TIME IN LANGUAGE, GESTURE, AND THOUGHT

A CASE STUDY IN CHOL MAYAN

Lydia Rodríguez
Charlottesville, VA

M.A. Linguistic Anthropology, University of Virginia, 2007
M.A. Amerindian Studies, Universidad Complutense de Madrid, 2005
D.E.A. Social Anthropology, Universidad Autónoma de Madrid, 2005
B.A. Socio-Cultural Anthropology, Universidad Autónoma de Madrid, 2002
B.A. Classical Philology, Universidad Autónoma de Madrid, 2000

A Dissertation presented to the Graduate Faculty
of the University of Virginia in Candidacy for the Degree of
Doctor of Philosophy

Department of Anthropology

University of Virginia

May, 2014

ABSTRACT

A claim often made in the non-anthropological literature on temporal cognition, and especially in conceptual metaphor theory scholarship, is that time is universally understood and experienced as uni-directional movement along a line. Such a linear view of time is indeed clearly reflected in spontaneous speech-accompanying gesture, since numerous studies have shown that gestures which co-occur with time expressions vividly portray uni-directional movement along an imaginary line. In Time in Language, Gesture, and Thought, a Case Study in Chol Maya I propose, however, that the linearity of temporal gesture, and by extension the linearity of temporal thought, is not a human universal. I argue that the presence of metaphorical timelines in gesture and mental imagery may be linked to the linguistic feature of mandatory grammatical tense, and that in languages that do not inflect predicates for grammatical tense, metaphorical timelines are much more difficult to find, in gesture, language, and thought. I test this proposal by investigating time-related speech and gesture in Chol Maya, an indigenous language of Chiapas (Mexico), in which predicates are inflected only for grammatical aspect and not for tense.

Building on the anthropological critique of lineal versus cyclical notions of time, I argue that temporal notions in Chol are subjectively experienced as separate activities/events which are not projected into an abstract timeline that extends ad infinitum. Rather, Chol temporal thought seems to be based on dyadic relationships between events. In any given sequence of events, the relative order of events is expressed by means of completed or punctual activities that act as benchmarks for other (not yet completed) activities. Such contrast between completed versus non completed events which is clearly marked in Chol grammar (perfective versus non perfective

aspects) is also reflected in co-speech gesture: gestures that co-occur with predicates that refer to completed events are often pointing or "placing" gestures, whereas gestures co-occurring with non completed events tend to be open-ended, "tracing" gestures. Arguing from the premise that the form of unconscious and spontaneous gesture is a "window" into habitual thought or worldview, I conclude that Chol conceptualization of time is not linear, and that language exerts significant influence on individual cognition. At the highest level, in this dissertation I argue that conceptual categories are not just the product of sensorimotor experience, but that linguistic convention and cultural experience play a significant role in the formation of such categories.

Para Sergio

Acknowledgements

It is such a great joy, after so many years of work, to reach the point where one can finally sit down to say thank you to all those people who have made this project possible. My most heartfelt thanks go to the Chol speakers who have patiently taught me their language and have shared their lives and friendship with me during the last nine years. I thank especially Rubén López López and the entire López López family, and among them most especially to Doña Juana Violeta, Doña Marcelina, and Genaro. Their homes and their hearts were always open for us, they nurtured our bodies and souls, and they never let us stand alone during difficult times. My assistants and friends, Moisés Vázquez and Angélica Cruz, with whom we lived so many adventures throughout the years. Moisés and Angélica suffered patiently, and with great sense of humor, my incessant questions, grammatical and otherwise. My *compadres* Don Pancho and Doña Yolanda, who took my husband and me into their family. My assistant Cándido, who helped me with the Tumbaltec variety of Chol. All my neighbors and friends from *El Jaboncillo*, and among them my beloved Wilbert and Josué, who were always by our side, and their parents Hilda Gómez and Marcelino Torres. Don Jorge Gómez Díaz, who patiently taught us how to be good *milperos*, and his entire family, especially Martha María, Martha Andrea, and Don Nicolás. I would also like to express my gratitude to the entire community of the *Templo de Santa Martha Virgen* for always making us feel welcome. Without the support and kindheartedness of all our Chol friends this dissertation would never have been written.

I have been very lucky to work with an amazing committee, who has provided invaluable advice, expertise, and constructive criticism. Everything I know about linguistic anthropology I have learnt from Eve Danziger, Ellen Contini-Morava and Lise Dobrin. I thank first and foremost my advisor, Eve Danziger, for her unconditional support and encouragement during all these years. The core ideas in this dissertation and the questions that lead my research stem from my relationship with her. I feel very proud to be her student, and coming to the University of Virginia to work with her was one of the best decisions I have ever made in my life. She is not only the best advisor I could possibly have, but throughout the years she has become a much beloved friend. I cannot possibly express the impact she has had in this dissertation, in my entire Ph.D., and in my thinking and identity as a scholar. I respect her and admire her not only as my academic mentor, but also as the truly exceptional person that she is.

I

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

"¿Cómo se dice "tiempo" en Chol?" ("How do you say "time" in Chol?") was the first question I asked my bilingual assistant in the first elicitation session I conducted when I arrived in Tila in August of 2009. She thought about it for a minute and then she said, "*Tyeñpo*. We say it in Spanish because there is no word in Chol for time." Then she smiled and added, jokingly "time doesn't exist for us." I remember standing there, under the shade of a banana tree, and sarcastically thinking to myself: "Terrific… I've come this far away to write a dissertation about something that does not exist!"

Although my friend was partly teasing me, and in this dissertation I do not claim that the Chol do not have a notion of time, there is much to be said about the fact that *tyeñpo* is indeed a loanword in Chol. In this dissertation I explore how what the Chol Maya understand by "time" differs from what is understood by "time" in the Western imagination. This research is, of course, indebted to a long and honorable tradition of studies in anthropology that describe how notions of time vary in different cultures. What may be a little bit different in this dissertation, I think, is that instead of trying to define "what is time" for the Chol Maya, in what follows I shall try to describe what time is *not* in Chol culture, language, gesture, and thought.

In the following chapters of this dissertation I argue that the prevalent model in the cognitive linguistics literature of how people think about time, that I shall call the linear view of time, is not a cognitive universal. In this literature, it is argued that most human beings think about time in terms of space, and in particular, in terms of a line (Clark 1973;

1

Shinohara 1999). This uni-dimensional, linear experience of time described in cognitive linguistics and conceptual metaphor studies is based on the assumption that notions of time (like most other concepts in this literature) are purely generated by sensorimotor experience, regardless of the language one speaks and of one's cultural background. Within this literature, it is also widely acknowledged that such a linear view of time is clearly reflected in spontaneous speech-accompanying gesture. Numerous studies have shown that gestures which co-occur with time expressions indeed vividly portray uni-directional movement along an imaginary line (Calbris 1990; Cienki 1998; Cooperrider and Nuñez 2009; Casasanto and Jasmin 2012). The data presented in this dissertation, however, suggest that speakers of Chol Maya do not conceptualize time in terms of a metaphorical timeline. I hypothesize that the presence of metaphorical timelines in gesture and cognition is related to the grammatical category of tense. In fact, metaphorical timelines have been securely documented in spontaneous co-speech gestures of speakers of several languages that have *mandatory* grammatical tense, but languages without tense have not been widely studied[1]. As will be explained in the next chapters, tense is a deictic category that, by definition, relates the moment of the narrated situation to the moment of speech. By contrast, aspect is a non-deictic language category that describes the narrated event from a qualitative point of view. Aspect is only concerned with the internal make-up of an action, situation, or event; it does not describe the relative location of an event with respect to some other event or to the moment of speech. I therefore hypothesize that the relational semantics of mandatory grammatical tense, which by definition implies two points in time

---

[1] Mandarin (see Boroditsky 2001, Duncan 2002), Yucatec and Mopan (Kita, Danziger, and Stolz 2001) are notable exceptions discussed further below.

that are necessarily related to each other, is what may cause speakers to think metaphorically in terms of timelines. Hence the central question of this dissertation: how are temporal concepts spatialized in the absence of mandatory grammatical tense? And, more precisely, are temporal concepts spatialized at all, or are they not conceived in terms of space? In order to answer this question, I examine temporal language and co-speech gesture in a language that lacks grammatical tense and where predicates are inflected for grammatical aspect: Chol Maya.

Although I focus primarily on temporal language and gesture, the argument made in this dissertation has broader implications for the nature of human thought processes. It has been argued that human thought is largely metaphorical (Lakoff and Johnson 1980), and scholars who adopt an embodied view of cognition maintain that conceptual metaphors are based on an assumed natural experience that all human beings share by virtue of having the same kinds of bodies and interacting with the environment in the same kinds of ways. However, the Chol data discussed in this dissertation suggest that human thought processes are, at the very least, influenced by, or sensitive to, linguistic and cultural factors, if not entirely caused by them (cf. Danziger 2005).

In this first Chapter I introduce some of the basic ideas that will be discussed throughout the dissertation. I begin by outlining the prevalent model that has been used for explaining temporal conceptualization in cognitive linguistics and conceptual metaphor theory. I then describe very briefly previous studies of temporal gesture, in most of which the gestural data seem to validate the psychological reality of the linear notion of time. Next, I sketch the sociolinguistic situation in the Chol area, and I review previous research

on Chol culture and language. This chapter also includes a section on methodology and an outline of the remaining chapters of this dissertation.

1.1. The linear view of time in cognitive linguistics and conceptual metaphor theory

In the field of cognitive linguistics, conceptual metaphor theory (henceforth CMT) constitutes a particularly strong research paradigm that has appealed to a good number of scholars in the last few decades. The central claim of this literature is that human thought is largely metaphorical (Lakoff and Johnson 1980), and that more abstract domains of experience are usually understood in terms of less abstract domains of experience. In CMT, every conceptual metaphor consists of two conceptual domains: "The conceptual domain from which we draw metaphorical expressions to understand another conceptual domain is called *source domain,* while the conceptual domain that is understood this way is the *target domain*" (Kövekses 2002:4, emphasis in the original). So, for example, in the famous example given by Lakoff and Johnson "ARGUMENT IS WAR," "war" is the source domain, and "argument" is the target domain.

Numerous conceptual metaphor studies that have investigated temporal cognition have pointed out that the target domain of time is usually understood in terms of the more concrete source domain of space. The metaphorical mapping of time and space has been widely attested in languages as typologically diverse as English (Clark 1973; Lakoff and Johnson 1999; Evans 2003; Boroditsky and Casasanto 2008; Tenbrink 2011), Spanish (Lupiáñez, Santiago and Torralbo, 2006), Hausa (Hill 1978), Japanese (Shinohara 1999), Wolof (Moore 2000, 2006), Aymara (Sweetster and Núñez 2006), Hungarian (Radden

4

2006), Mandarin (Boroditsky 2001; Yu, 2012), and Marathi (Shinohara and Pardeshi 2011), to cite a few. In this literature, the apparent ubiquity of the mapping between the domains of time and space has sometimes been assumed to be a cognitive universal (Clark 1973; Lakoff and Johnson 1999; Fauconnier and Turner 2008).

One particular spatial configuration that is widely attested in this literature is the mapping of time onto space via "axes" or "timelines." In a famous model proposed by Clark (1973), time is understood as uni-dimensional movement along a timeline, as shown in Figure 1 below:

Figure 1. Moving Time (A) and Moving Ego (B) conceptual metaphors,

after Clark (1973)
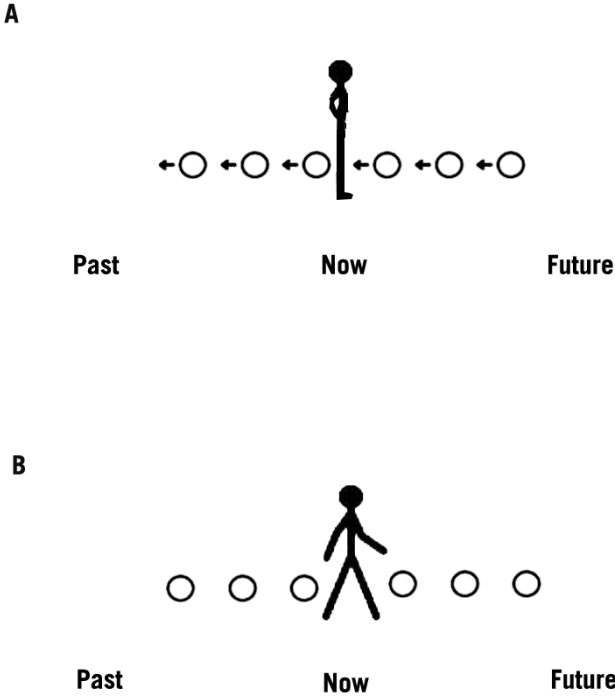
In (A), time is conceived as an array of imaginary objects/events that moves linearly towards a static observer/experiencer. In (B), the observer/experiencer moves linearly along a landscape comprised of linearly arranged objects/events. In both cases, whether it is the array of events or the experiencer/observer who moves, both the trajectory of the movement and the arrangement of the objects/events are linear.

In cognitive linguistics and in the CMT literature, it is widely acknowledged that the metaphoric mapping of time onto space via axes or timelines shown in the Moving Time and Moving Ego models has an experiential and physical basis. In particular, the concepts of present, past, future and earlier/later relationships between events are elaborated in terms of the front-back asymmetry in our bodies. In this view, the orientation of the visual organs determines the orientation of the movement along a temporal landscape. Given that our eyes are located in the front side of our body, and that the future is the present anticipation of an objective or goal (Evans 2004: 192), the conceptual space where we locate the future is *usually*[2] located in front of the speaker. By contrast, the past, already experienced, is usually conceptually located at the back of the speaker.

