needs to be mentioned that Schuhmann Gálvez (2015: 113–115) makes an internal distinction between the Itzá future construction with and without *b'el*. According to the author, the construction with GO (114a), i.e. [*bel*=PERS + *ka'a(h)*], is used for immediate future reference, whereas the GO-less variant indicates remote future (114b), i.e. [PERS + *ka'a(h)*].

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111 For a description of syntagmatic mediation, see Lehmann (2014).

(114)   Itzá   [Schuhmann Gálvez 2015: 113, 115]
    a.   ***bel**=in*   ***ka'a**=in*   *män-ä'- Ø*
        [112]**IMM.FUT[<go]**=A1 **do/go**=A1   buy-SBJV-B3
        'I going to buy it (now).'
    b.   *in-**ka'a**=in*   *män-ä'-Ø*
        [113]A1-**REM.FUT[<do/go]**=A1   buy-SBJV-B3
        'I will buy it (in the remote future).'

I do not commit to this analysis, although I acknowledge that it is a possibility. More data is needed to verify the proposal made by Schuhmann Gálvez (2015).

8.1.1.3 Huastecan

Huastec derived both an immediate and a remote future tense based on the same periphrastic Stage III McPC with *ne'ech* 'go' in V1 position. The structural difference between the two constructions lies with the subordinating element. Either irrealis *k-* is used to express remote future (115a–b) or realis *t-* is employed to express immediate future (115c). The status marking on the V2 is triggered by the subordinating element, i.e. completive aspect is required by irrealis *k(a)-* (115a–b) and incompletive aspect is required by realis *t(i)-* (115c). The split is conditioned by the mood indicating and clause subordinating elements, not the transitivity of the V2 which was identified as the determining factor for the Yucatecan languages described above.

(115)   Huastec   [Kondić 2012: 118 (a, c); Constable 1989: 28 (b)]
    a.   ***ne'ech***   ***k**-in*   *koy-ooch*
        REM.FUT[<go]   **IRR**-B1   rest-ANTIP.COMPL
        'I will rest.'
    b.   ***ne'ech***   ***k**-u*   *k'apu-Ø*   *i*   *te'neel*   *chanakw'*
        REM.FUT[<go]   **IRR**-A1-B3 eat-COMPL   some meal   beans
        'I will eat some beans.'
    c.   ***ne'ech***   ***t**-in*   *koy-ol*
        IMM.FUT[<go]   **REAL**-B1   rest-INCOMPL
        'I am going to rest.'

The latter construction featuring *t(i)-* which is cognate with the Pan-Mayan general locative preposition *ti* is structurally analogous to the Colonial Yucatec

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112 Glosses are mine; no (linear) glosses are provided by the author.

113 Glosses are mine; no (linear) glosses are provided by the author.

Maya predictive future with an intransitive V2. Thus, while employing the same structure, immediate rather than predictive future is encoded by [*ne'ech* + *t*-PERS + V2]. Moreover, the V2 slot may be occupied by both transitive and intransitive verbs which are obligatorily marked for incomplete status (115c). The same holds for the remote future. The V2 may be transitive (115a) or intransitive (115b), both are obligatorily marked for completive status. Overall, it can be concluded that *ne'ech* 'go' was desemanticized and stripped off its 'motion'-component.

Phonological substance is lost in some varieties of Huastec, e.g. in Potosino Huastec where the auxiliary takes the shape *nech* (Edmonson 1988). The auxiliary expresses general futurity. A specification of the futurity meaning, whether it is immediate or remote, is achieved by means of the subordinating elements. In Huastec, "set *t*- is used when the reported event does not have clear cut temporal boundaries and the action is relevant to the present [...] set *k*- is used when the temporal frame of the event has a more defined beginning or ending point, and the event is not relevant to the present" (Zavala Maldonado 1994: 55). The meaning of the two future constructions is thus clearly compositional with *ne'ech* adding the futurity component. The constructions are at an intermediate stage of grammaticalization. *Ne'ech* becomes part of a wider network of periphrastic auxiliaries such as *exom* and *k'waj*- 'be' both marking the progressive. While *ne'ech* is not an obligatory marker for future tense, it appears to be the only option to express FUTURE in Huastec, in contrast to the various future encoding options in the Tzeltalan-Cholan and Yucatecan languages. The obligatory verbal morphology is distributed over *ne'ech* and the lexical verb, asserting that they are understood as a single clause. *Ne'ech* has not coalesced with either of the subordinating elements. Also, a particle can intervene, see example (116) where the meaning-intensifying particle *ich* 'already' interrupts the AUXV sequence. Last, *ne'ech* occupies a fixed auxiliary slot and precedes all aspect and person marking morphology.

(116) South Eastern Huastec   [Kondić 2012: 308]

    ne'ech   ***ich***   *k-a*   *aab-an*

    REM.FUT   **INTENS**   IRR-A2   rain-MID.INCOMPL

    'It will rain.'

8.1.1.4 Kanjobalan-Chujean

For the Kanjobalan-Chujean languages, there is some evidence of motion verb grammaticalization into FUTURE. Zavala Maldonado (1993: 90–91) lists Q'anjob'al and Akateko as two of the Mayan languages that have grammaticalized FUTURE

based on GO in an aspectless complement Stage III McPC. In Q'anjob'al, the clause-initial motion auxiliary slot is occupied by *toq* which is derived from *toj* 'go' and the irrealis marker *-oq*. This combination carries future meaning (cf. Mateo Toledo 2008: 112, 446). The irrealis is used to indicate that something has not occurred (117). An action expressed in the irrealis mood is situated "purely in the realm of thought, knowable only through imagination" (Mithun 1999: 173).

(117) Q'anjob'al   [Martin 1977: 436 in Zavala Maldonado 1993: 91]
    toq   *Ø-a-say=el*   *te'*
    FUT[<GO-IRR]   B3-A2-look=DIR:out[<leave]   CL
    'You are going out to look for it.'

This construction is comparable to the structure found in Tzotzil where the incompletive *ch-* attaches to GO (cf. [99a−c]). Note that the Q'anjob'al item is form-identical with the directional *=toq* 'away from the deictic center'. Given that the directional exclusively appears in post-verbal position, the two form-identical expressions are easily distinguishable. In addition to the grammaticalization of GO based on a Stage III McPC, the two directionals *=toq* and *=teq* have also acquired aspectual or temporal meanings. According to Mateo Toledo (2008: 214), "*[t]eq* means 'from an earlier time toward now' and *toq* means 'from now toward an earlier or future time'". Example (118a) shows the usage of the directional *=toq* meaning 'from now to a future time', away from the speaker's temporal position 'now'. The functional context of *=teq* meaning 'from an earlier time to now', toward the speaker's temporal position 'now', is given in (118b).

(118) Q'anjob'al   [Mateo Toledo 2008: 216]
    a. *kay-tu*   *ch-ø-y-un*   *ko-b'ey=**toq***
        like-DEM INCOMPL-B3-A3-happen A1PL-walk=**DIR:away[<GO-IRR]**
        y-in   *icham*   *anim-il*
        A3-at   old   person-ABS
        'That is how we walk to becoming old people (lit. we walk toward being old people).'
    b. *Kay*   *ton*   *tu*   *x-ø-y-un*   *k'al*
        like   INTENS DEM COMPL-B3-A3-happen always
        *ø-b'ey=**teq***   *y-et*   *payxa*   *tu*
        A3-walk=**DIR:toward[<COME-IRR]** A3-when before DEM
        'That is how it happened in the past continuously toward now.'

Apart from the two innovative means to encode FUTURE, which are entirely optional, Q'anjob'al also uses the potential aspect prefix *hoq-* together with the irrealis mood marker *-oq* to refer to future events, see example (119a). Note that

the irrealis marker only appears in a clause-final position, otherwise it is dropped, as exemplarily shown in (119b).

(119)   Q'anjob'al   [Mateo Toledo 2008: 56, 59]
    a.   ***hoq**-on*   *way-**oq***
          POT-A1PL   sleep-**IRR**
          'I will sleep.'
    b.   ***hoq**-on*   *way*   *b'ay-tu*
          POT-A1PL   sleep   at-DEM
          'We will sleep there.'

Comparing the functional domains of the 'old' and 'new' future encoders in Q'anjob'al, it appears that the GO innovation marks immediate future, while *hoq-...(oq)* is used for remote or uncertain future contexts.

In the Kanjobalan sister language Akateko, GO may also serve as a motion verb auxiliary indicating FUTURE, see example (120). Again, it is a Stage III McPC that enables the development. GO appears devoid of any aspectual or person marking. It is the only element situating the event within a temporal frame; no other aspectual marking occurs on the V2. Note that the usage is only sporadically attested in the data.

(120)   Akateko   [Zavala Maldonado 1993: 90]
        jatu'   ***too***   *Ø-in-ten=kan=toj*
        there   **FUT[<go]**   B3-A1-push=DIR:motionless[<stay]=DIR:away[<go-IRR]
        y-ib'an   *mar*   *tu'*
        A3-on   sea   DIST
        'There is where I am going to push her out to the sea.'

The more frequent and default option to mark FUTURE is to use the future or irrealis clitic *=oj=* which appears either only in pre-verbal position (121a) or simultaneously in pre- and post-verbal position (121b). It is also viable to use the verb in the incompletive aspect together with a time adverbial (121c) or a modal adverbial (121e) to make future. Naturally, time adverbs may also co-occur with the verb in irrealis mood (121d).

(121)   Akateko   [Zavala Maldonado 1992a: 71 (a–d); 1997: 451 (e)]
    a.   ***ox**=in-wey=an*
          IRR=B1-sleep=CL.1SG
          'I will sleep.'
    b.   ***ox**=atš-loo-w=**ox***
          IRR=B2-eat-INTR**=IRR**
          'You will eat.'

  c.   **tš**-*in-wey*   **yekal**=*an*
      INCOMPL-B1-sleep   **tomorrow**=CL.1SG
      'I will sleep tomorrow.'

  d.   **ox**=*in-wey*   **yekal**=*an*
      IRR-B1-sleep   **tomorrow**=CL.1SG
      'I will sleep tomorrow.'

  e.   *tala*   **chi**-Ø-*y-a'*   *a-mulna-il*   *naj*
      maybe   INCOMPL-B3-A3-put   A2-work-NMLZ   CL:man
      'Maybe he will give you some work (lit. maybe he will put your work).'

In the Chujean languages, I found some indication of motion verb grammaticalization. In Chuj, it is again GO that grammaticalized into FUTURE. Chuj *b'at* 'go' based on an aspectless Stage III McPC may function as the only aspectual marker in the verbal complex. The person marking only appears on the lexical verb. *B'at* as a future marking device is shown with an intransitive verb in example (122a) and a transitive verb in example (122b). In example (122a), the future reading becomes especially palpable as there is no indication of a location change.

(122)   Chuj   [Buenrostro 2015: 113]
  a.   **b'at**   *ko-kan*   *k'oj-an*   *t'a*   *tik*
      FUT   A1PL-stay   sit-POSIT   PREP   here
      'We are going to stay here seated.'

  b.   **b'at**   *ach=w-ak'=kan*   *t'a*   *a-pat*
      FUT   B2=A1-put=DIR:motionless[<stay]   PREP   A2-house
      'I am going to leave you in your home.'

The conservative way of expressing FUTURE in Chuj is comparable to that found for the Kanjobalan languages. As shown in example (123), a future proclitic *'ol*= attaches to the verbal stem and the irrealis marker =*ok* surfaces post-verbally if the complex appears in clause-final position.

(123)   Chuj   [Robertson 1977: 109 in Gómez Cruz 2017: 13]
      'ol**=ach-vay=**ok
      FUT=B2-sleep=IRR
      'I will sleep.'

There are constructions where both structures interact or overlap. In these cases, the future marker *'ol*= attaches to the motion verb auxiliary *b'at* in a Stage III McPC (124a). Note that while other motion verbs may also appear in a Stage III McPC with additional aspectual marking (124b), it is only GO that has grammaticalized further, may appear without inflection, and functions as an aspectual

marker itself. Indeed, *b'at* is the verbal root exhibiting the highest productivity among the Chuj motion verbs (Buenrostro 2015: 112).

(124)   Chuj   [Buenrostro 2015: 112]
   a.   ***ol=b'at***   *ach=ko-k'an*   *t'a*   *ix*
         FUT=go   B2=A1PL-ask   PREP   CL:woman
         'We are going to ask you with her.'
   b.   *y-uh*   *chi'*   ***tz=ul***   *ø=e-k'anb'ej*   *t'ay*   *onh*
         A3-RN   DEM   **HAB=come**   B3=A2PL-ask   PREP   1PL
         'That's why you are coming to ask us.'

Summing up on Chuj, *b'at* 'go' already serves as a valid option to encode FU-TURE. In the long run, it might survive as the only marker to encode FUTURE or it might join the FUTURE paradigm in which case *'ol=* might mark potential or remote future and *b'at* might express immediate future. This functional distinction is found in many of the world's languages.

In Tojolabal, FUTURE is again predominantly expressed indirectly through an irrealis marker. Examples (125a)–(125c) show that, in line with the other Kanjobalan-Chujean languages, an irrealis proclitic *oh=* appears in pre-verbal position. An additional irrealis morpheme *-(u)k* is suffixed to the intransitive verbal root. In contrast to the other Kanjobalan-Chujean languages where the absolutive person marker precedes the verbal root, the Set B marker appears in post-verbal position in Tojolabal. In example (125b), an innovation in the structure may be observed. If the irrealis suffix occurs with the second-person singular Set B marker, irrealis *-uk* is replaced by *-an*. The suffix *-an* generally functions as the imperative marker. This development is also found in the Tzeltalan languages which is one of the reasons that lead Robertson (1977) to conclude that Tojolabal is of the Tzeltalan branch. Yet, the innovation might alternatively be analyzed as contact-induced.

(125)   Tojolabal   [Robertson 1977: 110 in Gómez Cruz 2017: 12]
   a.   ***oh**=way-**k**-on*
         IRR=sleep-**IRR**-B1
         'I will sleep.'
   b.   ***oh**=way-**an***
         IRR=sleep-**IRR.B2**
         'You will sleep.'
   c.   ***oh**=way-**uk**-Ø*
         IRR=sleep-**IRR**-B3
         'He will sleep.'

Furbee-Losee (1976: 135) offers an alternative analysis and describes '*oh=* as a marker of 'future progressive aspect' which appears in an optional pre-verbal position, see examples (126a) and (126b). Based on the functional distribution of '*oh=* as described by Furbee-Losee, I prefer to gloss the element as 'immediate future'.[114] In example (126b), '*oh=* attaches to the situational clitic 'now'. Note that irrealis *-uk* is only featured in example (126b). Thus, '*oh=* suffices to overtly encode FUTURE in a transitive construction (cf. Gómez Cruz 2017: 12).

(126)   Tojolabal   [Furbee-Losee 1976: 135]
    a.   ***'oh**=h-mak'-Ø-eh*
          IMM.FUT=A1-hit-B3-ENC
          'I am going to hit him.'
    b.   ***'oh**=ša   mak'-h-uk-Ø*
          IMM.FUT=now   hit-PASS-IRR-B3
          'Now he is going to be hit.'

There is little evidence of motion verb grammaticalization to encode FUTURE in Tojolabal. In Bybee et al. (1994), Tojolabal is listed as having grammaticalized FUTURE from a RETURN motion verb. Their analysis is based on the data provided by Furbee-Losee (1976). According to Bybee et al. (1994: 252, 267), '*oh=* should be related to the Tojolabal motion verb RETURN. The motion verb *pax* 'go and return', however, bears little if no formal resemblance. Given the development of GO to FUTURE based on a Stage III McPC in the Cholan-Tzeltalan and Kanjobalan-Chujean languages, it is conceivable that the same ought to be observed for Tojolabal *wah* 'go'. This, however, does not appear to be the case.

8.1.1.5 Quichean-Mamean

No motion verb has grammaticalized into a future tense marker in any of the Quichean-Mamean languages in this study's sample. For the sake of comparability, I briefly describe the grammaticalized FUTURE indicating means in the four languages of this sample. In Poqomchi', there is a distinction between indefinite and definite future (cf. Weichel 2006: 61–63). The former features the aspectual maker *na-* and is used if the fulfillment of the proposition is uncertain, see example (127a). The prefix *e-*, grammaticalized from *e* 'later', surfaces in the latter (cf. Brown 1979: 113, 118) and is employed to indicate that something will defi-

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[114] Another marker *wa(n)* indicating present progressive is the only element that may also fill the slot (cf. Furbee-Losee 1976: 135).

nitely happen in the future, see example (127b). The verbal complex must appear in the incompletive aspect in both constructions.

(127)   Poqomchi'   [Weichel 2006: 63, 62]
  a.   ***na-**in-kaman-**ik***
       [115]**INDF.FUT**-A1-work**-INTR.INCOMPL**
       'I may work.'
  b.   ***e**-kin-kaman-**ik***
       [116]**DEF.FUT**-A1-work**-INTR.INCOMPL**
       'I will work.'

Brown (1979) offers a different analysis of the function of the two markers. According to Brown (1979: 118), "*na*-aspect is used for what is about to happen and *e* is used for a later event"; the distinction is made between immediate vs. remote future without reference to the certainty of an event. The two constructions, both shown in (128), do not greatly diverge structurally from those described by Weichel (2006). However, Brown (1979: 188) still analyzes *e* as a simple temporal particle. Overall, a clear temporal relation can be established between the two events in example (128), i.e. the future encoded by *na*- is nearer on the time-axis in relation to the deictic center than the future marked by *e*-.

(128) Poqomchi'   [Brown 1979: 118]
   *[...] re' hat   taq   **na**-w-oj-i   tag*
          DEF 2PERS PL   **IMM.FUT**-A2-go-INTR.COMPL   PL
   *cho   wulu',   r-eh   ru' taqe chikop **e***
   DIR:towards[<come-IRR] over there A3-for this PL   animal **later**
   k-i-yo'j-ik   cho [...]
   INCOMPL-B3PL-be.scared-INTR.INCOMPL   DIR:towards[<come-IRR]
   '[...] you all are going to go towards over there, so that the animals will be scared toward me [...].'

Whatever their precise function, neither of the two prefixes can be linked to a motion verb. Yet, based on the available data, I find Brown's analysis more plausible.

In K'iche', future markers derived from motion verbs cannot be found either. The affixes grammaticalized through the McPC channel function as associated motion affixes rather than TAM markers. The future is encoded implicitly by the incompletive aspect marker *k(a)*- in Contemporary K'iche'. The designat-

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115 Glosses are mine; no (linear) glosses are provided by the author.

116 Glosses are mine; no (linear) glosses are provided by the author.

ed future marking devices found in Colonial K'iche' were lost (cf. Robertson 1992: 126). In Colonial K'iche', "there are designated tense-aspect-prefixes *xch(i)-* and *xk(a)-* for the future tense. *Xch(i)-* is used primarily with transitives, *xk(a)-*, on the other hand, with intransitive (and accordingly with antipassive and passive) verbs" (Dürr 2010: 59; my translation). Note that the future is only marked on 2 % of all intransitive verbs in the *Popol Vuh* (Dürr [1987] 2003: 47), see example (129) for an illustration of the construction.

(129)   Colonial K'iche'   [Dürr (1987) 2003: 47]
      xch-ø-be…
      FUT-B3-go
      'He will go…'

The low occurrence frequency might explain the gram's disappearance. Zooming in on the composition of the two prefixes, it becomes apparent that they either entail the incompletive aspect marker *k(a)-* or the optative marker *ch(i)-*. With the survival of *k(a)-*, it follows that on its way to Modern K'iche' "INCOMPLETIVE and not OPTATIVE takes over the FUTURE" (Robertson 1992: 126).[117] The same development can also be observed for Tzotzil (Robertson 1992: 186). Interestingly, while Tzotzil innovated FUTURE based on a Stage III McPC with GO in V1 position, K'iche' did not follow the same path but grammaticalizes both GO and COME into genuine motion affixes anchoring the speaker's perspective in the event expressed in a Stage V construction (cf. [50a]–[50d]). K'iche' relies entirely on the incompletive aspect to express that an event is about to take place or will come about some time in the future, see examples (130a) and (130b).

(130)   K'iche'   [Larsen 1988: 415; Can Pixabaj 2015: 92]
    a.   **k-**e-b'ee   pa   wa'-iim
        INCOMPL-B3PL-go   SUB   eat-NMLZ
        'They are going to eat.'
    b.   x-ø-u-ta   jampa'   **k-**oj-'ee-k
        COMPL-B3-A3-ask   when   **INCOMPL**-B1PL-go-INTR
        'She asked when we will go.'

In the Quichean sister-language Kaqchikel, the potential mood marker *xk-/xt(i)-* used to indicate incompletive (uncertain) future is preserved (cf. García Matzar et al. 1993: 59, 63; García Matzar and Rodríguez Guaján 2001: 83). The former allomorph appears before the third-person singular marker of Set B which is zero-marked (131), while the latter prefix surfaces elsewhere. Thus, in contrast

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117   The opposite, i.e. the OPTATIVE taking over the encode FUTURE, is observed for Mam (cf. [132]).

to K'iche', the designated future tense or potential mood marking morpheme found at the Colonial stages has survived in Modern Kaqchikel.

(131)   Kaqchikel   [García Matzar and Rodríguez Guaján 2001: 467]
    we   *x-Ø-b'e*   *ri*   *ala',*   *man*   **xt**-*Ø-qa-tzët*   *ta*   *chïk*
    COND   COMPL-B3-go   DET   young man   NEG   **POT**-B3-A1PL-see   IRR   PTC
    'If the young man left, then we never see him again.'

Again, no innovation involving motion verbs to indicate FUTURE has taken place despite the advanced grammaticalization of the motion verbs *b'e* 'go', *ul-/to-* 'come', and *ik'o-* 'pass'. They all encode motion in the verbal complex in a Stage V McPC.

    Finally, Mam features an aspect marker *ok* that optionally indicates future action, be it potential or expected (England 1983: 162; Rojas Ramírez et al. 1992: 72, 73, 82, 84). The marker is optional because there is also the potential suffix *-l* that serves the same purpose, see example (132).

(132)   Mam   [England 1983: 173]
    ok   *Ø-t-b'i-**l**-ya*   *q'aan-b'il*
    POT   B3-A2-know-**POT**-2SG   cure-INST
    'You will know the medicine.'

The origin of the marker is entirely unclear. Given the formal identity and clause-initial position of *ok,* one could presume that the element has grammaticalized from the motion verb *ook* 'enter' or rather the directional *ok* 'in'. However, "there are no other directionals in the position that potential *ok* occupies. All of the directionals (including *ok*) normally occur after Set B markers (and before Set A markers if there are any), not pre-verbally (at least now)" (Nora England p.c.). *Ok* in its primary meaning of denoting motion inwards is given in example (133a), while *ok* in its secondary meaning of motion eastwards is displayed in example (133b). In example (133a), *ok* combines with the directional *-x(i)* 'away'. The TAM marker and the Set B index precede the directional in both cases. In the data, there is no indication of *ok* or any other directional in the position occupied by POTENTIAL *ok*. Also, one would expect to find indications of intermediate stages where the Set B marker no longer precedes the directional auxiliary but attaches directly to the lexical verb – this is not the case.

(133)   Mam   [England 1983: 170]
    a.   *ma*   *tz'-**ok**-x*   *w-ii-'n-a*
        [118]REC   B3-**DIR:in[<enter]**-DIR:away[<go]   A1-bring-DS-1SG
        'I took it inside.'

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118 Glosses are mine; no (linear) glosses are provided by the author.

b.   *ma*   *tz'-**ok***   *w-iin-'n-a*
     [119]REC   B3-**DIR:in[<enter]**   A1-bring-DS-1SG
     'I took it east.'

England (1983: 161–163) mentions in her description of the secondary semantics of directionals that *xi* 'go', for instance, has acquired aspectual meaning and may denote INCEPTIVE. Morphosyntactically, there is no difference between *xi* as AWAY and *xi* as INCEPTIVE. *Ok* also bears a secondary meaning. It may be used to encode INCHOATIVE. But it always occurs after Set B (Nora England p.c.). What is more, the development of ENTER to FUTURE is unattested in the world's languages. Nevertheless, a conceptual link could still be established; 'entering a situation/action' presupposes that the action has not been carried out yet but is about to take place.

Alternatively, POTENTIAL *ok* might be related to the Kanjobalan potential marker *hoq* (119) and was introduced to Mam via inner-Mayan contact; recall the areal proximity of the languages as displayed in Figure 17. Yet, Q'anjob'al /q/ generally corresponds to Mam /q/. There are some varieties such as the San Juan Ixkoy variety where the marker has changed to *hok* reflecting the standard Q'anjob'al process of /q/ > /k/ (Nora England p.c.). Mam does not give evidence of the same sound change. However, "in Sta. Eulalia, Soloma, and Barillas [Q'anjob'al], the *hoq* marker can be reduced to *q*, or *q'* before vowels, which looks a whole lot like the *k* Set B second/third-person in the potential markers in Mam" (Nora England p.c.). All in all, there are at least two hypotheses regarding the origin of POTENTIAL *ok* in Mam. Both hypotheses have explanatory weaknesses. It can still be argued with some confidence that the development, whether brought about by language-internal grammaticalization or inner-Mayan influence, is an innovation in Mam. Especially the optionality of the marker and the functional near-identity with the potential suffix *-l* which, by contrast, is obligatorily employed speaks in favor of the suggestion. The last word on the origin of POTENTIAL *ok* in Mam has yet not been spoken and the solving of the puzzle remains a desideratum for future research.

To recap, in the Kanjobalan-Chujean and Tzeltalan languages, the grammaticalization of GO to FUTURE stands at a beginning or intermediate stage. In the Yucatecan and Huastecan languages, the grammaticalization has progressed to an intermediate or advanced stage, and GO functions as a genuine grammatical formative in the respective constructions. By contrast, no further grammaticalization in the func-

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119 Glosses are mine; no (linear) glosses are provided by the author.

tional domain of FUTURE appears to have taken place in the Quichean-Mamean languages, or at least there is no conclusive evidence that it has.

8.1.2 INCEPTIVE (and related categories)

INCEPTIVE and INCHOATIVE[120] are also among the targets of Mayan motion verbs. Evidence of the grammaticalization paths is found in four sample languages for INCEPTIVE, while three out of these four also derived INCHOATIVE. The four languages belong to three separate subbranches. Only the Yucatecan and Huastecan languages are not represented. I will explore the two gram types together as they both refer to beginnings, either of actions or states (cf. Bybee et al. 1994: 318).[121] In the WLG, the only source listed for INCEPTIVE, indicating that an action or event starts, is BEGIN (Heine and Kuteva 2002: 332; Kuteva et al. 2020: 418), while INCHOATIVE, marking the beginning of a state of 'becoming', is grammaticalized from COME TO, FALL, GET, GO, and VENTIVE (cf. Kuteva et al. 2020: 478). The source items in the Mayan languages are more diverse. GO and ENTER feed into the developments in Mam and Tzeltal, while ASCEND serves as the input in Q'anjob'al. ENTER (and DESCEND) carry aspectual meanings in K'iche'. In the remaining Cholan-Tzeltalan and the Yucatecan languages, BEGIN (and ARISE) serve as the source for the gram types. Designated suffixes are used in the majority of Mayan languages to mark the beginning of an action. They also appear to be the only available option in equally diverse — in terms of subphyla — Mayan languages, namely Poqomchi', Kaqchikel, Akateko, Chuj, and Tojolabal. In this section, I review those four languages that have grammaticalized a motion verb into INCEPTIVE or/and INCHOATIVE. I begin by discussing Tzeltal, which only shows the first path, and continue by examining Q'anjob'al and the two Quichean-Mamean languages which give evidence of both.

8.1.2.1 Tzeltal

In Tzeltal, there are two independently developing source items both travelling down the grammaticalization paths towards INCEPTIVE. The first features *'och* 'enter' as an auxiliary in an McPC. The item is employed "aspectually in the sense of entering into or beginning an action" (Brown 2006: 257). Examples of

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120 In the WLG (Heine and Kuteva 2002 and Kuteva et al. 2020: 26), the gram type INCHOATIVE is listed as CHANGE-OF-STATE.

121 Note that in the literature, the two terms are oftentimes used interchangeably.

'och functioning as an inceptive marker are given in (134a) with a transitive V2 and (134b) with an intransitive V2. The auxiliary takes aspect marking in both cases. If it co-occurs with an intransitive V2, it also takes the Set B marker. The transitive V2 appears in the zero-marked subjunctive form (aspectless complement), while the intransitive V2 surfaces as a nominalized predicate (infinitival complement). The split conditioned by the transitivity found in the McPCs is maintained. In example (134c), *och* appears in pre-verbal position and functions as a genuine aspectual element in the verbal complex.

(134)   Tzeltal   [Polian 2013a: 162, 356, 303]

a.   *ya*   *x-'och*   *j-ts'is-Ø*   *ts'in*
      INCOMPL   INCOMPL-**enter**   A1-sew-B3   then
      'Then we start/begin sewing it.'

b.   *x-'och-Ø*   *pik-el*   *j-k'ab-tik*
      INCOMPL-**enter**-B3   press-NF.PASS   A3-hand-PL1
      'We begin/start pressing our hands.'

c.   **och**   *k-uts'in-Ø=ix*   *j-ba-tik,*   *ya*
      INCEP[<enter.AUX]   A1-bother-B3=already   A1-RECP-PL1   INCOMPL
      j-mah-Ø   *j-ba-tik*
      A1-hit-B3   A1-RECP-PL1
      'We already start/begin bothering each other, we hit each other.'

The source item, i.e. lexical *'och,* belongs to the class of enclosure or region oriented motion verbs. Brown (2006: 256) notes that "[h]ere what is at issue is the notion of a bounded region into which or out of which motion occurs. The region may be physically bounded (like a house or corral) or abstract (like a cooperative organization or political party)". In Figure 24, the conceptualization of the two Tzeltal enclosure or region oriented motion verbs is shown. The grey circle G represents the conceptual Ground of the motion event.
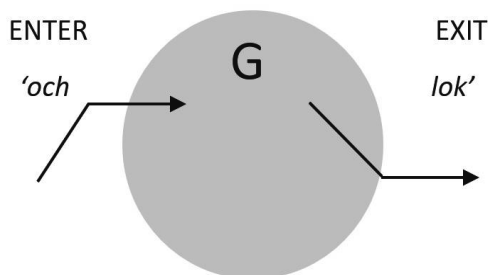
Figure 24: Enclosure or region oriented motion verbs in Tzeltal (based on Haviland 1991: 10).

To exemplify the description of the semantics of lexical '*och*, the motion verb is accompanied by the concrete, physically bound conceptual Ground *escuela* 'school' in example (135a), while the more abstract usage is given in example (135c) where the body of the speaker is implicitly understood as the Ground. Similar may be observed for the conceptual Figure. A human entity performs the motion in (135a), whereas an inanimate, abstract entity serves as the conceptual Figure in (135c). Comparing the structures displayed in (135a) and (135b), it becomes apparent that the construction [V1 + *ta* + NP] has undergone a host-class expansion by analogy, much like the analogical process described for English [*going to*] or Spanish [*ir a*]. The NP slot does not need be be filled by a locative noun but may be occupied by a nominalized verb which is conceptualized as a location where an action is carried out.

(135)   Tzeltal   [Polian 2013a: 203; Brown 2006: 257, 256]

a.   *Ak'a*   **och**-*uk-Ø=xan*   *ta*   *escuela,*   *ak'a*   *s-pas-Ø*
     EXH   **enter**-SBJV-B3=again   PREP   school   EXH   A3-do-B3
     seguir
     continue
     'Let them enter the school again, let them keep going.'

b.   *jich*   *Ø*   **och**-*on*   *ta*   *poxta-el*
     thus   COMPL   **enter-A1**   PREP   medicate-NF
     'Thus, I began to be medicated (lit. Thus I entered medication).'

c.   *ja'*   *jich*   *a*   **och**-*ø*   *tal*   *te*
     ASS   thus   COMPL   **enter**-B3   DIR:toward[<come-NF]   ART
     j-chamel-e
     A1-sicknes-ENC
     'That's how my sickness entered into me.'

As demonstrated by example (135c), a meaning change already occurred for lexical '*och*. [122] The result of semantic change or desemanticization during the grammaticalization comes to the fore. In examples (135b) and (135c), no physical motion is implied, but a figurative reading is targeted. The conceptual link from ENTER to INCEPTIVE is palpable. The 'entering of a house' implies 'the beginning of being in a house' as much as the 'entering of a medication stage' implies the 'beginning of being medicated' and the 'entering of sickness into a human body' implies the 'beginning of being sick'. Through the host-class expansion, the results of which are shown in (135b) and (135c), it is conceivable that INCIPI-

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122 In the Bachajón Tzeltal dictionary (Slocum et al. 1999: 87), *ochel* is also registered and institutionalized as 'begin'.