A cross linguistic and cross cultural comparison of space-time mappings reveals, however, that the direction and orientation of the timelines is variable. There are three different types of timelines or temporal axes―sagittal, transversal, and vertical―along which the concepts of past/present/future and earlier/later sequential relationships between events are linguistically and conceptually mapped. The sagittal axis, in which temporal

---

[2] There are some exceptions, like the case of Aymara (Sweetster and Núñez 2006), which will be discussed further below.

sequence is represented as movement forward or backward with reference to the experiencer's body, is the most widespread cross- linguistically. It has been attested in both Indo-European (Clark 1973; Lakoff and Johnson 1999; Evans 2003; Tenbrink 2011) and non Indo-European languages such as Aymara (Sweetster and Núñez 2006), Malagasy (Dahl 1995), Wolof (Moore 2000, 2006), Hausa (Hill 1978), Japanese (Shinohara 1999), Marathi (Shinohara and Pardeshi 2011), and Mandarin (Boroditsky 2001; Yu, 2011). The transversal axis, in which temporal sequence is represented as movement leftward or rightward across the experiencer's body, has been attested in numerous Indo-European languages (Cienki 1998; Cooperrider and Núñez 2009; Casasanto and Jasmin 2012) and in two Semitic languages, Hebrew and Arabic (Tversky, Kugelmass and Winter 1991). The mapping of temporal concepts along the vertical axis, in which temporal sequence is represented as movement up or down with reference to gravity or to the experiencer's body, is cross linguistically rare, but it has been attested in Mandarin (Boroditsky 2001). Despite these variations in direction and orientation, the characterization of the target domain of time as an "axis" or a "line" seems inescapable in the cognitive linguistics and CMT literature. This fact has even led some scholars to formulate the conceptual metaphor "TIME IS A LINE" (Shinohara 1999), which is assumed to be the result of the ways in which our bodies are positioned in and interact with the environment. This dissertation addresses the question of whether such metaphoric mapping of time onto the domain of space, and in particular, the mapping via "timelines" or "axes" is a cognitive universal. In line with ideas that have a long tradition in the history of linguistic anthropology (Sapir 1929; Whorf 1941; Lucy 1992; Pederson, Danziger, Levinson, Kita, Senft, Wilkins, 1998; Kita, Danziger & Stolz 2001; Levinson 2003, 2006; Danziger 2005, 2008, 2010b, 2011), I

7

will argue that, rather than being the result of physiology alone, conceptualization may be significantly shaped by linguistic and cultural factors, and that temporal conceptualization is no exception. In particular, I will argue that in the absence of mandatory grammatical tense, metaphorical timelines are difficult to find in gesture, and, by extension, in temporal thought.

1.2.   Studying temporal thought through gesture

One possible way to study how people think about time is by examining the types of gestures that they produce when they are talking about temporal concepts or expressing temporal relationships between events. In this dissertation I draw on Vygotsky's insight that language is not the mere external expression of thought, but rather thought can be affected by and created by language (Vygotsky 1986). I also draw on work by McNeill and other gesture scholars who have empirically shown that there exits an inextricable relationship between language and gesture. The theoretical model proposed and tested in this dissertation is based on McNeill's proposal that the relationship between language, gesture, and thought is dialectic (McNeill 1992). Language is a window into language-related thought, but it may also reveal aspects of thought that are not necessarily present in speech: "A dialectic of speech and gesture means that some dimensions of thought are presented in the gesture and others in linguistic form. There is a synthesis, and at the moment of synthesis language and gesture are combined into one unified presentation of meaning. (...) Thus a dialectic implies that the speaker's thought evolves through the course of the utterance-gesture formation and comes, as Vygotsky said, into existence with it" (McNeill 1992: 246).

8

Given this dialectic relationship between language, gesture and thought, if the domain of time in spatialized in thought and speech (as it is argued by Conceptual Metaphor scholars), then the gestures that co-occur with temporal language become a privileged avenue for observing how people spatialize temporal concepts, because when we gesture we inevitably make use of the physical space around us. Thus, in gestures that co-occur with temporal expressions we can see how—and *if*—time is represented spatially in thought.

Although in the field of gesture studies there has been some attention paid to temporal gesture since at least the nineteenth century (De Jorio 1832), the systematic study of temporal concepts through the observation of gesture has only begun in the last few decades. In these studies, gestural use of the sagittal and transversal axes to represent temporal concepts has been attested in French (Calbris 1990), English (Cienki 1998; Cooperrider and Núñez 2009; Casasanto and Jasmin 2012) and Aymara (Sweetster and Núñez 2006). It has been noted that English speakers use the transversal timeline more often than the sagittal one (Casasanto and Jasmin 2012), and that whereas the sagittal timeline is usually anchored to the deictic present—that is, it represents past/present/future concepts—, the transversal timeline is used to spatialize relationships between events with respect to each other (Cooperrider and Núñez 2009). In Aymara,[3] use of the sagittal pattern co-occurring with temporal speech has also been attested (Sweetster and Núñez 2006),

---

[3] In Aymara the past is conceptualized as being in front of the speaker, and the future is behind the speaker's back. Aymara is a language with a rich evidential system, and there is a strong cultural preference for information that the speaker has witnessed first hand. Miracle and Yapita Moya (1981) argue that, consistent with this view, one can only attest what one has seen with his/her own eyes, and there is a great degree of uncertainty about events that one has not (yet) witnessed. Given that the visual organs are in the front side of a person, what the person has "seen" is the past, which is located "in front" of the visual field. What the person has not experienced yet is the future, the "unseen," which corresponds to the immediate space behind the speaker.

although the orientation of the pattern is "reversed" with respect to the typical pattern found in European languages; in Aymara, speakers gesture future events at their backs and past events in front.

Use of the sagittal and transversal timelines has also been documented in some Maya languages. In Mopan, time flow is conceptualized and gesturally represented along the sagittal axis, whereas in Yucatec time flows along a transversal axis, moving from right to left (Kita, Danziger and Stolz 2001). Occasional metaphorical pointing to the space behind the speaker's back for indicating past times has also been reported for Tzeltal (Brown 2012). A recent study of Yucatec temporal gesture, however, claims that there is no such metaphorical "timeline" in Yucatec (Le Guen and Pool Balam 2012). According to these scholars, "the absence of a timeline in Yucatec Maya gestural space reflects… the way event succession is linguistically expressed in terms of completion with no directionality. It also reflects the more general cyclic conception of time where events are thought to unfold and replace each other in the same place"[4] (Le Guen and Pool Balam 2012: 11-12).

In this dissertation I ask whether in their gestures, speakers of Chol Maya position temporal concepts along a metaphorical timeline similar to the ones previously described in the literature, or whether, on the contrary, temporal gesture is not spatialized as an axis or line. I hypothesize that gestures co-occurring with temporal speech in Chol Maya, a language that lacks grammatical tense, may not be linear, and that linearity may thus not be a feature of Chol temporal thought. If my hypothesis is confirmed, it would mean that

---

[4] As will become clear in the next chapters, the Chol data go in line with the phenomenon discussed by LeGuen and Pool-Balam insofar as these data confirm the absence of a metaphorical timeline in gesture. However, the Chol data do not reflect "the more general cyclical conception of time" that these authors report for Yucatecan temporal gesture.

linearity in the conceptualization of time in Euro-Americans and others could be a product of the grammar of their languages. In order to test this hypothesis, I will first describe how temporal information is encoded in Chol grammar, and then I will examine spontaneous gestures co-occurring with temporal speech. It will be shown that temporal gesture in Chol rarely shows metaphorical spatialization of events along a timeline.

1.3. The socio-linguistic context of this research and previous studies on Chol language and culture

The Chol are a population of slash and burn agriculturalists who live mostly in the Mexican state of Chiapas, in the *municipios* of Sabanilla, Tila, Salto de Agua, Tumbalá, and some parts of Palenque. Most Chol Mayas cultivate maize, beans and squash in their *milpas* (cornfields), and some also cultivate coffee as a cash crop. In addition, some Chol who live in the municipal *cabeceras* (county seats, or market towns) own small shops where they sell groceries ("*abarrotes*"), or a variety of products. The municipal *cabecera* of Tila, where I lived for a year, has also been a famous pilgrimage centre since at least the 17th Century (Pérez Chacón 1988; Josserand and Hopkins 2007; López Martínez 2013), Pilgrims from different parts of Mexico, and especially from the neighbouring state of Tabasco, come to Tila to pay their respects to the Lord of Tila, a magnificent image of a black Christ kept by the Catholic priest in the local Catholic parish, and to Saint Martha, kept by a famous Chol *rezador* (prayer-maker) in a temple founded by a group of Tilec villagers[5]. Many Chol villagers own or rent stalls in a permanent flea market located at the

---

[5] About the relationships of complementarity and opposition between these two Saints and the different cults devoted to each of them, see López Martínez (2010).

entrance to the Catholic church, where all kinds of religious objects, such as images of saints, candles, and incense are sold to pilgrims and others.

Although the Chol have remained relatively understudied in comparison to other Maya populations, several recent ethnographic descriptions focus on different aspects of Chol culture. The most noteworthy among these are Pérez Chacón's ethnography of Chol culture in Tila (1988), Alejos García's work on ethnicity and agrarian conflict in Tumbalá (1999), Imberton-Deneke's work on illness (2006) and suicide (2012) among the Chol, and López Martínez's work on the politics of religious practice in Tila (2010, 2013).

Chol is a Western Mayan language of the Cholan (Chol, Chontal, Chorti, Cholti) branch. The Cholan and the Tzeltalan branches (Tzeltal & Tzotzil) together form the Greater Tzeltalan sub-family (Campbell and Kaufman 1985). The Chol language is spoken by approximately 220,978[6] speakers and it has two principal dialects: Tilec Chol[7] and Tumbaltec Chol. In the *municipios* where this research was conducted, Tila and Sabanilla, there is a generalized situation of diglossia―Spanish being the prestige language and Chol the "low variety" in Fishman's (1967) terms.

Chol is at an early stage of the language shift process. Most adult men are bilingual in Chol and Spanish, and some of them are trilingual in Chol, Spanish, and another neighbouring Maya language, like Tzeltal or Tzotzil. Women over 60 are typically monolingual speakers of Chol. In the intermediate generations (20-60), most men and women are bilingual in Chol and Spanish, although in some isolated communities middle-

---

[6] Data from Comisión Nacional para el Desarrollo de los Pueblos Indios (CDI) (2000): *Lenguas indígenas de México*. En: http://cdi.gob.mx/index.php?id_seccion=660

[7] A subvariety of Tilec Chol is spoken in the municipio of Sabanilla.

aged and young women are Chol monolinguals. In the municipal *cabeceras*, most children are being raised bilingually in Spanish and Chol or monolingually in Spanish. In more isolated communities, children are raised bilingually in Chol and Spanish, and occasionally monolingually in Chol.

Some men over 60 may have some degree of literacy in Spanish, but most women in this generation are non-literate. In the intermediate generations (20-60), most men and women have some degree of literacy in Spanish, and very few speakers (mainly some instructors at bilingual elementary schools) are literate in Chol. The current generation of children, especially those who live in the municipal *cabeceras* and in the surrounding communities, are being schooled mostly in Spanish, and most of these children are literate in Spanish. There are a few children who attend classes offered by the regional *Casas de la Cultura* ("Houses of Culture") to learn to read and write Chol. These are, however, a minority, and even in bilingual schools Chol is considered as a transitional language which is tolerated during the first years of formal education, but it is expected to be less and less used in higher grades.

The Chol language has remained relatively understudied until recent decades. During the nineteen-seventies, some work on Chol lexicon, grammar and phonology was conducted by missionaries of the Summer Institute of Linguistics (Aulie and Aulie 1978; Warkentin and Scott 1980; Warkentin and Brend 1974). There are also some studies by non missionary linguists on Chol phonology (Koob Schick 1979), morphology (Attinasi 1973), and a grammar (Schumann 1973).

Since the creation of the CELALI (*Centro Estatal de Lenguas, Arte, y Literatura Indígenas,* State Center for Indigenous Languages, Art, and Literature) by the state

government of Chiapas, some Chol-language educational materials have been developed as part of a project to promote intercultural bilingual education in Chiapas. These works are written in Chol by native speakers of Chol, and include textbooks created for bilingual schools (Arcos Mendoza 1999), a grammar (Montejo López 1999) and a dictionary (Jiménez Jiménez and Guzmán Gutiérrez 2007). Some of the most interesting research in Chol has been conducted by Chol-speaking linguists as MA theses for the Program in Indo-American Linguistics of CIESAS (*Centro de Investigaciones y Estudios Superiores en Antropología Social*, Center for Research and Higher Studies in Social Anthropology). Among these, the most noteworthy are Vázquez Álvarez's work on verbal morphology (Vázquez Álvarez 2002), López López's comparison among lexical classes in the municipios of Sabanilla, Tila, and Tumbalá (López López 2005), Gutiérrez Sánchez's work on agentivity (2004), Arcos López's work on numeral classifiers and lexical classes (2009), Martínez Pérez's work on noun phrases and action nouns in Tilec Chol (2005), and Martínez Cruz's (2007) work on adjectives.

There are, to my knowledge, two recent doctoral dissertations written about Chol Maya: Coon's dissertation on ergativity (2010), and a full grammar of Chol written by Chol-speaking linguist Vázquez Álvarez (2011). Parts of these two works will be discussed at length in Chapter 3 of this dissertation. Finally, the literature on Chol also comprises a few compilations of Chol narratives (Whittaker and Warkentin 1965; Alejos García 1988; Morales Bermúdez 1999), and work on the narrative structure of Chol traditional stories (Josserand and Hopkins 1990). In linguistic anthropology, Josserand and Hopkins have written about Chol ritual language (2001, 2005), and I have myself also conducted some research on the role of parallelism and repetition in ritual speech (Rodríguez 2013).

14

1.4. Methodology

In this dissertation, I triangulate among ethnographic, linguistic, and gestural data to analyze temporal thought. Between 2006 and 2010 I conducted a total of fifteen months of ethnographic fieldwork in two Chol-speaking *municipios*, Sabanilla and Tila. I first arrived in the Chol area in the summer of 2006, where I was generously hosted by a family of Chol speakers in the municipal *cabecera* of Sabanilla. The summers of 2006 and 2007 were devoted to exploring the Chol area, learning the rudiments of Chol by means of linguistic elicitation sessions, and establishing rapport with Chol speakers. After these preliminary studies in the Chol area, I returned for a year in 2009-2010. This time I decided to move to Tila, as in my previous stays I had found that Chol was more widely spoken in Tila, which is at the center of the Chol area, than in Sabanilla. I was also advised by the local authorities to stay in Tila, rather than spending long periods of time in the more rural communities, where sometimes there is military activity.

During all the time I was in the field I lived with my husband, who is a socio-cultural anthropologist. When we arrived in Tila, we got permission from the local authorities to live in the municipal *cabecera* and to rent a house not very far away from the village center. In our neighborhood, *El Jaboncillo*, everybody spoke Chol. Some of my neighbors were bilingual in Chol and Spanish, and others were monolingual speakers of Chol. My husband and I were extremely fortunate to be accepted by everyone in *El Jaboncillo*.

The first six months in Tila were entirely devoted to linguistic elicitation and to attaining cultural and linguistic competence in Chol. In order to learn Chol, I worked

closely with two bilingual Chol-Spanish assistants, Angélica Cruz and Moisés Vázquez, in regular linguistic elicitation sessions. In these sessions we would mostly work on morphology, lexicon, or syntax; I would take notes and sometimes tape record or video record these sessions. I would usually devote four hours a day to linguistic elicitation; then, I would simply go out and try to speak Chol with my neighbors and with the rest of the villagers. I would spend the last hours of the day working on reviewing my notes from the elicitation sessions, in order to plan the next day's elicitation, and writing a field diary. The linguistic data presented in this dissertation thus come from different sources: formal elicitation sessions with bilingual Chol-Spanish speakers, semi-structured interviews with monolingual speakers, anecdotes or traditional stories that were dictated to me by my Chol assistants and friends, or video-recordings of different types of events, such as everyday chores, festivals or rituals.