ENCE is frequently pragmatically inferred. The aspectual meaning becomes part of the constructions' semantics. *Och* as an auxiliary in an McPC offers the grammaticalized means to encode INCEPTIVE. The shift in meaning, which is already semantically identifiable in the lexical source, is structurally facilitated by the McPC.

The second source for INCEPTIVE in Tzeltal is GET UP. Tzeltal *lik* 'get up' in its passive-anticausative form *lijk* featuring the infix *<j>* also denotes the beginning of an action (Polian 2013a: 208). There appears to be no functional competition, as the two elements exhibit complementary distribution. *Och* is employed in inceptive contexts where an intention is presupposed. The passive-anticausative form of *lik* indicates that an event was brought about spontaneously and autonomously from the circumstances that have caused it and from the intention of the agent (cf. Polian 2013a: 295). The usage of *lijk* as a lexical verb meaning BEGIN is shown in example (136). The verb may, however, also surface as an auxiliary in an McPC (Brown 2006: 258).

(136) Tzeltal   [Brown 2012: 4]

ya   *x-**li\<j\>k**-Ø*   *ha'al*

INCOMPL   INCOMPL-**get.up\<PASS.ANTIC\>-**B3   rain

'The rain begins.'

Moreover, two other verbs *kaj* 'begin' and *jach* 'lift', the latter in its passive-anticausative form *jajch',* may be used in a McPC to indicate INCEPTIVE. Yet, *och* has arguably traveled down further the grammaticalization cline. It may appear as the only preverbal aspectual element in the verbal phrase (cf. [134c]).

A similar development may be observed for the Tzeltalan sister-language Tzotzil. Haviland (1991: 11) notes that "*[l]ik*, which can have the motion sense of 'arise, get up (e.g. get up in the morning)', as an auxiliary usually denotes the inception of an action". In contrast to Tzeltal, *lik* appears in its root form in Tzotzil and does not require passive-anticausative marking. Example (137) illustrates the usage. Structurally, *lik* functions as an auxiliary in a Stage III McPC. It displays the same functional distribution as Tzeltal *och*.

(137) Tzotzil   [Haviland 1991: 11]

*ch-**lik***   *k-ut-tik*   *ch-**lik***   *j-mah-tik*

INCOMPL-**INCEP[\<get.up]** A1-scold-1PL INCOMPL-**INCEP[\<get.up]** A1-hit-1PL

'We start to scold, and we start to hit [our wives] (when we get drunk).'

Unlike Tzeltal, Tzotzil only gives evidence of GET UP > INCEPTIVE, not ENTER > INCEPTIVE, although BEGIN verbs may also be used. It follows that there are several good candidates to serve as the source for the development of INCEPTIVE in the Tzeltalan

languages. Intuitively, BEGIN should be a better candidate for the gram type than the other possible source items and therefore more likely to grammaticalize.

This grammaticalization of BEGIN > INCEPTIVE is also registered in the WLG (Heine and Kuteva 2002: 52) for English (Germanic, Indo-European) *start to* and Lingala (Bantoid, Atlantic-Congo) *banda* 'start'. Nevertheless, Heine and Kuteva (2002: 52) point out that "while being conceptually plausible, more examples are required on the genetic and areal distribution of this process, especially examples suggesting that the process has proceeded beyond the stages of incipient grammaticalization". Indeed, the findings for Tzeltal and Tzotzil also show that BEGIN does not proceed beyond the initial stages of grammaticalization. By contrast, the source item for which the meaning of incipience is brought about by a series of reanalytical processes, e.g. ENTER > BEGIN > INCEPTIVE in Tzeltal, exhibits comparatively high degrees of grammaticalization (relatively strong paradigmaticization, condensation, and fixation), although it has not undergone all the processes relevant to the parameters of grammaticalization; *och* is not obligatorily employed to mark INCEPTIVE (obligatorification) or has reached an affixation stage where it is a phonological feature of the host (coalescence). I speculate that if INCEPTIVE becomes a genuine aspectual category in the Tzeltalan languages, *och* will provide the source in Tzeltal, whereas *lik* will prevail in Tzotzil. I base this assumption on both the usage frequency of both elements in incipience contexts in the data and an analogous development for the aspectual counterpart of INCEPTIVE. The Tzeltalan TERMINATIVE is also based on a Stage III cum-purpose structure in both languages. Here, the aspectual verb FINISH serves as the source. I demonstrate the development that occurred in both Tzeltalan languages with Tzotzil, see examples (138a) and (138b) for *laj* 'finish' as an auxiliary.

(138) Tzotzil   [Haviland 1991: 10, 11]

    a. *ja'* *'o* *me* *ch-**laj*** *lok'-uk* *li* *choye*
        EXCLAM REL CL INCOMPL-**finish.AUX** exit-SBJV.B3 ART fish
        'The fish [all of them] come out [when Our Lord passes by there].'

    b. ***laj*** *y-uch'-ik* *talel*
        TERM[<finish.AUX] A3-drink-PL DIR:towards[come-NF]
        'They finished drinking [it] on their way back here.'

From there, *laj/lah* 'finish' as a TERMINATIVE indicator grammaticalized further into a COMPLETIVE marker for transitive verbs. Robertson (1987: 432) already observed that the intransitive verb *lah* 'to finish, to complete' "also functions as an auxiliary verb [...]. From its lexical value 'to complete, to finish', it apparently moved to the grammatical value COMPLETIVE by standing, in a reduced form *l-*, in the place of *n-*, the original COMPLETIVE". In example (139a), the conservative, old

COMPLETIVE using *n-* is shown for Huixtán Tzotzil. The innovative COMPLETIVE featuring *l(ah)-* is illustrated in example (139b). Both sentences are taken from the same source on Huixtán Tzotzil asserting that there was a gradual takeover by the innovative structure based on grammaticalized FINISH in a cum-purpose-like construction.

(139)   Huixtán Tzotzil   [Cowan 1969 in Robertson 1987: 434]
    a.   ***n**-i-y-ak'-b'-un*
          COMPL-B1-A3-give-DAT-B1
          'He gave it to me.'
    b.   ***lah**-y-ah'-b'-un*
          COMPL-A3-give-DAT-B1
          'He gave it to me.'

In San Andrés Tzotzil, it is also permissible to used *lah* 'finish' as a COMPLETIVE marker with intransitive verbs if the Set B marker does not appear in the third person. Robertson (1987: 438) writes that "[t]his tendency for the TENSE/ASPECT distinction to correlate with the transitive and intransitive verbs can be seen in the Tzotzilan languages, [...], where the innovative *l(ah)-* has spread through the entire verbal paradigm, except in the context of [B3]". Such extensive changes have not been observed for the INCOMPLETIVE (Robertson 1987: 432). Nevertheless, *lah*'s path towards COMPLETIVE is indicative of what might happen to EN-TER/GET UP > INCEPTIVE > INCOMPLETIVE. Overall, it becomes apparent once more that, figuratively speaking, the cum-purpose-like construction serves as a structural factory producing potential and constantly emerging grammatical material. Different source items are transported through the same constructional channel.

8.1.2.2 Q'anjob'al

In Q'anjob'al, it is not the motion verb as an auxiliary but as a directional that is recruited for INCEPTIVE marking. Moreover, ASCEND not ENTER serves as the source. Indeed, all directionals of Set II, to which the directional based on ASCEND belongs, have both aspectual and/or trajectory denotations (Mateo Toledo 2004, 2007: 85). The directionals and their possible semantics are displayed in Table 24. Whether a trajectory or aspectual reading is induced depends on the presence or absence of a change of state [–/+ change] and movement [–/+move] in the event (Mateo Toledo 2008: 231). For an aspectual meaning, the latter value must be [-move]. The four other directionals carrying aspectual meanings are discussed in the upcoming sections.

Table 24: Meanings of Q'anjob'al Set II directionals (based on Mateo Toledo 2008: 232).

DIR	Meanings	Values
ek' (PASS)	trajectory: PASS	
	aspectual: REPETITIVE (various directions)	[−move], [−unbound change of location]
ay (DOWN)	trajectory: DOWNWARDS	
	aspectual1: REPETITIVE (same location)	[−move], [−change]
	aspectual2: COMPLETELY	[−move], [+change]
el (OUT)	trajectory: OUTWARDS	
	aspectual: COMPLETELY	[−move], [+change]
***aj* (UP)**	**trajectory: UPWARDS**	
	aspectual: INCEPTIVE	**[−move]**
ok (IN)	trajectory: TOWARD	
	aspectual: STAY	subgroup of verbs

Let us zoom in on the path ASCEND > UP > INCEPTIVE. Mateo Toledo (2008: 203) explains that *=aj* "has a trajectory UPWARDS meaning with verbs marking motion and an INCEPTIVE meaning with [-move] verbs". Further, an incipience reading is induced if the event encoded by the verb is unbound. Correspondingly, there are some verbs with which *=aj* always indicates upward motion, those on which it exclusively marks INCEPTIVE, and those where both functions are possible. Which reading is invited depends on the context. This is particularly true for intransitive verbs of substance emission (Mateo Toledo 2008: 204). For instance, *xab'=aj* can either mean 'to start vomiting' or 'to vomit upwards'.

The two usages are shown in typical examples below. The directional *=aj* serves to denote upwards movement in example (140a). By contrast, it marks INCEPTIVE in example (140b) where it attaches to an intransitive verb and example (140c) where it co-occurs with a transitive verb. As indicated by the asterisk in the translation of (140a), an INCEPTIVE reading is not permissible in this context because the event is bound.

(140)   Q'anjob'al   [Mateo Toledo 2007: 86, 87, 83]
   a.   *max-ø   ha-b'is=**aj***   *jun   koxjtal   mansan*
      COMPL-B3 A2-count=**DIR:up[<ascend]** one   sack   apple
      'You counted [upwards] a sack of apples (i.e. from the floor).'
      *'You started counting a sack of apples.'

b. *max-Ø*   *b'ey=**aj**[123]*   *naq*   *unin*
    COMPL-B3   walk=**INCEP[<DIR:up(<ascend)]**   CL   child
    'The child started walking.'

c. *max-ø*   *ko-lo=**aj***   *xe*   *ak'un*
    COMPL-B3   A1PL-eat=**INCEP[<DIR:up(<ascend)]**   root   plant
    y-uj   *wajil*
    A3-by   starvation
    'We started eating plant roots because of starvation.'

The restrictions at play point to the grammaticalization being at the initial stages. It is only with certain verbs that INCEPTIVE is encoded. Moreover, it demonstrates how pragmatic inferencing is operative at the beginning of a grammaticalization process; a particular inference concerning the grammaticalizing element is invited with some verbs, while the initial, more literal meaning is targeted with others. The conceptual basis for UP > INCEPTIVE is probably the same that motivates the grammaticalization of GET UP/ARISE > INCEPTIVE which was found for the Tzeltalan languages. In both instances, it is not the trajectory of upward movement as such that brings about the inceptive reading, but the conceptual Figure's change of location encoded through the trajectory. Figure 25 depicts the trajectory of the vertical directionals for Q'anjob'al. The larger grey circles indicate the Ground, whereas the smaller and lighter circles represent the Figure. F1 refers to the Figure's state before the location change. F2 stands for the Figure's state after the location change.
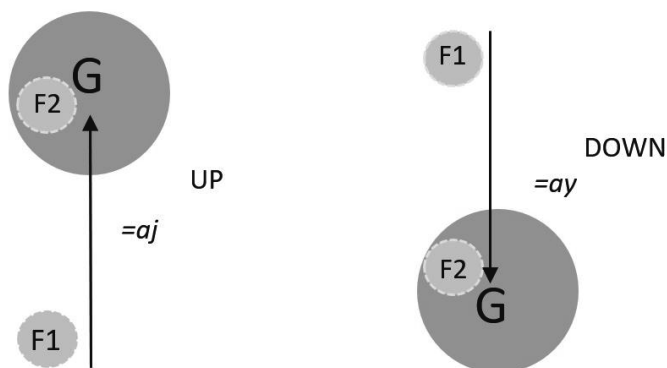
Figure 25: Conceptualization of vertical motion directionals in Q'anjob'al.

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123 Indeed, "*b'eyaj* 'to start walking', for example, is commonly used to refer to babies who start walking or people who could not walk before, etc." (Mateo Toledo 2008: 202).

The physical location functioning as the Ground is reanalyzed as an abstract location where an event is taking place. The development is thus comparable to that found in Tzeltal and Tzotzil. A focus shift in the conceptualization of the event occurs. But instead of the trajectory being situated along the horizontal axis, it is positioned along the vertical axis.

What is more, there are also instances of =*aj*'s usage as an INCHOATIVE marker. Mateo Toledo (2008: 180) does not differentiate between INCEPTIVE and INCHOATIVE. But if one compares the examples in (140b) and (140c) to those in (141a), (141b), and (141d), the difference becomes clear. In the former, the beginning of an action or event is expressed, whereas the beginning of a state of 'becoming' is indicated in the latter. If =*aj* appears in a directional chain followed by a deictic directional, as is shown in example (141c), the aspectual meaning is overridden by =*teq* 'towards' or =*toq* 'away', respectively. In example (141c), the trajectory meaning of =*aj* thus surfaces with =*teq* adding a point of spatial reference. If, however, =*aj* is used as the last element in a directional chain with *kan* in DIR1 position, then the aspectual meaning is retained, see example (141d).

(141)   Q'anjob'al   [Mateo Toledo 2008: 180 (a), 140 (b), 221 (c, d)]
    a. *[…] ch-on   kus=**aj**-oq*
        INCOMPL-A1PL   be.sad=**INCH[<DIR:up(<ascend)]**-CFP
        '[You see, as soon as there is a marimba playing], we became sad.'

    b. *[…] xal   hin   mero wal   ch-in   kus*
        as.for 1SG   very   INTENS INCOMPL-A1   be.sad
        <u>*ta'*</u>=***aj***   *xin*
        <u>PTC</u>=**INCH[<DIR:up(<ascend)]**   INTENS
        '[If you are not sad], as for me I become very sad.'

    c. *xal   hin   mero   wal   ch-in   kus*
        as.for 1SG   very   INTENS INCOMPL-A1 be.sad
        ta'=***aj**=**teq***   *xin*
        PTC=**DIR:up[<ascend]=DIR:toward(<go-IRR)]**   INTENS
        'As for me, I am very sad upwards [to a higher location].'

    d. *xal   hin   mero wal   ch-in   kus=**kan***
        as.for   1SG   very INTENS INCOMPL-A1   be.sad=**DIR:remain[<stay]**
        <u>*ta'*</u>=***aj***   *xin*
        <u>PTC</u>=**INCH[<DIR:up(<ascend)]**   INTENS
        'As for me I became and stayed very sad.'

It also transpires that particles may interrupt both the V DIR (141b) and the DIR1DIR2 sequence (141d) hinting at their weak grammaticalization concerning the parameters scope, bondedness, and syntagmatic variability. More common-

ly, a change of state is indicated by the derivational *-b'i/-xi* rather than directional *=aj*. These suffixes which attach to nouns or adjectives derive inchoative verbs in Q'anjob'al (Mateo Toledo 2008: 367). Generally, I would suggest that the INCHOATIVE function of *=aj* developed from the INCEPTIVE whereby the change of location is reanalyzed as a change of state or the commencing of a state. Note that, in contrast to INCEPTIVE *=aj* which co-occurs with a verbal predicate, INCHOTIVE *=aj* attaches to nouns or adjectives much like the already existing inchoative suffixes *-b'i/-xi*.

8.1.2.3 K'iche'

In K'iche', the motion verbs ENTER and DESCEND have become part of a wider paradigm of aspectual verbs marking various types of INCEPTIVE and TERMINATIVE meanings, see Table 25. Initially belonging to the paradigm of intransitive directional motion verbs, their meaning shifted to the aspectual domain. According to Can Pixabaj (2015: 193), the choice of the auxiliary is determined by the properties of the verbal complement, e.g. " the verb *majiij* 'begin' does not seem to take verbs such as 'tremble' and 'cough' among others that have the following features: dynamic, instantaneous, and atelic". The same applies to *ok* 'enter' and *qaaj* 'descend' in their function of marking INCEPTIVE. In the data, *ok* appears more frequently in this function in comparison to *qaaj*. In fact, I found no convincing examples of an INCEPTIVE usage for *qaaj*. Due to the lack of data, I refrain from discussing its grammaticalization in the following and focus on *ok*.

Table 25: Paradigm of aspectual verbs in K'iche' (based on Can Pixabaj 2015: 193).

	Transitive		**Intransitive**	
INCEPTIVE	*chap, maj*	'start, begin'	***ok, qaaj***	**'begin'**
	majiij	'start, begin'		
TERMINATIVE	*k'is*	'finish'	*to'taj*	'finish'
	tak'ab'aa'	'stop'	*tane'*	'cease'
	tanab'aa	'suspend'		

The incipience reading of *ok* in an McPC with an intransitive V2 is illustrated in example (142a). Here, *ok* functions as a lexical verb bearing both aspect and person marking morphology. This is contrasted with its usage as a motion verb

in a Stage I McPC in example (142b) where the transitive V2 carries a motion affix derived from COME.[124]

(142)　K'iche　　　　　　　　　　　　　　[Can Pixabaj 2015: 108, 251]

    a.　*x-in-**ok**　　　　　　　　　　pa　　wa'-iim*
        COMPL-B1-**begin[<enter]**　　PREP　eat-NMLZ
        'I started eating.'

    b.　*x-at-**ok**-ik　　　　x-a'l-**a**-ch'ab'e-j　　　　　le　　winaq*
        COMPL-B2-**ente**r-SSF　COMPL-B3PL-**MOT**-A2-visit-ACT　DET　person
        [125]'You entered to visit the people.'

In addition, *ok* may also be employed as an inchoative verb, as depicted in examples (143a) and (143b). In its function as a lexical inchoative verb, it takes a bare noun as its argument (cf. Bridges Velleman 2014: 177), i.e. *utijoxelaab'* 'student, disciples' in example (143a) and *esclavos,* 'slaves' in example (143b), and carries the obligatory verbal morphology.

(143)　K'iche'　　　　　　　　　　　　　[Bridges Velleman 2014: 173]

    a.　*la xaa　on　aree　k-iw-a-aj*
        Q just　or　PTC　INCOMPL-A2PL-want-SSF
        *k-ix-**ok**　　　　　　　　u-tijoxel-aab'　　ix?*
        INCOMPL-B2PL-**become[<enter]**　A3-student-PL　2PL
        'Do you want to become his disciples too?'

    b.　*[...] x-**ok**　　　　　　esclavos, ka-cha'　　pa　kaxlantziij*
        COMPL-**become[<enter]** slaves,　INCOMPL-say　PREP Spanish
        '[...] they became "slaves", as they say in Spanish.'

Both usages of the verb present cases of lexical change, not grammaticalization, conversely to what was found in Tzeltal (cf. [134b] and [134c]). However, there is a construction where *ok* does not behave like a lexical intransitive verb. In the respective construction exemplified in example (144), "the state which is beginning is expressed as a verbal noun which it takes as its subject rather than as a complement; and the person or thing entering that state is expressed as a possessor of that verbal noun" (Bridges Velleman 2014: 177).

124　The reader is referred to Sections 7.1.2.1.5 and 7.1.2.2.2 for details on the possible stages of K'iche' McPCs.

125　The idiomatic translation provided in the original source is 'You came to visit the people'. The auxiliary was changed to reflect the lexical source more accurately.

(144)   K'iche'   [Bridges Velleman 2014: 178]
   a.   *x-ok*   *nu-war-aam*
        COMPL-**INCEP[<enter]**   A1-sleep-NMLZ
        'I got sleepy (lit. My sleepiness entered).'
   b.   **x-in-ok*   *nu-war-aam*
        COMPL-**B1-INCEP[<enter]** A1-sleep-NMLZ
        *'I got sleepy (lit. I entered my sleepiness).'

Due to the limited scope of this study, I cannot further investigate the *ok*-construction. But the fact that there is no person marking on the verb indicates that *ok* is in the process of being recategorized or has already undergone recategorization.

8.1.2.4 Mam

As mentioned in the discussion of FUTURE, the Mam directionals *xi* 'away' and *ok* 'in' may assume an innovative function of indicating INCEPTIVE as auxiliairies in an McPC. Morphosyntactically, there is no difference between the directionals in their primary and secondary function. In both cases, they always occur after the Set B markers. In examples (145a) and (145b), the inceptive usage of *ok* is illustrated.

(145)   Mam   [England 1983: 73, 300]
   a.   *n-qo-ok-ka*   *teen-a*   *yoola-l*   *t-uuk'*
        PROG-B1PL-**INCEP[<DIR:in(<enter)]**-but EXI-1PL talk-INF   A3-RN
        matii   *Liixh Peels*
        INTENS   Andrés Pérez
        'And we started to talk with Andrés Pérez.'
   b.   *n-ch-ok*   *teen*   *t-aal*
        PROG-B3-**INCEP[<DIR:in(<enter)]**   EXI   A3-woman's.child
        ooq'a-l   *t-i'j*
        cry-INF   A3-RN
        'Her children began to cry about her.'

Summing up this section, there is some variation among those Mayan languages that have grammaticalized motion verbs into incipience markers. The question that remains is whether semantic change happened prior to grammaticalization, ENTER > BEGIN > INCEPTIVE, or whether the meaning shift accompanied the grammaticalization process, ENTER > INCEPTIVE. Further, it appears that the INCHOATIVE function developed out of the INCEPTIVE function showing the gradual development toward increasing abstractness and detachment from the source items' original meaning.

8.2 Unusual targets of Mayan motion verbs

There is evidence of some unusual targets of Mayan motion verbs. A detailed analysis of the relevant construction's diachronic development and the synchronic functional distribution is beyond the scope of this paper. Still, I offer some general observations and thus hope to incentivize further research in this direction. In Section 2.4, insights into the unusual, lesser-known, or rarer grammaticalization paths traveled by COME and GO were provided. These lesser-known paths are the consequence of indirect grammaticalization, either through SOURCE ITEM > DIRECT TARGET > INDIRECT TARGET (secondary grammaticalization) or SOURCE ITEM > INDIRECT TARGET according to Devos and van der Wal (2014: 7). The notion of indirectness refers to the semantic detachment from the source item. As hinted at earlier and shown below, I am suspicious of the second type and rather presume that the intermediate direct target fell out of use. Indeed, there is conspicuous evidence of constructional relations between structures featuring an unusual target and structures entailing the same form as a usual target in the Mayan languages. I commence with the grammaticalization of GO into REPORTATIVE in the realm of evidentiality as found in Yucatec Maya and Itzá, and potentially also Tojolabal and Chol. This is followed by an outline of the grammaticalization of ASCEND into a REFLEXIVE INTENSIFIER in K'iche'. Lastly, I consider developments of motion verbs into adverbial elements in Chuj, where PASS is used to indicate ALSO, and Q'anjob'al, where DOWN came to mark COMPLETELY. The development in Chuj might alternatively be analyzed as a case of lexicalization rather than grammaticalization. I describe it regardless.

In Yucatec Maya, *bin* 'go' probably grammaticalized into a REPORTATIVE marker. Both the formal near-identity as well as structural clues lend support to this hypothesis. In the literature, the marker is sometimes misleadingly described as a quotative marker. Yet, direct quotation is indicated by one of the six *ki*-forms for reporting speech. The stem *ki*- 'someone said' inflects for person with Set B markers and encodes direct quotation. According to Lucy (1993: 92), *ki*-forms "follow immediately after a directly reported act of communication, usually a verbal utterance in which all the deictic and expressive forms in the reported utterance preserve their shape". The use of *ki*-forms is shown in examples (146a) and (146b). The form with the third-person singular is by far the most frequently found expression in the data.

(146)   Yucatec Maya   [Lucy 1993: 92]

   a.   *tú'ux   k-a-b'in   **k**-en   ti'-Ø*
         [126]where   IPFV-A2-go   **say**-A1   PREP-B3
         '"Where are you going?" I said to him.'

   b.   *mix tú'ux   **ki**-Ø   t-en*
         [127]nowhere **say-**B3   PREP-A1
         '"Nowhere", he said to me.'

While the grammaticalized form of *bin* 'go' displays a similar syntagmatic dis-
tribution to *ki-,* it functions as a hearsay evidential or reportative, not a
quotative, because it does not indicate that the form of an utterance is repro-
duced word for word. Buchstaller and van Alphen (2012: xviii) argue that the
development of motion verbs into evidentials is rarely attested in the world's
languages. The authors state that it has only been found marginally for some
Germanic languages. Most notably, the *go*-quotative construction has been
described for English (e.g. *David went: "Careful, the floor is wet"*). Dongola (Nu-
bian) *án* 'go, become' is the only GO verb that grammaticalized in a quotative
construction in a non-Indo-European language, according to Buchstaller and
van Alphen (2012: xviii). Motion verbs are certainly not among the most likely
recruited sources for quotation or, more broadly speaking, evidentiality. But the
observations made for Yucatec Maya and Itzá, as well as possibly Chol and
Tojolabal, add at least two languages to the list of languages that grammatica-
lized GO into an evidential.

   In Contemporary Yucatec Maya, the free, uninflected, reportative particle
bin follows the main verb in a reported clause, see examples (147a) and (147b),
although it may also appear in a focus position, as shown in example (147c).
Thus, in contrast to *ki-*, *bin* does not exhibit any verbal properties. Semantically,
it indicates that the report of an event is not exact and only hearsay (cf. Bricker
1998: 32), rather than marking a sequence as a direct quote. Pragmatically, the
speaker emphasizes that the content is reproduced and thus avoids responsibil-
ity for what is said (cf. Lucy 1993: 119–120). Note that reportative *bin* may co-
occur with the reporting speech verb *ki-*, as illustrated in (147b), in which case it
appears after the *ki*-form.

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126 Glosses are mine; no (linear) glosses are provided by the author.
127 Glosses are mine; no (linear) glosses are provided by the author.

(147) Contemporary Yucatec Maya GO > REPORTATIVE

[Lucy 1993: 119, 117; Lehmann 2017: 186]

a. *t-u-tàas-ah*   **bin**
[128]COMPL-A3-bring-TR   **REPORT[<go]**
'It is said, he brought it.'

b. *quemó*   *la*   *madre*   *ki(h)-Ø*   **bin**
[129]burn.3SG.PST   DEF.F   mother   say-B3   **REPORT[<go]**
'It is said, the mother burned he says.'

c. *hach* **bin**   *t=u*   *t'úub-ul*   *k'iin=e'*
really **REPORT[<go]** PREP=A3   submerge.DEAG-INCOMPL   sun/day=TXT
táan *y-isíins-a'l=u*   *yatan*   *yuum*   *ahaw*
PROG   A3-bathe-INCOMPL.PASS=A3   wife   master/father   chief
'It is said, exactly at sunset, the chief's wife was washed.'

The usage of reportative *bin* can already be observed in Colonial Yucatec Maya. In example (148a), *bin* still displays some verbal properties. It appears in clause-initial position and takes the obligatory aspect and person marking morphology. It is used to indicate that the report given in the subsequent clause headed by a finite transitive verb is based solely on hearsay. In example (148b), a similar structure is given. Yet, while *bin* still takes aspectual and person marking, the non-finite intransitive verb of the reported clause appears only with the dependent status marker *-ik*. The same proposition 'It is said that I love him' may also be expressed by an alternative structure found in the same Colonial Yucatec Maya source text (148c). Here, the Set A marker for the first-person singular directly attaches to the aspectual clitic *k=*. The intransitive verb of the reported clause still occurs with dependent marking. However, *bin* no longer precedes *yáakunt-ik* 'love-DEP' but follows it and does not take any verbal marking morphology, see example (148c).

(148) Colonial Yucatec Maya GO > REPORTATIVE
[Martínez Hernández 1929 (a); Beltrán de Santa Rosa 1746: §246 (b, c) in Lehmann 2017: 201, 203]

a. *lik=**bin**=a*   *hats'-ik=a*   *paal-il*   *tumen=u*
IPFV=**REPORT[<go]**=A2   beat-INCOMPL=A2   child-REL   because=A3
tuus
lie.INTROV
'They say that you (habitually) beat your boy because he lies.'

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128 Glosses are mine; no (linear) glosses are provided by the author.
129 Glosses are mine; no (linear) glosses are provided by the author.

b.   *ki*   ***bin**=in*   *yáakunt-ik*
      IPFV   **REPORT[<go]**=A1   love-DEP
      'It is said that I love him.'

c.   *k=in*   *yáakunt-ik*   ***bin***
      IPFV=A1   love-DEP   **REPORT[<go]**
      'It is said that I love him.'

I do not wish to determine at this point whether we are dealing with a grammaticalization chain GO > XY > REPORTATIVE, or whether the various GO grams in Yucatec Maya are the result of polygrammaticalization. Yet, it may be hypothesized that, conceptually, the 'away'-component of *bin* relative to the deictic center, by default the speaker, was emphasized in the course of the development. The speaker distances the report from their own perspective and stresses that someone else produced the content away from the speaker's location (and responsibility). I deem it plausible that the development of REPORTATIVE from GO is the result of a series of metonymic processes.

    In the Yucatecan sister language Itzá, GO also appears to have grammaticalized into REPORTATIVE. Nevertheless, there seem to be some functional differences in comparison to the particle's usage in Yucatec Maya. Hofling (2000: 501) states that "the reportative *b'in* is optional but [...] often present in formulaic constructions in traditional narrative". Reportative *b'in* in Itzá thus features prominently in mythic narratives used to describe events in the distant past (cf. Hofling 2000: 558). Probably, the same conceptual processes underlie the development as sketched for Yucatec Maya. In terms of structure, the Itzá reportative marker mostly surfaces after the speech verb. Yet, it may also appear before it. I presume based on the findings for Yucatec Maya, that the construction in example (149a) is innovative and thus 'younger' than the costruction in (149b). In example (149c), *b'in* is employed in a parallel structure to that displayed in (147b) for Yucatec Maya. It co-occurs with a *ki*-verb marking direct quotation. Both elements follow the reported clause.[130] Hofling (2000: 501) further notes that "[t]he quoted material, which functions as the direct object of the speech verb, has all the deictic markers appropriate to direct quotation".

(149)   Itzá   [Hofling 2000: 501, 502, 504]

   a.   *i*   *k-uy-a'al-ik*   ***b'in***   *ti'ij-ej:*
       and   INCOMPL-A3-say-INCOMPL.INTR   **REPORT[<go]**   3SG.IOPR-TOP

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130 Indeed, Hofling (2000: 504) glosses *ki* as QUOT. For consistency, I applied the same glossing as for Yucatec Maya instead.

"*Ay   suku'un-ej   b'a-je'-la'-ej   xen!*"
EXCLAM   older.brother-TOP   TEMP-OST-PROX-TOP   go.IMP.INTR
'And he says to him, "Oh, older brother, now leave!"'

b. *i   ka'   **b'in**   t-uy-a'l-aj*   *a'   nojoch=winik*
  and   then   **REPORT[<go]**   COMPL-A3-say-COMPL.TR   DET   old=man

  ti'ij-ej: "B'a'-la   ko'ox b'el in-ka'a in-hok'-es-eech [...]"
  3SG.IOPR-TOP   TEMP-PROX   HORT   go   A1-go   A1-leave-CAUS-B2

  'And then, they say, the old man said to him, "Now let's go, I'm going
  to take you out [...]"'

c. "*ya   ma'   tan-b'e(l)   ti   sut   t-aw-otoch   t-u-ka'ye*"
  already   NEG   A2-go   SUB   return   to-A2-home   to-A3-again

  *ki-Ø   **b'in**   a'   winik   ti'ij-ej*
  say-B3   **REPORT[<go]**   DET   man   3SG.IOPR-TOP

  '"and then you aren't going to return to your home again", they say
  the man said to him.'

Overall, it transpires that reportative *b'in* in Itzá requires a co-occurring speech
or reporting verb and always indicates direct quotation. It signals that the spe-
cific form of an utterance is reproduced word by word. This is different to what
was described for Yucatec Maya above.

   There are possibly two other Mayan languages that grammaticalized GO in
this way. The forms *b'i'* and *bi* are recognized as hearsay markers in Tojolabal
and Chol[131], respectively. The usage of Tojolabal reportative *b'i'* is given in (150a)
and (150b). The element belongs to a class of modal particles that "optionally
cliticize to the first non-fronted element of clauses, usually the verb, a temporal
marker, or an adverbial" (Brody 1987: 1). The latter is shown in the examples
below. In the set of Tojolabal modal clitic particles, there are three other
evidentiality markers. *Ni* marks emphatic affirmation of the truth of an utter-
ance. *K'a* indicates conditional in the sense that the truthfulness of an utterance
is neither denied nor supported (Brody 1987: 3). *Ma/ama* is used to express

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131 In the Cholan-Tzeltalan sister languages Tzeltal and Tzotzil, REPORTATIVE is marked by a
particle *lah* 'it is said'. *Lah* indicates, analogous to *bin*'s usage in Yucatec Maya, that the speaker
"avoids responsibility for believing in the truth of the utterance" (Brown and Levinson 1987: 152,
on Tzeltal). It is conceivable that REPORTATIVE *lah* grammaticalized from the verb *lah* 'finish'. The
development is not described in the literature. I hypothesize that the aspectual verb that also
grammaticalized into a TERMINATIVE auxiliary and PERFECTIVE marker in the Tzeltalan languages,
grammaticalized further preserving and emphasizing the 'complete'-meaning entailed in the TAM
function to mark that the utterance was completed earlier by a third party and is detached from
the speaker's view. I return to the implications of this analysis in Section 9.

dubitative and outright doubts the truth of a statement. Tojolabal reportative *b'i* "entails a restriction of the speaker's full commitment to the veracity of the statement" and most frequently appears in traditional folktales (Brody 1987: 3), similar to what was found for Itzá. The veracity of a statement is not questioned, but the responsibility for it is placed on another authority. Thus, while *ni* and *b'i* belong to the realis realm, the other two particles are irrealis markers (Brody 1987: 4).