Living in the Chol area has enabled me to observe facts about Chol culture and develop an ethnographic sensibility towards the Chol notion of time, which I sketch in Chapter 2 of this Dissertation. When I was living in Tila, I participated as much as I could in the Chol way of life. I learnt to cook basic staples of Chol food and I cooked for my Chol friends; whenever a chance was offered to me to accompany them to their *milpas* and coffee fields, I did it. I was taught to sew. I learnt to sow maize and to harvest coffee. I participated in all the rituals and religious festivals that I could, some of which were public and others were private. During all the time I lived in Chiapas I tried to become imbued with Chol language and culture.

For the study of Chol gesture, I conducted and video-taped semi-structured interviews with several Chol monolingual speakers. This part of the research only began

once I had attained a certain degree of fluency in Chol, approximately 6 months after my arrival in Tila. I constituted a small team of three people to conduct these video-recordings: a bilingual assistant, my husband, and me. I conducted the interviews in Chol, but the bilingual assistant was always present in case I had any problem making myself understood or could not understand something the monolingual person said. My husband would help with the set-up of the equipment and would conduct the video recordings; sometimes he also participated in the interviews. In addition to the semi-structured interviews, I also asked some of the speakers to describe images that I had previously selected because they implied some kind of temporal reference or temporal sequence. Finally, as will be described in detail in Chapter 5, I conducted a small comparative study of the gestures produced by three English and three Chol speakers when asked to retell a story.

The videotaped linguistic and gestural data were transcribed and processed with Transana, a software program for the qualitative analysis of audio and visual data designed to align text with images. I then created a database to register all the sentences that contained temporal speech[8]. Each sentence was coded for type of temporal reference, presence or absence or gesture, and if a gesture was present, what type of gesture it was, according to McNeill's classic typology of gesture, and the morphology of the gesture. The database of temporal speech and gesture displayed all temporal sentences with their corresponding coding information and, when there was a co-occurring gesture, a video clip of the gesture and its corresponding coding information.

---

[8] A detailed discussion of "temporal reference" in Chol and the different types of temporal reference that were analyzed for presence or absence of linearity is given in Chapters 3 and 4.

1.5. Dissertation outline

In this dissertation I analyze Chol temporal thought drawing on ethnographic, linguistic, and gestural data. The organization of the following chapters reflects these three different angles. In Chapter 2, I discuss the history of linear time from an anthropological perspective. Drawing on ethnographic literature and on my own fieldwork among the Chol Maya, I argue that the model of linear time is not a cognitive universal but rather it is socially constructed. I review some of the classic works of the anthropology of time, paying special attention to the notions of "linear time" and "cyclical time," two prominent models that have been pervasively used to describe Western versus non-Western notions of time. I then revisit some of the arguments that have been offered as evidence of a cyclical notion of time in Maya thought, and I argue that the Chol notion of time is neither cyclical nor linear.

Chapter 3 is a grammatical description of how temporal relationships are expressed in Chol Maya. Following mostly Klein's (1994) work, I first describe how the concepts of Topic Time, Time of Situation, and Time of Utterance are applied to the expression of temporal relationships in Chol. The chapter also includes a sketch of Chol typological features, focusing on different characterizations of the language as ergative (Coon 2010) or split ergative (Zavala 2007, Vázquez Álvarez 2011), which is relevant for the analysis of pre-verbal aspectual markers. I then describe how time and temporal relationships between events are encoded in Chol grammar by means of grammatical aspect, temporal adverbials, temporal particles, temporal metaphors and other temporal expressions commonly used in Chol discourse. I finally introduce the concept of *sequential predication*, a term I coined to

explain how the temporal order of a sequence of events is contextually inferred in absence of any deictic anchors.

Chapters 4 and 5 are an exploration of Chol temporal gesture. In Chapter 4 I discuss how the classical distinction between "Series A" and "Series B" time, proposed by McTaggart (1908), can be applied to the study of temporal relationships in Chol language and gesture. I propose that "Series A," or tense-like temporal relationships are expressed in Chol mostly by deictic temporal adverbials, whereas "Series B time," or sequential time, is predominantly expressed by means of sequential predication. I argue first that it is in these two contexts of speech where linear temporal gestures are most likely to occur, and then I examine the frequency and types of gestures co-occurring with each of these categories. I conclude that deictic temporal adverbs are very rarely gestured, and when they are, the meaning of the gestures does not reflect a temporal semantics. Sequential predicates on the other hand do have co-speech gestures that show relationships of events in time. However, these relationships are not represented in Chol gesture as abstract timelines, but rather, as double-stroked gestures that depict dyadic relationships between events. I will also argue that sometimes these gestures reflect the aspectual semantics of the predicates with which they co-occur (cf. Duncan 2002).

Whereas Chapter 4 is an analysis of the co-speech gestures occurring in semi-structured interviews, in Chapter 5 I analyze gestures co-occurring with temporal expressions in storytelling. I include in this chapter a comparative analysis of the gestures produced by English and by Chol speakers in the retelling of the story of *A Christmas Carol* by Charles Dickens. It will be shown that the narrative structure and the gestures produced during the retellings are fundamentally different in English and Chol: whereas

19

English speakers produced the expected linear gestures to express the narrated relations between Past, Present and Future in the story, Chol speakers produced very few gestures, and most of them occurred at the metanarrative and paranarrative levels of discourse. The chapter concludes with a brief analysis of a traditional Chol narrative; I will argue that the episodes that comprise this narrative are not organized linearly and do not follow the default chronological order characteristic of linear narratives.

Chapter 6 is a recapitulation of the major findings of the dissertation. In this concluding chapter I argue that the triangulation of ethnographic, linguistic, and gestural data suggests that a linear construction of time is not a major feature of Chol temporal thought, and therefore the metaphorical mapping of time into space via timelines or axes is not a cognitive universal. At the highest level, my results suggest that linguistic convention and cultural experience are important in the formation of conceptual categories. To the extent that sensorimotor experience plays a role in such formation, it is significantly mediated by language and culture in doing so.

CHAPTER 2

THE SHAPE OF TIME: A CLASSIC ANTHROPOLOGICAL QUESTION

"The oddest thing about time is surely that we have such a concept at all"
E. Leach

2.1. Anthropological approaches to the study of time

In the previous chapter, I framed my research within the wider question of linguistic relativity, and I described the different approaches that I follow in this dissertation to study temporal thought among the Chol. I also argued that a claim often made in the non-anthropological literature on temporal cognition (and especially in Conceptual Metaphor Theory scholarship) is that time is universally understood and experienced as uni-directional spatial movement along an abstract timeline. Some ethnographers, on the other hand, have long hypothesized that different cultures conceptualize and represent time in culturally particular ways, and that this may also be reflected in their habitual speech. In this chapter I review some of the classic works of the anthropology of time, paying special attention to the difference between spatial (linear and cyclical) and non spatial descriptive models of time. In section 2.1.1 I analyze some classic Western definitions of time, tracing some of their basic assumptions back to Newtonian physics and Kantian metaphysics. I then describe how the revolutionary concept of "relativity" in the field of physics but also in the social sciences inspired much of the subsequent anthropological literature on cross cultural variability in notions of time, both in Europe and in the United States. In section 1.2 I explore the concepts of "linear time" and "cyclical time," two prominent models that have been pervasively used to describe Western versus non Western notions of time, examining some of their defining features. To conclude the first part of the chapter, I

review some ethnographic examples of descriptive models that have sought to avoid the linear/cyclical dichotomy.

In the second part of the chapter, I concentrate on ethnographic descriptions of cultural notions of time in Mesoamerica and specifically in the Maya area. I give a brief overview of the systems for time reckoning in ancient Mesoamerican and Maya cultures. I then describe how some of these elements have survived in certain areas of the Maya region, and I analyze the evidence that is offered in the ethnohistoric and ethnographic literature for cyclical and linear notions of time in Maya thought. The chapter concludes with an ethnographic description of how time is reckoned in the modern Chol world. In the chapter conclusions I revisit some of the arguments that have been offered as evidence for a cyclical notion of time in Maya thought, and I argue that the current Chol notion of time is neither cyclical—as many Mayanists would claim—, nor linear—as many conceptual metaphor theorists would claim.

2.1.1. Western definitions and theories of time

The Merriam Webster dictionary defines time as:

> 1. *a***:** the measured or measurable period during which an action, process, or condition exists or continues**:** DURATION. *b***:** a nonspatial continuum that is measured in terms of events which succeed one another from past through present to future.

In a nutshell, this definition contains two crucial Western commonsense ideas about temporality: time is equated with duration; it is something that can be measured. The second part of the definition tells us more about how the measuring of time takes place: "in terms of events which succeed one another from past through present to future." Time as duration thus becomes inseparable from these other familiar categories, past, present, and

future. The definition also implies that the succession of events is irreversible: time moves from past through present to future, and not the other way around. Most urban Americans or Europeans would probably agree that time, whatever it is, has something to do with duration, and with the (irreversible) progression of past, present, and future. They would also probably agree that time can be measured: we wear watches on our wrists to know "how much" time has passed, or "what time" it is, so that we can easily locate ourselves in the "continuum" of time. Time under this definition and in Western ideology in general is measurable duration. It is also a continuum, and it somehow stretches or moves irreversibly "from past through present to future."

One of the key aspects of this definition is that it emphasizes the measurability of time. But can time really be measured? In the Scholia to the *Principia*, Isaac Newton (1687) makes an interesting distinction between "absolute" and "relative" time. Absolute time was according to Newton, duration, and relative time was the measure of duration:

> "Absolute, true, and mathematical time, of itself, and from its own nature, flows equably without relation to anything external, and by another name is called duration: relative, apparent, and common time is some sensible and external (whether accurate or unequable) measure of duration by the means of motion, which is commonly used instead of true time; such as an hour, a day, a month, a year"

For Newton, absolute time is duration that can be *objectively* measured and "flows equably." But not all Enlightenment thinkers would agree with him. A century later, in the *Critique of Pure Reason*, Immanuel Kant rejected this objectivist notion of "absolute time," arguing that time is not an empirical concept because it cannot be objectively experienced. For Kant, time is a "purely subjective condition of our (human) intuition" (1787: 78), which means that it only exists *inside* us.

In spite of this fundamental disagreement with respect to the objectivity of time, Kant did not reject the basic Newtonian idea of time as duration. His point was that whatever time was, it could only be experienced subjectively. The Kantian notion of time also contains some key features that Western urban dwellers would probably recognize as commonsensical: Kantian time is uni-dimensional, infinite, and it can be divided into different parts (which we call different "times" or periods). Furthermore, it is progressive and linear: "We represent the time sequence by a line progressing to infinity, in which the manifold constitutes a series of one dimension-only, and we reason from the properties of this line to all the properties of time" (*op.cit*. 77). In brief, for Kant time is experienced subjectively, through our inner intuitions, as a uni-directional line.

Let us return briefly to the question of the measurability of time. Both Newton and Kant lived in an age when people had been measuring both the passage of time (how much time had "passed" between two separate events in terms of seconds, minutes, hours, days, etc.) and their own relative location in the continuum of time (the "time" of the day, or the date of the year, etc.) for several centuries. The time that was registered on calendars, sundials, and from the thirteenth century on, in clocks, was perceived as a homogeneous whole (Kern 1983), and this is of course what made its measurement and standardization possible. Standard time, which was introduced at the end of the nineteenth century during the Prime Meridian Conference in Washington[9], was "absolute" in Newtonian terms, universal—there was only "one" time—, homogeneous, it "flowed" along a continuum or line, and its passage could be conveniently measured. In fact, measuring time became almost an obsession during the industrial revolution and later, with the development of

---

[9] Or International Meridian Conference, held in 1884.

Taylorism and the assembly line[10] (E.P.Thompson 1967). But a harsh blow to this notion of homogeneous, uniform, and universal time came with Einstein's theory of relativity (1905,1916). Under the general theory of relativity, time was not absolute, as Newton had claimed, but relative to the observer of any given event.[11] Einstein also rejected the Newtonian idea that time "flows equably:" in Einstenian physics, time can expand or shrink, it is no longer uniform and "unaffected by anything external," in Newton's terms.

One cannot help but notice interesting similarities between Einstein's notion of relativistic time, and the notion of relative *social* time prominent in the social sciences since the last years of the 19th Century and the first decades of the 20th Century[12]. Much of the classic anthropology of time can be traced back to Durkheim, for whom time was, like other basic categories, "the product of social thought:"

> It [time] is like an endless chart, where all duration is spread out before the mind, and upon which all possible events can be located in relation to fixed and determined guide lines. It is not *my time* that is thus arranged; it is time in general, such as it is objectively thought of by everybody in a single civilization. That alone is enough to give us a hint that such an arrangement ought to be collective. And in reality, observation proves that these indispensable guide lines, in relation to which all things are temporally located, are taken from social life. The divisions into days, weeks, months, years, etc., correspond to the periodical recurrence of rites, feasts, and public ceremonies. A calendar expresses the rhythm of the collective activities, while at the same time its function is to assure their regularity (1912:23).

---

[10] The measurement of time also became a convenient means for capitalist exploitation (see E.P. Thompson 1967)

[11] Because light moves at a constant rate, the point from where an event is observed has an impact on our temporal perception of that event: the same event, observed from a more distant point, will seem to occur at a later point in time than if observed from a closer location. Einstein's theory of relativity is therefore partly Kantian, insofar as it refers to a subjective experience of time.

[12] Boas first articulated the concept of cultural relativism in 1887; Einstein's theory of relativity was first published in 1905, and in his later form, called general theory of relativity, in 1916. Durkheim's *The Elementary Forms of Religious Life* was published in 1912.

Durkheim did not go as far to deny the Newtonian concept of time as duration. But his definition of social time was partly Einstenian, because for him the measurement of time was "relative,"—that is, culturally specific—to every society. If time so conceived is relative because it is socially constructed, then a description of any temporal system must be based upon investigation of the social "guide lines" that determine relationships between events in each society. This Durkheimian view of time as a social fact inspired much of the subsequent anthropological investigation on cross cultural variation on notions of time.

2.1.2. Two prominent models of time: "linear" versus "cyclical" notions of time

Durkheim's views were particularly important for the development of the anthropology of time in Europe[13]; Meanwhile, in the United States the Boasian paradigm of cultural relativism was prominent during the first decades of the 20th Century, and it also inspired a great deal of anthropological research on the cross cultural variability of notions of time. In linguistic anthropology, Benjamin Lee Whorf, a major proponent of the hypothesis of linguistic relativism, was among the first to propose a model for the cross cultural diversity of temporal thought.

In his famous essay "The relation of habitual thought and behavior to language" (1941) Whorf argued that the concepts of time, space, and matter are *partly* conditioned by certain grammatical patterns that are language specific. Thus, to the extent that languages differ substantially in their grammatical categories, speakers of different languages will have substantially different notions of time, space, and matter. In order to illustrate this

---

[13] The Durkheimian influence is clear on classical pieces of the anthropology of time such as Evans-Pritchard's *Nuer time reckoning* (1940), and Leach's *Two essays concerning the symbolic representation of time* (1961).

point, Whorf examined how notions of time were expressed in languages that were typologically very different from each other: Standard Average European languages—in particular, he gave examples from English—and Hopi, a Uto-Aztecan language. He argued that in European languages like English some temporal notions are expressed by the lexical category of nouns; this, according to Whorf, is related to a general tendency in Western thought to objectification: "Such terms as summer, winter, September, etc. are with us nouns, and have little formal linguistic difference from other nouns.... our thought about the referents of such words hence becomes objectified" (1941:142). By contrast, in Hopi some temporal notions are expressed with phase terms, which are: "... not nouns but a kind of adverb, to use the nearest SAE analogy [...] There is no objectification, as a region, an extent, a quantity, of the subjective duration-feeling. Nothing is suggested about time except the perpetual "getting later" of it. And so there is no basis here for a formless item answering to *our* time" (emphasis mine, 1941:143). For Whorf, in English time is conceived of as a "thing" and therefore temporal notions are expressed with nouns, but such objectification of the concept of time is absent from Hopi phase terms. In addition, the tri-partite system of verb tenses characteristic of English and other European languages lends itself to a notion of time that is linear:

> The three tense system of SAE verbs colors all our thinking about time. This system is amalgamated with that larger scheme of objectification of the subjective experience of duration [...] this objectification enables us in imagination to "stand time units in a row" [...] We can of course CONSTRUCT AND CONTEMPLATE IN THOUGHT a system of past, present, future, in the objectified configuration of points on a line. This is what our general objectification tendency leads us to do and our tense system confirms. (1941: 144, emphasis in the original)

A crucial point emphatically made by Whorf is that there is nothing natural or universal about the Western notion of time, especially as defined in Kantian metaphysics and

27

Newtonian mechanics, "the supposedly intuitively felt flowing of 'time'." Inspired by

Einstein's theory of relativity, Whorf argued against the universality of the Newtonian

concept of time:

> ... I find it gratuitous to assume that Hopi thinking contains any such notion as the supposed intuitively felt flowing of "time," or that the intuition of a Hopi gives him this as one of its data. Just as it is possible to have any number of geometries other than the Euclidean which give an equally perfect account of space configurations, so it is possible to have descriptions of the universe, all equally valid, that do not contain our familiar contrasts of time and space. The relativity viewpoint of modern physics is one such view, conceived in mathematical terms, and the Hopi is another and quite different one, nonmathematical and linguistic... (1950: 58)

> Newtonian space, time, and matter are no intuitions. They are recepts from culture and language. That is where Newton got them. (1941:153)

This sophisticated and provocative theory of cross cultural variation in notions of time has

been sometimes harshly criticized[14] and largely misunderstood. Whorf is sometimes

claimed to have said that the Hopi did not have a concept of time[15]. For instance, in a

shallow summary of "The relation of habitual thought and behavior to language," Gell

claims that according to Whorf "Hopi, by contrast [to SAE languages], does without the

category of time at all" (1996: 126). However, in the essays written by Whorf such a

statement is never to be found. What Whorf did say about the Hopi notion of time, which

he described as a subjective sense of "becoming later and later," (1941:143) is that it

differed from *what speakers of Indo-European languages call* "time," a formless mass noun

which, like other mass nouns in English, denotes a certain kind of homogeneous

continuum. That formless, homogenous and continuum-like quality of the English mass

noun "time" was not, Whorf argued, present in the Hopi concept of "duration."

---

[14] Malotki (1983), Pinker (1994), Gell (1992)

[15] He is also claimed sometimes to have said that Hopi did not have verb tenses, when in fact Whorf (1936) describes the tense and aspect systems in Hopi.

A similar point to Whorf's, in fact, was also made by Evans-Pritchard with respect to the Nuer concept of time. In a much quoted passage from his famous "Time reckoning" chapter on *The Nuer*, he argued:

> Though I have spoken of time and units of time the Nuer have no expression equivalent to 'time' in our language, and they cannot, therefore, as we can, speak of time as though it were something actual, which passes, can be wasted, can be saved, and so forth. I do not think that they ever experience the same feeling of fighting against time or of having to co-ordinate activities with an abstract passage of time, because their points of reference are mainly the activities themselves, which are generally of a leisurely character. Events follow a logical order, but they are not controlled by an abstract system, there being no autonomous points of reference to which activities have to conform with precision. Nuer are fortunate. (1940: 103)

Evans-Pritchard was making here the same kind of argument that Whorf had made for Hopi time. The Nuer had, according to Evans-Pritchard, two different sets of concepts related to temporal notions: he called these respectively "oecological time" and "structural time." Oecological time was related to those notions of time that were "reflections of their relations to the environment," for instance, the alternation of rainy and drought seasons, or between periods of village residence and camp residence, and what, maybe for lack of a better term, he called the cattle "clock." Evans-Pritchard argued that oecological time was cyclical: it was based on the repetitive alternation of different periods of time contained in an annual cycle. In order to measure and talk about periods of time longer than a year, the Nuer used "structural time," which Evans-Pritchard defined as a system for reckoning time based on the distance between different age sets. Oecological time and structural time neatly complement each other—almost too neatly, perhaps—, the former reflecting the relationships of the Nuer with their environment, and the latter their social and kinship relationships. In structural time, the argument goes, "Time is thus not a continuum, but is a

constant structural relationship between two points, the first and last persons in a line of agnatic descent." While articulating this ingenious structural functionalist argument, Evans-Pritchard was also arguing against the universality of the Western notion of time as a "continuum," which we still hold dear in our days, as can be inferred from the Merriam-Webster definition of time that I discussed at the beginning of this chapter.

Whorf and Evans-Pritchard were of course not the only ones to talk about time in terms of the classical distinction between continuum-like, or linear notions of time, and circular or cyclical notions of time. These spatial metaphors have been widely used by anthropologists (Munn 1992; Dahl 1995; Hall 1976; Barnes 1974; Geertz 1973; Bloch 1977; Gupta 1992, to quote a few) and also by philosophers (Nietszche 1882, 1885) and scholars of religion (Eliade 1954). As Dahl (1995: 201) points out, the basis of the linear model of time is "a causal mode of thinking… in which the choice among alternatives causes certain effects to occur in the future. Western cultures, which share a linear orientation, are directed towards an end product, a result. This linear time conception is future oriented." By contrast, circular or cyclical models of time have been described by some theorists as conceptions of time that seek to annul the irreversibility of time (Leach 1961, Eliade 1954). The linear notion of time is based on the idea of irreversible progress, thus events in this conceptualization are conceived as unique: once occurred, they do not repeat themselves; a "re-setting" of events is thus not possible in linear, progressive time. Under a cyclical view of time, the emphasis is on the repetition of certain events, with several possible outcomes. If events constantly repeat themselves, then time doesn't "go" anywhere: it is conceived as a static, non durational, or a "motionless present" (Geertz 1973, Gurvitch 1961). Repetition of events may also be compatible with a certain

30

orientation or direction of motion; for instance, in the Kedang cyclical notion of time "One moves through an invariable series of stages, which eventually repeat themselves. Each stage then is like the same stage in previous or later cycles, but different from the other stages of the same series" (Barnes 1974). Another interpretation of cyclical time argues that it is past oriented, insofar as in cyclical time the future is equivalent to the past, because the past always repeats itself (Dahl 1995).

In the anthropological literature, three recurrent themes are associated with ethnographic descriptions of cyclical time: first, the association of cyclical views of time with natural rhythms and agricultural cycles, and therefore with peasant or farmer communities (Evans-Pritchard 1940, Dahl 1995, Gurvitch 1961). Second, the recreation of cyclical views of time in ritual (Geertz 1973, Bloch 1977): the ritual itself exists in a time that is sacred and different from everyday, profane time (Durkheim 1912, Turner 1969, Rappaport 1999); or rituals may perform a reversion or "undoing" of linear, forwards-running time (Gell 1975). Third, whereas linear time is sometimes associated with a view of uni-directional spiritual progress, cyclical time is associated with concepts of re-birth (Gupta 1992); the equation of death and birth is another common mechanism to erase the irreversibility of time (Leach 1961).

2.1.3. Non spatial models of time

Although the linear and circular spatial metaphors are pervasively used to represent two substantially different ways of thinking about time, occasionally in the anthropological literature we find critiques of the linear/cyclical dichotomy, or attempts to describe alternative models of temporality that are not articulated in purely spatial (and geometrical)

terms. In recent times, some anthropologists have criticized the descriptions of linear and cyclical time as essentializing categories (Gupta 1992).[16] An earlier, clever critique of the linear/cyclical dichotomy was articulated by Leach (1961) in a classic essay of the anthropology of time:

> We ourselves, in our formulation of time, are too closely tied to the formulations of the astronomers; if we do not refer to time as if it were a coordinate straight line stretching from an infinite past to an infinite future, we describe it as a circle or cycle. These are purely geometrical metaphors, yet there is nothing intrinsically geometrical about time as we actually experience it. In a primitive, unsophisticated community the metaphors of repetition are likely to be of a much more homely nature: vomiting, or the oscillations of a weaver's shuttle, or the sequence of agricultural activities, or even the ritual exchanges of a series of interlinked marriages. When we describe such sequences as 'cyclic' we innocently introduce a geometrical notation which may well be entirely absent in the thinking of the people concerned. Indeed in some primitive societies it would seem that the time process is not experienced as a 'succession of epochal duration' at all; there is no sense of going on and on in the same direction, or round and round the same wheel. On the contrary, time is experienced as something discontinuous, a repetition of repeated reversal, a sequence of oscillations between polar opposites. (1961: 126)

Notwithstanding the evolutionist and ethnocentric language present in Leach's characterizations of what he calls "primitive" and "unsophisticated"—that is, "non Western"—communities, Leach's point was to alert his readers against what seemed to him as ready-made, *a priori* categories for representing time. Then he goes on to describe how for the "primitive" Greeks time was not conceived "as we ordinarily think of it—an endless continuum from past to future." Greek time is neither, according to Leach, cyclical or circular in nature, but rather it is conceived as a zig-zag, an alternation or an oscillation between two polar opposites: "a time that flows back and forth, that is born and swallowed

---

[16] Along these lines, see also Fabian's (1983) famous critique of the whole field of the anthropology of time (not just of linear versus cyclical notions of time) as an instrument of neo-colonialism that has only contributed to the reproduction of social distance between anthropologists and the communities that they study.

and vomited up." In *Time and False Noses* (1955/1961) he takes this idea one step further by using the metaphor of a pendulum to describe a notion of time that is neither linear nor cyclical, but based on the principles of alternation and discontinuity: "With a pendulum view of time, the sequence of things is discontinuous, time is a succession of alternations and full stops. The notion that time is a 'discontinuity of repeated contrasts' is probably the most elementary and primitive of all ways of regarding time." This is an intriguing idea, but one wonders to what extent this "zig zag" and "pendular" view of time is no more than another a priori category, one that in fact evokes powerfully his own analytical model for describing the alternation of Gumsa-Gumlao systems in Highland Burma.

Other scholars have sought to escape the linear/cyclical dichotomy by describing models of temporality that are "present-oriented." This claim has been made about societies of hunter-gatherers like the Hazda (Meillasoux 1967; Bloch 1977) and sometimes about agricultural societies like the Malagasy of Madagscar (Dahl 1995). The latter have also been described as having an "event-oriented" notion of time, according to which time is not constructed as an homogeneous, linear matrix where we locate events, but rather, as the events themselves: "time is when something happens. It is an event." (Dahl 1995: 202) And the reverse is true, if nothing is happening, time is not "passing." Time only exists when the appropiate events naturally occur.

Bourdieu (1963, 1977) is another proponent of the idea that present-oriented, or more precisely, non-future oriented peasant societies have non linear and non cyclical notions of time. In one of the finest descriptions that has ever been written about non Western time, he argues that Algerian peasants' notions of time are event-based and discontinuous. Algerian time is non spatial, non linear, and non measurable. Rather, it is

33

made of separate "islands of time" whose reference points are the events themselves, not

their relative location on an abstract timeline:

> Time stretches out, given a rhythm by the round of work and holidays and by the succession of nights and days. Time so marked is not [...] as often been shown, measured time. The intervals of subjective experience are not equal and uniform. The effective points of reference in the continual flux of time's passage are qualitative nuances read upon the surface of things. [...] Temporal points of reference are just so many experiences. One must avoid seeing here points of division, which would presuppose the notion of regular measured intervals, that is to say, a spatial conception of time. The islands of time which are defined by these land-marks are not apprehended as segments of a continuous line, but rather as so many self-enclosed units." (1963: 59)[17]

We had seen before that a teleological orientation, the desire to orient one's life towards a

future goal is one of the crucial elements in the linearization of time. By contrast, Algerian

peasants are deeply suspicious of any attempt to master the future, which "belongs only to

God" (1963:63). This does not mean, however, that Algerian peasants completely lack any

sense of futurity; The future is known to exist, but Algerian peasants are completely

uninterested in it, and even if they were interested in it, they would not be able to predict it

or do anything about it. It is in this sense that Bourdieu claims that Algerian peasants' lives

are not future-oriented; Algerian peasants' attitudes towards the future are better

characterized as "foresight." Inspired by Husserl[18], Bourdieu described "foresight" as a

cultural value that sees the immediate future as part of the temporal horizon of the present,

---

[17] In a sense, Bourdieu's notion of the subjective discontinuity of time is also similar to Tahitians' experience of time, which goes through periods when it runs faster and slower (Levine 1997).

[18] In *The Phenomenology of Internal Time Consciousness* (1964) Husserl developed a model of subjective time consciousness based on the idea that the present is not like a "knife" that "cuts" or divides time into past and future: rather, it has a certain thickness to it. It is made of "percepts," which are perceptions in real, present time, "retentions," which are parts of immediate experience that get carried out in the next percept, and "protentions," anticipations of near experiences that also form part of the temporal horizon of the "now."

that is, as a "potentiality" inherent in the present state of any given object or situation, rather than as a collection of abstract possibilities.