(150) Tojolabal   [Brody 1987: 8, 10]
    a. *i* *tuktukil=**b'i*** *chante'* *ø-el-iy-e'-k'e'n=i*
       and different=**REPORT** animal COMPL-EXI-INTR-A3PL-upward=NPT
       ja *ora* *jaw=i*
       DET time that=NPT
       'And (it is said) that they were different animals when they up out that time.'
    b. *[...]* *porke* *mas=**b'i*** *jel* *yaj* *jun* *tiro* *oj*
       because more=**REPORT** very pain one lots FUT
       jak-uk-ø *ja* *kastigo* *ja* *wego*
       arrive-SBJV-B3 DET punishment DET now
       '[...] because (it is said) that the punishment will arrive with a lot of suffering this time.'

Analyzing *b'i* as an instance of GO grammaticalization is problematic as there is no description of the reportative particle as having grammaticalized from GO in the literature on Tojolabal. Also, the data only offer examples with the fully grammaticalized clitic. I did not find any convincing instances where the particle exhibits verbal properties and a definite structural link could be established. Moreover, looking at the overview of Pan-Mayan motion verbs in Appendix III, it is obvious that no GO motion verb with a similar phonological form to the reportative exists in Contemporary Tojolabal. The same analytical issues arise when considering Chol. The Cholan language also has a reported speech clitic *bi*, again among a class of modal particles, that appears in narrative speech with direct and indirect quotations and encodes hearsay. It likewise serves to "[signal] an intellectual distancing, freeing the speaker from responsibility for the truth of the utterance in which the particle appears" (Attinasi 1973: 197). The analyses for Tojolabal and Chol stand on shaky ground and require further investigation. It may well be the case that *b'i* and *bi* are related to the verb 'to understand' which surfaces as *'ab'iy* in Tojolabal and *'a'i* in Chol's Cholan-Tzeltalan sister languages Tabasco Chontal, Tzeltal, and Tzotzil (Knowles 1984: 222).

What is more, some of the directionals outlined in Section 7.2 grammaticalized further into more abstract categories. Bridges Velleman (2014: 223) asserts that in K'iche' "the directional enclitic =*aq'an(oq)* commonly means 'upwards'. But it is also used as a reflexive intensifier". The directional's usage as a reflexive intensifier becomes evident when comparing (151a), where it is not employed at all, and (151b), where it encliticizes in its reduced form in typical directional fashion to the verbal stem. Note that while the structures presented in the examples are ungrammatical, i.e. subjects of transitive clauses bearing focus in situ are not attested and rejected by K'iche' speakers (Bridges Velleman 2014: 220), the examples were still chosen to illustrate the secondary usage of the directional.

(151)   K'iche'   [Bridges Velleman 2014: 223]
    a.   *x-u-tij*   *ri*   *al*   *Mari'y*
         COMPL-A3-eat   DET   miss   Maria
         'Miss Maria ate them.'
    b.   *x-u-tij=**aq'an***   *ri*   *al*   *Mari'y*
         COMPL-A3-eat=**REFL.INTENS**[<**DIR:up(<ascend)**]   DET   miss   Maria
         'Miss Maria ate them herself.'

In the world's languages, the (intensive) reflexive is generally based on lexemes for BODY and HEAD as reported in the WLG (Heine and Kuteva 2002: 57–58, 169). Possibly, the same conceptual motivation for grammaticalizing HEAD inspires that of UPWARDS (cf. Heine 2000; Schladt 2000 on the grammaticalization of reflexives). The grammaticalization chain ASCEND > UPWARDS > INTENSIVE REFLEXIVER would accordingly underlie the development in K'iche'.

In Contemporary Chuj, the directional *pax* derived from RETURN has an adverbial function and denotes 'also, too'. The motion or path related usage, 'returning', is not reported for Contemporary Chuj. It seems that the direct grammaticalization stage disappeared. The directional in its adverbial usage lost some semantic characteristics typical of directionals. It conveys neither deictic nor path information (Buenrostro 2015: 109–110). *Pax* has clearly acquired adverbial properties. While it still behaves somewhat like a directional and takes status marking in example (152a), it structurally behaves more like an adverb and appears in clause-initial position detached from the verbal complex in example (152b).

(152)   Chuj   [Buenrostro 2015: 110]
    a.   *ix=ø=k-il*   ***pax*-i**
         COMPL=B3=A1.PL-see   **ADV:ALSO**[<**return.there**]-INTR
         'We see it too.'

b. ***pax***   *ix*   *s-nun*   *winh*
    ADV:ALSO[<**return.there**]   CL:woman   A3-mother   CL:man
    tz=ø=in-juk   *el-i'*
    HAB=B3=A1-wash   DIR:out[<leave]-INTR
    'I also wash his mother.'

As mentioned above, this may present a case of lexicalization rather than grammaticalization. Still, the development is noteworthy. A more detailed diachronic analysis is needed to establish the usage and distribution of directional *pax* at earlier language stages. Moreover, a sound argument for the conceptual basis of the development is required.[132] The derivation of a discourse marker 'also' from motion verb is also attested in Mojeño Trinitario (Southern Maipuran, Arawakan) where the verbal root *po* 'to walk' developed into the discourse marker *-po* 'also' (Françoise Rose, p.c.).

In Q'anjob'al, the two directionals *=ay* 'down' from DESCEND and *=kan* 'motionless' from STAY acquired the adverbial meanings COMPLETELY and BEFORE, respectively. Only the former development, which may be described as DESCEND > DOWNWARDS > COMPLETELY, is based on an actual motion verb. According to Mateo Toledo (2008: 198), "[t]he completely meaning [of *ay*] indicates that an event is over and its result is expected to last. The trajectory meaning can refer to tracing movement or orientation. When an entity moves, it is interpreted as a resultative plus a DOWNWARD movement".[133] The resultative component entailed in the semantics of the trajectory directional is the target of the process. Example (153) shows the directional in its adverbial usage. Structurally, it is identical to the trajectory directional and encliticizes to the verbal stem. The 'completely'-reading is evoked if the directional occurs with change-of-state verbs without a mover, such as *kam* 'die'. Other verbs of this type include *txika'* 'to cook', *jatnej* 'to fix', or *q'ayi* 'to become used to' (Mateo Toledo 2008: 190–191).

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132 Alternatively, the development could be analyzed as *exaptation*, a term borrowed from evolutionary biology and introduced into linguistic nomenclature by Lass (1990). Exaptation, in the biological sense, entails the "co-optation of a trait for a new function that is not immediately related to its former function [Gould & Vrba 1982]" (Van de Velde and Norde 2016: 1). In linguistics, it is used to describe instances of language change where a new function of a sign is unexpected, novel, and rapid. The term is highly controversial (cf. Norde and Van de Velde 2016).

133 Notice that *=ay* has a third aspectual meaning. The directional signals REPETITIVE if it occurs with a nonchange of state verb without a mover (Mateo Toledo 2008: 178, 198–199).

(153) Q'anjob'al   [Mateo Toledo 2008: 180]

(*Ax   x-ø-y-il-on=teq*   *heb'   toq   ay*
then   COMPL-B3-A3-see-DCM=DIR:toward[<come-DEP]   3PL   NEG   EXI
to   ha'),   *mal   ø-kam=ay*   *ha'*
still water   already B3-die=**COMPLETELY[<DIR:down(<descend)]**   water
'(When they realized there was no river anymore), the river died completely.'

While not a motion verb, *kan* 'motionless' also attained a temporal adverbial usage via STAY > MOTIONLESS > BEFORE. Mateo Toledo (2008: 182) writes that adverbial *kan* "establishes a relation between two events or between a participant and an event. This gives rise to two interpretations of *kan*: temporal and spatial. These meanings are obtained from an abstract STAY meaning". The temporal adverbial meaning BEFORE is shown in example (154).

(154) Q'anjob'al   [Mateo Toledo 2008: 183]

y-et   k'am-to   ch-ex   jay-i,
A3-when   NEG-still   INCOMPL-B2   come.here-INTR
*max-in   lo-w=**kan**-oq*
COMPL-B1   eat-APP=**DIR:BEFORE[<DIR:stay/motionless(<stay)]**-INF
'Before you came here, I ate.'

In example (154), the event encoded by the verbal complex featuring *kan* occurred prior to the event encoded by the *kan*-less verb. The order of the verbal complexes as such does not change the temporal relation (Mateo Toledo 2008: 184). The *kan*-verb always denotes an earlier event.

Overall, the diverse developments assert that directionals are particularly good candidates or stepping stones for the grammaticalization of further, more abstract functions. There is a range of unusual targets of motion verbs and directionals in the Mayan languages. Hence, it comes as little surprise that only a few languages have grammaticalized motion verbs in the respective directions and that the usages are largely idiosyncratic and language-specific. More research is needed to shed light on the respective developments, especially whether their emergence really depends upon previously grammaticalized direct targets as is suggested by the preliminary findings outlined above.

Before discussing the results of this study in light of their implications for the Network Approach to grammaticalization, I briefly turn to contact-induced grammaticalization of Mayan motion verbs whereby the Mayan languages function as either model or replica languages. Three contact scenarios are investigated.

8.3 Contact-induced grammaticalization of Mayan motion verbs

According to Law (2017: 112), "it is increasingly clear that the history of Mayan languages is one of almost constant vigorous, and at times turbulent, linguistic exchange". These linguistic exchanges comprise a variety of contact languages. I investigate three scenarios: (1) Spanish-Mayan contact, (2) Mayan-Mixe-Zoquean contact within the Mesoamerican linguistic area[134], and (3) inner-Mayan contact. In Mayan contact history, not only lexical items or phonological patterns were borrowed, but more importantly for the purpose of this study, also grammatical morphology and morphosyntactic patterns. The grammatical influence in the contact scenarios is reciprocal; the Mayan languages serve both as model languages providing structural patterns and as languages replicating some grammatical concepts from the contact language(s). There are several, to varying degrees probable, contact-induced grammaticalization instances involving motion verbs. These are discussed in the following.

8.3.1 Spanish-Mayan contact

Since the Spanish conquest of the Aztec empire in 1519, the languages of the Mayan phylum have been in contact with Spanish, or rather the emerged Latin American variety of Spanish. Although the limited scope of this study does not allow for a detailed survey of the sociolinguistic situation in Mesoamerica, it ought to be emphasized that Spanish is the prestigious language of administration, education, and economy (Gómez Rendón 2008: 18). Consequently, the indigenous population today is generally bilingual (see Escobar 2004, for a detailed discussion of the social and linguistic aspects of bilingualism in Latin America). Bakker et al. (2008: 169) argue that "although today the role of exter-

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134 Indeed, research on linguistic areas, e.g. the Mesoamerican linguistic area within which the Mayan languages form a vital part, and with that the identification of areal features have provided indisputable evidence for the possibility and reality of structural transfer. This reality that was discarded by structuralists for a long time (cf. Thomason and Kaufman 1988: 14–15). The Mesoamerican linguistic area stretches from Mexico, Belize, and Guatemala over Honduras, El Salvador, and Nicaragua to the North of Costa Rica and comprises fourteen language families (Suárez 1983: xv–xvii). Campbell et al. (1986: 555) mention thirty-one possible Mesoamerican features, four of which clearly point to Mesoamerica as a linguistic area. They include (a) head-marking genetival constructions, (b) relational nouns, (c) vigesimal numeral systems, and (d) non-verb-final word order (Stolz and Stolz 2001: 1543–1547).

nal sources – television, film, internet, newspapers – on languages is considerable, […] in most cases the language used in the local communities themselves is the greatest determining factor for language change". Bilingualism thus becomes a driving force of change in the Mesoamerican indigenous languages and other contact situations by extension (Appel and Muysken 2006). In relation to the (local) Mayan speaking communities, it is repeatedly stressed in sociolinguistic literature that there has been "widespread and long-standing resistance by speakers of most Mayan languages to Spanish influence beyond the lexicon" (Law 2017: 121), in particular in comparison to other Mesoamerican languages. An illustrating example comes from language contact research with a view to structural borrowing.

Hober (2019) investigates the borrowing of the Spanish preposition *de* 'from, of, about' into the languages of Mexico. Adpositions such as *de* present a borderline case or intermediate category between grammatical and lexical borrowing and can, therefore, be justifiably analyzed as an instance of structural transfer. In the study, using the ALIM parallel corpus, it is demonstrated that the preposition had varying influence on the different replica languages' structures. While the Uto-Aztecan and Otomanguean languages under scrutiny readily borrow *de* and its patterns, only Yucatec Maya sporadically allows for its intrusion into two functional domains, as a temporal marker denoting the duration or a span of time and as a marker of an object's material. The other Mayan languages Chuj (Buenrostro 2009) and Huastec (Meléndez Guadarrama 2017) featured in the ALIM-series do not give evidence of *de*. Concerning the encoding of path outlined in Section 7.2.3, Yucatec Maya rigidly adheres to path neutral marking and therefore does not employ *de* in ablative contexts. Conversely, all other *de*-borrowing languages in the ALIM, except for Zoque (Mixe-Zoque), make use of ablative *de*. Exemplarily, the same stimulus sentence taken from the ALIM questionnaire is given for Isthmus Zapotec (Otomanguean) (155) and Yucatec Maya (156). In both renderings, a LEAVE verb is employed. Spanish *de* is additionally featured to mark ablative in Isthmus Zapotec.

(155) Isthmus Zapotec   [Pickett and Embrey 1974: 112]

*bi-**ree***	*ngiiu*	*ke*	***de***	*ra*	*yoo,*	*ǰa*	*ra*	*bi-iti*	*bi'ku*	*ke*
PFV-**leave**	man	this	**from**	LOC	house	this	LOC	PFV-die	dog	this

'The man left the house where they killed the dog.'

(156) Yucatec Maya   [Stolz et al. 2012: 145]

le	*máak-o'*	***hóok***	*ich*	*le*	*nah*	*tu'x*	*t-u*
DEF	man-DIST	**leave**	PREP	DEF	house	where	COMPL-A3

> *kíim-s-ah*   *le*   *pèek'-o'*
> die-CAUS-COMPL   DEF   dog-DIST
> 'The man left the house where they killed the dog.'

Nevertheless, "it is certainly the case that Spanish grammatical influence can be seen in some Mayan languages at a structural level with basic word order, discourse particles, and perhaps contact-induced grammaticalizations, particularly in communities that are experiencing a rapid shift to Spanish" (Law 2017: 121). For instance, Montgomery-Anderson (2010) suggests that the novel periphrastic passive construction in Tabasco Chontal which combines *x-* 'go' as an auxiliary and the adjectival form of the transitive verb (157) arose due to contact with Spanish. The Tabasco Chontal periphrastic passive, which co-exists alongside other passivization strategies, serves to emphasize the patient and extract the agent from an utterance (Montgomery-Anderson 2010: 98). The Spanish periphrastic passive has a similar function and consist of a form of *ser* 'be' plus the past participle of the lexical verb (158). Notice that the past tense forms of *ser* 'be' are homophonic with the past tense forms of *ir* 'go'. Thus, it appears that speakers of the recipient language Tabasco Chontal interlingually 'mis'-identified the sign (My) in Spanish (M). Instead of finding an equivalent for *ser* 'be' (My), the motion verb *ir* 'go' was deemed to form the basis of the passive construction. The interlingually 'mis'-identified sign *x-* 'go' (Ry) was used to derive an equivalent passive auxiliary category (Mx=Rx).

(157)   Tabasco Chontal
     ni   *basu*   ***x-i-Ø***   ***t'ox-o***   *k'a*   *ch'ok*
     ART   vase   **go**-COMPL-B3   **break-ADJ**   PREP   child
     'The vase was broken by the child.'

(158)   Spanish
     el   *jarrón*   ***fue***   ***roto***   *por*   *el*   *niño*
     DET   vase   **be.PST.3SG**   **break.PST.PTCP**   PREP   DET   child
     'The vase was broken by the child.'

Despite the difference in the source lexemes, I agree with Montgomery-Anderson (2010: 98) that the analysis is plausible because of the four reasons he lists. First, no comparable passive construction is found in the other Mayan languages. Second, passives formed by a motion verb auxiliary and a participle are rare among the world's languages (cf. Keenan and Dryer 2007: 338). Third, the homophony between the past tense forms of *ser* and *ir* explains why *x-* 'go' grammaticalized instead of a BE-type verb. Fourth and last, the functional distribution of the construction in Chontal reflects the distributional facts in Span-

ish. The periphrastic passive in Tabasco Chontal indeed appears to be induced through contact with Spanish.

Another proposed contact-induced grammaticalization is the supposed development of GO into a marker of the future tense in some Mayan languages modeled on the Spanish [*ir a*]-future (cf. Law 2017: 113). I am confident that the grammaticalization of GO into FUTURE in the Mayan languages is not due to Spanish contact. First, this particular grammaticalization path is cross-linguistically widely observed which makes it difficult to prove with any confidence that contact is the driving force here and not a universal tendency. The WLG (Heine and Kuteva 2002: 161–163) alone lists 20 languages from various phyla where GO has followed this well-trodden path. Second, there is already evidence of the gram as a fully-fledged temporal marker in some colonial varieties of Mayan. For an illustration, compare the McPC in example (159a) and the future construction in example (159b), both taken from the same Colonial Yucatec Maya texts.

(159)   Colonial Yucatec Maya
             [Beltrán de Santa Rosa 1746: §110, §99 in Lehmann 2017: 215]

a.   *t*   **bin**-*en=in*   *kim-es*   *wakax*
       PFV   **go.COMPL**-B1=A1   die-CAUS.SBJV   cow
       'I went to kill cows.'

b.   ***bíin***   *bo'l-nak-en*   *ts'e'ts'etak*
       PRED.FUT   pay-SBJV-B1   little.by.little
       'I shall pay little by little.'

Already a century earlier, Coronel (1998b) referred to the construction as 'futuro' and provided several examples (Lehmann 2017: 215). If it were Spanish influence – note that the first Spaniards arrived on the Yucatecan peninsula in 1546 – then the grammaticalization process must have proceeded with great speed. In fact, the analytic [*ir a*]-future was not an integral part of Colonial Spanish and, as Heine and Kuteva (2005: 112) argue based on evidence from many cases of contact-induced change, "replica categories are likely to be less grammaticalized than their model categories".[135] Aaron (2006) conducted a corpus study on the synthetic and analytic futures in Spanish examining data from the mid-13th to the early 21st century providing the absolute and relative frequencies for the two futures by century. The data shows that during the 17th–18th century, the

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135 Note, however, that Heine and Kuteva (2005: 103) also contend that the future tense is the most likely category to be replicated in contact. For instance, it is suggested that the emergence of the future tense in the fellow Mesoamerican language Pipil was induced through contact with Spanish (Harris and Campbell 1995: 148–149, in Heine and Kuteva 2005: 231).

ratio between the analytic and synthetic future was 1:22; the [*ir a*]-future was only used in 4 % of instances, all remaining futures were expressed by the synthetic structure (Aaron 2006: 268). Third, the frequency and productivity of McPCs, which serve as the input construction for the GO-auxiliary future, provide the structural ground for the development. If it were Spanish influence, then the different stages of clausal integration and differences in structures with intransitive and transitive V2s ought to be negligible to non-existent which, as I have shown above, is not the case. Fourth, the motion auxiliary must be followed by a preposition *a* and is always inflected for person in the Spanish analytic future. Conversely, in some Mayan languages, e.g. Tzotzil, Tzeltal, and Yucatec Maya, the grammaticalized motion verb auxiliary suffices to encode future tense. The preposition that was initially present in the construction came to be omitted, and the motion auxiliary is devoid of any person marking. Thus, the Mayan languages would have had to grammaticalize GO much 'faster' than the M language Spanish has to this day. Although there is no research speaking to the issue of differences in grammaticalization speed, intuitively, it seems unlikely that the R would grammaticalize a replicated category with much greater speed.[136] In sum, it is improbable that the Mayan GO-futures were contact-induced. Quite the contrary appears to be the case. The Mayan future construction influences the analytic future found in regional Spanish varieties.

According to Bybee et al. (1994: 268), "[t]o derive future there must be an allative component, 'movement toward', either inherent in the semantics of the verb or explicit in the construction". While the former scenario applies to the future constructions in most Mayan languages, the latter applies to standard Spanish. Yet, there is evidence that in zones of intense Spanish-Mayan contact, the preposition *a* present in the standard Spanish future construction is omitted.[137] This is exemplified for the Spanish dialect of Soyaló, a Tzotzil-speaking region, in example (160). Mayan influence on this Spanish variety was already reported in Section 3.5 in relation to deontic necessity using a volitional verb.

(160) Soyaló dialect of Spanish   [Gast and van der Auwera 2012: 415]
       va *querer* *más* *tabique*
       FUT want.INF more adobe
       'More adobe will be needed.'

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136 What I do acknowledge, however, is the possibility that Spanish influence had a catalytic function.

137 Rottmann de Schultheiß (2007: 164) reports identical tendencies in Guatemalan Spanish as a result of Spanish-K'iche' contact. Note, however, that the usage of the periphrastic construction without *a* is already documented for earlier stages of the Spanish language (cf. RAE MAN 2010: 541).

In a nutshell, "in light of the severity of Spanish colonial and postcolonial political and cultural oppression in Latin America in general, non-lexical (structural or grammatical) influence from Spanish on Mayan languages appears rather modest, and fairly recent" (Law 2017: 113), in particular in comparison to Spanish-Uto-Aztecan contact. The development of the Mayan GO-futures is not contact-induced but an organic extension of the McPCs.

8.3.2 Mayan-Mixe-Zoquean contact

The second zone(s) of intense language contact which influenced the grammaticalization of motion verbs can be found in the Mexican states of Chiapas and Veracruz. The Mayan and Mixe-Zoquean speaking communities in these areas "were in close contact and underwent situations of prolonged bilingualism in the pre-Colombian period" (Zavala Maldonado 2002: 169, translation from Gast and van der Auwera 2012: 396). The resultant grammatical influence goes in both directions. In the Chiapas region, Cholan-Tzeltalan languages, the Yucatecan language Lacandon, and the Chujean language Tojolabal are spoken, see Figure 26. All these Mayan languages, but especially Tzotzil, have been in contact with the Mixe-Zoquean language Zoque (cf. Gast and van der Auwera 2012). In the Veracruz region, languages of the Tzeltalan and Kanjobalan subgroups have been in contact with the Mixe-Zoquean language Oluta Popoluca (cf. Zavala Maldonado 2000 on Oluta Popoluca, Akateko, Tzotzil, and Popti'). Three structural areas are relevant for the contact-induced grammaticalization of motion verbs. In the cases of McPCs and DIRCs, the Mayan languages served as the M language. A distinctive pattern of incorporated secondary predicate constructions was transferred from Mixe-Zoquean to the two Mayan languages Chol and Huastec (cf. Law 2017: 115).

The contact scenarios and the resultant grammaticalization have been intensively discussed in the literature, see Zavala Maldonado (2000, 2002) and Gast and van der Auwera (2012). I point to some aspects of structural convergence between Mayan and Mixe-Zoquean languages in the verbal domain. I begin with directional constructions, continue with motion auxiliary construction, and end with motion incorporation constructions.

According to Zavala Maldonado (2000: 147), "the paradigms of directionals found in Mixe-Zoquean and the adjacent Mayan languages are remarkably similar in terms of the number of their forms, their semantics and their morphosyntactic slot within the verb". An overview of the directional paradigms in Tzotzil de Zinacantán and Zoque de Chapultenango is given in Table 26.
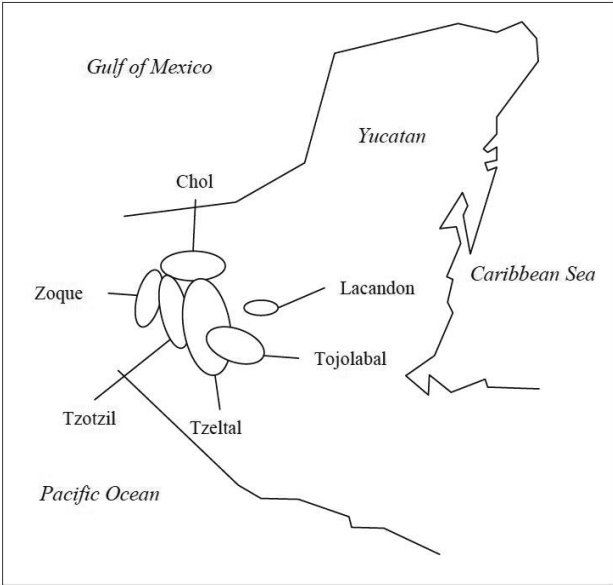
Figure 26: The Mayan-Mixe-Zoquean contact zone in the Mexican state Chiapas (Gast and van der Auwera 2012: 397).

Table 26: Directional roots in Zinacantán Tzotzil and Chapultenango Zoque (Gast and van der Auwera 2012: 399).

	Zinacantán Tzotzil	**Chapultenango Zoque**
go (away), away	*bat-el*	*mak*
come (here)	*tal(-el)*	*mik*
arrive (there)	*k'ot-el*	*nu'k*
arrive (here)	*yul-el*	n.a.
pass by, away	*ech'-el*	n.a.
return	*sut-el*	*witu'*
stay	*kom-el*	*tzʌñ*
pass	*helav-el*	*kʌt*
enter	*och'-el*	*tʌhkʌy*
exit	*lok'-el*	*puht*
ascend	*muy-el*	*ki'm*
descend	*yal-el*	*mʌ'n*
cross	n.a.	*hahk*

For Zoque's Mixe-Zoquean sister language Oluta Popoluca, Zavala Maldonado (2000: 147) argues that "[s]everal facts indicate that Olutec and the rest of the Mixe-Zoquean languages acquired the verb-plus-directional pattern from the neighbouring Mayan languages". While Tzotzil directionals appear as post-verbal free morphemes, Oluta Popoluca incorporates its directionals into the verbal complex, see examples (161a) and (161b) where the directionals are suffixed to the main verb. The last slot of the verbal complex is occupied by an aspectual suffix.

(161) Oluta Popoluca [Zavala Maldonado 2000: 146]

    a. *Ø=ma'tz-**ka'**-u* *jo:yan*
        B3-fall-**DIR:down[<go down]**-COMPL nest
        'The (wasp's) nest fell down.'

    b. *ja'=k* *'i='ix-**nax**-pe* *peryo:diko*
        3SG=ANI.ENC A3=see-**DIR:across[<cross]-**INCOMPL newspaper
        'He is reading the newspaper.'

Four pieces of evidence support the presumption that Mixe-Zoquean directionals are modeled on the Mayan template (Zavala Maldonado 2002: 147). All are symptomatic of grammaticalization. First, some of the directionals in Tzotzil exhibit phonologically eroded forms, such as the deictic directional *tal* 'away'. None of the Oluta Popoluca directionals appears in short form, not even the presumably most frequent deictic directionals. They are virtually identical in form to their source lexemes. Second, Oluta Popoluca does not allow for directional chains found in the majority of Mayan languages with directionals. Only one directional is permitted. Third, Mayan directionals not only appear on verbal predicates but also non-verbal predicates and adpositions. Fourth and last, none of the Oluta Popoluca directionals has developed more abstract, aspectual functions observed for many of the directionals in Tzotzil. Based on these four parameters, Zavala Maldonado (2000: 147) concludes that the Mayan directionals are 'older', have existed longer in the Mayan grammar, and are at a more advanced stage of grammaticalization. Moreover, Oluta Popoluca directionals only surface on 1 % of all predicates compared to 35 % in Popti' and 45 % in Chuj (cf. Table 20). They are therefore neither obligatory nor highly productive. Zavala Maldonado (2000: 148) explains that the innovative contact-induced directional system replaced an older system that can be traced back to Proto-Mixe-Zoque. In the 'old' system, all Mixe-Zoquean languages made use of

a set of affixes that encoded path.[138] Their lexical origins are partly unclear. However, some have definitely grammaticalized from body-part nouns or locational adverbs (Zavala Maldonado 2000: 148). The old directional for upwards movement *-yuk* is derived from the locational adverb *yuk* 'up there'. The usage of both is illustrated in example (162).

(162) Oluta Popoluca   [Zavala Maldonado 2000: 148]
      ja'=k   *tzu:k*   *'asta* **yuk**-*pi*   *'i*=**yuk**-*yokx-e*
      he=ANI.ENC mouse   very   **up.there**-LOC   A3=**upwards**-jump-INCOMPL
      'The mouse is jumping way up there.'

Taken together, I agree that the Mixe-Zoquean directional system derived from directional motion verbs was contact-induced. However, one ought to be careful not to assign equal importance to the parameters that served as diagnostic tools for establishing the relative age of the systems. For instance, I have demonstrated that the attrition found for the members of the Kanjobalan directional system is syntactically motivated, although phonologically eroded forms also result from the high occurrence frequency of an individual form in many cases. Deictic directionals exhibit a high token frequency, and therefore, oftentimes have at least one shorter allomorph.

      Overall, the development of the new directional system in the Mixe-Zoquean languages constitutes an instance of replica grammaticalization where both signs and categories are interlingually identified. The speakers of Mixe-Zoque (R) recognized the grammatical category of the directional (Mx) in Mayan (M). An equivalent category Rx was developed by using lexical material, i.e. motion verbs, from Mixe-Zoque. In Heine and Kuteva's (2005) terms, the grammaticalization process is replicated, making use of an analogical formula of the form [My > Mx]=[Ry > Rx]=[motion verbs > directionals].

      The grammaticalization of motion verbs into auxiliaries in Mixe-Zoquean languages also appears to be Mayan-contact-induced. This becomes especially evident when considering the parallels in TAM marking in Tzotzil and Zoque motion auxiliary constructions. The almost identical schemas for the motion verb auxiliary constructions in both languages are given in Figure 27.

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138 The replacement of one directional system by a new one in Mixe-Zoquean points to the proposed cyclic nature of grammaticalization (cf. Lehmann [1985] 2004).

a.   Tzotzil auxiliary construction

ASP-_____(=ENC) PERS-V-SBJV _____

        auxiliary slot   ↑   arguments/adjuncts

                      triggers
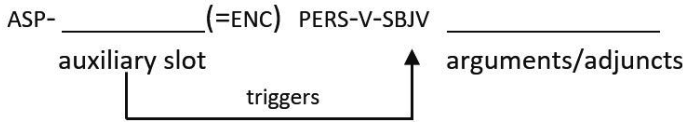
b.   Zoque auxiliary construction

_____-ASP(=ENC) PERS-V-DEP _____

        auxiliary slot   ↑   arguments/adjuncts

                      triggers
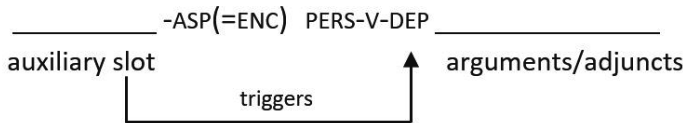
Figure 27: Auxiliary constructions in Tzotzil and Zoque (Gast and van der Auwera 2012: 401).

In both languages, the aspect affix attaches to the auxiliary and an optional second position clitic may occur as the last element of the auxiliary. The V2 carries the person marker(s) and appears in the subjunctive mood in Tzotzil. An additional suffix *-uk/-ik* is attached to intransitive V2s, while transitive V2s appear zero-marked. The dependent status in Zoque is always overtly marked on the V2 by *-u* (after a progressive marker), *-a/-ʌ* (after a negative incomplete marker), or *-e/-i* (after a negative in completive marker) (Gast and van der Auwera 2012: 402). The auxiliaries trigger the subjunctive mood or dependent form on the V2 in both languages. Concrete examples for the constructions are given in (163) for Tzotzil and (164) for Zoque.

(163) Tzotzil   [Aissen 1994: 659]
       ch-ba   *chonolaj-ik-on*
       INCOMPL-go   trade-SBJV-B1
       'I'll go to trade.'

(164) Zoque   [Harrison et al. 1981: 442]
       min-pa   *y-peht-u*
       come-INCOMPL   3SG.ERG-sweep-DEP
       'He'll come to sweep (the floor).'

Zavala Maldonado (2000: 145–146) succinctly demonstrates that the structure is transferred from Mayan to Mixe-Zoquean based on three arguments. First, the paradigms of auxiliaries in the Tzeltalan languages entail approximately ten motion auxiliaries and two or three aspectual auxiliaries. By contrast, in Mixe-

Zoquean, only three motion auxiliaries may occupy the V1 slot. For instance, only *nükx* 'go', *mi:n'* 'come', and *'oy* 'go and return' may appear in V1 position in Oluta Popoluca (Zavala Maldonado 2000: 142). Second, there is a sound typological argument to be made. Mayan languages are predominately verb-initial, as demonstrated in Section 5.2, while Mixe-Zoquean languages exhibit verb-final word order. Zavala Maldonado (2000: 145) notes that "[t]he pattern AUX+V2, where V2 is an embedded verb, is typically attested in verb-initial languages. Mayan languages exhibit all the major typological traits that are common to verb-initial languages: preposition; noun-genitive order, AUX-verb; and LightV-verb". The reversed ordering of constituents can be observed in Mixe-Zoquean, i.e. postposition, genitive-noun order, V-AUX order, and V-LightV. It is therefore conceivable that the innovative AUX-V pattern in Mixe-Zoquean was transferred from Mayan, as it goes against the universally observed trends in verb-final languages. Third, some of the Mayan motion auxiliaries have grammaticalized further. This is especially true for the Kanjobalan languages where McPCs have acquired Stage IV properties and the P is marked on the auxiliary, which is indicative of an advanced stage of reanalysis. No Mixe-Zoquean McPCs exceed Stage III. Additionally, one could argue that through the introduction of the motion auxiliary construction, the development of future tense and inchoative aspect in e.g. Francisco León Zoque was also contact-induced – at least indirectly. In (165a), the motion auxiliary *min* 'come' marks inchoative aspect, while the motion auxiliary *manba* 'go.INCOMPL' indicates future tense in (165b). The GO-auxiliary may even surface in a phonetically reduced form as in (165c).[139]

(165)   Francisco León Zoque   [Engel and Bartholomew 1987: 385]
   a.   ***min***   *Ø-poy-e*
        [140]**INCH[<come]**   B3-run-DEP
        'He began to run.'
   b.   ***man-ba***   *Ø-poy-e*
        [141]**FUT[<go]-INCOMPL** B3-run-DEP
        'He will run.'
   c.   ***ma***   *Ø-poy-e*
        [142]**FUT[<go]**   B3-run-DEP
        'He will run.'

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139 Note that *manba* also occurs in the short form *ma* if the verb is preceded by a full pronominal (Engel and Bartholomew 1987: 384–395).
140 Glosses are mine; no (linear) glosses are provided by the authors.
141 Glosses are mine; no (linear) glosses are provided by the authors.
142 Glosses are mine; no (linear) glosses are provided by the authors.

There is also evidence of contact-induced grammaticalization of depictive secondary predicates in Mayan. This influence is restricted to Chol and Huastec both of which have been in contact with members of the Mixe-Zoquean phylum in the region of Chiapas. Mixe-Zoquean languages make extensive use of secondary predication or V-into-V incorporation as was shown for directional constructions above, see example (166) for yet another illustration. An identical construction can be identified in Chiapas Chol (167). In both cases, the verbal complex shares the obligatory verbal morphology.

(166)   Chiapas Zoque   [Zavala Maldonado 2002: 80]
        *y-ken-**ki'm**-u*
        3SG.ERG-see-**go.up**-COMPL
        'He saw it going up.'

(167)   Chiapas Chol   [Zavala Maldonado 2002: 184]
        *tyi   buch-**k'oty**-i   aj-pekro*
        PFV   sit-**arrive**-INTR   M-Pedro
        'Pedro arrived sitting.'

However, the secondary predicate slot in Chol is much more restricted and can only be filled by word classes other than verbal predicates. In example (167), *buch* is a positional not a verb, meaning 'in a sitting position'. Zooming in on the structure found in Chol, the same meaning is conveyed in (168a) and (168b). Yet, while the adverb *se'* 'early' appears as a free morpheme in clause-initial position in (168a), it has been incorporated into the verbal complex and precedes the verbal nucleus in (168b). Such constructions are unattested in the Cholan-Tzeltalan sister languages.

(168)   Chol   [Vázquez Álvarez 2011: 11]
    a.   ***se'***   *tyi*   *majl-i-y-oñ*
          early   PFV   go-INTR-EP-B1
          'I went early.'
    b.   *tyi*   ***se'**-majl-i-y-oñ*
          PFV   **early**-go-INTR-EP-B1
          'I went early.'

The picture looks the same for Huastec. Again no verbs, e.g. motion verbs, may occur here as secondary predicates; only positionals, adverbs, adjective, quantifiers, and participles may be employed (Kondić 2012: 325). In contrast to Chol, the secondary predicate follows the primary predicate and thus comes structurally closer to the R construction. Based on the distribution of predicate serialization, which is a common feature in Mixe-Zoquean but only found in two Mayan

languages, one may confidently conclude that the development of Mayan secondary predicates was contact-induced. While the development does not relate to the grammaticalization of Mayan motion verbs as such, it demonstrates the reciprocal influence of Mayan-Mixe-Zoquean contact. Moreover, it is conceivable that the Mixe-Zoquean secondary predicate construction served as the structural ground for the directional construction which is virtually identical. The auxiliary and secondary predication constructions are areal phenomena (cf. Zavala Maldonado 2002: 144).

8.3.3 Inner-Mayan contact

Before concluding this section, I very briefly discuss inner-Mayan contact from a more general perspective to describe how the structures of Mayan languages of different branches influence each other and potentially create innovations. Law (2017: 116) writes that "Mayan languages have been in contact with one another, and it is perhaps not surprising that some of the most extensive forms of contact-induced change in Mayan languages are the result of contact with other Mayan languages". There are two major contact zones. The first one is found in the region of Huehuetenango in Highland Guatemala where Mamean, Quichean, and Kanjobalan languages are in contact. In this region, VSO basic word order, for instance, was probably innovated, as was conditioned ergativity in dependent and aspectless sentences.

The second contact zone is situated in the Mayan lowlands. Here, Cholan and Yucatecan languages are primarily in contact and are referred to as 'the core' displaying 'Core Lowland Mayan' features exclusively found in these two Mayan branches (cf. Justeson et al. 1985). Other 'Greater Lowland Maya' subgroups include Tzeltalan, Kanjobalan, Poqom, and Huastecan as well as the individual languages Kekchí and Ixil (cf. Law 2013). One of the areal innovations entails the grammaticalization of the positional 'in a standing manner' into a marker of progressive aspect in some Greater Lowland Mayan languages (cf. Law 2017: 119). Also, the conditioned ergative system in Poqom appears to have emerged through contact with a Core Lowland Mayan language presenting a case of replica grammaticalization (Law 2011: 265).[143] Furthermore, there is a strikingly high number of loanwords in the lowland area. The majority belong to the verb class. For instance, 50 % of the loanwords taken from Yucatecan and

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143 The reader is referred to Law (2011: 265–268) for an outline of the argument.

Cholan and integrated into Kekchí are verbs (Wichmann and Hull 2009). Conversely, loans from Spanish are overwhelmingly nouns. According to Law (2017: 119), "[t]he apparent ease with which verbs were areally shared is likely due to the fact that the verbal template for the languages involved and the phonological shape of verbs in the relevant languages were very similar, requiring little if any accommodation". If this argument is extended to contact-induced grammaticalization, one could claim that some of the developments described in Section 7 might be the result of contact. The almost identical verbal templates and phonological similarity of verbs among the Mayan languages might have facilitated the interlingual identification of signs and categories, leading to the spread of innovative grammatical structures.

Consider, for instance, the emergence of the directional systems. In a purely hypothetical scenario based on the degrees of grammaticalization of the motion verbs in the respective languages and language families, the directional system originated as a result of grammaticalization proper in the Quichean-Mamean branch. From there and through contact in the region of Huehuetenango in the Guatemalan Highlands, the innovation spread to the Kanjobalan-Chujean languages. Subsequently and perhaps mainly via Tojolabal, it was passed on to the Tzeltalan languages. Indeed, Tojolabal is known to share both grammar and lexicon with the Chujean and the Tzeltalan languages. Throughout this study, it transpired that Tojolabal generally behaves like Kanjobalan-Chujean languages (probably genetic similarity), while it resembles the Tzeltalan languages in other aspects (probably contact similarity). As a consequence of the close contact with Tojolabal, the Tzeltalan languages acquired a directional system which in turn induced the grammaticalization in Chol, which is also spoken in the Mexican state of Chiapas. The other Cholan language Tabasco Chontal did not develop a directional system.

As mentioned in Section 7.3, Tabasco Chontal and Yucatec Maya are more similar than Tabasco Chontal and Chol in the eyes of its speakers. I demonstrated that as far as the encoding of motion is concerned, Tabasco Chontal indeed behaves more like Itzá and Yucatec Maya than Chol. The distance, both linguistic and non-linguistic, between the two Cholan languages and its speakers might have created a rift. The 'chain' of contact-induced grammaticalization of motion verbs into directionals was interrupted between the Chol-Tabasco Chontal link. Directional systems are therefore neither found in the Yucatecan nor Huastecan languages. While this is an interesting scenario, I do not have any hard evidence to substantiate the claim. Dedicated, detailed research would be required to verify or falsify the hypothesis. Likewise, other domains mentioned throughout this paper, namely auxiliary constructions and the develop-

ments of motion verbs into TAM markers and unusual targets, might have been influenced by contact. I cannot confidently comment on these issues. Yet, inner-Mayan contact-induced grammaticalization is not a far-fetched proposition. The structural similarity in the verbal domain might have even functioned as a catalyzer given that speakers can more readily interlingually identify signs and/or categories.

All in all, this short excursion to contact-induced grammaticalization with a view to the grammaticalization of Mayan motion verbs insinuates that there is much fertile ground for further study. Contact-induced grammaticalization can prove vital for comprehending the areal relationship between languages: "[w]hile the chance that a certain morpheme or construction in a language will undergo a particular kind of grammaticalization is on the whole rather small, the probability increases dramatically if a neighbouring language undergoes the process in question" (Dahl 2001: 1469). In the majority of cases of contact-induced grammaticalization, only those developments occur that could have occurred anyway. This, of course, makes it difficult to determine whether an instance constitutes a case of ordinary or contact-induced grammaticalization, particularly concerning genetically closely related languages.

9 Discussion: Coming full circle

In this section, I discuss the findings on variation in the grammaticalization of Mayan motion verbs from a wider functional-typological perspective and their implications for the Network Approach proposed in Section 3.4.3. First, I review the research questions and argue if and why each of the hypotheses formulated in Section 4 can be either falsified or verified based on the findings of this study. Relatedly, I comment on the role of the six parameters of grammaticalization as put forward by Lehmann ([1985] 2004). Although the parameters were only applied as a taxonomic tool to guide the investigation, it became apparent that some parameters indeed appear to be more crucial to grammaticalization on a formal level than others. Second, I zoom in on the semantics of the Pan-Mayan motion verbs that served as sources. Starting from observations made in Devos and van der Wal (2014) on GO and COME, I hope to further the understanding of the nature of motion verbs and the related grammaticalization processes by considering the wider network of motion verbs. I contend that, in addition to generality and resultant increased frequency, the deictic component entailed in a number of motion verbs serves as one of the key motivating factors in grammaticalization, particularly when less common targets are concerned. Yet, I also argue that the constructional history of motion verbs accounts for many of the 'conceptual possibilities' that invite related but increasingly more abstract interpretations. Last and most importantly, I show how the variation on a formal and meaning level is best understood by describing grammaticalization as operating through a network.

I aim to demonstrate how the traditional, partial explanations of grammaticalization introduced throughout Section 3 can be subsumed under the Network Approach which builds on the proposed network architecture of grammar (cf. Diessel 2019). I start by making some overall observations on the grammaticalization of Mayan motion verbs and continue by describing lexical relations, symbolic relations, and sequential relations. Subsequently, constructional relations, taxonomic relations, and filler-slot relations are outlined. Finally, I consider the roles of speaker and hearer and debate how grammaticalization is influenced by a negotiation between language networks. On the one hand, I comment on sentence processing and how hearers compute sentences. On the other hand, the mechanisms of speech production and the role of speakers in a speech situation are discussed. My proposal is in its initial stages and awaits a more refined, methodologically applicable and theoretically elaborated version in the near future.

9.1 Returning to the hypotheses

To begin with, in Section 4 on methodology and data, I postulated six guiding research questions (RQ1–RQ6) and five working hypotheses (H1, H2a, H2b, H3, and H4). These were grounded in earlier empirical research and aimed at not only substantiating previously proposed universal tendencies but also generating new insights into grammaticalization. Firstly, hypothesis H1 can be accepted without restrictions.

H1: There is variation in the grammaticalization of motion verbs in Mayan languages.

I have demonstrated throughout the analysis that, despite their structural near-identity in the verbal domain, the Mayan languages grammaticalize motion verbs to varying degrees regarding both the formal and meaning dimension. The identified variation is brought about by a number of factors: the type of complement clause, the transitivity of the V2, the degree of clause integration, the aspectual properties of the V1 motion verb, the pronominals in the complex clause, and the type of motion verb.

On a formal level, clear subgroup-specific trends emerge. For instance, all Core Quichean languages have grammaticalized a subset of motion verbs into genuine motion affixes in the maximally integrated McPC at Stage V to grammatically encode motion. With the exception of GO, the motion verbs in the Yucatecan languages, on the other hand, have not acquired full auxiliary status and are only present in Stage II McPCs. The Kanjobalan-Chujean languages give evidence of extensive layering with motion verbs equally employed in Stage II and Stage IV constructions, although only deictically anchored and enclosure or region oriented motion verbs appear in the latter. On a meaning level, variation becomes even more pronounced, especially with a view to the secondary grammaticalization of directionals into aspectual and adverbial markers. For instance, as described in Section 7.2.1.1, the Zinacantán Tzotzil directional *batel,* which probably meant 'away' at an earlier stage, derived from *bat* 'go' plus the non-finite suffix *-el,* is used as a temporal marker denoting 'from time to time, on and off' . The temporal function of a directional based on GO is not only undetected in any other Mayan language but also absent from other Tzotzil varieties. Similarly, the Q'anjob'al directional *=ay*, which in its primary trajectory meaning of 'down' can transparently be linked to the source verb *ay* 'descend', developed a secondary resultative meaning of 'completely'. This usage of a DESCEND directional is again unparalleled in any other Mayan language. Secondly, hypotheses H2a and H2b can only partially be accepted.

H2a: The Mayan motion verbs that display the highest degree of generality are more frequently recruited for grammaticalization than motion verbs with more specific semantics.

H2b: The Mayan motion verbs that display the highest degree of generality are more likely to travel further down the grammaticalization cline.

GO-type motion verbs, arguably the most frequent and general candidates, are indeed recruited for a variety of targets in the Mayan languages. However, at the very initial stages, motion verbs from all notional classes (cf. Table 12) appear in the grammaticalizing slot in a given construction and undergo some formal changes characteristic of the process. In the stages of stronger grammaticalization and advancing meaning change, motion verbs with more specific meaning are oftentimes ousted by the most general and frequent candidates. These win the intraconstructional competition for the slot with an abstract, grammatical function. This is especially true for the usual targets in the realm of TAM. By contrast, in the domain of more unusual targets, motion verbs with specific meanings are also frequently found. I return to the possible, underlying motivations shortly and discuss them in relation to the suggestions made by Devos and van der Wal (2014). Thirdly, hypothesis H3 may be accepted based on this study's findings.

H3: The grammaticalization of motion verbs in Mayan languages is unidirectional.

There is no evidence that suggests that any of the grammaticalization processes was reversed. On the contrary, increasing degrees of formal and functional grammaticalization towards the strong grammaticalization end of the continuum were described (cf. Table 5). What can, however, be detected are potential (re)lexicalizations of complex formations that were initially the result of a grammaticalization process, such as the lexicalization of two complex directional structures based on the enclosure or region oriented motion verbs in Mam and Chuj (cf. Sections 7.2.1.5 and 7.2.1.2). In Chuj, the directional chains *och-ih* 'in[<enter]-away from speaker' and *el-ih* 'out[<leave]-away from speaker' developed secondary functions as encoders of the absolute frame of reference, 'westwards' and 'eastwards', respectively. As shown in example (80a) for *ochih*, the complex forms may be employed as lexical verbs and must not be accompanied by an additional motion verb nucleus. Lastly, hypothesis H4 can only be tentatively and partially accepted.

H4: The grammaticalization of motion verbs in Mayan languages displays a tendency towards subjectification and subsequent intersubjectification.

The results suggest that the general trend, at least as far as the tendency towards subjectification is concerned, can be verified because motion verbs are grammaticalized into subjective expressions that overtly mark temporal/spatial/discourse deixis and modality. The evidentials based on GO in the Yucatecan languages, and possibly Chol and Tojolabal, might be on the verge of belonging to intersubjective expressions. They have acquired, at least in the Yucatecan languages, specific pragmatic meaning and serve to distance a report from the speaker's own perspective by stressing that someone else produced the content. In this way, the responsibility for a statement and its veracity is avoided.

I put forward the hypothesis regarding the social deixis function of GO in analogy to a similar development in the Tzeltalan languages. The Tzeltalan languages Tzeltal and Tzotzil have a functionally identical particle *lah* marking hearsay. I suggest that *lah* grammaticalized from the aspectual verb *lah* 'finish', although the development as such is undescribed in the literature. As I have shown in Sections 7.1 and 7.2, Mayan aspectual verbs display a similar grammaticalization behavior to Mayan motion verbs. Oftentimes, they give evidence of even higher degrees of grammaticalization. Therefore, they have a comparable if not identical constructional history. For REPORTATIVE *lah,* I propose that the aspectual verb, which initially grammaticalized into a TERMINATIVE auxiliary and afterwards into a PERFECTIVE marker starting from the lexical verbs' usage in a cum-purpose construction, continued grammaticalizing. The 'complete'-meaning entailed in the TAM functions persisted. The 'complete'-component is brought into focus in the element's innovative function as an evidential.

A similar process might underlie the grammaticalization of GO > REPORTATIVE where the 'away'-component served a comparable conceptual motivation. The problem in relation to Yucatecan GO, however, is that a conceptually plausible intermediate stage, which is given in Tzeltalan, appears to be missing. GO developed into a fully grammaticalized future marker in the Yucatecan branch. Establishing a sound link from FUTURE to REPORTATIVE is difficult at best. It is more likely, if the hypothesis has merit, that we are dealing with polygrammaticalization whereby the direct, intermediate stage of the GO into REPORTATIVE chain was lost. Indeed, the grammaticalization of GO into PAST or PERFECTIVE is not unheard of (cf. Jacobs 2011, on Catalan; Coghill 2019, on North-Eastern Neo-Aramaic where the source was provided by GET UP not GO; Mojeño Trinitario where WALK functioned as the source [Françoise Rose, p.c.]).

Coming back to the issue of intersubjectivity, Brown and Levinson (1987) discuss the universals of politeness in language use and devise a framework of nega-

tive and positive politeness. In their analysis, they cite Tzeltal REPORTATIVE *lah* as one of the strategies in negative politeness which entails "redressive action addressed to the addressee's negative face: his want to have his freedom of action unhindered and his attention unimpeded" (Brown and Levinson 1987: 129). By using REPORTATIVE *lah,* the illocutionary force of an utterance is hedged or weakened. Specifically, the marker can be employed to create distance between the speaker and a command "by indicating (truly, or as a pretence) that it is a third-party command" (Brown and Levinson 1987: 152), see example (169).

(169)   Tzeltal REPORTATIVE in Polite Speech   [Brown and Levinson 1987: 152]
        [...]   ba-an   **lah**
        [144]go-IMP.INTR   **REPORT[<PFV(<finish)]**
        '(Here is your net bag.) Go, it is said (i.e. Go, I was told to tell you).'

The same pragmatic function might be fulfilled by REPORTATIVE *b(')in* in the Yucatecan languages. In utterances comparable to those in example (169), social deixis, i.e. the "social relationships in linguistic expressions [...] with reference to the social status or role of participants in the speech event" (Levinson [1983] 2005: 119), is encoded, which is characteristic of intersubjective expressions. More research and data are required to answer this question. Unfortunately, I did not find any compelling examples attesting to the politeness usage in the Yucatecan languages.

In sum, all hypotheses can be accepted – to varying degrees of confidence. It follows that the results of this investigation largely conform with previous research and the expectations derived therefrom.

9.2 Revisiting Lehmann's parameters

In this section, I revisit Lehmann's ([1985] 2004) six parameters of grammaticalization which were applied as a taxonomic tool throughout this investigation. The established framework has attracted some criticism either for lacking explanatory force (Detges and Waltereit 2002: 172) or for having been devised prior to accumulating a sound empirical basis (von Mengden 2008). I agree with Norde (2012: 75) that Detges and Waltereit's negative evaluation "seems unfair, because Lehmann does not claim that his parameters can explain grammaticalization phenomena, and [...] it is safe to say that, as a set of taxonomic criteria, Lehmann's system has proven quite useful". Two framework types are useful in

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144 Glosses are mine; no (linear) glosses are provided by the authors.

linguistic research: (i) those that describe a phenomenon against a set of rigid, objective criteria that allow for the acceptance or rejection of a development as e.g. an instance of grammaticalization, and (ii) those that seek to explain the underlying reasons motivating the development, such as the Metaphorical Extension Approach, Invited Inferencing Theory, or the Network Approach. While there is some room for interpretation in the second type, the first framework provides clear arguments for or against the applicability of a hypothesis and leaves no room for negotiation. As such, the parameters are indispensable for grammaticalization research. Yet, as results from the validity of the criticism voiced by von Mengden (2008), some parameters have proven to be of little use (e.g. scope), while others apply only partially or marginally (e.g. bondedness). Also, in many cases, the parameters are mutually dependent which is not problematic as such but points to the interdependency of some parameters. For instance, with advancing condensation, an item's syntactic variability is simultaneously decreased. In the course of this study, I similarly found the two parameters scope and bondedness to be challenging in terms of directionality and significance.

The scope parameter specifies that an item, which initially related to a constituent of arbitrary complexity, is condensed and comes to serve as a modifier of a word or a stem. This is true for the cases of primary grammaticalization discussed in Sections 7.1 and 7.2 and the instances of secondary grammaticalization elaborated on in Section 8.1. Here, the grammaticalizing motion verb takes scope over the VP. But, for the cases of secondary grammaticalization outlined in Section 8.2, the grammaticalizing item takes scope over an entire clause instead of only the VP. The condensation process is not unidirectional, and as a result, it is not a "suitable diagnostic, because it does not seem to have a clear preference for one direction" (Norde 2012: 102).

The parameter of bondedness is equally challenging. It poses that an item, which was initially independently juxtaposed, coalesces and becomes an affix or a phonological segment of the host. In Section 7.2, I showed that eleven of the fifteen Mayan sample languages developed directional systems based on the grammaticalization of motion verbs. The generally post-verbal elements surface as free morphemes in the Cholan-Tzeltalan languages, Poqomchi', and Tojolabal (5/11), whereas they are bound morphemes in the Kanjobalan languages, the two Core Quichean languages, Mam, and Chuj (6/11). According to the bondedness parameter, the directionals in the latter group would exhibit a higher degree of grammaticalization than those in the former. However, I also demonstrated that directionals, be they bound or free, may combine into directional chains in some Mayan languages, which is an additional indicator for advanced

grammaticalization. These chains have a varying number of slots but primarily range from two to three. The type of directional that may enter a specific slot position is predefined and restricted. A higher number of slots is indicative of more advanced grammaticalization. Now, consider Kaqchikel which features a set of seven directionals that attach as enclitics to the verbal base, i.e. display a high degree of bondedness. In Kaqchikel, at least as far as the available data indicate, directional chaining is not possible. By contrast, in Tojolabal, which has a set of twelve free directionals that have a particle-like character and thus display a low degree of bondedness, chaining with up to three slots is possible and the structure is frequently resorted to by speakers.

Hence, I suggest that the determination of the grammatical status of an item based on its status as a free or bound morpheme is misleading. For example, to mark obliques, languages generally use either free adpositions or bound case affixes. But that does not mean that, from a synchronic perspective, affixes are more grammatical means to encode obliques than adpositions. Diachronically, of course, adpositions oftentimes developed further into case affixes. To establish that case affixes are indeed more grammatical than adpositions from a diachronic perspective, one would have to prove that the development is inevitable. I am unsure that this is the case. Accordingly, I deem bondedness and scope to be less central parameters to determine grammaticality than paradigmaticity, paradigmatic variability, and syntagmatic variability which provide indisputable proof for the increasingly grammaticalized status of an item.

Furthermore, the parameter of integrity can be divided into the three basic subprocesses: phonological attrition (loss of phonological substance), desemanticization (loss of semantic substance), and recategorization (loss of morphosyntactic properties) (cf. Norde 2012: 100). Phonological attrition is not a very meaningful criterion. For many of the grammaticalization instances presented in the results sections, no phonological change occurred at all. Even more so, in Yucatec Maya, the vowel in the immediate future auxiliary based on *bin* 'go' is lengthened and receives high tone.[145] In comparison to its source, the grammaticalized item gains in phonological substance instead of losing it. It appears that the loss of phonological substance relates more to frequency effects which go back to Zipf's law of abbreviation (Zipf 1935: 23): "Words that are used more frequently tend to be shorter". Shortness itself is not a direct indication for or reference to grammaticality but high token frequency – granted that grammati-

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145 The Poqomchi' auxiliaries depicted in examples (22b–c) are another example of addition rather than reduction of phonological substance. The vowel lengthening only takes place if the auxiliaries appear in the incompletive or completive aspect.

cal formatives tend to occur more frequently than their lexical formative counter-parts.[146] Nevertheless, it was also shown that phonological attrition may be syntactically conditioned. As summarized in Table 21, inflectional dependent suffixes form part of all Kanjobalan-Chujean and K'iche' directionals in phrase-final position adding greater phonological substance. If, however, the directionals surface in phrase-initial or phrase-medial position, the suffixes are omitted leading to the directionals' phonological reduction. In fact, the dependent suffix that was formerly recruited to transparently derive directionals from motion verbs is reanalyzed as a clause boundary marker.

The second subchange, i.e. desemanticization, is always identifiable for primary grammaticalization. In the McPCs, the 'change-of-location'-component is gradually lost, while the 'motion'-component vanishes in the DIRCs. At the same time, the other components that conceptually motivated the process in the first place are strengthened and narrowed, i.e. the 'motion'- and 'purpose'-component in the McPCs and the 'trajectory'-component in the DIRCs. Although there is desemanticization in secondary grammaticalization as well, oftentimes it would be more accurate to speak of resemanticization. The resemanticized item may take on new but related meanings to serve novel functions whose generation and emergence is highly dependent upon the syntagmatic and discursive context. GO as an evidential in Yucatecan is narrowed down to the 'away'-component, and only this small fraction of its original lexical meaning survives. As an evidential, it takes on new meanings that frame the 'away'-component functionally to serve the novel textual and discourse-structuring function. Sometimes, on the other hand, it is difficult to find any trace of the original source semantics. This is the case for Zinacantán Tzotzil's *batel* in its function as an adverbial meaning 'from time to time, on and off'.

Out of the three subchanges relevant to the integrity parameter, recategorization is the most reliable diagnostic for primary grammaticalization. For all primary grammaticalization instances identified in this study, there is a gradual transition from a major to a minor or from an open to a closed word class. Interestingly, an entirely new (semi-)closed word class emerged as a result of the grammaticalization of Pan-Mayan motion verbs into directionals. In effect, a completely new building block of Mayan grammar was created in these languages. As for secondary grammaticalization, the criterion of recategorization is less effective. For instance, in Section 8.1.2.2, I described how Q'anjob'al grammaticalized the directional =*aj* 'up' from ASCEND into an INCEPTIVE marker

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146 The development of *bin* 'go' > *bíin* 'predictive future' in Yucatec Maya appears to violate Zipf's law or at least constitute a counterexample.

(cf. [140b–c]). The marker is form- and structure-identical to the directional in its primary trajectory function. An inceptive reading is only induced if the co-occurring main verb is temporally unbound. Therefore, the entire construction needs to be taken into account to determine the function of =*aj*.

This brings me to my final and closing point of this section which constitutes my only major criticism to Lehmann's framework. The parameters exclusively focus on the grammaticalizing element itself as (a.) an individual expression concerning integrity, scope, paradigmaticity, and bondedness and (b.) as a category member concerning paradigmatic variability and syntagmatic variability. It thus fails to consider the third type of sign in grammar, namely constructions. The shortcoming becomes particularly evident in relation to the grammaticalization of verbs. I demonstrated for instance, that the grammaticalization of a lexical motion verb into an auxiliary goes hand in hand with an increasing degree of clausal integration. By neglecting this interplay, the nature of grammaticalization processes is neglected as well – at least from my perspective.

9.3 The properties of Mayan motion verbs

Before I delve into the implications that this study has for the role of the source expressions' semantics and their other properties in grammaticalization, I take a step back and recapitulate what good source expressions are made of or what makes a notion grammaticalizable according to previous research. The semantics of source expressions are said to determine whether an expression is a good candidate for certain grammaticalization channels. Accordingly, for any particular function, there is only a select number of items that are semantically apt to be grammaticalized (channelization of grammaticalization). On the whole, source items are said to be culturally independent and relevant to the human experience (cf. Heine et al. 1991), which motion verbs unquestionably are. The explanatory focus is put on the embodied experience. The perceptions of analogies and similarities between concepts in the course of the human experience are used to construe that same reality cognitively and linguistically. Motion and space are at the core of that human experience and the centrality of spatial thinking in human cognition has been demonstrated time again and again. As Levinson (2003: 16) puts it, "we are indeed clearly so good at thinking spatially that converting non-spatial problems into spatial ones seems to be one of the fundamental tricks of human cognition". The primacy of spatial thinking becomes evident through the ubiquity of the spatial metaphor used to conceptualize time, kinship, social structure, music, mathematics, emotion, and so forth (Levinson 2003: 16). Given its prominent status in human cognition, it comes as

no surprise that spatial notions, with motion verbs among them, inform grammatical constructions. This 'localist' doctrine entails that "locative constructions often provide the template for not only temporal and aspectual constructions, but also existential, change-of-state and causal constructions" (Levinson 2003: 17). There is a range of spatial notions that may trigger grammaticalization. What is it about motion verbs that make them special? In the following, I discuss the concepts basicness, generality, frequency, deixis, co-text, and distance and elucidate how motion verbs relate to them.

Traditionally, it was accepted that semantic aptitude relates to the requirement for a source item to be basic, general, and frequent. If a particular item displayed these properties, this was regarded as sufficient explanation for its proneness to grammaticalization. With regard to GO and COME motion verbs, more recent research indicates that generality and resultant frequency dictate the grammaticalization potential of an item in question. Basicness which referred to the notion of lexical universality was discredited in a number of studies, most notably by Wilkins and Hill (1995) as described in Section 2.3. Based on research on the grammaticalization of GO and COME into unusual targets, Devos and van der Wal (2014: 323) conclude that the "abstract nature of the source items and their ability to occur in a wide range of contexts" manifests in high usage frequency. In other words, items with simple semantics are more frequently grammaticalized than those with complex semantics. According to this view, GO and COME are better grammaticalization candidates than other items in a language's motion verb network.

Cross-linguistic evidence appears to abound. The present study has also shown that, while a subset of motion verbs undergoes characteristic formal and meaning changes in the initial stages of grammaticalization, GO and COME are indeed among those candidates that give evidence of the highest number of grammaticalization instances and travel further down the cline than other motion verbs. Nevertheless, it was also demonstrated that other motion verbs with more complex semantics can display the same grammaticalization degree as their more simplex category members. In Kaqchikel, PASS (BY) grammaticalized into a genuine motion encoding affix in a Stage V McPC along with GO and COME, although it is seldom used by contemporary speakers. Moreover, in Tzeltal, K'iche', and Mam, ENTER grammaticalized into an aspectual INCEPTIVE marker in an McPC, while the same function is assumed by ASCEND in Q'anjob'al based on a DIRC. What is more, in some Mayan languages, GO and COME did not grammaticalize into directionals, while the semantically more complex sister motion verbs did (cf. Table 19).

Overall, there indeed appears to be a preference for the grammaticalization of motion verbs with a high generality, which intuitively belong to the class of GO and COME. If we take frequency as a proxy for generality and explore big data, which are yet to be compiled, and count the relative frequencies of source items, we could establish whether ENTER or ASCEND rank also among the motion verbs with high frequencies and thus qualify as general motion verbs in the individual Mayan languages. In this sense, generality is not only a conceptual or semantic feature but also a discourse-pragmatic one tied to language use. I elaborate on this idea in Section 9.4. For the time being and based on this study's findings, it appears that generality increases the likelihood of a source item in question to be grammaticalized, but generality is not an obligatory requirement. It rather appears that COME and GO "are latently grammatical or 'hybrid' verbs, i.e.; they are lexical in their morphosyntax and grammatical in their semantics" (Devos and van der Wal 2014: 329). Therefore, they lend themselves as readily available sources that do not demand great cognitive effort or meaning negotiation in their development towards genuine grams.