This notion of time based on "islands of time," rather than on the chronological-sequential connections established between them, is also similar to what Basso (1996) described as the Western Apache concept of "history," a way of describing past events that focuses on the events themselves, instead of focusing on the chronological, sequential connections among them. The same has been reported for the Tzeltal Maya of Cancuc (Pitarch 2010). Their narrative history is comprised of a series of islands-events, among which no sequential order is established:

> The incidents are interconnected by the reiteration of the intrusion scheme, not by possessing any temporal direction or sense of sequence of eents. Disconnected, they take on the form of a discountinuous, random series of happenings, separated by intervals of time about which nothing is known; it is an archipelago rising crystal clear out of a uniform ocean of absence. Its islets lack precise coordinates, for they cannot be located on a "map" of time; in other words, no chronological signifier exsts on which they may be superimposed (2010: 130)

To sum up, all these models of time are attempts to represent time with non spatial metaphors. In these non spatial representations, time is neither homogeneous nor does it "flow equally:" it is perceived as something discontinuous, sometimes as a "discontinuity of repeated contrasts" (Leach 1961); the points of reference in these notions of time are the events themselves, which are not represented as collinear points in abstract timeline, but rather as "islands of time" or "self-enclosed units" (Bourdieu 1963) that mark the rhythm of life. Finally, non linear and non cyclical notions of time are not teleologically oriented: they are not concerned with a distant future as a projection of infinite possibilities that are the ramifications or outcomes of present events or situations. Let us keep these features of non linear and non cyclical time in mind as we navigate the next sections of this chapter, which

will discuss notions of time in Mesoamerica and in the Maya world, and in particular among the Chol.

2.2. The Maya and Time

In the first part of this chapter I have reviewed some of the classical texts of the anthropology of time, paying special attention to those that focused on establishing a distinction between linear (mostly Western) and cyclical (mostly non-Western) notions of time. In this section, I concentrate on ethnohistoric and ethnographic descriptions of the concept of time in Mesoamerica and specifically in the Maya area. Since many Mayanists have argued that there is a strong continuity between ancient and modern cultural understandings of time and time reckoning practices, I begin by giving a brief overview of the systems for time reckoning in ancient Mesoamerican and Maya cultures, paying special attention to those elements that have been claimed to be evidence of either a cyclical or a linear concept of time. I then describe how some of these elements have survived in certain areas of the Maya region, and I analyze the evidence that is offered in the ethnohistoric and ethnographic literature for cyclical and linear notions of time in Maya thought. The section concludes with an ethnographic description of how time is reckoned in the Chol world. In the conclusions I argue that, despite the emphasis that the non-anthropological literature has placed on the universality of a linear notion of time, and despite the emphasis that many Mayanists have placed on defining the Maya notion of time as "cyclical," the Chol notion of time is neither linear nor cyclical.

2.2.1. Ancient and modern calendric systems in Mesoamerica and in the Maya world

The pre-Columbian civilizations of ancient Mesoamerica shared a system for reckoning time that consisted of a combination of several intermeshing calendars—which have often been described with the non-neutral term "cycles." The literature on ancient Mesoamerican calendars is immense, and reviewing it exceeds the purpose of this dissertation, but in this section I give an overview of those ancient systems for time reckoning that are relevant for understanding modern Maya notions of temporality.

The oldest and more widespread calendar in Mesoamerica is a 260 day cycle that consists of a combination of twenty different day names with a numerical coefficient of one to thirteen. In the Maya area, this cycle is known as *tzolkin*[19], which literally means "the count of days" in Yucatec. The *tzolkin* is also called by Western scholars "sacred *round*." The origins of this cycle have been widely debated, but nowadays there seems to be some consensus that it represented or at least was somehow related to the period of human gestation. It was used—and, as we will see, continues to be used—for divination purposes.

A second system for time reckoning also widespread among Mesoamerican cultures is a period of 365 days divided into eighteen months of twenty days each, plus one extra month of five days[20]. This cycle, based on the solar year, is known as *haab*[21] in the Maya area. In this calendar, each of the twenty days of a month is denominated by its numerical

---

[19] For the Mexica, this cycle was known as "Tonalpohualli"

[20] This month is known in some places of the Maya area as "uayeb;" and it was and considered (and continues to be considered) a delicate, or unlucky time, when people should be staying at home and not roaming around streets.

[21] *Haab* is also the coloquial Yucatecan term for a solar year, including a modern calendar year. The *haab* is also known as "macewal k'ij" in the Highlands, which means "common days." For the Mexica, this calendar was called "Xiuhpohualli."

position within the month and the name of the month itself. For instance, days in the Mayan *haab* are named "1 Pop," "2 Pop," etc. which is somewhat similar to dates in the Gregorian calendar like "January the first," or "the first of January."

The third calendrical system found all over Mesoamerica is known as "the calendar *round*," which is a permutation calendar based on a combination of the 260 days divinatory calendar and the 365 days solar calendar. So, for example, a date in the Mayan calendar round would be expressed with the name of a day in the *tzolkin*, followed by the name of a day in the *haab*, for example, "1 Imix 7 Pop." It would take a total of 52 years for the same combination of days "1 Imix 7 Pop" to recur.

The three calendar systems described above (the *tzolkin*, the *haab*, and the calendar round) are found in many Mesoamerican cultures, among these the powerful Mexica, the people of Teotihuacan (possibly speakers of a Totonacan language), the Mixtecs, Zapotecs, and Otomi, among others (Caso 1967, Miles 1952) . The Ancient Maya, of course, also used the three systems, but they also developed another calendar[22] which is important for our discussion of ancient and modern understandings of temporality: the Long Count[23]. This was an era-based calendar that counts the days that had passed since the beginning of the then current era, which fell on the calendar round date 4 Ahau 8 Cumku―August 11, 3114 BC in the Gregorian calendar[24]. The end of the Long Count era in which the Ancient

---

[22] Among the many cycles that the Maya "invented," some of them, which we will not cover in this Dissertation because they are not directly relevant to modern understandings of temporality are: a cycle of 4 cuadrants of 819 days each, a 9-day count known as that of the Lords of the Night, and several other astronomical cycles, some of them related to the movement of Venus.

[23] Coe (2005) argues that the Long Count was also widespread in other areas of lowland Mesoamerica, but "it was carried to its highest degree of refinement by the Maya of the Central Area." (2005: 63).

[24] The units of the Long Count were *kins, uinals, tuns, baktuns, and katuns*. *Kin* is the word for "day" in many Maya languages. A uinal is a month of 20 days (*kins*). 18 months (*uinals*) make a *tun* (=360 days), twenty *tuns* make a *katun* (7,200 days), and twenty *katuns* make a *baktun* (144,000 days).

38

Maya lived came on Dec 21 2013. Their Long Count calendar 'cycle', in other words, was about 5000 solar years long. This means that, unlike the dates of the Calendar Round or its components, dates in the Maya Long Count would not recur in the lifetime of any one individual, or even in the history of any known place or people. Dates might recur in discourses that referenced cosmological time-scales (cf. Schele and Freidel 1990, Rice 2007).

There is yet another element of the ancient Maya system for time reckoning that is important for our discussion of modern understandings of temporality: the "Year Bearers." In ancient calendrics, the *tzolkin* date that coincided with the first day of the first month of the solar year (1 Pop) was particularly important for the Maya. They called these days "Year Bearers,[25] "because they were conceived of as special days that carried the "burden" of that year. In Maya epigraphy, the Year Bearers are portrayed as men[26] carrying a load in a tumpline[27]; since the days of Thompson (1950), Mayanists have also called them "time bearers." These days were greeted with special ceremonies, and the character of each "Year Bearer" was supposed to influence the luck of the year.

Knowledge of this intricate calendar system was lost in some areas of the Maya world during the conquest and the subsequent colonial period, but it was secretly kept in others. The Guatemala Highlands is the most conservative area in terms of survivals of ancient calendrical knowledge and practices. There, modern Maya communities continue to

---

[25] "Aj kuch haab" in Yucatecan, (literally, he who carries the solar year) and "Mam" in Quiche.

[26] Although according to Thompson (1950) and León Portilla (1973), they had a divine nature.

[27] Object used by Maya (and other Native American) populations to carry heavy loads; it consists of a strap that is attached to the burden and it is placed on the carrier's forehead .

use several of the cycles described above, or parts of them. In the Highlands of Chiapas and in the Lacandon rainforest, only one of the ancient calendars was kept, and the whole system was completely lost in the Lowlands of the Yucatan Peninsula. Knowledge of ancient calendrics was not retained in the central and northern areas of the Maya area probably because in that region the calendars were controlled by an elite of priests, whereas in the southern area this knowledge was much more widespread and therefore much more difficult to eradicate by the Spanish missionaries (La Farge and Byers 1931).

In the Guatemala Highlands the Ixil, Mam, and Pokomchí still use the *tzolkin* (260 days "sacred round"), the *haab* (365 days solar year) and know about the Year Bearers (Miles 1952, Tedlock 1992). At the time that Lincoln did ethnographic fieldwork among the Ixil, during the 1940's, he reported that they performed ceremonies in honor of the Year Bearers (Lincoln 1942), but apparently those ceremonies were no longer performed when Colby did his fieldwork during the late 1960's (Colby 1981). Among the Jacaltecos, prayer makers, shamans and soothsayers still used the 20 day names of the *tzolkin*, and the *haabil* or solar year in the 1920's, but knowledge of the names of the months had been lost. Complex ceremonies in honor of the Year Bearer were still performed during the thirties (La Farge and Byers 1931). Possibly one of the best studied communities of the Guatemala Highlands are the Quiché, who still used the *tzolkin* for divinatory purposes in the late 20th century (Bunzel 1981; Tedlock 1992), and some communities have also kept knowledge of the Year Bearers, which are greeted on sacred mountains (Tedlock 1992). In modern divinatory practice, each day in the *tzolkin* has a particular character which is thought to influence the personality of those born on that day, and the type of activities that are propitious or unpropitious for that particular day. The *ajk'ij*, "day-keepers" are consulted to

determine which days are good for marrying, building a house, praying to the ancestors or conducting rituals, etc. (Tedlock 1992).

In the Highlands of Chiapas, knowledge of ancient calendrics has been maintained to a much lesser degree (Vogt 1969; Miles 1952). The Tzotzil, Tzeltal, Chol, and Tojolabal do not use any version of the *tzolkin* for divinatory purposes and no knowledge of the Year Bearers has been retained. The Tzotzil and Tzeltal, however, have been reported to use a system of eighteen 20-day months, plus the extra month of 5 days, a survival of the *haab* (Gossen 1974, 1979; Villa Rojas 1988).

In the Lowlands of the Yucatán Peninsula, nowadays people mostly use the Gregorian calendar to reckon time, and all knowledge of ancient calendrics has been lost. Still in use is an interesting prognosticative calendar, though, known as the *xoc kin*, "the count of days" (Redfield and Villa Rojas 1934). Unrelated to any of the aforementioned Mesoamerican cycles, and possibly adopted during the colonial period, this calendar is based on the assumption that the weather that occurs during the month of January metonymically represents the weather of the rest of the year.[28]

2.2.2. Maya time: linear or cyclical?

The overwhelming majority of sources that talk about "the Maya concept of time," be these scholarly or from popular culture, have sought to present a model of temporality that is inherently cyclical. From an ethnohistorical perspective, evidence for the alleged cyclicality of Maya temporal thought comes from three types of sources: first, the linguistic

---

[28] A version of this prognosticative calendar known as *Los Cabañuelas* has been documented far to the north of the Maya area, in South Eastern Texas (Rubel 1965)

reconstruction of the Proto-Maya root for the word 'time', *kinh*; second, the pre-Columbian calendar cycles described in the previous section; third, the so called "*katun* wheels" of colonial manuscripts.

In a style that vaguely reminds us of the beginning of Evans-Pritchard's "Nuer Time Reckoning" and Leach's "Two Essays Concerning the Symbolic Representation of Time," León Portilla begins his classic work *Time and Reality in the Thought of the Maya* ([1973]1988) asking whether there is a word for "time" common to all Maya languages. León Portilla traces this word back to the Proto-Maya root *kinh*, a semantic complex that, according to him, means "sun-day-time." He argues that the movement of the sun and by extension, the days as units of time, and time itself were understood by the Maya as cyclical processes: "If in their thought the day was a solar presence, time was the limitless succession of all solar cycles. Thus *kinh* spontaneously acquired its most ample meaning: duration that cannot be expressed because it has no limits, time, the sum of all possible solar cycles" (1988:20). For León Portilla the Maya notion of time was cyclical, events repeated themselves throughout eternity and could be predicted by an elite of priests: "since *kinh* is essentially cyclic, it is most important to know the past in order to understand the present and predict the future" (1988:54).

This argument is echoed in some ethnographies of modern Maya communities; for instance, describing the Tzeltal concept of time Nash argues: "the abstract noun for time, *k'alal*, is derived from the word for day, *k'al* […] Time past, *name?is*, is a general state of being in which the ancestors lived. The future is at best a recapitulation of the past" (1970: 311). This argument is based on the assumption that in cyclical notions of time the past and the future are equivalent (cf. Dahl 1995), thus knowledge of the past, history, becomes

42

knowledge of the future, prophecy (see also Farriss 1987). Gossen (1974, 1979) has also argued for an explicit connection between the ancient concept of *kinh*, as described by León Portilla, and a predominantly cyclical notion of time among the Tzotzil of San Juan Chamula, whose entire worldview revolves around the concept of a solar deity. In the Chamula universe, time is a matter of cycles within cycles: the largest cycle known to the Chamulas encompasses the previous and current creations; within the current creation, there are smaller cycles, such as the life cycle, the solar year cycle, the seasonal cycles based on an alternation of dry and rainy seasons, and the cycle of Catholic festivities. These cycles in turn encompass smaller, minor cycles, such as the maize cycle, the daily cycle, and cycles related to the phases of moon.

It has also been argued that the concept of time underlying the pre-Columbian *tzolkin, haab*, and calendar round systems, which has been retained by many modern Maya communities (see section 2.1), is inherently cyclic (Schele and Freidel 1990; Rice 2007; León Portilla 1988; Gossen 1974; Farriss 1987). However, it is important to keep in mind that "sacred *round*" and "calendar *round*" are names given by Western scholars to these calendar systems, not native terms. In spite of the fact that in most textbooks these three systems are visually depicted with intermeshing cogwheels, from the Preclassic to the Postclassic period there does not exist a single pictorial or written example[29] of any of these temporal cycles that shows calendar dates arranged in a circular fashion. In fact, dates, which are of course abundant in the hieroglyphic texts inscribed in stelae, monuments, and codices, are written and read in paired columns from top to bottom and left to right.

---

[29] With one possible exception, that has not been accepted as such by major scholarship, a small sculpture of a turtle excavated in Mayapan, which belongs to the Late Postclassic. The turtle has something similar to a "pre-hispanic katun wheel" carved in its carapace (Taube 1988).

This brings us to the third piece of evidence for a cyclical notion of time, the "*katun wheels*." These are pictorial representations of a period of time that comprises thirteen *katuns* (each *katun* equals 7,200 days). There were thirteen named katuns. After the thirteenth katun was complete, the next katun was the "first" again, at least as far as its nomenclature. In the *katun wheels*, the thirteen *katuns* are arranged in a neat circle. However, all the *katun wheels* appear in documents from the colonial period. One of the most commonly reproduced *katun wheels* was drawn by a Western missionary, the (in)famous Bishop Landa. The other "wheels" appear in some of the Chilam Balam books, which were a collection of miscellaneous documents written by an elite of Maya scribes, who had been trained in alphabetic writing by Catholic missionaries. By the time that these books were written, the Maya populations of the Yucatan had been colonized for almost three centuries; it is therefore problematic to assume that the *katun wheels* are pristine representations of Maya temporal thought.