As mentioned in Section 2.4, deixis, inherently encoded in a number of motion verbs, is argued to play a role in the grammaticalization of motion verbs. But there is disagreement as to importance of deixis. In Devos and van der Wal (2014), the deictic components of COME and GO are described as key contributors to the process. Three positions are represented: (1) the deictic component does not trigger grammaticalization but limits the grams' usage scope, (2) deixis affects a source item's development only in the initial stages of grammaticalization, and (3) the deictic component is the single most important factor in grammaticalization. The difficulty, of course, lies in the fact that the other non-deictic motion verbs in the respective languages were left out from the analyses. Applying position (3), represented by Bourdin (2014), to the motion verb network appears problematic at first glance. If we consider the wider network of motion verbs, as done in this study, it becomes clear that motion verbs with no deictic component developed into grams, the functions of which are also fulfilled by grammaticalized GO and COME in other languages of the world. This was shown for INCHOATIVE derived from ENTER in K'iche' and Mam as well as from ASCEND in Q'anjob'al (cf. Section 8.2). In the second and revised edition of the WLG, COME TO, FALL, GET, GO, and VENTIVE are registered as sources for the gram type (Kuteva et al. 2020: 478). The motivation for the grammaticalization can, therefore, not be solely grounded in deixis. As for GO and COME specifically, the proposal has some merit. Bourdin (2014) conducted a cross-linguistic analysis on the grammaticalization of GO and COME into necessive markers. He concludes that the two verbs' deictic nature and their goal-orientedness motivate the meaning

change.[147] If we consider, for example, the development of GO > REPORTATIVE in Yucatecan, the argumentation also withstands. The goal-orientedness relates to another speaker in this case, whom the statement marked by the evidential is attributed to, i.e. away from the deictic center (source) implies towards another speaker (goal).

Position (2), which holds that deixis only has an effect in the initial stages of grammaticalization is difficult because the demarcation between initial and medial stages is not clear-cut. Additionally, it was demonstrated for McPCs and DIRCs that several Mayan motion verbs show signs of grammaticalization at the initial stages, while only the deictic motion verbs prevail as grams at the later stages. It follows that I support position (1) stipulating that the deictic component does not trigger grammaticalization but limits the grams' usage scope and dictates the conceptual possibilities.

All in all, I suggest that while the deictic properties of some motion verbs inform the type of constructions in which they occur as grammaticalized variants, deixis itself is not the single most important factor in grammaticalization. It cannot explain the developments observed for deictic-component-less motion verbs. Rather, a deictic perspective can be imbued on any motion event. Hence, while point oriented motion verbs, for instance, do not inherently carry a deictic component, in an utterance such as *I entered the store* they make implicit reference to the deictic center's position in the event. Deixis must, therefore, not be explicitly encoded by a motion verb. More specifically, deixis is dependent upon contextual information which is, amongst others, provided by the co-text.

The consideration of co-text is indispensable. Throughout this study, I stressed repeatedly that merely considering the individual lexical item undergoing grammaticalization is insufficient. Rather, the whole construction must be taken into account. Lexical meaning is not given but created through the recurrent and frequent usage of an item in question in specific contexts and for specific purposes. Otherwise, semantic change could not be explained. The same applies to grammatical meaning and grammaticalization. This study showed that when the motion verbs as source items participate in complex verbal constructions and consequently grammaticalize, their grammaticalized function and morphosyntax is not only dependent upon the meaning of the source itself but also upon that of the co-text.

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147 Bourdin's (2014) proposal goes back to the 'goal-bias hypothesis' put forward in recent years. According to the hypothesis, "people have a Goal biased perspective on events that makes them more likely to encode Goal states than Source states" (Lakusta and Landau 2005: 30) with COME and GO verbs alike.

Regarding meaning change, many of the Mayan directionals change their meaning and function according to the verb with which they occur. To exemplify, depending on the properties of the verb in a given DIRC, in Q'anjob'al (cf. Table 24), the directional =*ay* from DESCEND encodes (i) DOWNWARDS movement if a verb displays the features [+move] and [+change] (170a), (ii) REPETITIVE if the verb is [−move] and [−change] (170b), and (iii) COMPLETELY if the verb displays [−move] and [+change] (cf. 170c).

(170)   Q'anjob'al   [Mateo Toledo 2008: 432, 180; 2007: 87]

    a. DOWNWARDS =*ay*

        Max-ø   s-<u>ten</u>=ay   *k'on-an   naq   no*

        COMPL-B3 A3-<u>push</u>=**DIR:down[<descend]** curved-POSS   CL   CL

        mangera   tu

        hose   DEM

        'He pushed the hose down, and it resulted curved.'

    b. REPETITIVE =*ay*

        [...] k'ojank'ul   ch'an   ø-<u>q'anjab'</u>=ay

           slow/soft   DIM   A3-<u>talk</u>=**REP[<DIR:down(<descend)]**

        heb'   ø-ka-wan-il

        PL   A3-two-CL-ABS

        '(They were doing soft talking), both of them were talking softly (repeatedly).'

    c. COMPLETELY =*ay*

        *Max-ø   <u>kam</u>=kan=**ay***

        COMPL-B3 <u>die</u>=DIR:BEFORE[<DIR: stay]=**COMPLETELY[<DIR: down(<descend)]**

        jun-tzan   an   ak'un   tu'

        INDF-PL   CL   plant   DEM

        'Those plants died there completely [in relation to another event].'

Concerning morphosyntax, Devos and van der Wal (2014: 328) state that "[w]hen identical constructions involving either 'come' or 'go' verbs evolve into more or less identical targets, it can be assumed that the particular type of co-text in which the verb occurs plays an important role". As demonstrated in Section 7.1, this morphosyntactic co-text for the development of motion, purpose, and TAM grams is provided by the McPCs in the Mayan languages. The complex constructions combine a motion clause with a purpose clause. The increasing degree of grammaticalization of the motion verb in question is accompanied by the increasing degree of clausal integration between the two formerly independent clauses. The process is gradual and brings forth several constructions

situated along a continuum differentiating five incremental stages (cf. Figure 21). All of these are employed for purposive and motion functions. The continuum of clausal integration goes hand in hand with a continuum of motion verb grammaticalization. At Stage III, for instance, where motion verbs obtain full auxiliary status, no person making occurs on the V1 (motion clause). Instead, person is marked on the V2 (purpose clause). The person marking is not lost but redistributed over the entire, monoclausal construction. Hence, when an item grammaticalizes, structural changes to the other elements in the construction also occur. And these structural changes differ depending on the type of purposive complement clause, predominately either aspectless or infinitival, as was demonstrated throughout Section 7.1.

One last factor that has only marginally been discussed in relation to motion verbs as source items is their property of encoding distance. According to (Tenny 1995: 31), "[m]otion verbs, for which the concept of distance plays a crucial role in the gap-filling information, are shown to be special in a number of ways, due to the special properties of distance as encoded in the world knowledge of the speaker". The gap that requires to be filled with information provides both speaker and hearer with an opportunity for the creation of innovative meaning. Hearers analyze an utterance online and start interpreting as soon as any information becomes available. They do not wait until an utterance is completed to start the interpretation process. As hearers do not know what speakers intend to say, they make predictions and fill the gaps. The concept of distance is intrinsically linked to motion verbs and can be conceptualized as spatial, temporal, or textual displacement. As such, there is ample ground for the creation of new meanings, based on abductive reasoning (cf. Section 3.1).

The motivation for grammaticalization is multifactorial and cannot be attributed to one particular factor or semantic component. Indeed, it is the conceptual rather than the semantic level that triggers innovative meaning, as will be argued in the following sections. Nevertheless, the higher the generality and frequency and the more prominent the deictic component are, the 'easier' and more likely the initiation of a grammaticalization instance becomes. After shedding light on the semantics of motion verbs and their role in grammaticalization with a view to the Mayan languages, all that remains to be discussed is how all of the findings and their implications relate to the Network Approach.

9.4 The Network Approach applied to the grammaticalization of Mayan motion verbs

A rough outline of the Network Approach to grammaticalization was provided in Section 3.4.3. The proposal is primarily based on Diessel's (2019) work on the Grammar Network and ideas taken from Traugott and Trousdale (2013). The (novel) approach seeks to combine the conceptual with the discourse-pragmatic while being firmly grounded in cognitive and psychological facts. This section serves to illustrate how the Network Approach may be applied to linguistic data in order to understand variation from a synchronic and diachronic perspective. The observed variation in the grammaticalization of Mayan motion verbs offers rich empirical ground for showing why a theory of grammaticalization must be (a.) flexible enough to explain variation and (b.) able to encompass all areas of language structure to account for the interaction and interrelatedness of signs.

The proposal is based on the precondition of an already existing grammar network. The emergence of grammar in the individual mind takes place during childhood. In the usage-based view, infants have no prior grammatical knowledge. They acquire constructional schemas and accumulate grammatical knowledge from exposure to language (cf. Diessel 2019: 42–56). The nature of language acquisition is fundamentally different from that of language change which "typically involves the extension or modification of existing schemas rather than the creation of entirely new ones [...] there is relatively little evidence for the emergence of new schemas that are not based on, or influenced by, existing schemas" (Diessel 2019: 56). Grammaticalization processes are, therefore, crucially informed by pre-existing structures. The Mayan motion verb auxiliaries are based on McPCs which arose from the juxtaposition of two independent clauses, the first of which has a motion verb nucleus. Mayan motion verb directionals evolved from DIRCs, derived from a verb complement construction with the motion verb in second and dependent position. All more grammaticalized offshoots described in Sections 8.1 and 8.2 are based on McPCs and DIRCs.

There are two main approaches to grammaticalization, i.e. understanding grammaticalization as reduction (GR) or expansion (GE) (Traugott and Trousdale 2013: 96). I support the GE position in the same way as it is maintained by Traugott and Trousdale (2013: 147):

> A constructionalist perspective supports the model of grammaticalization as expansion (GE). At the same time it is compatible with the model of grammaticalization as reduction and increased dependency (GR). This is because grammatical constructionalization involves expansion in construction-types and range of use on the one hand, and chunking and fixing of form on the other. Expansion is the logical outcome of attrition resulting from repetition and chunking.

In this study, expansion becomes especially apparent through the emergence of an entirely new grammatical category. Mayan directionals form a (semi-)closed class of newly developed grammatical elements, i.e. "they are a limited set of morphemes like relational nouns or inflectional affixes" (Mateo Toledo 2008: 228). Thus, they expand the grammar network of the respective Mayan languages. Such changes must be examined from both specific (micro) and schematic (macro) perspectives (cf. Traugott and Trousdale 2013: 232).

The results presented in Section 7.2 on directionals showed that on a macrolevel, the Mayan languages can be divided into three groups: (1) no directionals from motion verbs, (2) directionals in post-verbal position and (3) directionals in post-verbal and pre-verbal position. On a micro-level, there is variation among the languages within the individual groups. The micro-constructions of a higher-order schema, i.e. the directional constructions with the individual motion verbs in the DIR slot, "have their own histories, constrained and influenced by the broader system of which they take part" (Traugott and Trousdale 2013: 232). These individual histories have been described throughout Section 7.2.

On the one hand, variation occurs between the Mayan languages that have developed directional systems, e.g. there is variation with regard to the total number of directionals grammaticalized from motion verbs. Also, while directionals are bound morphemes in half of the languages, they are free morphemes in the other half. On the other hand, microvariation occurs between the micro-constructions themselves. Generally, the directionals based on deictically anchored motion verbs exhibit a higher degree of formal grammaticalization than those of the other notional classes. It follows that there is an overall network of directional constructions and subgroupings within the network. The same applies to the McPCs discussed in Section 7.1 where the different stages of clausal integration point to both the interconnected network structure of the auxiliary constructions and to the individual histories of the micro-constructions.

Relatedly and with a view to the unidirectionality hypothesis, Ziegeler (2004: 128) argues that "grammaticalization is unidirectional across a wider network of form-function links which have no determinate end-point, and therefore the model represented in a grammaticalization chain is only contained within such a network, it does not comprise the entire network itself". The Mayan motion verbs and their offshoots form such a subnetwork of a much larger network of different conceptual links that make up the individual Mayan languages' lexicon and grammar. Meaning shifts between neighboring items in the conceptual network occur constantly, yet it is only under the right conditions, through routinization, increased generalization, high usage frequency, and favorable socio-pragmatic circumstances (cf. Ziegeler 2004: 128), that meaning shifts in the conceptual network have an influence on the grammar network and

give rise to formal grammaticalization. The development of an item from a lexical to a grammatical formative, therefore, commences in the conceptual network stored in the human memory system. Here, it is connected to other items based on **lexical relations**. Motion verbs are lexically linked through their shared properties of [+motion] and [+change of location]. At the same time, other concepts that are associated with the frame or domain in which motion verbs generally appear are also connected with the items, such as notions of location, space, or time.

Within any semantic category, there are more frequently and less frequently used representatives of a class. As outlined in Section 9.3, source items are predominately the most general, most unmarked, and thus most frequent representatives of a category. **Taxonomic relations** refer to the hierarchical organizations of the conceptual network (and the grammar network). The taxonomic organization of the conceptual network has long been accepted in cognitive linguistics (cf. Croft and Cruse 2004; Taylor 2002). Concepts are connected to other concepts and categories. They are arranged by superordinate and subordinate relations that make up the taxonomic structure. Both concept-internal structures, whereby a prototype-based view of categories and categorization is recognized, and concept-external structures, whereby the organization of concepts in networks with varying degrees of schematicity/ abstractness and salience is postulated, are of importance. In the cognitive semantic view, there are varying levels of centrality. The basic level, which in itself is gradient and dynamic, entails those concepts that are of special salience, i.e. they are maximally contrastive and informative and more likely to serve as a response to e.g. a question (cf. Taylor 2002: 131, 136). Thus, it might not only be generality but also low salience that makes an item a good source for grammaticalization (cf. Traugott 2017). Figure 28a depicts an idealized version of the conceptual network of Mayan motion verbs, according to the notional classes proposed by Haviland (1993). No indication of basic level status is given. In Figure 28b, the conceptual network of the Mam motion verbs is exemplarily given.

If a meaning shift occurs for a given source item as an exemplar or a prototype of that category, this meaning shift also affects the other members of the semantic category by association – although probably with less impact. This explains why almost all Pan-Mayan motion verbs surface in McPCs of Stage II where their meaning is shifted towards stressing the 'motion'- and 'purpose'-component. But the most frequent and general members of the class that gave rise to the meaning shift in the first place generally display ever-increasing degrees of grammaticalization.
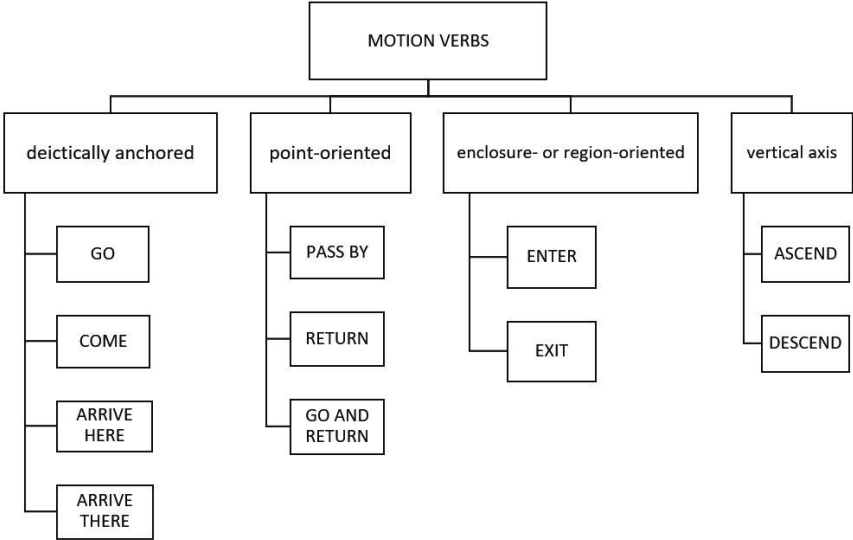
Figure 28a: Taxonomic relations in a simplified conceptual network of motion verbs.
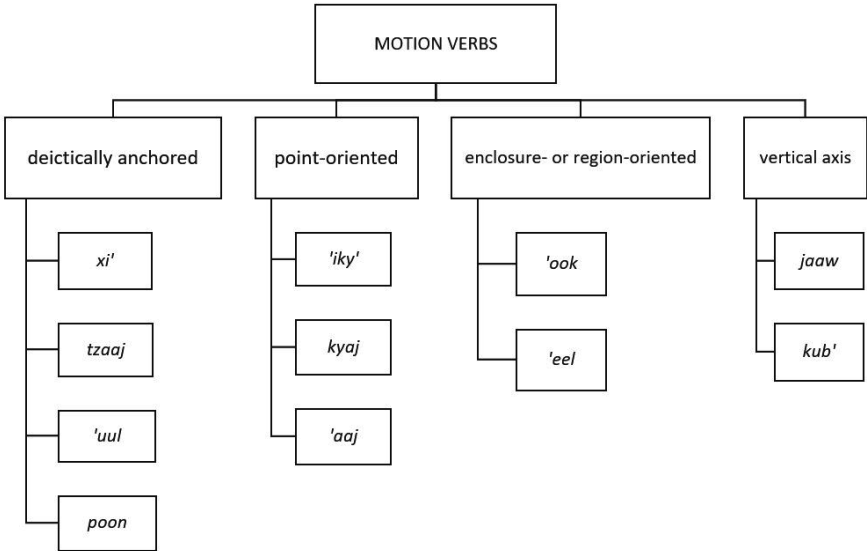
Figure 28b: Taxonomic relations in a simplified conceptual network of Mam motion verbs.

Concerning McPCs, this means that the most frequent members of the class become auxiliaries or even affixes and are in effect transferred from the lexicon to the grammar network. It also explains why there is synchronic variation in the absolute number of directionals grammaticalized from Pan-Mayan motion verbs. Initially, a meaning change towards emphasizing the 'trajectory'-component occurs for one motion verb item or a small subset of motion verbs only. The conceptual shift is, however, also brought about in neighboring items linked to the source by lexical relations. Therefore, there is a conceptual extension of the meaning shift. Diachronic evidence supports the extension hypothesis.

For Colonial K'iche', Dürr ([1987] 2003: 96) identified six directionals as part of the paradigm. No directional denoting 'inwards movement' was found in the Colonial K'iche' texts. In Modern K'iche, on the other hand, the INWARDS directional which grammaticalized from the point oriented motion verb ENTER is productively used and shows signs of formal reduction. According to the data, the introduction of INWARDS into the directional paradigm in K'iche' is a recent addition. It follows that meaning innovation spreads from the central, more connected members of a category to family members in the periphery. Synchronically, there seem to be 'gaps' in some of the Mayan directional systems. In Modern K'iche', no directional from EXIT to denote OUTWARDS as a counterpart to INWARDS is found. Accepting that activation energy spreads through the conceptual network, it may be the case that an OUTWARDS directional might be formed in the future or that based on low usage frequency, or other non-linguistic reasons, the activation energy might not reach the EXIT-node. Yet, as mentioned in Section 7.2, this does not imply that there is a functional gap in K'iche' and that speakers have no means of expressing outwards movement. Not every function must have a grammatical expression. Rather, the data indicate that, amongst additional strategies, other directionals expand their functional domains, e.g. the K'iche' deictic directional *(u)loq* 'hither, towards' covers an OUTWARDS trajectory meaning.

An idealized model of a unidirectional grammaticalization chain within the conceptual network is shown in Figure 29. Only the meaning level is considered here. The model illustrates how a grammaticalization chain "may interact with and be integrated into other links in a 'family resemblances' conceptual network. The stages A-H are represented as overlapping; G/X is shown as linked by a broken line to illustrate a relexicalization at a later stage" (Ziegeler 2004: 129). The Chuj directionals derived from *och* 'enter' and *el* 'leave' serve as concrete examples of the abstract pathway in Figure 29. At stage AB, the motion verbs are conceptualized as prototypical lexical motion verbs; they involve the motion carried out by an agent, a change of location, and the trajectory of the motion. As

directionals at Stage BC, the semantic substance A (physical motion initiated by an agent) associated with the motion verbs is lost, while change of location and trajectory are retained as parts of the semantic substance B. Stage C indicates that other concepts such as associated motion are now entailed in the semantics of the two directionals. Concretely, the directional *och* marks INWARDS, while the directional *el* encodes OUTWARDS, both in a literal and increasingly abstract sense. From Stage BC to Stage FG, other small, incremental meaning shifts occur as a result of new conceptualizations, retaining some of the semantics of the foregoing item while also acquiring new conceptual substance. At Stage FG, the two directionals are used to denote trajectory within the absolute frame of reference. The conceptualization is based on the motion of the sun with the underworld as the focal point. The Chuj directionals *och(ih)* and *el(ih)* mark WESTWARDS and EASTWARDS, respectively. Stage G/X linked by a dotted line to the FG node indicates that relexicalization took place at a later stage of grammaticalization. Indeed, as was exemplarily shown for *och* in (80), the two directionals in their FG function were lexicalized and may serve as prototypical intransitive verbs in Chuj.
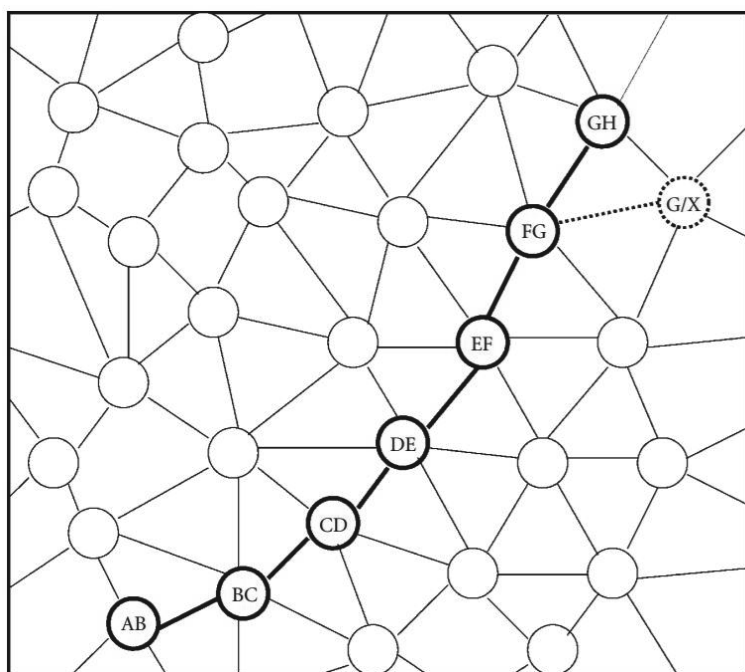
Figure 29: An idealized model of a unidirectional grammaticalization chain in a conceptual network (Ziegeler 2004: 129).

Any meaning shift is precipitated because a particular item in a subnetwork is used in an innovative, yet conceptually related way. The new usage becomes entrenched through repetition. The domain-general processes of Type II (cf. Section 3.4.3) subsumed under the notion of 'conceptualization' constitute the motivation for any meaning construction and shift on a conceptual level. Diessel (2019: 27–30) lists Figure-Ground segregation, metaphor and metonymy, deixis and perspective, and force dynamics as key mechanisms in conceptualization. All of these contribute, although not always at the same time or to the same degree, to the creation of new meaning. Diessel (2019: 29) states that "semantic conventions emerge from recurrent conceptualizations of the same or similar experiences that become associated with particular lexemes and constructions". It follows that semantic conventions arise from language use and their creation based on conceptualization processes is pragmatic rather than semantic (cf. Traugott 1988: 406). The conceptualization processes are, therefore, a type of pragmatic inferencing. Recurrent conceptualizations lead to pragmatic strengthening.

The shift in meaning goes hand in hand with a shift in the focus of attention. The attention of the speech participants is drawn to specific aspects of an utterance and the relevant concepts are activated respectively. This mechanism is called *flow of attention*, or *flow of consciousness* (cf. Chafe 1994: 162–165). During any speech act, "the focus of attention centers on only one item, but this item is connected to semiactivated items, which in turn are linked to other memory traces that are currently not activated but easily accessible through the activated item" (Diessel 2019: 30–31). As mentioned in Section 3.4.3, recent research has challenged the traditional, rigid demarcation between long-term and working memory. Instead, they have been found to operate as a unitary system with working memory functioning as the online attention mechanism that enables shifts in conceptual connections and meaning. Figure 30 illustrates the moving focus of attention in a (sub)network. The dots stand for conceptual nodes. Black nodes linked by continuous lines mark activated concepts, while white nodes connected to them by dotted lines indicate semi-activated items. A small circle surrounds the central item. A larger circle spans all nodes that are directly and simultaneously activated together with the central node (central region). All nodes outside of the central region are only indirectly activated.

Stage I: Pre-grammaticalization   **Stage II: Post-grammaticalization**
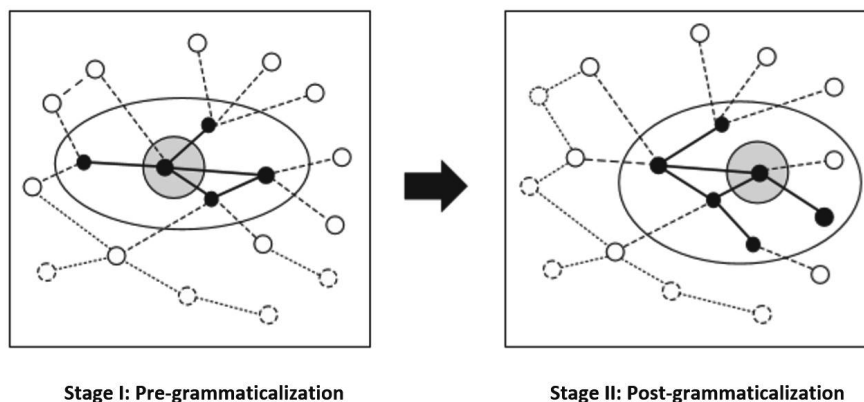
Figure 30: Moving focus of attention in a network with reference to meaning change in grammaticalization (modeled on Oberauer 2002: 412 in Diessel 2019: 31).

Figure 30 depicts the idealized development of meaning change in the course of a grammaticalization instance within the conceptual network. At Stage I pre-grammaticalization, a source node is directly associated with the conceptual nodes that are in line with its lexical meaning and function, while other less central concepts are also indirectly activated. The state as shown in Stage I is built upon the previous linguistic and non-linguistic experience with the lexical item and its usage context. From Stage I to Stage II, a meaning shift occurs. The focus of attention is moved to formerly less central concepts. If the focus of attention is moved in the same way with sufficient frequency, then a novel conceptual state as displayed in the post-grammaticalization Stage II is formed. As a result, new direct strong associations are retained, whereas older associations are weakened, become indirect, or are cut entirely.

In relation to the findings of this study, the Pan-Mayan lexical motion verbs that participated in McPCs and DIRCs have increasingly moved away from their source conceptual network. The speech participants have mutually reinforced the shift in focus of attention towards motion and purpose – to the exclusion of trajectory – for the McPCs, and towards trajectory – to the exclusion of motion and purpose – for the DIRCs. Once established within these functions, the respective grammaticalizing elements were subjected to yet other advancing meaning changes which are, in comparison to the lexical source item, increasingly abstract and grammatical. These meaning changes unfold in the same manner as depicted in Figure 30.

Consider, for instance, the development of ASCEND into and as a directional in Q'anjob'al. In a first meaning shift instance, the association with dynamic

components such as motion or purpose was weakened and the 'trajectory'-component of the motion verb, upwards movement, was strengthened and focused. The central activation region moved, rendering former direct nodes indirect and relegating them to the periphery of the conceptualization. In secondary meaning shifts, the directional came to assume adverbial and aspectual functions that are pragmatically inferable and thus conceptually linked to both the lexical verb and the already developed directional.[148] INCEPTIVE and subsequently INCHOATIVE were derived from =*aj*'s shifted conceptual associations (cf. Section 8.1.2 for an outline of the probable conceptual motivations). The flow of consciousness through memory dictates the conceptual possibilities. This readily explains why there is considerable variation in terms of grammaticalized functions from both the same and different source items. A novel interpretation must be pragmatically inferable and interpretable. A particular meaning shift is more likely and cross-linguistically more frequently observed if the connection between a specific figure node and an associated node is close, in terms of conceptual distance, and strong, in terms of little required activation energy. These types of connections lead to usual grammaticalization targets. Here, a substantial mass of the lexical meaning is retained (cf. Table 3; Principle of Persistence). Yet, more considerable, incremental, and multiple meaning shifts lead to increased conceptual distancing from the source item. In a grammaticalization process, this leads to unusual targets which are less frequently observed and more diverse in their functional nature. Still, for most of the unusual targets identified in the world's languages, there is evidence of the same function in another areally and genetically unrelated language, such as evidentials derived from GO in English (Indo-European), Dongola (Nubian), and at least in the Yucatecan languages (Mayan). Synchronically, the same phonetic form is interpreted against the background of different domains or frames (polysemy).

As polysemy prevails in the majority of grammaticalization cases, at least to my knowledge, the connections in Stage I (cf. Figure 30) are retained for the lexical node, while the connections in Stage II emerge for the novel, grammaticalizing node. Subsequently, a particular sound pattern is tied to several, generally related meanings. **Symbolic relations** establish the link between a phonetic cue and a domain in the network. Given their emergent and gradient nature, no stark distinction between encoding and inference is presupposed. Meaning is dynamic and derived from different cues or stimuli in communicative interactions (cf. Langacker 2008: 39). This dynamic allows for change, (re)interpretation, and gradient polysemy. In Figure 31[149], the symbolic relations

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148 I do not wish to determine at this point which of the two nodes served as the direct source.
149 The figure background is taken from Diessel (2019: 31).

for Tzeltal '*och* 'enter' or more specifically the phonetic cue ['otʃ] are given. To put it in very simplistic terms, the language network is comprised of the two subnetworks lexicon and grammar which do not present individual, separate boxes but are connected and situated towards either end of the language network continuum. The phonetic cue ['otʃ] activates two conceptual nodes and the concepts associated with them. It activates ENTER stored in the conceptual network and INCIPIENCE as part of the grammar subnetwork. Diachronically, the incipience function associated with the phonetic cue is directly related to the point oriented motion function, as INCIPIENCE grammaticalized from ENTER. The two activated conceptual nodes are thus also conceptually linked (dotted lines).

The different parts of a language are often diachronically related so that no rigid separations exist. Just like no rigid separation exists between grammar and lexicon. Grammaticalization makes the gradient relation between lexicon and grammar within the language network palpable.
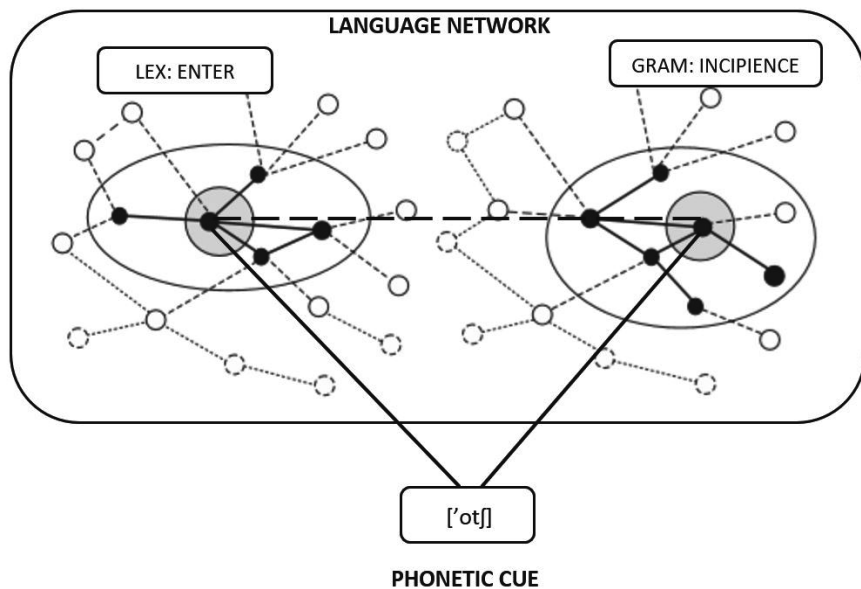
Figure 31: Symbolic relations of Tzeltal *och* 'enter' in the language network.