Against the vast majority of Mayanists who have argued that the Maya concept of time is predominantly cyclical, Thompson (1950) and Bricker (1966) have argued that it is predominantly linear. These scholars have developed an interesting theory based on an assumed relationship between the concept of the Year Bearers, the "time bearers" of the glyphs (see section 2.1), and a linear notion of time. Thompson (1950) argued that the ancient Maya conceived of time as relays of bearers carrying burdens throughout eternity; the burdens they carried were the units of time, and the road along which they travelled represented eternity: "the road over which time had marched stretched into a past so distant that the mind of man cannot comprehend its remoteness. [...] Time, in the Maya concept, leads into the future, too, with the endlessness of the straight roads of France." (1950:

44

141)[30]. Inspired by this suggestion, Bricker (1966) argued that there is a connection between this notion of time as a burden being carried along a linear road, and the cargo systems[31] of modern Maya communities. She argues that the responsibility that people assume when they undertake a cargo position is understood as a burden carried on behalf of the whole community, which is analogous to the concept of time as a burden carried by the time bearers of the glyphs. She also examines some Tzotzil terms that are used both to express spatial and temporal reference, such as *nopol*, which means both "near" and "soon;" *kal*, which means "as far as" or "until;" and *tsakal*, which means "behind" and "later." Based on this evidence, she claims that "...Zinacantecos, like the ancient Maya, think about space and time in terms of quantities that can be measured by equivalent units [...] Zinacantecos understand time and space as lineal quantities" (my translation, 1966: 368-369).

Other scholars have sought to escape the dichotomy of cyclical versus linear time, mainly by arguing that both conceptions were and continue to be present in Maya thought (Farriss 1987; Tedlock 1992), or by emphasizing other non spatial features of the notion of time, such as the notion of time as accumulated burden (Tedlock 1992). Farriss (1987), for instance, argues that the Maya had a dual conception of time: it was both cyclical and linear, although the linear conception was secondary and subsumed in the cyclical conception of time. She claims that the *tzolkin,* the *haab*, the calendar round, and the *katun* wheels are evidence of the importance of cyclicality in Maya thought. But the Long Count (see section 2.1), that flourished during the Classic period, was evidence according to

---

[30] Note that Thompson's interpretation clearly conforms to the "moving time" metaphor (Lakoff 1993, Lakoff and Johnson 1999) described in the Introduction.

[31] Civil-religious hierarchy devoted to the performance of rituals in honor of the Saints.

Farriss of a linear conception of time[32], and it was inextricably linked to the institution of kingship.[33] In her breathtaking study of temporal thought among the Quiché of Momostenango, Barbara Tedlock (1992) comes back to the motif of time as a burden to explain the prevalent conception of time among the Quiché, according to which "burdens of time do not so much change as accumulate" (1992: 202). Skeptical of the cyclical/linear dichotomy, she argues that the divination carried out by the ritual specialists in Momostenango, the daykeepers, "involves a dialectic between the cyclical and lineal aspects of time." (*ibidem*: 203). Finally, Pitarch (2010) gives us a very sophisticated and nuanced interpretation of how time is conceived of by a modern Maya culture. He cunningly observes that for the Tzeltal of Cancuc the present and the past "form part of a single and immense present continuum" (2010: 126). This proposal reminds us of Husserlian phenomenology, insofar as it is a view of time in which the present is not a mere cutting knife that separates the past and the future, but rather the past and the future are subsumed by a—never ending—present.

2.2.3. Chol Time Reckoning

In sections 2.1 and 2.2, I have examined the elements of ancient Maya time reckoning systems that have been retained by modern Maya communities, and I have discussed why some of these elements have been claimed to be evidence of a cyclical notion of time in Maya thought. In this section, I concentrate on Chol understandings of temporality. I first explain briefly who the modern Chol are in relation to the Classic Maya and the other

---

[32] Coe (2005) and Schele and Freidel (1990) disagree with this view, and argue that the Long Count was also cyclic.

[33] Farriss argues that this "linear" system for reckoning time served to legitimize the rulers' claims to power. For this reason, it first appeared when monarchies flourished in the Maya world, and disappeared altogether with the collapse of that institution.

modern Maya groups that have been discussed in the previous section. Next, I talk about the foreign origins of the word for "time" in Chol. I then discuss three complementary systems for reckoning time that are currently used by the Chol: the Gregorian calendar, the ceremonial calendar, and the agricultural calendar. I finally argue that none of these systems can be offered as evidence for either a linear or cyclical notion of time.

As mentioned in the introduction, the modern Chol are a population of approximately two hundred thousand indigenous subsistence farmers who live in the state of Chiapas in Southeastern Mexico. They are speakers of a Western Mayan language which is a direct descendant of the language in which the great hieroglyphic inscriptions of the Classic period (250AD-900AD) were written, classic Cholan. The modern Chol communities have their origins in the colonial *reducciones* (Indian Reductions) founded by Fray Lorenzo de la Nada in the second half of the 16th Century.[34] They traditionally had a system of communal land property, which was destroyed by the Agrarian Reform in the 19th Century[35]. With this agrarian reform the Choles lost their lands, and became "*peones*" and "*mozos*" (wage laborers) in the "*fincas*" (Alejos 1999), great plantations owned primarily by German and English Coffee companies. The Chol kept working in these plantations until 1936, when Lázaro Cárdenas initiated the transformation of the traditional coffee haciendas into the "*ejidos,*" a new system based in the division of very large

---

[34] The Chol were forced to work in the Spanish *encomiendas* until the Spanish Crown gave them "*cédulas reales,*" a legal document that acknowledges their right to posses the land that they had worked for generations. With these documents, the Chol became the owners of communal lands.

[35] At the end of the 19th Century, however, Benito Juárez, President of the Rebublic of México, initiated the Agrarian Reform, which was a death blow for the economy of many indigenous populations of México. Juarez, being himself a Zapotec Indian, was paradoxically the protagonist of this Agrarian Reform whose main aim was the redistribution of the communal lands and their transformation into private properties, in order to defeudalize the Mexican agrarian system. For the indigenous communities, this reform only meant the break of their economic system of production and the deprivation of their ancestral lands.

properties in smaller plots, with the intention of bringing back at least some portion of the lands to their original owners,[36] which is still active nowadays.

Despite the fact that the modern Chol are descendants of the Classic Maya, their knowledge of ancient calendrics disappeared in colonial times, and none of the systems described in the previous section are in use today, nor have any colonial "katun wheels" been found in this area. The neighboring Tzotzil and Tzeltal, however, have been reported to use a survival of the *haab* (Gossen 1974, 1979; Villa Rojas 1988).

I now turn to the classical question that opens many anthropological studies of temporal thought: is there a word for "time" in Chol? As we have seen in section 2.2.2., since the work of León Portilla Mayanists have frequently identified the word for "sun-day"[37] with the Western concept of time. The word for "sun-day" in Chol is *k'iñ*. However, it is not clear that *k'iñ* necessarily translates or is equivalent to the abstract mass noun "time" that most Indo-European languages have. A word for "time" has, however, entered the Chol lexicon via borrowing: in conversational Chol, monolingual and bilingual (Chol-Spanish) speakers commonly use the Spanish loanword "*tyeñpo*." Another word that is commonly used to refer to time is *(y)orajlel*, a borrowing from the Spanish word "hora." 'hour'. *Yorajlel* means literally "its hour," "its moment," or "its period" "and it is used in a variety of contexts, for example, to refer to the seasons: *yorajlel k'iñtyuñil* "the period/time of heat", "dry season", *yorajlel tsäwäñ* "the period/time of cold", "cold/rainy season." It can

---

[36] The implantation of the system of agrarian *ejidos* was intended to modernize the traditional system of production. However, the Chol did not recuperate all the lands that they had lost in the Agrarian Reform, and in the sixties, the natural resources of the *ejidos* were not sufficient to feed all the population; for this reason many Chol Indians begun a slow migration towards the Lacandon jungle, pushing against the "new" Lacandon (Lacandon-Yucatecan speakers).

[37] Or whatever nominalized form of that word, which is usually done by adding a -Vl suffix to the stem. For example, *k'al-al* in Tzelal, is the nominalized form of *k'al*, day (Nash 1970). *K'al* is translated by Nash as "day," and its nominalized form, *k'alal*, as the abstract noun "time."

also be used to refer to punctual moments, for instance, the moment of one's death: *tax kotyi yorajlel* means "its/his/her time has come." The loanword *oraj*, without the third person absolutive suffix *i-/(y-)* and the nominalizer *-lel*, is sometimes used by itself to refer to a specific time, or to ask what time it is. The preferred expression for asking "what time is it?" is "*bajche' oraj*?," which actually means "*how* is the time" or "*what* is the time *like*," not "what time is it." Although the loanwords "*tyeñpo*" and "*oraj*" are nowadays incorporated in the Chol lexicon, the fact that they are not native terms, but instead were borrowed from Spanish already tells us something about the foreign origins of the concept of "time," as it is conceived by Western societies, in Chol language and culture.

Whereas there is no single "original" Chol word that neatly translates the abstract concept of time as a substance-like continuum, there are many different terms for talking about different temporal units. There are several terms for the parts of the day (see Chapter 3 for a list of temporal nouns and adverbs). The basic temporal units in Chol are the alternation of days and nights, *k'iñ / abälel*, the month, *uj*, which also means "moon," and the year, *ja'*, which literally means "water" or "rainy season," and thus equals the completion of a cycle of dry and rainy seasons (cf. ha'ab). The word for week, *semaña*, is a late borrowing from Spanish (and see "*oraj*" itself as well).

Although no survival of any of the ancient calendars has been documented in the Chol area, there are three important systems for time reckoning that are simultaneously and complementarily used by the Chol: the Gregorian calendar, the ceremonial calendar, and the agricultural calendar. The Gregorian calendar was an early instrument of proselytization in the Maya area (La Farge and Byers 1931). It is mostly used for civil purposes, and it is associated with activities and institutions that have something to do with the state—like

schools and governmental offices—and with the Catholic faith: part of the rationale for imposing the Gregorian calendar in the evangelized regions was to establish Sunday as the day to attend mass. In modern Chol, the names of the days of the week and the months of the Gregorian calendar have been incorporated as borrowings from Spanish.

Whereas the Gregorian calendar is associated with the civil and strictly Christian religious spheres, the Chol ceremonial calendar stipulates the dates for the celebration of an important set of religious rituals that are inherently syncretic (Josserand and Hopkins 2001). In Tila, the most important celebration of the year is that of the Lord of Tila (6-15 January). This festivity honors the patron saint of the community, a Black Christ[38] that has been the center of a pilgrimage cult since at least 1695 (Josserand and Hopkins 2007; Ruz 1994, López Martínez 2010). The celebration of Carnival (3 days prior to Ash Wednesday), is still fresh in Chol people's minds, but it was recently banned by the local Catholic priest, on the grounds that the ritual battles that were performed were "too violent." The celebrations of Holy Week (last week of March, or first week of April) and Corpus Christi (around the 18th of June, or the first Thursday after Trinity Sunday) in Tila are also abundant in parades and rituals in honor of the Lord of Tila. During the festival of the Holy Cross (1-4 May), offerings are performed at a shrine on top of one of the mountains surrounding Tila, which has a Holy Cross in it. People also visit a nearby cave that has the miraculous image of the Lord of Tila crystallized in a stalagmite. During All Saints (Oct 30-Nov 3), food and music are offered to the dead, and rituals are performed in their honor.

---

[38] The Black Christ of Tila is a syncretic deity that incorporates features of the Christian Jesus and the Maya Earth Lord, *Witso'* in Chol, who lives and is venerated in caves. It is also associated with the cult of other black deities like the Lord of Esquipulas in Guatemala (see Josserand and Hopkins 2001, 2007)

The set of annual festivities concludes with the feast of the Virgin of Guadalupe (12 December) and Christmas (24-25 December).

The third temporal system comprises a set of agricultural activities that shape the rhythm of Chol life throughout the year. It is known as "*ñoj cholel*," which literally means "important or abundant milpa," although in Spanish it is usually translated as "milpa de año," or "yearly milpa." [39] It begins with the preparation of the fields, which is usually done around February, and depending on the condition of the field, it may involve the felling of big trees[40], the controlled burning of the fields, and the removal of the old stalks. Seeding is usually done around May, at the end of the dry season, just before the first rains begin. Approximately one week after the seeding, some people choose to re-seed the fields, with maize or beans and squash. The next weeks are characterized by intense weeding of the field, as the plants need to be cleared of weeds in order to grow properly. Agricultural activities are interrupted in June and July, months of heavy rains, when the plants are growing and not much can be done in the fields. Activity is resumed in August, when the plants give the first young ears of maize, or *elotes*. These sweet *elotes* are very appreciated, and some of them are collected for immediate consumption,[41] but most of them are left to mature in the plant so they can be collected later during the main harvest. The next activity consists of bending the maize plant upon itself in order to protect the still maturing cobs

---

[39] Note that the translation in Spanish mentions a temporal unit, "año," year, which is absent in Chol. *Ñoj* is an intensifier, it means "very," or in this particular context it can be translated as "important," or "abundant" and chol speakers use the term "*ñoj cholel*" to distinguish it from another secondary, less important agricultural cycle: *sijoñ* or tornamilpa. *Sijoñ* is the optional planting of some extra maize during the month of November.

[40] This is the case when the field has been fallow for a year or several agricultural seasons.

[41] The preferred food staples of this time of the year are *chuychuy waj*, "elote tamales", and *ul*, "atole."

from the rains. Harvest is usually done at the end of September or in October, and November is usually devoted to storing and flailing the cobs.