In grammaticalization, instantiated by the example of Tzeltal *och* above, polysemy leads to ambiguity as a result of meaning change. This *prima facie* ambiguity is either resolved through phonological changes that oftentimes occur with advancing grammaticalization or through the co-text of the respective

item. Both aspects relate to **sequential relations.** Spoken language is a linear medium unfolding in time and all linguistic elements are arranged sequentially. Thus, regarding the former aspect, a source item loses its lexical autonomy as an emerging part of grammar and becomes part of a construction serving a particular grammatical function. Through repetition and increased usage frequency, an unfolding sequence is automated and reanalyzed as a unit or chunk. The language user requires little control or attention to produce the unit which often brings about phonetic reduction and fusion**.** Diessel (2019: 88) summarizes that "chunking increases the amount of linguistic information that can be held in working memory and is of central significance to the analysis of linguistic structure". This relates directly to the proposed tendency for efficient information processing (cf. Hawkins 2004). To name only one example from this study, FUTURE grams grammaticalized from GO as a motion auxiliary in an McPC in the Yucatecan languages (cf. Section 8.1.1). Two functionally and structurally distinct future constructions emerged, the predictive and immediate future. The predictive future consists of the GO auxiliary in an aspectless complement McPC, stripped off any person and aspect marking, and the accompanying lexical verb which always appears in dependent form. By contrast, immediate future is based on a merger of an McPC and a focused progressive construction. The simple focused progressive construction sequence is depicted in Figure 32a.
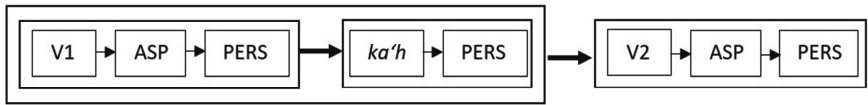
Figure 32a: Sequential structure of the Yucatec Maya focused progressive.
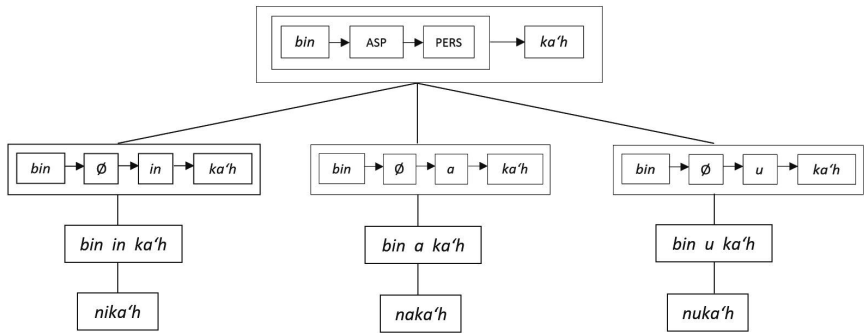
Figure 32b: Sequential structure of the Yucatec Maya immediate future.

To express immediate future, *bin* 'go' is inserted into the V1 slot of the construction. The schema [*bin*(-ASP)=PERS + *ka'h*] presented at the highest level of abstraction in Figure 32b is used with increasing frequency to express immediate future by Yucatec Maya speakers. More specifically, the instantiations *bin in ka'h, bin a ka'h,* and *bin u ka'h* featuring the first-person singular, second-person singular, and third-person singular markers of Set A, respectively, are employed. They are presented at the second and third tier in the figure. Due on the exceedingly high token frequency, the three sequences are each reanalyzed as units and undergo automatization. Three fused and phonologically reduced units are created, namely *nika'h, naka'h,* and *nuka'h* (cf. Briceño Chel 1998: 82; 2000: 88ff.; 2006). These are displayed at the lowest level in Figure 32b. Sequential relations, therefore, account for many of the formal changes observed during the grammaticalization processes.

What is more, sequential relations may facilitate syntagmatically mediated coding as a subpart of indirect coding (cf. Lehmann 2014). From a diachronic perspective, syntagmatic mediation is a mechanism of meaning shift whereby a "secondary expression unit acquires a new sense or function from another unit that is related [...] on the syntagmatic axis" (Lehmann 2014: 123). To elaborate, in Itzá, two expressions *b'el* 'go' (E_1) and *ka'ah* 'do/make' (E_2) appear in sequence in the novel Pan-Yucatecan immediate future construction based on a merger of a verb-focus and a motion-cum-purpose construction. The E_1 *b'el* as the primary expression is used to directly code a FUTURE sense (S_1) on account of a language sign (LS_1) consisting of a $signifier_1$ and a $signified_1$. The usage of E_2 *ka'ah* as a secondary expression is determined by the constraints associated with the LS_1. During syntactically mediated coding, the $signifier_2$ of E_2 is reinterpreted and subsequently associated with the $signified_1$ rather than the $signified_2$ in the merged verb-focus motion-cum-purpose construction. The $signifier_2$ of E_2 assumes a novel function of indirectly coding FUTURE (S_1). At first, *b'el* encodes immediate future. Then the coding of the $signified_1$ is split between the $signifier_1$ of *b'el* and the $signifier_2$ of *ka'ah*. However, in Contemporary Itzá, the function of coding FUTURE finally shifts to the $signifier_2$ of *ka'ah*. The $signifier_1$ of *b'el* is omitted in the majority of immediate future constructions. The E_2 *ka'ah* surfaces without its former conditioner and directly encodes FUTURE in Itzá. The development is depicted in Figure 33. Despite the absence of GO as the initiator and driver of the grammaticalization process in the Contemporary Itzá construction, the function grammaticalized through GO prevails in another element of the sequence.
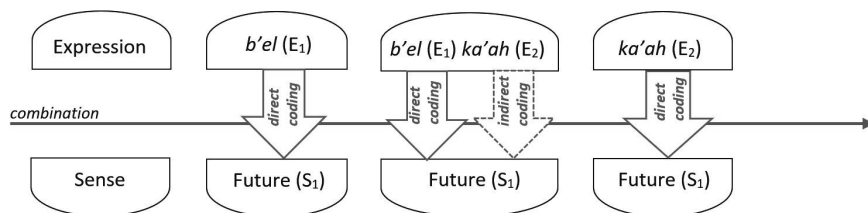
Figure 33: Simplified illustration of syntagmatic mediation in the Itzá immediate future.

Mechanisms such as syntactic mediation and grammaticalization are possible through the temporal proximity of elements in a speech stream as well as the spatial proximity in the conceptual network.

According to the tendency towards semantic coherence, speakers tend to use semantically related, not semantically identical, items together (temporal and spatial proximity). If they are used frequently enough in sequence, they are reanalyzed as units and become automated. Thus, sequential relations do not only influence the intermediate stages of grammaticalization as outlined above for the immediate futures in Yucatec Maya and Itzá but also have a bearing on the initial and pre-grammaticalization stages. Given that semantically related items are employed together, there is a functional or conceptual overlap between them. With regard to grammaticalization, this overlap zone in a given construction highlights certain aspects of a source item's meaning. This falls under the notion of 'co-text' as discussed in Devos and van der Wal (2014).

In Section 9.3, I demonstrated how the directionals in Q'anjob'al are imbued with a different interpretation depending on the features [+/−move] and [+/−change] of the co-occurring lexical verb. The directional =*ay* 'upwards trajectory' from ASCEND served as a case in point. For the directional to assume an aspectual REPETITIVE meaning, the lexical verb must exhibit the features [−move] and [−change] (170b). With advancing grammaticalizing, the construction might undergo host-class expansion and a REPETITIVE reading might be induced with an expanded class of items. In this way, the directional =*ay* would become a genuine TAM marker, free of contextual restrictions.

Another example of the role of sequential relations at the initial or pre-grammaticalization stages comes from the development of GO > IMPERATIVE in Tzeltal. I only indicated at the beginning of Section 8 that IMPERATIVE is among the targets derived from Mayan motion verbs, but I did not discuss the development for reasons of space. The cross-linguistic findings on directive constructions, comprising both HORTATIVE and IMPERATIVE, obtained by Mauri and Sansò (2014) assert that "it is the deictic component which causes 'go' to be preferred

for second person imperatives and 'come' for first person plural directive constructions" (Devos and van der Wal 2014: 324). The example of GO > IMPERATIVE in Tzeltal, while not fully grammaticalized, adds another viewpoint. In addition to the role of co-occurring personal pronouns in the derivation of directive constructions, a functional shift may be initiated through sequential relations. In example (171a), the Tzeltal GO-auxiliary takes the imperative suffix -*an* for intransitive verbs. The subordinate verb *we'* 'eat' is marked separately for imperative mood and bears the same suffix. The GO-auxiliary in (171b) appears without the inflectional suffix. The root form suffices to indicate imperative. The subordinate verb *man* 'buy' still requires the transitive imperative suffix -*a*.

(171)   GO > IMPERATIVE in Tzeltal   [Polian 2013a: 316]
     a.   ***ba-an***   *we'-<u>an</u>*   *ts'in=uuk*
          go-IMP.INTR   eat-<u>IMP.INTR</u>   afterwards=too
          'Go and eat, too.'
     b.   ***ba***   *man-<u>a</u>*   *tel*
          IMP[<go]   buy-<u>IMP.TR.B3</u>   DIR:toward[<come-NF]
          '(Go) buy it.'

The development is only observed for Tzeltal *ba,* no other motion verb auxiliary exhibits these properties. Hypothetically, *ba* might grammaticalize into a genuine imperative marker and the 'old' imperative might gradually fall out of use or serve a distinct function in the imperative domain. Such functional shifts were described throughout Section 8.2.1 in relation to FUTURE. The path GO > IMPERATIVE is cross-linguistically frequently attested.

From the examples described above, it becomes apparent that sequential relations between units of speech have ramifications on both the formal and meaning development of items in sequence. Units of speech are shaped by automatization and predictability which function as processing mechanisms during online language use (cf. Diessel 2019: 89). Both mechanisms affect linguistic structure long-term. Automated units as a result of their frequent co-occurrence in sequence enable utterance planning (speaker-oriented) and sequential processing (hearer-oriented). I return to speech production and sentence processing as well as the roles of speaker and hearer at the end of this section.

Constructional relations are found along two axes. In addition to **vertical constructional relations**[150] between constructions at different abstraction lev-

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150 I used the term 'vertical constructional relations', which is synonymous with taxonomic relations, to stress the opposition to horizontal constructional relations.

els that establish an asymmetric, hierarchical structure, **horizontal constructional relations** link constructions similar in form or function (Diessel 2019: 222). I already commented on the taxonomic relations between nodes in the conceptual network. However,

> lexemes tap directly into world knowledge, whereas constructions serve to guide listeners' interpretation of lexical expressions […] constructions provide instructions to integrate the meanings that are evoked by multiple lexical expressions into a coherent semantic representation. (Diessel 2019: 14–15)

Therefore, a few remarks on vertical constructional relations are still in order. Throughout the description of the McPCs in the individual Mayan languages in Section 7.1 and as displayed in Appendix IV, I provided the structural templates and the descriptions for the McPCs with both intransitive verbs and transitive verbs in V2 position. These templates are higher-order schemas where each of the slots may be filled by items from the respective parts of speech.

Figure 34a exemplarily gives the vertical constructional relations for the Stage IV McPCs with intransitive V2s in Potosino Huastec. At the most abstract level [V1 + SUB-B + V2-ASP], only variable slots are represented. At the third level, the abstract subordinator slots REAL and IRR are filled by either *ti,* a realis mood marker, or *ka,* an irrealis mood marker. Both require the V2 to appear in the incomplete or competitive aspect, respectively. Through the insertion of these functional elements, a functional split occurs.

The first structure with realis *ti* is used in relation to events that do not have clear cut temporal boundaries and where the action is relevant to or has an effect on the present. The second structure with irrealis *ka* is employed if the timeframe of the event is clear and has a definite beginning or endpoint; the event is not relevant to the present. Moving down the taxonomy, the motion auxiliary *nech,* based on the lexical motion verb *ne'ech* 'go', takes the V1 slot. But, while *nech* in the *ti*-construction marks immediate future, it serves to encode remote future in the *ka*-construction. At an even more specific level, the slot of the Set B pronoun is filled by the first-person singular marker. The functional equivalents of [*nech tin* + V2-INCOMPL] and [*nech kin* + V2-COMPL] in English are [*I am going to* + V2.INF] and [*I will* + V2.INF]. Of course, through the insertion of concrete V2s and the appropriate aspect morphology, the constructions become even more specific and present maximally concrete instantiations of the schema at the highest level of abstraction, e.g. *ne'ech tin koyol* 'I am going to rest' or *ne'ech kin koyooch* 'I will rest' (cf. examples [115a] and [115c]).

[V1 SUB-B V2-ASP]

[V1 REAL-B V2-INCOMPL]

[V1 *ti*-B V2-INCOMPL]

[*nech ti*-B V2-INCOMPL]

[*nech tin* V2-INCOMPL]

[V1 IRR-B V2-COMPL]

[V1 *ka*-B V2-COMPL]

[*nech ka*-B V2-COMPL]

[*nech kin* V2-COMPL]
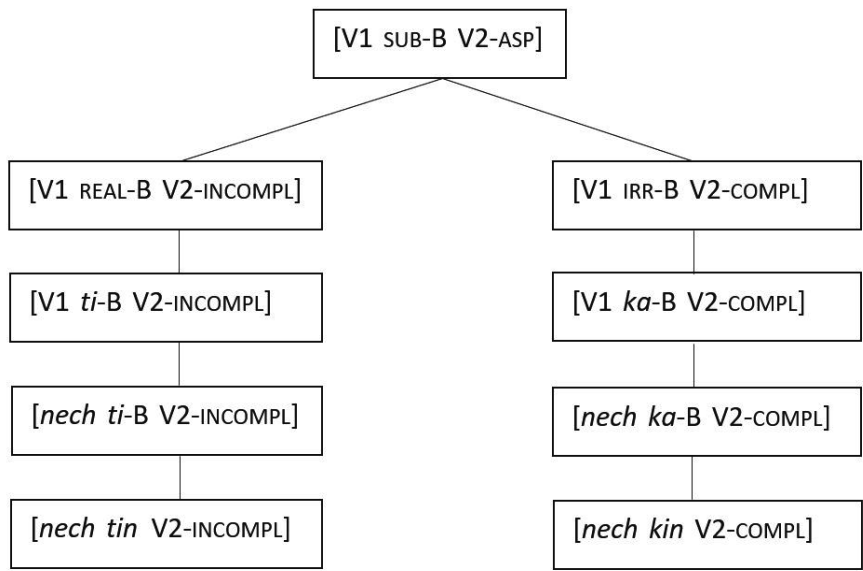
Figure 34a: Vertical constructional relations between Stage IV McPCs with a V2$_{INTR}$ in Potosino Huastec.

Stage I McPC   Stage II McPC   Stage III McPC   Stage IV McPC

[ASP-B-V1 ASP-B-A-V2]   [ASP-B-V1 B-A-V2]   [ASP-V1 B-A-V2]   [ASP-B-V1 A-V2]
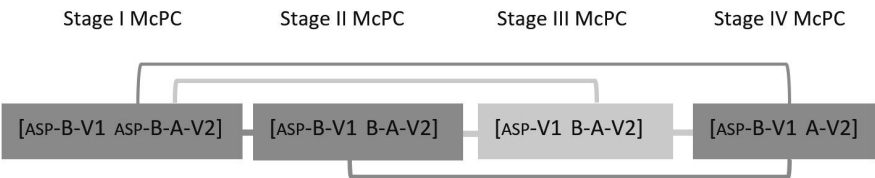
Figure 34b: Horizontal constructional relations between the four Stages of McPCs with a V2$_{TR}$ in Akateko.

Horizontal constructional relations are similar to lexical associations between items in the mental lexicon. They establish links between constructions at the same abstractness level which are similar in form or function. Diessel (2019: 200) states that "every construction has a particular 'ecological location' in the grammar network that is defined by its relationship to other constructions in the system [...]. These relationships can be characterized in terms of two general concepts: similarity and contrast". Hence, the ecological location of a construction can in principle be comprehensively described by listing all constructions that serve as paradigmatic and syntagmatic alternatives.

Figure 34b displays the horizontal constructional relations between the four Akateko McPCs with a transitive V2. All four constructions are laterally connected. The strongest associations exist between those constructions that are formally most similar, e.g. Stage I and Stage II. They are less strong between formally more distant constructions, i.e. Stage I and Stage IV. The lighter shading at Stage III indicates that the construction is rarely used. It is thus not as entrenched as the other constructions in the network grammar. Ultimately, all increasingly integrated constructions go back to the juxtaposition of two adjacent, independent clauses with two finite verbs at Stage I. The formal changes that occur in the course of the individual stage transitions are incremental.

 From Stage I to Stage II, the separate TAM morphology on the V2 is lost. Subsequently, at Stage III where the V1 already functions as an auxiliary rather than a lexical verb, both arguments are indexed on the V2. The AG is no longer marked on the V1. From Stage III to Stage IV, the P argument is redistributed from the V2 embedded verb to the V1 auxiliary. As a result, the person marking is spread over the entire clause. The form changes proceed gradually and incrementally. The constructions that served as the input for further clause integration and progressing V1 grammaticalization prevail as alternative and layered coding strategies. Motion-cum-purpose can be expressed by a range of related structures. The stages of least and most integration, i.e. Stage I and Stage IV in Akateko, constitute two poles of a continuum. The constructions in between are intermediate constructions that enable further integration and grammaticalization. But, as the data shows, the Akateko Stage II McPC is also still productively employed. The Stage III McPC less frequently used. It mainly features one of the two GO-type verbs. The Stage IV McPC is only possible with a subset of the Akateko motion verbs permitted as V1s in Stage II**.**

To put it succinctly, there are no great formal or conceptual leaps in the grammaticalization of Mayan motion verbs. As such, the linguistic structures employed must be interpretable by speaker and hearer. These are linked to other structures through horizontal constructional relations. If certain constructions in the subnetwork fall out of use, the horizontal relations are weakened. This development is exemplified by K'iche'.

In the Quichean language, there are two types of McPCs, one at Stage V and a recently emerged one at Stage I. The Stage V McPC is a monoclausal structure of the form [ASP-B-MOT-A-V-DEP] where motion verbs grammaticalized into genuine motion affixes and became part of the grammatical morphology of the K'iche' verbal phrase. Only the two deictic motion verbs *b'el* 'go' and *ul* 'come' are permitted as MOT in the Stage V construction, (cf. [51a]). The motion affixes underwent phonological erosion and are fused with pronominal markers. The position of the

motion affixes within the verbal complex is indicative of the former clausal integration; the P precedes the motion affix, the AG attaches directly to the V2, and the aspectual element appears in clause-initial position. The preceding clausal integration stages, i.e. Stage I to Stage IV, that led up to Stage V are no longer present in Contemporary K'iche. This stands in contrast to Akateko which boasts between three to four constructions as options to encode motion-cum-purpose.

This means that the intermediate stages must neither survive (K'iche') nor be abolished (Akateko). Still, the horizontal constructional relations must have to a small extent prevailed in the K'iche' grammar network. Can Pixabaj (2015: 243) mentions a novel McPC at Stage I which consists of two finite verbs. The V1 slot is assumed by an intransitive motion verb. This is in line with what we know of the Pan-Mayan McPCs at Stage I. However, the V2 must contain either of the incorporated motion affixes that were derived from previous grammaticalization. The paratactic construction stresses the 'purpose'-component of the utterance (Can Pixabaj 2015: 246). In the course of the grammaticalization of GO and COME into motion affixes, their meaning is generalized or desemanticized. The 'purpose'-component is not entailed in the motion affixes at the Stage V. The monoclausal structure denotes a single event without purposive action. To re-introduce a motion-cum-purpose meaning, a novel but familiar construction was resorted to. Two independent clauses, the first entailing a motion verb and the second consisting of a verb obligatorily carrying one of the motion affixes, are juxtaposed. The construction falls back on the Pan-Mayan McPC at Stage I at the beginning of the clausal integration continuum. I suggest that this development occurs due to traces of horizontal constructional relations between the McPCs.

The last relation type functions as a bridge between abstract schemas and the concrete items that may occupy the variable slots. **Filler-slot relations** are the links between variable slots in constructions and single lexemes. Figures 35a and 35b illustrate the interaction of filler-slot relations. Consider, for instance, the Kaqchikel McPCs with intransitive V2s in Figure 35a. At Stage V, only GO, COME, and PASS BY appear. The motion affix derived from *ik'o* 'pass by' surfaces less frequently than the other two. In another McPC based on an infinitival, rather than the aspectless, complement structure at Stage II, all motion verbs are permitted. GO and COME exhibit a strong association with the V1 slot in the Stage V construction, while they have some connection strength with the V1 slot in the McPC at Stage II. PASS BY displays a weaker association with the Stage V McPC as compared to the two deictic verbs, but it is still an available candidate for the V1 slot. It may also with equal strength be employed in the Stage II construction. ENTER, ASCEND, ARRIVE, and all other motion verbs in the Kaqchikel network may only appear in V1 position of the [ASP-B-V1 + SUB + V2-NMLZ]-schema. Through the

repeated and frequent usage of the individual items in the respective construction, their usage becomes conventionalized and entrenched. The weak dotted lines from the motion verbs other than GO, COME, and PASS BY to the [ASP-B-V1-V2]-schema indicate that the restrictions probably constitute usage preferences by the speakers at first. The conventionalized preferences unfolding in the course of the clausal integration and motion verb grammaticalization from a lexical verb to an auxiliary and finally to an affix led to the ungrammaticality of the other motion verbs at Stage V.
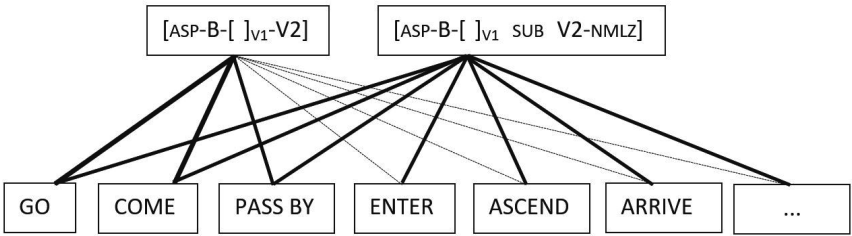
Figure 35a: Filler-slot relations between motion verbs McPC with a V2$_{TR}$ in Kaqchikel.
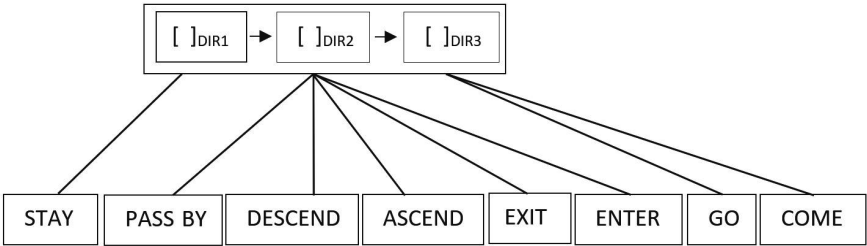
Figure 35b: Filler-slot relations between directionals and directional chain slots in Q'anjob'al.

Directional chains are another example of filler-slot relations. In Figure 35b, the filler-slot relations between directionals and directional chain slots in Q'anjob'al are given. Q'anjob'al allows up to three directionals in a chain.[151] In a chain exhausting the three slots, the DIR1 slot may exclusively be filled by the

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151 Two-slot chains are also frequently used. The restrictions between the individual slots differ slightly compared to those for three-slot chains. To demonstrate the general phenomenon, I content myself with only elaborating on the three directional chains in Q'anjob'al.

point oriented directional =*kan* 'stay' which indicates the lack of motion – an entity remains in a particular position, be it temporal or spatial. STAY is the only node linked to the DIR1. Also, it shows no association strength with any of the other two slots. The DIR2 slot can be filled by the vertical directionals =*aj* 'up' and =*ay* 'down', the enclosure or region oriented directionals =*ok* 'in' and =*el* 'out', or the point oriented directional =*ek'* 'pass'. The nodes for PASS BY, DE-SCEND, ASCEND, EXIT, and ENTER are only connected with the middle slot of the directional chain, indicating their restriction to the DIR2 slot. The last slot is limited to the two deictic directionals =*teq* 'toward' and =*toq* 'away from', only GO and COME are connected to the DIR3 slot in the figure. The organization of the three Q'anjob'al directionals shows that directionals are combined in a compositional way. Haviland's (1991: 28–29) observation for Tzotzil directional chains also applies to the chaining in Q'anjob'al, and the other Mayan languages by extension. Semantically more specific directionals come first, while more general directionals come last. The arrangement of directionals in a chain is based on how speakers conceptualize a given event. Using the directionals in a different order might not result in ungrammaticality but lower acceptability on the part of the speaker, as the restrictions are based on preference in cognition, and thus, usage.

Overall, the six relation types that make up the grammar network encompass all aspects of language: lexemes, constructions, and categories. During grammaticalization, all of these aspects are subject to change. Lexical formatives develop into grammatical formatives. The constructions in which they are used undergo restructuring. The grammaticalizing elements themselves are recategorized and the variable slots in the respective constructions are e.g. extended to other categories, restricted to a subset of category members, or extended to other category members. Within the grammar network, "linguistic knowledge includes a vast array of prefabricated processing units of different length and different strength at different levels of abstraction" (Diessel 2019: 88). The different levels of abstraction concern the asymmetrical relationship between constructions ranging from more to less abstract, i.e. from structures with multiple variable slots to those with fixed lexemes. Hence, there is not only a constant interaction between the grammar network and the conceptual network but also a smooth transition between the two, prominently shown through grammaticalization.

Thus far I only referred to a singular grammar network and how grammaticalization operates through it. But communicative interactions occur between at least two language users. It is therefore pivotal to consider the roles of speaker and hearer and debate how grammaticalization is influenced by a negotiation

between the language networks. As language is a goal-directed activity, and its goal is successful communication, language change, in general, and grammaticalization, in particular, are influenced by an interaction between networks. Drawing on ideas put forward by Edwardes (2010: 95), I distinguish between cognitive grammar (CogG), which is internal to individual language user's mind, and communicative grammar (ComG), which must be interpretable by other minds. An idealized model of cognitive grammar and communicative grammar is given in Figure 36. In a typical communicative situation, speaker and hearer interact with each other. As such, the cognitive grammar internal to the speaker's mind and the cognitive grammar internal to the hearer's mind interact.

There is evidence from psycholinguistic research that the individual language user owns or commands only certain aspects of a language and its grammar (cf. Diessel 2019: 17). Even native speakers do not have the same knowledge of grammar as they are not exposed to the same linguistic experiences. It follows that the CogG which operates through a network differs from individual to individual. As shown in Figure 36, the encounter of CogG S and CogG H in a speech situation brings about a dynamic, ever-changing, negotiable ComG SH, a communicative grammar that enables the successful exchange of ideas between speaker and hearer. And it is within the domain of communicative grammar that novel constructions or usages become conventionalized and part of a language's grammatical repertoire.
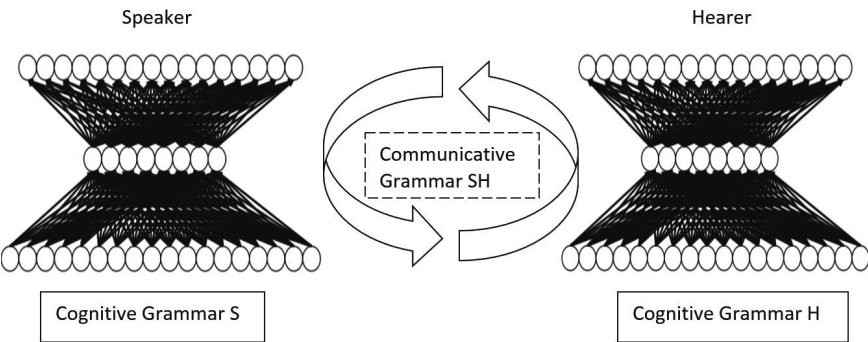
Figure 36: An idealized model of cognitive vs. communicative grammar.

Two perspectives need to be taken into account. On the one hand, the speaker perspective is motivated by two competing factors: be clear and be quick (Traugott and Trousdale 2013: 124). The speaker is interested in conveying as

much relevant information as possible with a little effort as possible. On the other hand, the hearer perspective is motivated by extracting the relevant information, understanding an utterance correctly, and responding adequately. Hearers interpret as much as possible into an utterance while drawing on the different cues present in a speech situation. To interpret an utterance, they rely on the grammatical structures that they are presented with. It follows that language change is influenced by the competing interests of speaker and hearer. The speaker and hearer perspectives constitute two sides of a coin, language planning/production (hierarchical analysis of grammatical structure) and language comprehension/processing (online analysis of grammatical structure). I briefly review both by referring to findings from psycholinguistic research.

Concerning sentence processing, hearers or processors are able to predict upcoming structures based on their linguistic experience with sequences. At the same time, the processing cues presented in a given sequence as it unfolds in time inform the interpretation of an utterance. The process of computing a sentence, parsing, is defined as an incremental process describing a sentence as being analyzed word-by-word (Harley 2013: 292). Therefore, sequential relations are of central importance to the computing process. Different types of cues are distinguished in sentence processing research (cf. Clark and Clark 1977), three of which, syntactic cues (word order, case, and agreement), semantic cues (animacy and plausibility), and lexical cues (verb bias and frequency), make reference to linguistic structure itself. Contextual cues, conversely, refer to a visual scene and have no bearing on linguistic structure. Of course, in a given speech situation, the hearer aims at deriving a sound interpretation of an utterance that is compatible with both linguistic and non-linguistic cues. There are two prominent traditional models on sentence processing, the Garden Path model (cf. Frazier 1987) and the Lexicalist Constraints-based model (cf. Boland et al. 1990; Trueswell et al. 1994), both with the purpose of describing when and in which order processors use cues. The two models attribute varying importance to the different cues for the computing process. The Garden Path model poses two distinct processing stages. During the first stage, the processer uses syntactic cues exclusively (cf. Frazier 1987). It is only when the first stage appears to be deficient that a second interpretation pass which draws on semantic, contextual, and lexical cues is initiated. In contrast to the Garden Path model, the Lexicalist Constraints-based model suggests that multiple cues are used simultaneously. Correspondingly, multiple alternative constructions are activated. The construction supported by the most cues 'wins' (Harley 2013: 296).

After reviewing the experimental, the Lexicalist Constraints-based model appears to offer the more promising account of sentence processing whereby the different cues interact with each other. With regard to grammaticalization, this

means that upon confrontation with an utterance entailing a particular source item in a novel function, hearers try to infer the intended meaning by drawing on the different cues simultaneously. The interpretation invited by the most cues is selected. This experimentally validated processing behavior is in line with pragmatic inferencing driving grammaticalization at the intermediate stages. At the beginning of a grammaticalization instance, pragmatic inferencing is laborious in terms of cognitive energy required on the part of the hearer, especially if there is a great conceptual distance between the source and target meaning. If an invited inference becomes a generalized invited inference induced through the frequent invocation of a novel but related conceptualization of an utterance, the associated structure becomes conventionalized. Incremental form and meaning changes take place to ensure successful communication. New conventionalized structures derived from generalized invited inferences are therefore built based on the experience with the linguistic structures. Indeed, more recently, experience has been established as a decisive factor of language processing, although it was implicitly considered under the category of lexical cues. Wells et al. (2009) studied the effect of experience on speakers' ability to process relative clauses. They found that experience has a strong effect on both subject and object relative clauses, with a greater impact on the latter (Wells et al. 2009: 261). The researchers state that "these differences offer intriguing possibilities concerning the complex nature of interactions between innate abilities and linguistic experience in language comprehension processes" (Wells et al. 2009: 268). Effectively, this seems to suggest that not only the nature of the cue plays a role in sentence processing but also the frequency with which it is encountered.

Having discussed the comprehension side of language and communicative interaction, I now turn to speech production before arguing how both sides need to be considered in grammaticalization. How does the human mind plan language? Are the planning stages discrete or do they overlap? In contrast to the study of language comprehension, limited research has been devoted to the study of language production (Harley 2013: 395). The underlying reason is practical in nature. While the input for language comprehension can be experimentally controlled and adjusted to certain parameters, the input for language production, i.e. thought, is not easily accessible to researchers. Beyond doubt, a link between speech production and comprehension exists, but "speech production is not just comprehension in reverse" (Harley 2013: 425). It is widely acknowledged that speakers plan their utterances before speaking and precede from the general to the more specific incremental stages of speech production. Levelt (1989) gives an account of the production processes. They are divided into conceptualization, formulation, and articulation, see Figure 37. However, in line with the argumenta-

tion supporting the parallel model on speech planning briefly outlined below, a fourth stage including a monitoring process is arguably also present.

CONCEPTUALIZATION (MESSAGE LEVEL OF REPRESENTATION)
• involves determining what to say
• speaker conceives an intention
• speaker selects relevant information in preparation for construction of intended utterance
• the product is a preverbal message
FORMULATION
• involves translating the conceptual representation into linguistic form
• includes the process of lexicalization, where words that the speaker wants to say are selected
• includes the process of syntactic planning, where words [and constructions]are put together to form a sentence
• includes the process of phonological encoding, where words are tuned into sounds
ARTICULATION
• involves the retrieval of chunks of internal speech from buffer
• involves motor control execution
(MONITORING)
• self-monitoring

Figure 37: Speech production processes (based on Levelt 1989 cited in Harley 2013: 395).

No consensus has been reached on the nature of relations between the three or four stages. While serial models pose discrete stages within which the processes are dealt with one after another, parallel models put forward the idea of interactive and overlapping speech planning. Research has shown that serial models fail to explain speech planning as a whole. Therefore, the parallel model has gained increasing prominence throughout the last decades. Supporters of this model have acknowledged the limitations of the serial model and propose an alternative account.

In contrast to serial models of speech planning, parallel models support the idea that speech is planned at multiple stages at the same time (cf. Bock and Levelt 1994; Dell 1986; Levelt 1989). One key concept of parallel planning is spreading activation (Dell 1986). There have been several studies dating back as far as the 1880s (cf. Cattell [1888] 1947) providing evidence for the role of spreading activation during language production. Figure 38 illustrates how spreading activation operates in a network model.
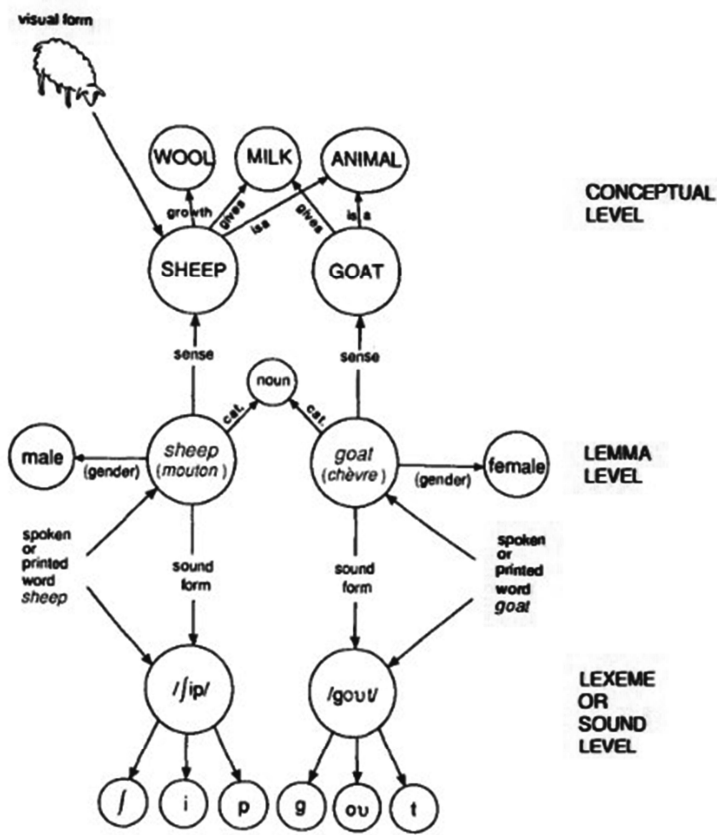
Figure 38: The spreading activation model (Bock and Levelt 1994: 951).

When speakers are confronted with the picture of a sheep, the concept of SHEEP is activated first which in turn activates the lemma sheep (Bock and Levelt 1994: 957). However, the concept of SHEEP also partly spreads to the semantically related concept of GOAT. A picture of a goat shown in the experimental situation led to a delay in response time (Bock and Levelt 1994: 957). It can be concluded that concepts are activated simultaneously. Another issue that challenges the serial model but lends support to the concept of spreading activation is lexical bias. According to Harley (2013: 421), "lexical bias is the tendency for sound-level speech errors such as spoonerisms to result in a word rather than a nonword (e.g. 'barn door' being produced as 'darn bore') more often than chance would predict". This finding has two implications for language plan-

ning. Firstly, it further suggests that morphological and phonological representations are activated in parallel. Secondly, it proposes that the system sends feedback to previous stages.

The discussions of language planning and language comprehension show that my proposal of the Network Approach to grammaticalization is inspired by the findings and ideas from psycholinguistics. Describing grammar as a network allows for language to be understood as a multidirectional structure where the individual signs are connected in several meaningful ways. If speech planning occurs parallelly, then activation energy spreads through the links established by the six relations types simultaneously, and speakers retrieve different aspects of grammar to construct an utterance. Broadly speaking, during grammaticalization, they derive novel meanings by accessing concepts related to a particular figure concept and use the associated lexeme in constructions that highlight a specific component of the meaning. Signs are selected in a parallel and hierarchical fashion, and communication is planned beforehand. The hearer, on the other hand, is confronted with a novel meaning of a structure as it unfolds in time.

In accordance with the Lexicalist Constraints-based model on language processing, the hearer uses a range of cues to successfully decode an utterance. For instance, Mayan motion verbs on their way to auxiliary status appear in clause-initial position, are followed by another verb phrase – not a noun phrase – and lose properties characteristic of lexical verbs with increasing clausal integration. This provides the hearer with syntactic cues. Further, they prototypically involve an animate entity that carries out the action. They express motion, change of location, and oftentimes change of state. These are semantic cues. In terms of verb bias, grammaticalizing motion verbs are intransitive but have an increasing tendency to appear with verb complements rather than noun complements. Also, GO- and COME-type verbs surface most frequently. Both aspects pertain to lexical cues. Contextual cues can be valuable for interpretation in a number of ways. To illustrate, two speech participants are in the same room sitting at the same table on which a cake has been placed. The speaker proclaims: "I am going to eat cake in a minute". The hearer likely infers the emphasis on the future meaning of GO, as no change of location is required for the cake to be eaten by the speaker.

Summing up on production, processing, and the Network Approach to grammaticalization, any novel usage needs to be accepted and understood by both speaker and hearer. Given the overlap of domains in the conceptual and grammar network between the CogCs, only certain form and meaning changes occur, without impeding successful communication. The universal grammaticalization paths that are cross-linguistically frequently observed, i.e. usual targets,

are based on the shared conceptual and grammatical basis between speakers. Less usual targets rely more heavily on context and, as I argue, on pre-existing structures and meanings that are less closely tied to the source meaning.

Variation in grammaticalization between areally and genetically closely related languages occurs because many different factors influence the process. Six relations are important in the Network Approach: lexical, symbolic, sequential, taxonomic, constructional, and filler-slot relations. They are built from previous linguistic experience and shape the grammaticalization process. The different ways in which speaker and hearer have to deal with new structures and meanings, i.e. according to speech production principles vs. speech processing principles, need to be taken into account to fully understand innovation, propagation, and variation in grammaticalization. Further bridging this gap is long overdue as the implications of cognitive psychology for the Network Approach to grammaticalization and grammar outlined in this study have shown.[152]

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152 For reasons of space, I am unable to elaborate on the implications of the Network Approach for contact-induced grammaticalization. One can think of it this way: A bilingual language commands two languages and with that two language networks. To which extent they overlap, are identical, or diverge, I cannot say. But, given the structural and conceptual similarity of signs, the language users of R can readily recognize and transfer an innovative, grammaticalized pattern from M.

10 Recap

The analysis of variation in the parallel grammaticalization of Mayan motion verbs had several purposes. The overarching goal was to introduce a Network Approach to grammaticalization based on the fresh empirical grounds provided by this study. In the beginning, I motivated the need for further research on the grammaticalization of motion verbs, despite a long tradition of already existing work, by demonstrating

(i)   that some areas and language families were largely neglected or over-looked within the research paradigm, such as Mesoamerica and with that the Mayan phylum,

(ii)   that the semantics of motion verbs as source concepts must be analyzed thoroughly and as part of a wider motion verb network before putting forward conceptual or semantic motivations, and

(iii)   that unusual or rarer grammaticalization paths require more attention, as their outcomes are diverse and oftentimes language-specific.

Subsequently, the state of the art was reviewed in detail under the premise: 'where do we come from and where do we go from here?' The characteristics of grammaticalization with a view to key concepts, such as polysemy, reanalysis, and analogy, were introduced at first. The principles (cf. Hopper 1991), common patterns (cf. Croft 2003), and parameters and processes (cf. Lehmann [1985] 2004) of grammaticalization were then discussed in-depth to show which components proved essential and stood the test of time for the analysis and description of the phenomenon. Moreover, I commented on the grammaticalization universals of unidirectionality and intersubjectification. I recognized the merits of both hypotheses. In line with more recent advances (cf. Traugott and Trousdale 2013), I emphasized the importance of considering the constructional history of a grammaticalizing item in order to arrive at a comprehensive understanding of the mechanisms involved. Therefore, I elaborated on constructions and their nature. Another key concern was to describe how constructions and grammar are shaped by general cognitive processes. I argued that all these interrelated and interacting factors, on a formal, meaning, and cognitive level, need to be taken into account. I, therefore, suggested that traditional approaches to grammaticalization only offer partial explanations and do not reflect the complex but holistic picture of the phenomenon. Inspired by the account of grammar as a network (cf. Diessel 2019), I devised a sketch of a possibly fruitful Network Approach to grammaticalization. Venturing from the propositions made by Diessel, I described how grammaticalization, too, can be viewed through the

network lens. Different types of associative connections between lexemes, constructions, and categories, may emerge, become stable, change, or disappear. To empirically motivate the proposal, an investigation on the variation in the grammaticalization of Mayan motion verbs was carried out considering not only language-internal but also contact-induced change.

After presenting the methodology and data, the research history on the Mayan languages was briefly outlined. Further, the genealogical classification and the sociolinguistic background were described. A typological sketch discussing properties relevant to the verbal domain, i.e. basic word order and agreement marking, followed. All of this served to motivate the premise that given their similarity, both on a linguistic and non-linguistic level, the Mayan languages are likely to give evidence of comparable or even identical grammaticalization patterns. Yet, as demonstrated throughout this study, this is not always the case. To trace back the origins of the contemporary motion verbs to their possible Proto-Mayan origin, the paradigms complied by Zavala Maldonado (1993), modified and extended by Gómez Cruz (2017), served as comparable database (cf. Appendix III). The analysis focused on approximately a dozen Pan-Mayan motion verbs which were grouped into five notional classes based on a proposal by Haviland (1993). In this way, it was possible to tease apart the different semantic components of the individual motion verbs and to uncover which of these provide the possible conceptual motivation for the initiation of grammaticalization.

The findings of the study revealed variation in the grammaticalization behavior among the fifteen Mayan sample languages. To name just one example, while the motion verbs of all Mayan languages participate in McPCs and serve as (co-)encoders of motion and purpose, the degrees of clausal integration and thus grammaticalization of the respective motion verbs vary substantially. Applying the five stages framework of clausal integration by Zavala Maldonado (1993), I showed that McPCs of the different stages may be employed in the individual languages asserting their constructional relation. New McPC layers emerge out of older stages. These must not necessarily be discarded but may prevail as co-existing and interacting constructions. The number of co-existing layers varies. Thus, even from a synchronic perspective, the constructional history of a grammaticalizing element becomes palpable. Between Stage II (motion verb with embedded clause) and Stage III (motion auxiliary with embedded clause) of the clausal integration continuum, the motion verbs undergo recategorization and move from lexical verb to auxiliary status. Morphological markers and syntactic properties characteristic of verbs are lost or neutralized, and the properties characteristic of the auxiliary class are acquired. The set of

motion verbs participating in a given McPCs diminishes as the degree of clause integration increases. Deictic motion verbs are those category members that display the highest degree of grammaticalization. Indeed, at the most integrated Stage V, attested in the Core Quichean languages, GO and COME are found in phonologically eroded forms. Their formal degree of grammaticalization, however, does not necessarily bear an indication as to the degree of meaning change or abstractness. The Core Quichean motion affixes in the Stage V McPCs still carry and explicitly mark motion. By contrast, the Yucatecan Stage III McPC exclusively features GO. The construction developed various future-related senses. On the other hand, FUTURE from GO is not attested in many of the Mayan languages that exhibit a strong formal grammaticalization of motion verbs. These apparent discrepancies are readily explainable by the Network Approach which stipulates that there are both structural and conceptual associative links shaped through languages use, as argued in Section 9.4.

These and other variations, in the domain of directional constructions, TAM, and rarer functions cannot fully be explained by the traditional approaches to grammaticalization. Although I did not exhaustively describe the Network Approach framework to grammaticalization, I outlined its merits, emphasizing the unification of structural and conceptual considerations. Variation in grammaticalization occurs because variation in language use occurs. Within the Grammar Network (cf. Diessel 2019), language use shapes the association strength between conceptual nodes in the mind connected by a series of link types. It is through the repeated experience with a particular thought path and its associated structure that a link becomes strengthened, or as Diessel (2019: 251–252) puts it, "[i]f a language user repeatedly encounters a particular co-occurrence pattern, his/her experience becomes entrenched in the associative connections of the grammar network and these connections affect his/her choice of linguistic means and the development of linguistic structure as an independent factor". This choice of linguistic means shaped by memory-related processes controls the development of linguistic structures in language change, in general, and grammaticalization, in specific. While the role of memory, particularly that of long-term memory, has been recognized in cognition research, it has been ignored in grammatical research until recently. Accepting a usage-based approach to grammar where language is understood as a general cognitive mechanism, this role can no longer be neglected. The Network Approach to grammaticalization speaks to that need within the research paradigm of linguistic change. The comprehensive description of the approach remains a desideratum for future work. Moreover, it is also vital to continue combining the study of linguistic structure and language use. Applying psycholinguistic research

methods to the study of grammaticalization, the nature of which is yet to be devised, would generate new insights and help to experimentally verify the ideas connected with the Network Approach.

In conclusion, variation in grammaticalization as a process of linguistic change occurs on both the synchronic and diachronic level, as the empirical findings on the variation in the grammaticalization of Mayan motion verbs show. The proposed Network Approach to grammaticalization can account for variations along both dimensions. It captures why 'not anything goes' but 'a lot is possible'. The approach is flexible enough to capture variation. At the same time, it can explain universals of linguistic change. The framework places grammaticalization at the heart of a theory of grammar, which in turn forms part of a unified theory of cognition.

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Appendix I: WLG (2002) data on the grammaticalization of motion verbs

Motion verbs as nodes
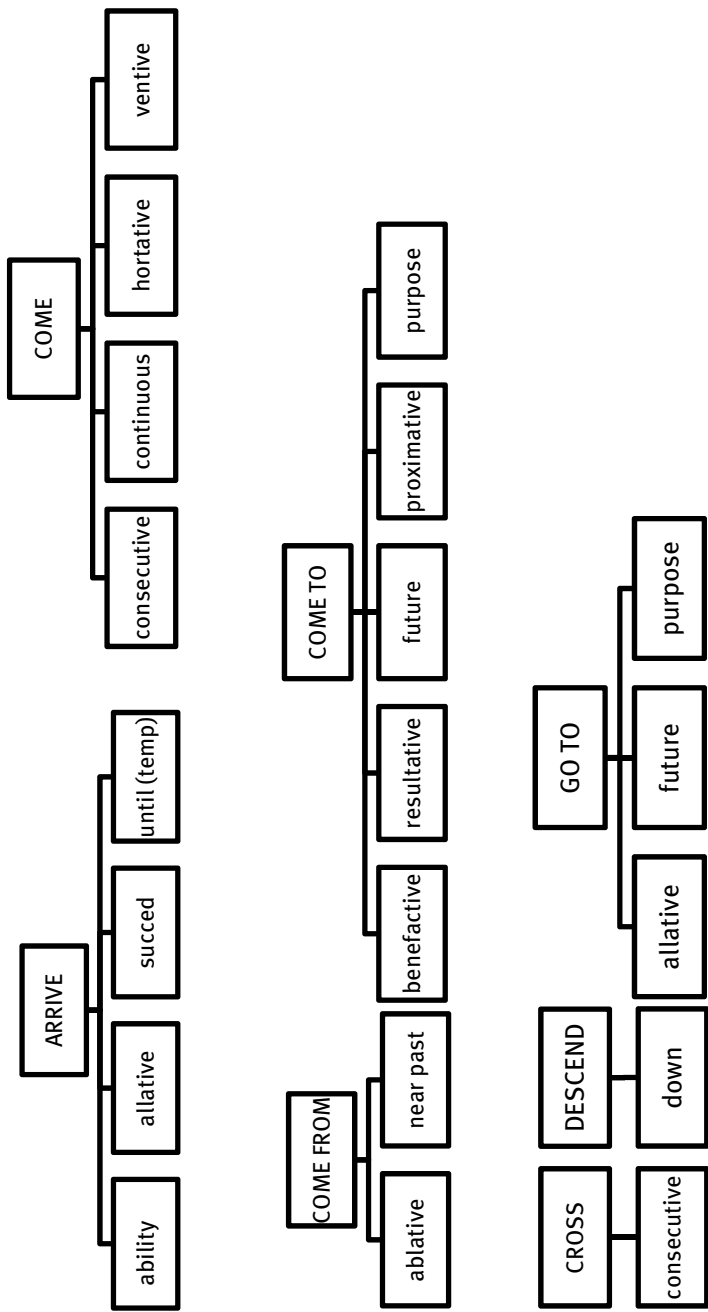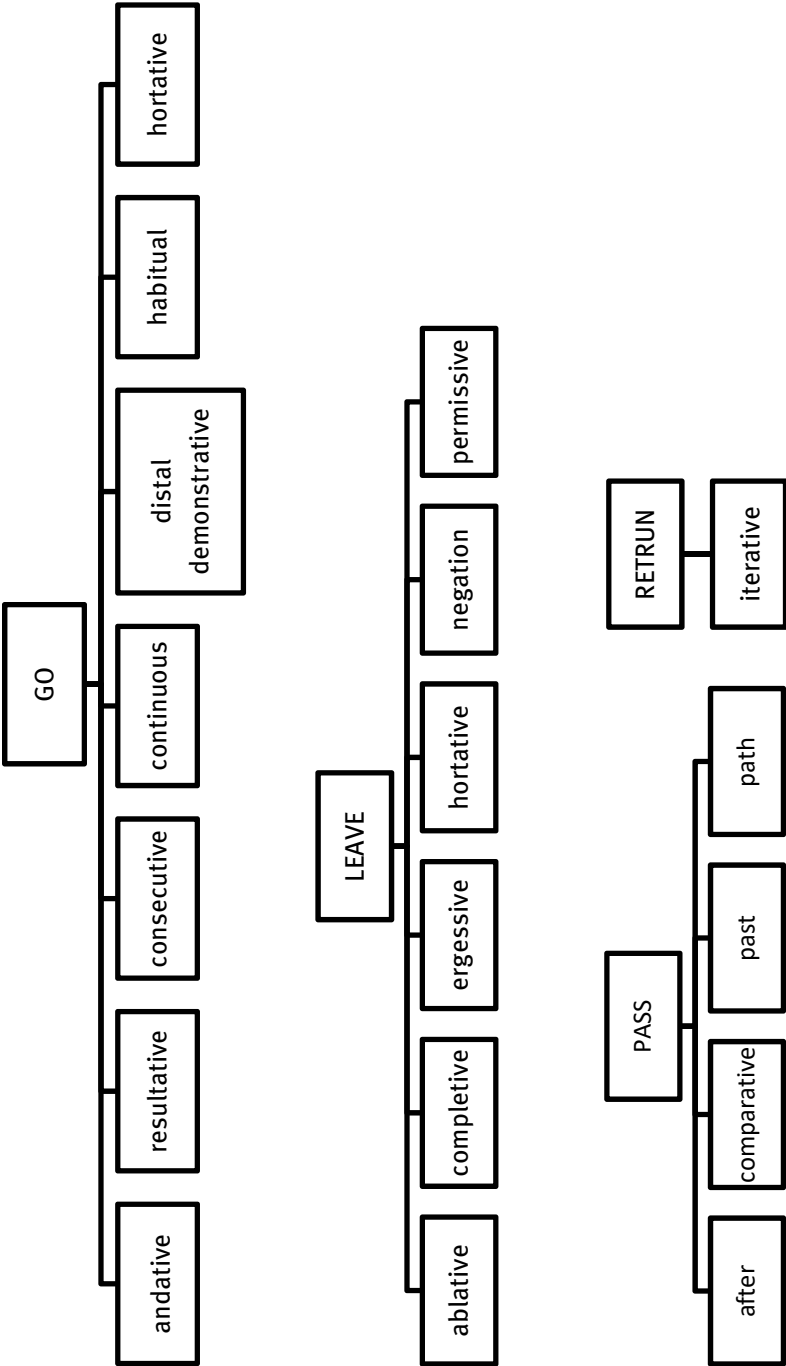
Grams as nodes with more than one source item

```
          allative
       ┌──────────┐
       │          │
    ARRIVE      GO TO


          ablative
       ┌──────────┐
       │          │
  COME FROM      LEAVE


        consecutive
       ┌──────────┐
       │          │
     COME         GO


         continous
       ┌──────────┐
       │          │
     COME         GO


          future
       ┌──────────┐
       │          │
   COME TO      GO TO
```

past
- COME FROM
- PASS

hortative
- COME
- GO
- LEAVE

resultative
- COME TO
- GO

purpose
- COME TO
- GO TO
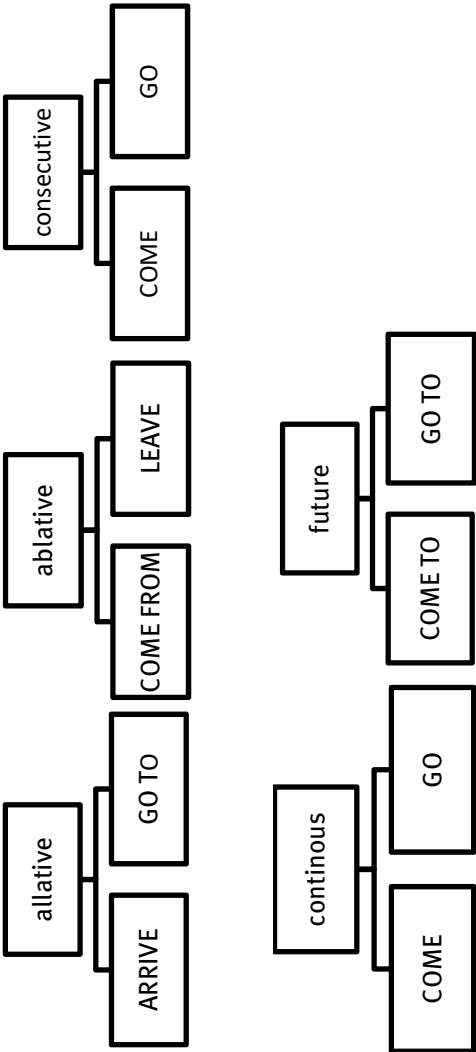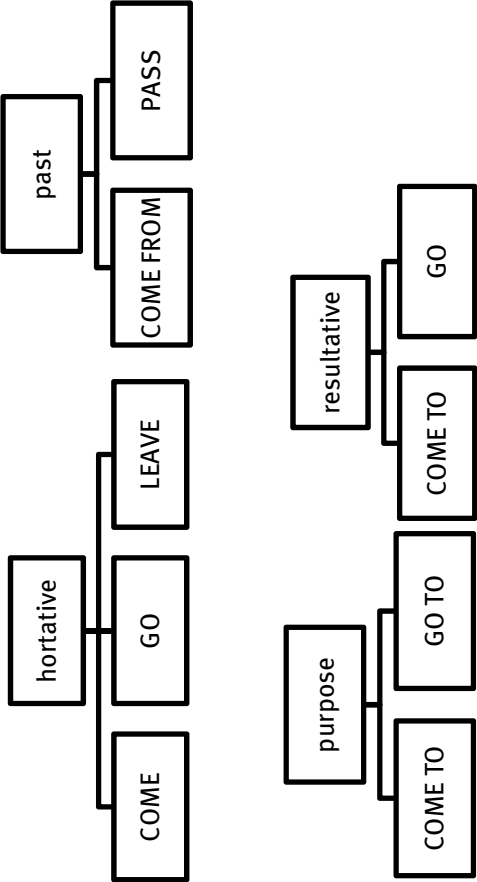
Appendix II: Elicitation data on Zimbabwean Ndebele

Motion verb	Example	Stimulus
-ngena	*Inkosikazi ingena endlini.*	The woman **enters** the house.
-shiya	*Umfana lo mfowabo batshiye imaketi.*	Two brothers **exit** the market.
-hamba	*Ubaba lowa Ngakwakhe bahambe eceleni komfula.*	The old couple **walks** by the river.
-gijima	*Isilwane sigijima phakathi ko tshani.*	The lion is **running** through the grass.
-bhukutsha	*Abantwana baya bhukutsha elwandle.*	The children are **swimming** in the sea.
-ya	*Inkosikazi iya lapho.*	The woman **goes** to there.
-za	*Wasizi ehlahleni.*	He **came** to the tree.
-fika	*Ufika.*	She **arrived**.
-theleka	*Utheleka laphana.*	She **came** here.
-buya	*Ubuye khathesi.*	She **returned from** here.
-vela	*Umangoye uvela eghangeni.* *I bhokisi liphonge lavela nje.*	The cat **returns from** the forest. A box **appears** out of nowhere.
-suka	*Sisuke ngaphi?*	Where did we **leave from**?
-dlule	*Umpoyisa wedlule kule indlu.*	A policewoman **passes by** the house.
-thutha	*U Maria wathutha e Italy esiya e Germany.*	Maria **moved** from Italy to Germany.
-quma	*Abantu abayisihetshezana baqume indlela.*	A group of people **crosses over** the street.
-hlezi	*Ngibona umama ehlezi eduze olwandle.*	I see a mother who **sits** near (of) the sea.
- hlala	*Aabantwana abahlala.*	The children **stay/dwell**.
-landela	*Indoda ilandela umfazi.*	The man is **following** the woman.
-nayamalala	*Kunyamalala.*	It **disappears**.
-wela	*Inja iwele phezu kwe litshe.*	The dog **falls over** a stone.
-sukuma	*Umfundisi usikume esihlalweni.*	The teacher **goes up** the stairs.
-phuma	*Ilanga liphuma ekuseni.*	The sun **rises** in the morning.
-k(h)wela	*Umfundisi ukwele intaba* *Ukhwela isihlahla.*	The teacher **goes up** the hill. He **climbs** (up) the tree.
-shona	*Lapha lilanga elishonayo.*	Here it is the sun **sinking**.
-vuka	*I Ndoda ivuke ekufeni.*	A man **emerged** from the dead.
-wa	*U Nicole uwile phansi.*	Nicole **falls** on the floor.
-eqa	*Njalo uzama ukweqa.*	And then it tries to **jump**.

Appendix III: An overview of the Mayan motion verbs (Zavala Maldonado 1993: 33 in Gómez Cruz 2017: 490)

Tabla 6.5. Comparación léxica de verbos de movimiento en lenguas mayas

LENGUAS	1	2	3	4	5	6	7	8	9	10	11	12	13
01. WAS	k'al	che'	'ul	che'	'ots	kal	tsa'	k'ath	wat'			bel	wich
02. MAY	xi'ik	tal	'u'ul	k'ooj/k'uch	'ok	jóok'	'eem	na'ak	máan/mal		p'aat	biin	suut
03. ITS	k(a'a)	tal	'u'ul	k'och	'ok	jok'	'em	nak'	man		kan	b'in/b'el	sut
04. MOP		tal		k'ochi	'ok	hiok'	'em	nak'	man		kan	ben	yusk'
05. CHR	kaxin~ixin/bix	tar	yo'p	k'ot	'och	lok'	'em	t'ab'	num		ket		sut
06. CHT	bixe/xe	te	hul	k'ot	'och	tuts'	'em	t'ab'	num		kih	bixel	sut
07. CHL	maji	tyäl	jul	k'oty	'och	lok'	ju'b'	lets	ñäm		käjty		sujty
08. TSO	bat	tal	yul	k'ot	'och	lok'	yal	muy	'ech'		kom		meltsaj
09. TSE	baht'	tal	jul	k'oht	'och	lok'	koh	moh	k'ax	pax	hil		suht'
10. TOJ	waj	jak	jul	k'ot	'och	'el	ko'	k'e'	'ek'	pax	kan		suex
11. CHJ	b'at/xat'/xit'	koti/a~jaw	jul/ul	k'och	'och	'el	em ~ 'ejm/'ay	k'e'	'ek'	pax	kan		meltsaj/jax
12. Q'AN	b'et/toj	jay/tit	'uli	'apni	'oki	'eli	'ayi	'aji	'ek'i	paxi	kani		meltsoj
13. AKA	too/b'at	tit	jul	'apni	'ok'	'el	'ey	'aa	'ek'i	pax	kan		meltsu
14. JAK	b'et/toyi	tita	'ul	'apn	'oki	'el	'ayi	'ahi	'ek'i	paxi	kan		meltso'
15. MCH	xi' (ICP)/'onh (CP)	'ak (ICP)/xu'ul (CP)	'uul (ICP) chaaw(CP)		'ook	'eel	'aach	maaq	'ik'		kene'		melts
16. MAM	xi'	tsaaj	'uul	poon	'ook	'eel	kub'	jaaw	'iky'	'aaj	tyaj		
17. TEK	xtk/ow+taj	tsa	'ul	pon	'ok	'el	qet/qe	jaw/ja	ky'ik	'aj	kaj		
18. AWA	ja+taaj	saaj	'uul	'opoon	'ook	'eel	kuu'	jee'	ky'y		ñyaaj	b'een	
19. IXI	kuxh	tsa	ch'ul	'on	'ok	'el	ku'	he'	pal		kaa	b'en	
20. KCH		peet	'uul	'opoon	'ook	'eel	gaaj	paq	'ik'		kanaj	b'ee	
21. SAK	'qj	peet/tsa'qj	'uul	b'eek	'ak	'eel	gaaj	'aq'an	q'aax		kaan	tsalaj	
22. TZU				'opoon	'ook	'eel	joot	pejt			ka'naj	b'ee	
23. KAQ		pee	'ul	'apoon	'ok	'el	qa	'aq'an	'ik'		kan	b'ee	
24. PQM	'uuh/kaj	chal	'ul	pan	'ok	'el	qe/kaj	joht	'ik'		kahn		sut'k'j
25. PCH	'ooj	chal	k'uul	pon	'ok	'el	qaj	joht	'iik		kahn		
26. QEQ	xik	chal	kul		'ok	'el	kub	taq	num		kan		sug'
*pM (Kaufman 2003)	*toh[Qp] / *b'aht[Chis.]	*tyaal / *tya[pM]	*hnul[pM]	*q'ot[TB] / *7apo-n [MOr+QM]	*7ook[pM]	*7eel, / *loq'[pM]	*7aar[QM] / *7ehm[TB+Oc] / *koH[Chis.]	*7aj [Qp]	*7ik[MC] / *7ek'[MC] / *q'ahx[pM]	*paax[MOr]	*kan[pM]		*suht[pM] / *suut[MOr] / *mel.tz[Hue]

*1. 'ir', 2. 'venir', 3. 'llegar allá', 4. 'llegar aquí', 5. 'entrar' 6. 'salir', 7. 'bajar', 8. 'subir', 9. 'pasar', 10. 'ir y regresar', 11. permanecer, 12. 'ir de a qui a allá', 13. 'ir y regresar aquí'.
** Los datos en 19 lenguas se tomaron de Zavala (1993:33). En este estudio se agregan 7 lenguas más. La base datos han tomado en diversas fuentes (vocabularios, diccionarios, glosarios, entre otros).