The ceremonial and agricultural calendars form an integrated system and the rhythm of festivities and activities is also partly determined by the alternation of the rainy and dry seasons. No major celebrations of the ceremonial calendar are performed during the rainy season, and the activity in the *milpa* fields is minimized during that period as well. During the months of the heavy rains, the Chol work on their homes, for instance, making the necessary repairs to roofs and walls. In the festivity of the Holy Cross, which is usually around the time of seeding, some of the rituals performed are rain petition ceremonies (Josserand and Hopkins 2001). It is important to note that whereas the Gregorian calendar is used in conjunction with the ceremonial calendar, it does not determine the rhythm of the *ñoj cholel* (yearly agricultural calendar). The month names I have written above are not, by any means, set in stone. There are local variations depending on the specific situation of each community and its climate[42]. And of course, there is individual variation based on personal preferences and risk calculations at the moment of seeding. Choosing the appropriate moment to seed one's milpa entails a complex calculation; as one of my Chol friends patiently explained to me, "if you seed during the rainy season, the plant won't be properly rooted. It grows up fast, but the plant is weak. But if you plant during the dry season, the plant grows up properly and the wind does not bring it down when it grows." The tricky part is, of course, determining the exact moment when the rains will come, because if the seeding is done too early during the dry season, the plant will die of drought. Since the exact date of the beginning of the rainy season is very difficult to calculate with

---

[42] The lower regions of the Chol area are warmer, and the higher regions are colder, which has an impact on the time that it takes the corn plant to mature: it takes longer in the coldest regions.

absolute precision, some people prefer to seed a little bit earlier during the dry season to ensure that the plants will grow stronger, while others prefer to seed as late as they can to ensure that the plants will have enough water. What is important to keep in mind is that the *ñoj cholel* or *milpa de año* is an event-based temporal system: it is the completion of one activity that determines when the next activity will begin, rather than the abstract passage of time linked to the months of the Gregorian calendar. References to these borrowed months are always secondary. Although no Chol in their right mind would think of planting his milpa in August, when one asks what the appropriate month to seed is, the answer sometimes comprises two months "April *and* May", or one Chol person may say "*I* seed in April" and another may say "*I* seed in May." But when asked what is the appropriate time to seed (and when no reference to a month of the Gregorian calendar is solicited), most people will answer "just before the first rains come" or "at the end/completion of the dry season." In other words, the activities that comprise the *ñoj ch'olel* are perfectly attuned to the rhythm of the dry and rainy seasons, and once the date of seeding has been chosen, that will act as the benchmark for the rest of agricultural activities: a person seeding in April will collect the first *elotes* during the last days of July or the first weeks of August, whereas a person seeding later in May will collect his *elotes* at the end of August or even during the first weeks of September. Thus the Chol agricultural calendar is, in a sense, like Nuer oecological time: "their points of reference are mainly the activities themselves […] Events follow a logical order, but they are not controlled by an abstract system, there being no autonomous points of reference to which activities have to conform with precision." (Evans-Pritchard 1940: 103).

None of these three systems—Gregorian, ceremonial, and agricultural—can, in my opinion, be interpreted as evidence of either a "linear" or a "cyclical" notion of time. What matters in the Chol case for time reckoning is the relative positioning of one activity or festivity with respect to another, or in other words, relationships of beforeness and afterness based on the completion of certain periods of time, activities, or religious feasts. Once the festivity of the Lord of Tila has been completed, preparations for the Carnival can begin. Or once the field has been burnt, then the seeding can begin. In other words, it is the completion of one activity that acts as "benchmark" for the next activity, not so much their positioning on an abstract timeline.

Some of the cultural elements that have contributed to the linearization and standardization of time in the Western world have been, until recently, absent in the territories occupied by the Chol, especially in Tila, which until the last few decades remained a relatively conservative region. Clocks and watches, for instance, have only been introduced recently. Church bells worked as early "clocks" prior to the introduction of modern clocks in the area; although in most Chol municipal *cabeceras*[43] the governmental "palaces" have a clock in its frontispiece—which does not always work—, these are completely absent in the smaller communities and hamlets. Watches are highly appreciated but not everybody can afford to have one. Prior to the introduction of electricity in the area, the presence or absence or sunlight was, and continues to be in some isolated communities, a major instrument for structuring the temporal divisions of the day. Women used to wake up *iktyo*, "when it was still dark," in order to make tortillas for the men, who leave for the *milpa* early in the morning to avoid working during the hottest hours of the day. Until

---

[43] A municipal *cabecera* (market town or county seat) is the main town of a *municipio*.

televisions were introduced in the area, and in the few communities where they have not arrived yet, people would go to sleep soon after the sunset. With the introduction of electricity, however, nowadays in many Chol communities people go to sleep and wake up much later than they used to; the elderly frequently complain that young people are becoming lazy because they wake up "when there is sunlight."

The cargo system is still active and well established in the region. However, I did not find any evidence of a relationship between any cargo ceremonies and a linear conception of time, as Bricker suggested (1966). In my opinion, a more likely sphere to look for emerging notions of linear time is the school. The school year has its own rhythm, of course, linked to the Gregorian calendar, and it is independent from, and sometimes at odds with the agricultural and ceremonial calendars. Sometimes bilingual teachers complain that during the days of seeding parents do not send their children to school because they take them to the *milpa* to help with seeding. Literacy, which has been proposed to be another major factor in the abstraction and linearization of temporal thought (Tversky, Kugelmass and Winter, 1991) is of course the main goal of schooling. Finally, schools have also traditionally been, and in many cases continue to be, instruments for linguistic assimilation. Monolingual Chol children learn Spanish in schools, and with Spanish they are introduced to a very different grammatical system for the expression of time (see Chapter 3 for a complete description of the differences between tense and aspect). All these factors contribute to familiarizing the younger generation of Chol children with a linear notion of time which was originally absent from Chol language and culture.

2.3. Conclusion

In the first part of this chapter, I talked about the origins of the anthropology of time. I argued that some of the classic ethnographies of time were partly inspired by the Durkheimian notion of social time, and also by the Boasian paradigm of cultural and linguistic relativism. One of the central goals of these first ethnographies of "exotic" cultural notions of time was to reject the universality of the Newtonian notion of linear time, which, as argued in Chapter 1, is still prevalent outside the fields of anthropology and Einstenian physics. In these first ethnographies which deliberately sought to describe very different ways of thinking about time, a cyclical notion of time became the preferred model for representing alternative understandings of temporality, thus establishing a basic dichotomy between "Western-linear" versus "non Western-cyclical" notions of time. The second generation of students of time became increasingly displeased with the linear/cyclical dichotomy, and attempted to use other non spatial metaphors for describing non Western notions of time, which, they claimed, represented more accurately indigenous notions of time than the geometrical terms "line" or "circle." Some anthropologists have taken this critique one step further, claiming that "cyclicality" has been yet another instrument for the essentialization and the ethnographic invention of the Other.

This critique of the linear/cyclical dichotomy has not yet been articulated in Mesoamerica and especially in the Maya area, which instead became a preferred locus for the ethnographic description of "cyclical" notions of time. With a few exceptions, most Mayanists have argued that the cyclical notion of time was predominant in Maya thought. Evidence for the alleged cyclicality of Maya temporal thought comes from different types of ethnohistoric sources. First, the ancient systems for time reckoning (mostly the *tzolkin*,

the *haab*, and the calendar round[44]) were almost unanimously assumed by scholars to reflect "cyclical" conceptions of time. These scholars, like the first generation of anthropologists who studied time, were eager to recreate a notion of time that was essentially different from the Western one. However, as we have seen in section 2.2, to my knowledge there is not a single example in the documents that have survived from the pre-Columbian period that suggests that the Maya visualized or thought about time in cyclical terms. Although many modern Maya communities have retained parts of the ancient system for time reckoning, given the fact that we have no ethnohistorical evidence that the ancient Maya notion of time was cyclical, claiming that the modern Maya communities have a concept of time that is *like* the ancient one, "cyclical," is at best a questionable argument.

There are also two important flaws in the linguistic argument offered by León Portilla, based on the reconstruction of the Proto-Maya root **kinh*, which according to him means "sun-day-time." It is indubitable that many Maya languages nowadays have a word for "sun-day" that descends from the Proto-Maya word **kinh*. What is a little bit more questionable, at least according to the thin evidence provided by León Portilla, is the extent to which the semantic field of **kinh* can indeed be extended to encompass a concept such as the one conveyed by the formless mass noun "time." **Kinh* means "sun-day," and maybe "set of days" or even "succession of days," but probably not "the sum of all possible cycles" (1988:20). Secondly, there is simply no evidence that **kinh* was "essentially cyclic," as León Portilla claimed. Maybe **kinh* was considered as a repetitive action or process, or maybe as a complete unit of time. In fact, these two interpretations are not mutually

---

[44] The Long Count is interpreted as a "linear" system by some scholars (Farriss 1987) and as a cyclical system by others (Schele and Freidel 1990, Coe 2005).

57

exclusive. As we will see in the next chapter, "repetitive versus non repetitive" and "completed versus non completed" are categories of linguistic thought finely attuned to the aspect system, which in Chol is well developed grammatically. "Cyclic versus non cyclic" is not.

In the last section of this chapter I argued that the Chol word *k'iñ* means sun-day, but not "time." I also described three different systems for time reckoning that are currently being used by the Chol, and I argued that none of these can be offered as evidence for either a "cyclical" or a "linear" notion of time. Bourdieu's (1963) description of a temporal system made of activities that are experienced as "islands of time," and which become "benchmarks" for other activities, is closer to the Chol notion of time than the "cyclic" or "linear" spatial metaphors. True, the Chol see certain events or activities as repetitive: one seeds his cornfield year after year, and the festivity of the Lord of Tila is celebrated every year. The same action may be repeated over and over again, but this does not necessarily mean that the action of seeding or the celebration of the Lord of Tila are understood as "cyclic." Another contrast that is fundamental in Chol temporal thought is "completed versus non completed." The relative order of events in both the ceremonial and agricultural calendars is established by means of completed or punctual activities that act as benchmarks for other (not yet completed) activities: the bending of the corn plant needs to be complete and finished before the harvest can begin. This also applies to short term temporal processes: one cannot start patting tortillas unless the action of preparing the nixtamal mixture has been completed. Individual events, or "islands of time," in Bourdieu's terms, act as benchmarks for other events, and these follow an internal logical order that does not conform to an abstract linear system.

CHAPTER 3

THE GRAMMAR OF TIME IN CHOL MAYAN

3.1. Introduction

In Chapter 2 I analyzed the concepts of linear time and cyclical time from an ethnographic perspective, and I examined the evidence that is offered in the ethnohistoric and ethnographic literature for cyclical and linear notions of time in Maya thought. Based on ethnographic observation of the system for time reckoning in Chol culture, I argued that the Chol notion of time is neither cyclical, nor linear. In this chapter, I shift the focus from ethnographic to linguistic analysis, and I describe how time is encoded in the Chol language. As explained in Chapter 1, Chol is a tenseless language. In this chapter I discuss how temporal information is conveyed in Chol, in absence of tense.

The chapter is divided in three sections. In the Introduction I review some of the basic concepts developed by linguists who study temporal language, which I will later apply to the description of Chol temporal language. Following mostly Klein's (1994) work, I first explain the concepts of Topic Time, Time of Situation, and Time of Utterance. Then I give an overview of the different strategies that linguists have identified for the expression of time in natural languages.

The second section of this Chapter is an introduction to the general typological features of Chol Maya. I first discuss its genetic and typological classification, and the three types of alignment that have been identified for Chol: split intransitivity, fluid-S marking, and ergativity. I conclude the section with a terminological clarification on how I shall analyze and gloss the pre-verb aspectual markers.

In the third section of this chapter I describe how time is encoded in Chol grammar. I begin with a description of grammatical aspect in Chol, focusing on the temporal semantics of the perfective, imperfective, and progressive aspects, and in other grammaticalized forms for expressing aspectual information in Chol. I then examine temporal adverbials, temporal particles, temporal metaphors and other temporal expressions commonly used in Chol discourse. The chapter concludes with a description of sequential predication in Chol, a term I coined to explain how the temporal order of a sequence of events is contextually inferred in absence of any deictic anchors.

3.1.1. Topic Time, Situation Time, and Utterance Time

Let us consider the following sentence:

(1) A man laughed

Although our intuition may lead us in principle to interpret sentence (1) as referring only to "one" time—in this particular example, a time in the past—some scholars have pointed out that, in a sentence like (1) there are indeed three different types of "time." First of all, there is an abstract type of time, which is the situation being described, "man–laugh." The situation is defined by a subject (a man) and a bare predicate (laugh).This abstract component of the temporal structure of any sentence has been called in the literature "Time of Situation" (Klein 1994, 2009). But sentence (1) gives us more information about when the situation "man-laugh" took place: the tense inflection in "laughed" constrains the general situation of "man-laugh" to the past. In the psycholinguistic literature, this second type of time is often called "Topic Time" of the utterance, which is the time at which the situation described—in this case, the situation "man-laugh"—happens. In Klein's terms,

Topic Time is "the time span to which the speaker's claim on this occasion is confined" (Klein 1994:4). But in order to determine the "Topic Time" of any given utterance, we need yet another point of reference. In direct speech, a basic point of reference is the moment at which the sentence is uttered, the "Time of Utterance." Thus in sentence (1), the suffix –ed which in English indicates "past tense" tells us that the Topic Time of (1) occurred *before* the Time of Utterance[45].

In addition to the Time of Utterance, sentences may also contain other reference points that help speakers to determine Topic Time. Consider sentence (2):

(2) When I entered the room, a man laughed

The inflectional morphology of sentence (1), -ed, indicates that the situation "man-laugh" happened *before* the moment of speech (Time of Utterance), but it does not give us any more clues about the specific moment—out of all the possible moments that precede the Time of Utterance—at which the "man-laugh" situation happened. We don't know whether the man laughed ten years ago or two minutes before the sentence was uttered. By contrast, in sentence (2) the subordinate clause "when I entered the room" gives additional information about when the "man-laugh" situation occurred, thus constraining Topic Time to a specific point in the past, the moment in which the speaker entered the room.

Some languages obligatorily mark the relationship between the time of utterance and topic time. In English, for instance, all finite predicates are necessarily inflected for

---

[45] Klein's tripartite time system is partly inspired by Reichenbach's (1947) theory of tense. Klein's "Topic Time" is akin to Reichenbach's "Point of the Event," and the "Time of Utterance" is equivalent to Reichenbach's "Point of Speech." However, Klein and Reichenbach differ in their third term: Klein's "Time of Situation" is *not* equivalent to Reichenbach's "Point of Reference." This is because Reinchenbach was interested in explaining tense, whereas Klein aims at explaining the temporal structure of both tense and aspect.

tense, a grammatical category that establishes whether the Topic Time happened before, simultaneously, or after the moment of speech. In Chol, however, a speaker may, if s/he so wishes, leave the topic time of an utterance unspecified. For example, consider the following sentence[46]:

(3) Mi   i-cha'l-eñ-Ø   tse'ñal   jiñi   wiñik
     IPFV   A3-do-SS.DTV.NPFV-B3   laugh   DET   man
     'A man laughed/laughs/will laugh'

In absence of any additional modifiers, sentence (3) does not tell us whether the "man-laugh" situation happened before, at the same time, or after the moment of speech. Therefore, it can be translated as "the man laughed," "the man laughs," or "the man will laugh." The preferred grammatical strategy used in Chol to encode time is aspect, which, unlike tense, can leave the relationship between Topic Time and Time of Utterance unspecified. This does not mean, of course, that Chol lacks grammatical resources to talk about relationships of beforeness, afterness, and simultaneity between Topic Time and Time of Utterance (5), or between Topic Time and any other reference point in time (5):

(4) Wajali   mi   i-cha'l-eñ-Ø   tse'ñal   jiñi   wiñik
     back.then   IPFV A3-do-SS.DTV.NPFV-B3   laugh   DET   man
     'Back then/in the past, a man laughed'

(5) Tyi   och-i-yoñ   tyi   mal,
     PRF   enter-SS.IV.PFV-B1   PREP inside
     mi   i-cha'l-eñ-Ø   tse'ñal   jiñi   wiñik
     IPFV   A3-do-SS.DTV.NPFV-B3   laugh   DET   man
     'When I came inside, a man laughed'

---

[46] For a complete list of abbreviations, please see Appendix A. I am following the orthography proposed by Díaz Peñate (1992) and the INALI, Instituto Nacional de Lenguas Indígenas (Mexican National Insititue of Indigenous Languages).