Caption for Appendix III

	Spanish equivalent to Mayan motion verb	English translation	Notional class (cf. Haviland 1993: 37)
1	*ir*	'go'	deictically anchored
2	*venir*	'come'	deictically anchored
3	*llegar aquí*	'arrive here'	deictically anchored
4	*llegar allá*	'arrive there'	deictically anchored
5	*entrar*	'enter'	enclosure or region oriented
6	*salir*	'leave/exit'	enclosure or region oriented
7	*bajar*	'descend'	vertical axis
8	*subir*	'ascend'	vertical axis
9	*pasar*	'pass'	point oriented
10	*ir y regresar*	'go and return'	point oriented
11	*permanecer*	'stay'	point oriented
12	*ir de aquí a allá*	'go from here to there'	point oriented
13	*ir y regresar aquí*	'go and return here'	point oriented

Appendix IV: Mayan motion verbs in McPCs

Motion verb → auxiliary	Translation	McPC + intransitive V2	McPC + transitive V2
	Cholan-Tzeltalan		
Tzotzil (Haviland 1991, 1993; Aissen 1984, 1994; Cowan 1969)			
<u>deictically anchored</u>		**Stage II** [ASP-B-V1 (+SPCL) (+ DIR) (+AD) + V2-SBJV-B]	**Stage II** [ASP-B-V1(+SPCL) (+ DIR) (+AD) + A-V2-B]
bat → ba(t)	'go' → FUT		
k'ot → k'ot	'arrive there'		
tal → tal	'come, arrive here'		
yul → yul	'arrive here, return here'	**Stage III** [ASP-V1 (+SPCL) + V2-SBJV-B]	**Stage III** [ASP-V1 (+SPCL) + A-V2-B] [ASP-V1 + A-V2-PASS.NF (+PP.AG)]
<u>point oriented</u>			
'ech' → 'ech'	'pass'		
'ay → 'a(y)	'go and return'		
sut → sut	'return'		
meltsaj → meltsaj	'return'		
kom → kom	'remain'		
<u>enclosure or region oriented</u>			
'och → 'och	'enter'		
lok' → lok'	'exit, leave'		
<u>vertical axis</u>			
muy → muy	'ascend'		
yal → yal	'descend'		
<u>aspectual</u>			
lik → lik	'arise, start' → INCEP		
laj → l(aj)	'finish' → TERM, COMPL		

Tzeltal
(Polian 2013, 2017;
Brown 1991, 2006)

		Stage II * [ASP-V1-B + V2-B] [ASP-V1-B + SUB + V2-NF]	Stage II *[ASP-V1-B + A-V2-B] [ASP-V1-B + SUB + A-V2-NF.PASS]
<u>deictically anchored</u>			
bajt → ba	'go' → FUT		
tal → tal	'come, arrive here'		
k'ot → k'o(t)	'arrive there'		
jul → jul	'arrive here, return here'		
		Stage III [ASP-V1 + V2-IRR-B]	Stage III [ASP-V1 + A-V2-B]
<u>point oriented</u>			
jil → jil	'remain'		
sujt → sujt	'return'		
k'ax → k'ax	'pass by somewhere and leave'		
jelaw → jelaw	'cross over, pass'		
sol → sol	'pass by, go from A to B'		
<u>enclosure or region oriented</u>			
och → och	'enter' → INCEP		
lok' → lok'	'exit, leave'		
<u>vertical axis</u>			
mo(j) → mo	'ascend'		
ko(j) → ko	'descend'		
<u>aspectual</u>			
lik → lijk	'begin'		
kaj → kaj	'begin'		
jach → jajch	'begin, arise'		
laj → l(aj)	'finish'		

Chol
(Vázquez Álvarez
2002, 2011)

			Stage II [ASP-V1-SSF-B + SUB + V2-NF]	*Stage II [ASP-V1-SSF-B + A-V2-B]
deictically anchored				
majl → *majl, ma*	'go'			
tyäl → *tyäl, tyä, te* (PFV only)	'come'			
k'oty → *k'oty*	'arrive there'		*Stage III [ASP=V1-SSF + V2-SSF-B]	Stage III [ASP=(SPCL=)V1-SSF + A-V2-B]
jul → *jul*	'arrive here'			
point oriented				
ñäm → *ñäm*	'pass'			
sujty → *suj(ty)*	'go and return here'			
käyty → *käy(ty)*	'stay'			
enclosure or region oriented				
och → *och*	'enter'			
lok' → *lok'*	'exit, leave'			
vertical axis				
lets → *lets*	'ascend, climb'			
ju'b → *ju'b*	'descend'			
aspectual				
kej → *ke(j)*	'start' → FUT			

1. Tabasco Chontal
(Osorio May 2011,
2016; Knowles
1984)

		Stage II [A-V1-ASP + SUB + V2-IPFV]IPFV / [V1-ASP-B + SUB + V2-IPFV]PFV	Stage II [A-V1-ASP (+LOC) + A-V2-IPFV-B]IPFV / [V1-ASP-B (+LOC) + A-V2-IPFV-B]PFV
deictically anchored			
biše → *še, he*	'go'		
te → *te*	'come'		
jul → *jul*	'arrive here'		
k'ot → *k'ot*	'arrive there'		
tuts → *tuts*	'leave away from the speaker'		

point oriented
kij → kij 'stay, remain'
num → num 'pass by'
sut → sut 'go and return'

enclosure or region oriented
och → och 'enter'
pas → pas 'exit, leave'

vertical axis
jak → jak 'descend'
'em → em 'descend'
t'ib, t'ab → t'ib, t'ab 'ascend, climb'

	Stage IV [V1 + A-V2-IPFV]	**Stage IV** [V1 + A-V2-IPFV-B]
2. Tabasco Chontal	deictically anchored *biš → še, he* 'go' → FUT	

Motion verb → auxiliary	Translation	McPC + intransitive V2	McPC + transitive V2
	Quichean-Mamean		
1. Poqomchi' (Brown 1979; Mó Isém 2011)			
deictically anchored			if progressive **Stage I** [ASP + A-V1-PROG + ASP-B + A-V2]
oj → ooj, oj	'go'		
chal → chaal, chal	'come'		
pon → poon, pon	'go there, arrive there'	**Stage IV** [ASP-B-V1 + V2-DEP]	elsewhere **Stage IV** [ASP-B-V1 + A-V2]
k'ul → k'uul, k'ul	'come here, arrive here'		
point oriented			
ik' → iik', ik'	'pass by'		
2. Poqomchi'			
point oriented		**Stage II** [ASP-B-V1-SSF + SUB + V2-NF]	**Stage II** [ASP-B-V1-SSF + SUB + A-V2-PASS-NF] [ASP-B-V1-SSF + V2-NMLZ + O.NP]
kahn → kahn	'stay, remain'		
enclosure or region oriented			
ok → ok	'enter'		
el → el	'exit, leave'		
vertical axis			
qaj → qaj	'descend'		
joht → joht	'ascend'		
3. Poqomchi'			
deictically anchored		? **Stage V** [ASP-B-V1-V2-DEP]	? **Stage V** [ASP-B-V1-A-V2]
pon → poon, pon	'go there, arrive there'		

1. K'iche'
(Can Pixabaj 2015, 2017; Bridges Velleman 2014; Dürr 2010)

deictically anchored		**Stage V** [ASP-B-V1-V2-DEP]	**Stage V** [ASP-B-V1-A-V2-DEP]
b'e → e', u'	'go from here to there'		
ul → u(')l, a(')l, o(')l	'come here, arrive here'		

2. K'iche'

deictically anchored		**Stage I** [ASP-B-V1-SSF + ASP-B-MOT-V2-DEP]	**Stage I** [ASP-B-V1-SSF + ASP-B-MOT-A-V2-DEP]
pet → pet	'come'		
b'e → (b')e	'go from here to there'		
ul → ul	'come here, arrive here'		
point oriented			
q'ax → q'ax	'pass by'		
kanaj → kan(aj)	'remain'		
tzalij → tzalij	'return'		
enclosure or region oriented			
ok → ok	'enter, begin'		
el → el	'exit, leave'		
vertical axis			
paq → paq	'ascend'		
qaj → qaj	'descend, begin'		

3. K'iche'

		Stage II [ASP-B-V1 + SUB + V2-NMLZ]	**Stage II** [ASP-B-V1 + SUB + A-V2-NMLZ]
deictically anchored			
pet → pet	'come'		
b'e → (b')e	'go from here to there'		
ul → ul	'come here, arrive here'		
point oriented			
q'ax → q'ax	'pass by'		
kanaj→ kan(aj)	'remain'		
tzalij → tzalij	'return'		
enclosure or region oriented			
ok → ok	'enter, begin'		
el → el	'exit, leave'		
vertical axis			
paq → paq	'ascend'		
qaj → qaj	'descend, begin'		

Mam
(England 1976, 1983, 2017)

		Stage II [ASP-B-V1 + V2-NF]	**Stage II** [ASP-B-V1 + AG.NP + V2-NF + PAT.PP]
		Stage IV [ASP-B-V1 + V2]	**Stage IV** [ASP-B-V1 + A-V2-DS]
deictically anchored			
xi' → x(i)	'go' → INCEP, INCH		
tzaaj → tz(aj)	'come'		
uul → ul	'arrive here'		
poon → pon	'arrive there'		
point oriented			
iky' → iky'	'pass by'		
kyaj → kyaj, kaj	'stay'		
aaj → aj	'return'		

enclosure or region oriented

ook → ok, k	'enter' → INCH, ?FUT
eel → el, al	'exit, leave'

vertical axis

kub' → kub', ka	'descend'
jaaw → jaw	'ascend'

aspectual

_ba'j → b'a(j)_	'finish'

compounds

kub'-xi → ku'x	'down-away'
kub'-tzaj → ku'tz, katz	'down-towards'
jaw-xi → j(a)x	'up-away'
jaw-tzaj → j(a)tz	'up-towards'
_el-xi → ex, ax_	'out-away'
el-tzaj → etz, atz	'out-towards'
_ok-xi → (o)kx_	'in-away'
ok-tzaj → (o)ktz	'in-towards'
aj-tzaj → ajtz	'returning-towards'
iky'-xi → iky'x	'passing-away'
iky'-tzaj → iky'tz	'passing-towards'

1. Kaqchikel
(García Matzar and
Rodríguez Guaján
2001)

		Stage V [ASP-B-V1-V2]	Stage V [ASP-B-V1-A-V2-DEP]
deictically anchored			
_b'e → b'e, e_	'go from here to there'		
_ul → ul, (t)o_	'arrive here, come here'		

			Stage II	**Stage II**
			[ASP-B-V1 + SUB + V2-NMLZ]	[ASP-B-V1 + SUB + V2-ANTIP-NMLZ +O.NP]
	<u>point oriented</u>			
	ik'o → ik'o	'pass by'		
2. Kaqchikel	<u>deictically anchored</u>			
	b'e → b'e	'go from here to there'		
	ul → ul	'arrive here, come here'		
	pe → pe	'come'		
	apon → apon	'arrive there'		
	<u>point oriented</u>			
	'ik'o → 'ik'o	pass by'		
	kanäj → kanäj	'stay'		
	<u>enclosure or region oriented</u>			
	ok → ok	'enter'		
	el → el	'exit, leave'		
	<u>vertical axis</u>			
	qaj → qaj	'descend'		
	aq'an → aq'an	'ascend'		

Yucatecan

	Motion verb → auxiliary	Translation	McPC + intransitive V2	McPC + transitive V2
			Stage II [ASP-V1-B + SUB + V2-INCOMPL]PFV [ASP=A-V1 + SUB + V2-INCOMPL]IPFV	**Stage II** [ASP-V1-B + A -V2-SBJV-B]PFV [ASP=A-V1 + A -V2-SBJV-B]IPFV
1. Yucatec Maya (Bohnemeyer 2002; Bohnemeyer and Stolz 2006; Leh- mann 2017; Bricker 2018)	deictically anchored *bin → bin* *tàal → tàal* *k'uch → k'uch* *u'l → u'l* point oriented *màan → màan* *sùut → sùut* *lùuk → lùuk* enclosure or region oriented *òok → òok* *hóok' → hóok'* vertical axis *na'k → na'k* *em → em* aspectual *lìik' → lìik'* *ts'o'k → ts('o'k)*	'go from here to there' 'come' 'arrive there' 'return, arrive here' 'pass by' 'return' 'leave' 'enter' 'exit' 'ascend' 'descend' 'arise' 'finish, stop'		
2. Yucatec Maya	deictically anchored *bin → bíin*	'go' → PRED.FUT	**Stage IV** [V1 + V2-SBVJ-B]	**Stage IV** [V1=A + V2-SBVJ-B]

Itzá
(Hofling 2000;
Lehmann 2017)

		Stage II	Stage II
deictically anchored		[ASP-V1-B + SUB + V2-INCOMPL]PFV	[ASP-V1-B + A -V2-SBJV-B]PFV
_b'el → b'el_	'go from here to there' → FUT	[ASP-A-V1 + SUB + V2-INCOMPL]IPFV	[ASP-A -V1 + A-V2-SBJV-B]IPFV
tal → tal	'come'		
_u'l → u'l_	'arrive here'		
k'och → k'och	'arrive there'		
_ka'aj, ka'a_ (AUX only)	'go' → IMM.FUT		
point oriented			
man → man	'pass by'		
luk' → luk'	'leave'		
kun → kun	'stay, remain'		
enclosure or region oriented			
_ok → ok_	'enter'		
jok' → jok'	'exit, leave'		
vertical axis			
_em → em_	'descend'		
nak'→ nak'	'ascend'		
aspectual			
lik' → lik'	'get up, rise'		
_tz'o'k→ tz'o'k_	'finish'		

	Motion verb → auxiliary	Translation	McPC + intransitive V2	McPC + transitive V2
		Kanjobalan-Chujean		
Q'anjob'al	deictically anchored		**Stage II**	**Stage II**
(Mateo Toledo	toj → toj, toq (<toj-oq)	'go' → FUT	[ASP-B-V1(=DIR) + V2-INF]	[ASP-B-V1(=DIR) + B-A-V2(-SSF]
2007, 2008, 2017)	b'et → b'et	'go and come back'		[ASP-B-V1(=DIR) (+NP) + V2-NF.ANTIP
	tita → tit	'come toward here'		+ O.NP]
	jayi → jay	'come here'		[ASP-B-V1(=DIR) + V2-INTR-INF]
	apni → apn	'arrive there'		
	meltzoji → meltzoj, meltzo'	'go and return here'		**Stage III**
				[ASP-V1 + B-A-V2(-SSF]
	point oriented			
	kan → kan	'stay, remain'		**Stage IV**
	ek' → ek'	'pass by'		[ASP-B-V1 + A-V2(-SSF]
	pax → pax	'go and return, go back (from here)'		
	sutmoji → sutmoj	'turn and come back'		
	ul → ul	'come and go back'		
	enclosure or region oriented			
	ok → ok	'enter'		
	el → el	'exit, leave'		
	vertical axis			
	ay → ay	'descend'		
	aj → aj	'ascend'		

Akateko
(Zavala 1992, 1993, 1994, 1997; Mateo Toledo 2008)

deictically anchored
- too → to(o) — 'go' → FUT
- b'et → b'et — 'go there'
- tit → tit — 'come'
- jul → jul — 'arrive here'
- 'apni → apni — 'arrive there'
- meltzu → meltzu — 'go and return here'

point oriented
- 'ek' → ek' — 'pass by, cross over'
- kan → kan — 'remain'
- pax → pax — 'return'

enclosure or region oriented
- 'ok → ok — 'enter'
- 'el → el — 'exit, leave'

vertical axis
- 'aa → aa — 'ascend'
- 'ey → ey — 'descend'

Stage II
[ASP-B-V1(=DIR) + V2-INF]

Stage II
[ASP-B-V1(+LOC) + B-A-V2]
[ASP-B-V1(=DIR) (+NP) + V2-NF.ANTIP.INCORP + O.NP]

Stage III
[ASP-V1 + B-A-V2]
[ASP-V1 + B-V2-PASS]

Stage IV
[ASP-B-V1 + A-V2]
[ASP-B-V1 + V2-PASS]

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1. Chuj
(Coon 2018; Buenrostro 2007, 2015; Hopkins 2012, Gómez Cruz 2017)

deictically anchored
- b'at → b'at — 'go, go there'
- ul → ul — 'come here, arrive here'
- k'och → k'och — 'arrive there'
- pax → pax — 'return there'

point oriented
- ek' → ek' — 'pass by, cross over'
- kan → kan — 'stay, remain'
- kot → kot — 'come, draw near'

Stage I
[ASP-B-V1(-SSF) (=DIR) (+AD) + ASP-B-V2(-SSF)]

Stage II
*[ASP-B-V1 + B-V2(-SSF)]
[ASP-B-V1(=DIR) + V2-NF]

Stage I
[ASP-B-V1(-SSF) (=DIR) (+AD) + ASP-B-A-V2(-SSF)]

Stage II
[ASP-B-V1(=DIR) (+SUBJ.NP) + B-A-V2(-SSF)]
[ASP-B-V1(=DIR) + V2-NF.ANTIP + O.NP]
[ASP-B-V1(=DIR) + V2-ANTIP-NF]
[ASP-B-V1(=DIR) + V2-PASS-NF]

	Forms	Gloss	Stage	Stage
	enclosure or region oriented		**Stage III**	**Stage III**
	och → och	'enter'	[ASP-V1 + B-V2(-SSF)]	[ASP-V1 + B-A-V2(-SSF)]
	el → el	'exit, leave'	[ASP-V1 + B-V2-ANTIP(-SSF)]	
			[ASP-V1 + B-V2-PASS(-SSF)]	
	vertical axis			
	em → em	'descend'		
	k'e' → k'e'	'ascend'		
2. Chuj	**deictically anchored**		**Stage IV**	**Stage IV**
	b'at → b'at	'go' → FUT	[V1 + A-V2]	[V1 + B-A-V2]
	xet' → xet'	'go'		
3. Chuj	**deictically anchored**		**Stage I**	**Stage I**
	ja → ja	'come'	[ASP-B-V1(-SSF) (=DIR) (+AD) + ASP-B-V2(-SSF)]	[ASP-B-V1(-SSF) (=DIR) (+AD) + ASP-B-A-V2(-SSF)]
	jax → jax	'return here'		
	meltzaj → meltzaj	'go and return here'		
Tojolabal (Gómez Cruz 2017; Ramírez del Prado 2017)	**deictically anchored**		**Stage I**	**Stage I**
	waj → waj	'go'	[ASP-V1(-SSF)-B (+DIR) (+AD) (+NP) + ASP-V2(-SSF)-B]	[ASP-V1(-SSF)-B (+DIR) (+AD) (+NP) + ASP-A-V2(-SSF)-B]
	jak → jak	'come'		
	jul → jul	'arrive here'		
	k'ot → k'ot	'arrive there'	**Stage II**	**Stage II**
			*[ASP-V1(-SSF)-B + V2-B]	[ASP-V1(-SSF)-B (+NP) + A-V2-B]
	point oriented		[ASP-V1(-SSF)-B + V2-NF]	[ASP-V1(-SSF)-B + A-V2-PASS-NMLZ]
	kan → kan	'stay'	[ASP-V1(-SSF)-B + V2-NF.ANTIP + O.NP]	
	pax → pax	'return there'	[ASP-V1(-SSF)-B + V2-ANTIP-NF]	
	sutx → sutx	'return'	[ASP-V1(-SSF)-B + V2-PASS-NF]	
	'ek' → 'ek'	'pass by, cross over'		

enclosure or region oriented

				Stage III
'och → och	'enter'			[ASP-V1(=ENC) +V2-PASS-IRR-B]
'el → el	'exit, leave'			[ASP-V1(=ENC) + A-V2-B]; but
				*V1=*sutx* 'return'

		Stage III
		[ASP-V1 + V2-IRR-B]
		[ASP-V1 + V2-ANTIP-IRR-B]

vertical axis

ko' → ko'	'descend'
k'e' → k'e'	'ascend'

aspectual

ch'aka → ch'ak	'finish'

Huastecan

Motion verb → auxiliary	Translation	McPC + intransitive V2	McPC + transitive V2
1. Huastec (Kondić 2012; Edmonson 1988; Constable 1989)			
deictically anchored		**Stage II**	**Stage II**
ne'ech → nech	'go'	[B-V1-ASP + SUB-B + V2-ASP]	[B-V1-ASP + SUB-B + V2-ANTIP.ASP]
še'ech → še'ech	'go, walk about'		if B = Ø, [B-V1-ASP + SUB-A + V2-ASP]
taal → taal	'come, arrive here'		if B ≠ Ø, [B-V1-ASP + A' + V2-ASP]
k'alej → k'al	'go'		
ulel → ul	'come'	**Stage III**	**Stage III**
txi'ch → txi'	'arrive here'	[V1-ASP + SUB-B + V2-ASP]	if B = Ø, [V1-ASP + SUB-A + V2-ASP]
			if B ≠ Ø, [V1-ASP + A' + V2-ASP]
point oriented			
wat'ey → wat'	'pass by, cross'		
witxiy → witx	'return'		

<u>enclosure or region oriented</u>
kalej → kal   'exit, leave'
ochich → och   'enter'

<u>vertical axis</u>
k'athiy → k'ath   'ascend, climb'
pa'ay → pa'   'descend'

2. Huastec

<u>deictically anchored</u>
ne'ech → n(e')ech 'go' → FUT, HAB

Stage IV
[V1 + SUB-B + V2-ASP]

Stage IV
if B = ∅, [V1 + SUB-A + V2-ASP]
if B ≠ ∅, [V1 + A' + V2-ASP]

Appendix V: Mayan motion verbs in DIRCs

Directional	Translation	Primary function(s)	Secondary function(s)
Cholan-Tzeltalan			
Tzotzil (Haviland 1991, 1993; Aissen 1994; Cowan 1969)			
<u>deictically anchored</u>			
b'at-el	'go'	'away from here'	
k'ot-el	'arrive there'	'arriving there'	
yul-el	'arrive here'	'arriving here'	
tal(-el)	'come'	'towards here'	
ech'-el, 'el (ZIN)	'pass by'	'away'	
<u>point oriented</u>			
sut-el	'return'	'returning'	
jelav-el (ZIN)	'pass'	'passing'	
kom-el	'stay'	'resting, staying, motionless'	
ech'-el, 'el	'pass by'	'passing'	
<u>enclosure or region oriented</u>			
och-el	'enter'	'entering, inwards'	
lok'-el	'exit, leave'	'exiting, outwards'	
<u>vertical axis</u>			
muy-el	'ascend'	'upwards'	
yal-el	'descend'	'downwards'	
<u>aspectual</u>			
lik-el	'begin, start'	'beginning, starting'	INCEP
bat-el (ZIN)	'go'		'from time to time'

Tzeltal
(Polian 2013, 2017; Brown 2006)

<u>deictically anchored</u>			
bajt-el → beel, bel	'go'	'away'	'away from now'
tal-el → tel	'come'	'towards'	'approaching now'
k'ot-el → k'oel	'arrive there'	'arriving there'	
jul-el	'arrive here'	'arrive here'	
<u>point oriented</u>			
jil-el	'stay'	'staying, motionless'	
sujt-el	'return'	'returning'	'back'
k'ax-el	'pass by'	'passing'	
<u>enclosure or region oriented</u>			
och-el	'enter'	'entering, inwards'	
lok'-el	'exit, leave'	'exiting, outwards'	
<u>vertical axis</u>			
mo(j)-el	'ascend'	'upwards'	
ko(j)-el	'descend'	'downwards'	
<u>aspectual</u>			
jajch-el	'begin, arise'	'beginning, arising'	

Chol
(Vázquez Álvarez 2002, 2011)

<u>deictically anchored</u>		
majl-e(l) → majle(l), ma	'go'	'away'
tyäl-e(l) → tyäjle(l), tyel, tel, te	'come'	'toward'
k'oty-e(l)	'arrive there'	'here to there'
jul-e(l)	'arrive here'	'there to here'

point oriented
ñäm-e(l)   'pass by'   'passing by'
sujty-e(l)   'return'   'returning'
käyty-ä(l)   'stay'   'remain, motionless'

enclosure or region oriented
och-e(l)   'enter'   'entering, inwards'
lok'-e(l)   'exit, leave'   'exiting, outwards'

vertical axis
lets-e(l)   'climb, ascend'   'upwards'
ju'b-e(l)   'descend'   'downwards'

Tabasco Chontal   n.a.

Quichean-Mamean

Directional	Translation	Primary function(s)	Secondary function(s)
Poqomchi' (Brown 1979; Weichel 2006)			
deictically anchored			
chal-oq → cho	'come'	'towards here'	
je	DEM	'away from'	
pon-oq → noq	'arrive there'	'arriving there'	'that, when'
point oriented			
kahn-oq → kahno(q)	'stay'	'remain, motionless'	

<u>enclosure or region oriented</u>			
ok-oq → koq, ko	'enter'	'inwards, into'	
el-oq → loq, lo	'exit, leave'	'outwards, out of'	
<u>vertical axis</u>			
joht-oq → johtoq, toq	'ascend'	'upwards'	
qaj-oq → qojoq, joq, qoq	'descend'	'downwards'	
K'iche'			
(Can Pixabaj 2015, 2017; Bridges Velleman 2014; Dürr 2010)			
<u>deictically anchored</u>			
b'e-ik →=(u)b'i(k)	'go from here to there'	'away'	
ul-oq →=(u)lo(q)	'come here, arrive here'	'towards here, arriving here'	
opan-oq →=(o/a)panoq	'arrive there'	'towards there'	REFL.INTENS
<u>point oriented</u>			
=kan-oq →=kan(oq)	'stay'	'remain, motionless'	
<u>enclosure or region oriented</u>			
ok-oq →=(u)ko(q), =okoq	'enter'	'inwards'	
<u>vertical axis</u>			
aq'an-oq =(a)q'an(oq)	'ascend'	'upwards'	
qaj-oq →=qajoq, =qaaq	'descend'	'downwards'	
Mam			
(England 1976, 1983, 2017; Gómez Cruz 2017)			
<u>deictically anchored</u>			
xi' → x(i)	'go'	'away'	
tzaaj → tz(aj)	'come'	'towards'	INCEP, INCH
uul → ul	'arrive here'	'arriving here'	
poon → pon	'arrive there'	'arriving there'	

<u>point oriented</u>

Form			
iky' → *iky'*	'pass by'	'passing, crossing'	
kyaj → *kyaj, kaj*	'stay'	'motionless, remain'	
aaj → *aj*	'return'	'retuning'	'backwards, behind'

<u>enclosure or region oriented</u>

Form			
ook → *ok, k*	'enter'	'in'	'east', INCH, ?FUT
eel → *el, al*	'exit, leave'	'out'	'west'

<u>vertical axis</u>

Form			
kub' → *kub', ka*	'descend'	'down'	
jaaw → *jaw*	'ascend'	'out'	

<u>aspectual</u>

Form			
ba'j → *b'a(j)*	'finish'	'complete'	'cessation of motion'

<u>compounds</u>

Form			
kub'-xi → *ku'x*	'down-away'	'down away'	
kub'-tzaj → *ku'tz, katz*	'down-towards'	'down toward'	
jaw-xi → *j(a)x*	'up-away'	'up away'	
jaw-tzaj → *j(a)tz*	'up-towards'	'up toward'	
el-xi → *ex, ax*	'out-away'	'out away'	
el-tzaj → *etz, atz*	'out-towards'	'out toward'	
ok-xi → *(o)kx*	'in-away'	'in away'	
ok-tzaj → *(o)ktz*	'in-towards'	'in towards'	
aj-tzaj → *ajtz*	'returning-towards'	'returning from there'	'repeated action'
iky'-xi → *iky'x*	'passing-away'	'passing to other side'	'from left to right'
iky'-tzaj → *iky'tz*	'passing-towards'	'passing to this side'	'from right to left'

Kaqchikel
(García Matzar and Rodríguez Guaján 2001)

Directional	Translation	Primary function(s)	Secondary function(s)
deictically anchored			
pe → =pe	'come'	'towards here'	
apon → =apo(n)	'arrive there'	'towards there'	
el → =el	'leave, exit'	'away, leave a place'	
point oriented			
kanäj → =kan	'stay'	'motionless'	
enclosure or region oriented			
ok → =ok	'enter'	'out'	
el → =el	'leave, exit'	'in'	
vertical axis			
qaj → =qa(j)	'descend'	'downwards'	
aq'an → =aq'anij	'ascend'	'upwards'	

Yucatecan

	Directional	Translation	Primary function(s)	Secondary function(s)
Yucatec Maya	n.a.			
Itzá	n.a.			

Directional	Translation	Primary function(s)	Secondary function(s)
Kanjobalan-Chujean			
Q'anjob'al (Mateo Toledo 2007, 2008, 2017)			
<u>deictically anchored</u>			
toj-oq → *=toq*	'go'	'away'	'from an earlier time toward now'
tit-oq → *=teq*	'come'	'towards'	'from now toward an earlier time'
<u>point oriented</u>			
kan → *=kan(oq)*	'stay'	'remain, motionless'	'before'
ek' → *=(e)k'(oq), =ik'(oq)*	'cross, pass by'	'passing by, crossing'	REP
<u>enclosure or region oriented</u>			
ok → *=(o)k(-oq), =uk(-oq)*	'enter'	'inwards'	'stay'
el → *=(e)l(-oq), =il(-oq)*	'exit, leave'	'outwards'	COMPLETELY
<u>vertical axis</u>			
ay → *=(a)y(-oq)*	'descend'	'downwards'	REP, COMPLETELY
aj → *=(a)j(-oq)*	'ascend'	'upwards'	INCEP
Akateko (Zavala 1992, 1993, 1994, 1997; Mateo Toledo 2008)			
<u>deictically anchored</u>			
too-oj → *=toj*	'go'	'away'	
tit-oj → *=tej*	'come'	'towards'	
jul → *=jul(-oj), ='ol(-oj)*	'arrive here'	'arriving here'	
'apni-oj → *='apnoj*	'arrive there'	'arriving there'	
<u>point oriented</u>			
pax → *=pax(-oj)*	'go and return there'	'circling'	
kan → *=kan(-oj)*	'stay'	'remain, motionless'	
'ek' → *=('e)k'(-oj)*	'cross over, pass by'	'crossing, passing by'	

enclosure or region oriented			
'ok → =('o)k(-oj)	'enter'	'inwards'	
'el → =('e)l(-oj)	'exit, leave'	'outwards'	
vertical axis			
'ey → =('e)y(-oj)	'descend'	'downwards'	
'aa → =('a)a(-oj)	'ascend'	'upwards'	
Chuj (Coon 2018; Buenrostro 2007; Hopkins 2015; 2012)			
deictically anchored			
=b'at(-i)	'go'	'away'	
=ul(-i)	'come, arrive here'	'towards'	
=k'och(-i)	'arrive there'	'arriving there'	
=pax(-i)	'go and return'	–	'also, too'
=kot(-i)	'come'	'coming closer'	
point oriented			
=ek'(-i)	'pass by, cross over'	'passing, crossing'	
=kan(-i)	'stay'	'remain, motionless'	
enclosure or region oriented			
=och(-i)	'enter'	'inwards'	
=el(-i)	'exit, leave'	'outwards'	
vertical axis			
=k'e(-i)	'ascend'	'upwards'	
=em(-i)	'descend'	'downwards'	

Tojolabal (Ramírez del Prado 2017; Gómez Cruz 2017)	_enclosure or region oriented compounds_			
	=och-ih →=ochih	'inwards[<enter]-DEIC'	'westwards'	
	=el-ih →=elih	'outwards[<exit]-DEIC'	'eastwards'	
	deictically anchored			
	waj(-e)	'go'	'away'	'on one's way'
	jak-n→jan(-i/-e)	'come-DEIC'	'towards'	
	jul(-e)	'arrive here'	'arriving here'	
	k'ot(-e)	'arrive there'	'arriving there'	
	point oriented			
	kan(-i)	'stay'	'motionless'	'unchanging'
	ek' → ek'(-e)	'pass'	'passing, crossing'	'fixedly; continuing'
	enclosure or region oriented			
	och(-e)	'enter'	'inwards'	'out of sight'
	el(-e)	'exit, leave'	'outwards'	
	vertical axis			
	ko'(-e)	'descend'	'downwards'	
	k'e'(-e)	'ascend'	'upwards'	
	ko'-n → kon(-i/-e)	'descend-DEIC'	'descend towards'	
	k'e'-n → k'en(-i/-e)	'ascend-DEIC'	'ascend towards'	

Directional	Translation	Primary function(s)	Secondary function(s)
	Huastecan		
Huastec			
n.a.			

Appendix VI: Mayan directional chains

	Directional Chaining
Cholan-Tzeltalan	
Tzotzil (Haviland 1991, 1993; Aissen 1994; Cowan 1969)	**DIR1 + DIR2 + DIR3 + DIR4 + DIR5** DIR1: *och-el; lok'-el* DIR2: *muy-el; yal-el* ?DIR3: *kom-el; sut-el; ech'-el, 'el* DIR4: *b'at-el; tal(-el); (k'ot-el); (yul-el); ech'-el* (ZIN) DIR5: *lik-el; b'at-el* (ZIN)
Tzeltal (Polian 2013, 2017; Brown 2006)	**DIR1 + DIR2** DIR1: all other directionals DIR2: *tel; beel*
Chol (Vázquez Álvarez 2002, 2011)	**DIR1 + DIR2** DIR1: all other directionals DIR2: *majle(l), ma ; tyäle(l), tyel, tel, te*
Tabasco Chontal	n.a.
Quichean-Mamean	
Poqomchi' (Brown 1979; Weichel 2006)	**DIR1**
K'iche' (Can Pixabaj 2015, 2017; Bridges Velleman 2014; Dürr 2010)	**=DIR1**
Mam (England 1976, 1983, 2017)	**-DIR 1-DIR2-** DIR1: all other directionals DIR2: *-xi-, -tzaj-, -pon-, -kub'-*
Kaqchikel (García Matzar and Rodríguez Guaján 2001)	**=DIR1**
Yucatecan	
Yucatec Maya	n.a.
Itzá	n.a.

https://doi.org/10.1515/9783110728613-020

Kanjobalan-Chujean

Q'anjob'al (Mateo Toledo 2007, 2008, 2017)	**=DIR1=DIR2=DIR3** DIR1: *=kan* DIR2: *=(e)k'; =ik'; =(a)y; =ey; =(a)j; =(o)k, =uk;* *=(e)l; =il* DIR3: *=toq; =teq*

Akateko (Zavala 1992, 1993, 1994, 1997; Mateo Toledo 2008)	**=DIR1=DIR2=DIR3** DIR1: *=pax* DIR2: all other directionals DIR3: *=toj, =tej*

Chuj (Coon 2018; Buenrostro 2007, 2015; Hopkins 2012)	**=DIR1=DIR2=DIR3** DIR1: *=pax, =kan* DIR2: all other directionals DIR3: *=b'at; =ul; =k'och*

Tojolabal (Ramírez del Prado 2017; Gómez Cruz 2017)	**DIR1 + DIR2** DIR1: all other directionals DIR2: *waj; jan; jul; k'ot*

Huastecan

Huastec	n.a.