Although sentence (3) is perfectly grammatical in Chol, examples (4) and (5) show that Chol speakers have at their disposal optional means for determining the location of Topic Time with respect to Utterance Time, or with respect to any other reference time. But the crucial difference between English and Chol in this respect is that those resources, which are mandatory in English, are optional in Chol.

3. 1.2. Strategies for coding time in natural languages

In a nice overview of the vast literature on time-related expressions, Klein (2009) summarizes the predominant strategies for coding time in natural languages: tense, aspect (grammatical and lexical), temporal adverbials, temporal particles, and discourse principles. In this section I briefly introduce these categories, which I will later use to describe the grammar of time in Chol (in section 3 of this chapter).

Tense and aspect reflect two very different ways of thinking about time. Tense was defined by Comrie as "the grammaticalization of location in time" (1985:1). Tense is thus a grammatical category that deictically[47] locates the Topic Time of an utterance with respect to some other time of reference, usually the Time of Utterance. By contrast, aspect focuses on the internal make-up of an action, situation, or event. Aspect is not a deictic category and it is not concerned with locating Topic Time with respect to Time of Utterance; rather, it gives us other type of information about the action itself. The difference between tense and aspect can also be considered in terms of time internal or external to any situation; this

---

[47] Deixis in the context of temporal reference means: "the location and identification of … processes and activities being talked about, or referred to, in relation to the spatiotemporal context created and sustained by the act of utterance and the participation in it, typically, of a single speaker and at least one addressee" (Lyons 1977: 637).

idea was first proposed by Guillaume (1933), and Comrie later elaborated on it when he proposed that the main difference between tense and aspect is that tense focuses on "situation-external time," while aspect focuses on "situation-internal time:"[48] This situation-internal framework characteristic of aspect has to do with the internal phases of an action or event: its beginning or initial phase, its development or middle phase, and its termination or final phase.

> …Tense is a deictic category, i.e. locates situations in time, usually with reference to the present moment, though also with reference to other situations. Aspect is not concerned with relating the time of the situation to any other time-point, but rather with the internal temporal constituency of the one situation. (Comrie 1976:5)

Unlike in tense, the relevant contrasts in aspect morphology (Timberlake 2007) are: 1) Whether the action described is an ongoing process at the contextual occasion (progressive) 2) whether the action described is repetitive and/or, given the multiple repetition of the same event, habitual (iterative or habitual) 3) whether the action described is a state, usually the result of a situation that extends back as a continuous interval but whose results include the moment of speech (perfect, imperfective) 4) whether the action described is "bounded" (perfective).

Other mechanisms for coding time which have been far less described than tense and aspect are temporal adverbials, temporal particles, and discourse-pragmatic principles. Temporal adverbials have been argued to be present in all natural languages, while the use of temporal particles is much more restricted (Klein 2009). The class of temporal adverbials comprises a vast array of temporal expressions, ranging from adverbial particles to

---

[48] Another later elaboration of this proposal is Valin's (1994) Event Time (equivalent to Comrie's "situation-internal time," which is the basis of aspect, versus Universal Time (equivalent to Comrie's "situation-external time"), which is the basis of tense.

adverbial phrases morphologically and syntactically complex. Sentence (6) shows an example of a temporal deictic adverb in Chol, *wajali*, "back then, in the past," which deictically locates the Topic Time with respect to the Time of Utterance:

(6) **Wajali**   mi   i-cha'l-eñ- Ø   tse'ñal   jiñi   wiñik (cf.4)
    back.then IPFV A3-do-SS.DTV.NPFV-B3 laugh   DET   man
    'Back then/in the past, a man laughed'

    Not all temporal adverbials express deictic relations between Topic Time and Utterance Time. Sentence (7), for instance, shows an example of a non deictic temporal adverb in Chol which expresses a type of temporal information that semantically is more akin to aspect: *ch'uj* "constantly, all the time" emphasizes the habitualness of the situation described:

(7) **Ch'uj**   añ-oñla   tyi   mal
    all.the.time   EXT-1B.PL.INCL   PREP inside
    'We are all the time inside (of our house)'

    Temporal particles are "somewhere between temporal adverbials and suffixes or prefixes" (Klein 2009:41). Like temporal adverbials, they are not mandatory and they may be combined with other types of temporal reference in the same sentence. The following is an example of a sentence containing a temporal deictic adverb, *wa'li*, "now" and a temporal particle , the clitic *-ix*, "already:"

(8) **Wa'li**   i-yorojlel=**ix**   chobal
    Now   A3-season=**already**   clean.milpa
    'Now it's already the season of cleaning the milpa'

Beyond morphology and syntax, temporal information can also be expressed at the discourse level in natural languages. For instance, in canonical English narratives, in the default case[49], earlier events precede later events. Although this chapter mostly focuses on temporal language at the morphological and syntactic levels, data from a quasi-experiment in Chol storytelling discussed in Chapter 5 will show that Chol storytelling does not necessarily require such iconic presentation of events.

3.2.   General characteristics of Chol

In this section I describe the general typological features of Chol Maya. In the first part of the section, I discuss briefly the classification of Chol as a polysynthetic, relatively agglutinating, head marking, and verb-initial language. I then describe the set of agreement affixes that Chol shares with most Maya languages, often called "Set A" and "Set B" in the literature. I close this section with a discussion of the different patterns for coding grammatical relations between arguments and predicates in Chol, which is relevant for my description of the language of temporal reference in Chol. Following other scholars (Danziger 1996, Zavala 2007, Vázquez Álvarez 2002, 2011) I first describe Chol as a Split Intransitive or Agentive language. I also incorporate a brief discussion on Fluid-S case-role marking in Chol, and I conclude this section with a discussion of ergativity in Chol.

---

[49] Unless, of course, the storyteller makes deliberate use of a stylistic device such as hyperbaton, flashback tropes, or hysteron-proteron.

3. 2.1. General typological features

Chol is a Western Mayan language of the Cholan (Chol, Chontal, Chorti, Cholti) branch. The Cholan and the Tzeltalan branches (Tzeltal & Tzotzil) together form the Greater Tzeltalan sub-family (Campbell and Kaufman 1985). Chol is a polysynthetic, relatively agglutinating, head marking, verb-initial language.

Chol has been described as a highly synthetic and mostly agglutinating language (Coon 2004). Most Chol words tend to be multi-morphemic; Here is an example of a typical predicate:

(9)   Cha'-tyäl-i-yoñlojoñ
       again-come-SS.IV.PFV-B1.PL.EXCL
       'We came again/twice'

Because the boundaries between morphemes are clear-cut, and each morpheme has one meaning, Chol is an agglutinating language with a low index of fusion (Comrie 1981).

Grammatical relationships between a head and its dependents[50] are always marked on the head (Coon 2004, 2010; Vázquez Álvarez 2002, 2011). In the following example we can see that the relationship between the head and its dependents is marked with agreement affixes on the verb.   The agent—the dog—is co-indexed in the verb by the third person ergative prefix *i*-. The patient—the son—is co-indexed in the verb by the third person absolutive suffix –Ø[51].

---

[50] In the case of verbs, the term "dependent" is used to refer to the arguments of the verb.

[51] For a complete list of absolutive suffixes, please see Table 3.1.

(10) Tyi[52]   **i**-k'ux-u-**Ø**   k-alobil   jiñi   ts'i'
      PFV   **A3**-bite-SS.TV.PFV-**B3**   A1-son   DET   dog
      'That dog bit my son'

Sentence (10) also reflects the most typical word order in Chol, as in other Maya
languages: VOS. Although this is the most pragmatically neutral word order, topicalization
of arguments is also possible. In the following example, the thematic subjects precede the
verb for emphasis:

(11) K-papa   sajty-i- Ø,   k-mama   sajty-i- Ø,
      A1-father   die-SS.IV.PFV-B1   A1-mother   die- SS.IV.PFV–B3
      k-ermanoj   sajty-i- Ø,   pejtye   sajty-i- Ø …
      A1-SP:brother   die-SS.IV.PFV-B3   all   die-SS.IV.PFV-B3
      'My father died, my mother died, my brother died, all (of them) died…'

3.2.2. Agreement affixes

Chol has two sets of agreement affixes that mark the relations between a verbal predicate

and its arguments. "Set A" pronominal markers are prefixed to the stem and have ergative

meaning. "Set B" pronominal markers are suffixes and have absolutive meaning. Plurality

can be marked pre-verbally or post-verbally. In the following chart the forms in parentheses

indicate the phonemic realization when the affix precedes or is followed by a vowel[53]:

---

[52] The perfective marker *tyi* is homophonous with the preposition *tyi*, and it is completely unrelated to it.

[53] In this Dissertation, epenthetic segments are assigned to the pronominal affixes, rather than being glossed
as separate morphemes.

Table 3.1: Agreement affixes in Chol

Agreement Affixes	Ergative SET A	Absolutive SET B
1st SG	k- /j- [k > j/ #__k]	-(y)oñ
2nd SG	a- (aw-)	-(y)ety
3rd SG	i- (y-)	-Ø
1st PL	INCL { lak-, k-*stem*-la } EXCL { loñk-, k-*stem*-loñ, k-*stem*-lojoñ }	INCL { -(y)oñ, -(y)oñla } EXCL { -(y)oñloñ, -(y)oñlojoñ }
2nd PL	la' la(w)- a(w)-*stem*-la'	-(y)ety=la
3rd PL	i-*stem*-(y)ob	-(y)ob

Set A co-indexes the agent of transitive verbs (A), and the possessor or "genitive" case (Coon 2010) when it precedes a noun. In (12), both functions are illustrated:

(12) Tyi   **i**-k'ux-u-Ø   **k**-alobil   jiñi   ts'i'   (cf.10)
       PFV   **A3**-bite-SS.TV.PFV-B3   **A1**-son   DET   dog
       'That dog bit my son'

Set B indexes patient of transitive verbs (O), as in (12), where the role of patient is co-indexed by the third person absolutive suffix –Ø. Set B also co-indexes the subject of the existential predicate (13), of stative predicates (14), and of some positionals (15) (Vázquez Álvarez 2002, Gutiérrez and Zavala 2005):

(13) Ch'uj   añ-**oñla**   tyi   mal   (cf.7)
       all.the.time   EXT-**B1.PL.INCL**   PREP   inside
       'We are all the time inside (of our house)'

(14) Meru   k'am-**oñ**=ix
      SP: a.little.bit   sick-**B1**=already
      '…I'm already a little bit sick'

(15) Tsijl-i-Ø   li   lum   ba'   buch-ul-**oñla**!
      break.PASS-SS.IV.PFV-B3   DET   earth   where   seat-STAT-**B1.PL.INCL**
      'The land was broken / torn apart where we were seated!'

As we will see below, the single core argument of intransitive verbs is marked in some contexts with Set A, and in some contexts with Set B.

3.2.3. Patterns for coding grammatical relations

In this section I discuss the different types of alignment found in Chol. Following Danziger (1996), Zavala (2007), and Vázquez Álvarez (2011) I first discuss the Split-S and Fluid-S patterns in Chol. Having described Chol as a Split Intransitive or Agentive language, in the second part of this section I describe the ergative pattern in Chol. Formalists currently have different positions on whether Chol is a straight ergative or a split ergative language; what is relevant about this debate for the purposes of this Dissertation is that the pre-verbal aspectual markers are analyzed differently depending on whether one adopts a straight ergative or a split ergative definition of the language. In section 2.3.2. I summarize arguments in favor of both positions and I conclude with a terminological clarification on how I will analyze the pre-verbal aspectual markers in Chol.

3. 2. 3.1. Split Intransitivity, Agentivity and Fluid-S marking in Chol

The proposal that Chol is a language of the active/agentive type is recent (Vázquez Álvarez 2002, 2011, Gutiérrez 2004, Gutiérrez and Zavala 2005, Zavala 2007). A language of the

"active" type is characterized by the principle of lexical opposition of verbs between those with more "active" semantics and those with more "stative" semantics (Klimov 1974): "active verbs, or so-called 'verbs of action', render various activities, motions, events … On the other hand, the stative verbs or 'state of being verbs', contrasting with these, signify some state or quality." (1974:14). Mithun defined "Active/agentive" languages as "those grammatical systems in which the arguments of some intransitive verbs are categorized with transitive agents and the arguments of others with transitive patients" (1991:511). Following Mithun (1991), Vázquez Álvarez (2002) and Gutiérrez and Zavala (2005), in this dissertation I use the term "agentive" to denominate those intransitive verbs whose arguments are categorized with transitive agents, and the term "non agentive" to denominate those intransitive verbs whose arguments are categorized with transitive patients. "Agentive" intransitives are equivalent to Perlmutter's (1978) "unergatives," and "non Agentive" intransitives are Perlmutter's "unaccusatives."

Although the identification of Chol as a language of the active/agentive type is relatively recent, this proposal is not new in the wider field of Mayan linguistics. Mopan had also been identified as a predominantly Active-Inactive or Split-S language (Danziger 1996, 2008). In fact, other scholars have made an explicit comparison between Mopan and Chol intransitive predicate classes (Gutiérrez and Zavala 2005; Coon 2010). In Mopan there are three types of intransitive predicates: *Statives*, which are not inflected for aspect and are only marked with Set B pronominal markers; *Actives*, similar to Klimov's "verbs of action," to Vendler's "Activities," and to Perlmutter's "unergatives," are only inflected with Set A pronouns; a third class of intransitive predicates would be like Perlmutter's unaccusatives, or Vendler's "achievements;" Danziger named this class *Mutatives*, "in an

effort to capture the quintessential 'change-of-state' element of the semantics of this class"

(Danziger 1996: 386). *Mutatives* are marked with Set A in the Incompletive aspect and with

Set B elsewhere. The class of *Statives* is identical in Chol; agentive (=unergative)

intransitives are similar to Mopan's *Active* roots, and non agentive (=unaccusative)

intransitives are like Mopan's *Mutatives*. In the case of Mopan, there is a neat correlation

between the semantics of each predicate class and the pronominal inflection characteristic

of that class: *Statives*, as it follows naturally from their "state-like" semantics, can only take

Set B. *Actives*, which imply certain volition or control of an agent, and therefore have an

active semantics, can only inflect with Set A. *Mutatives*, which are in an intermediate

position between the other two types, inflect with Set A (in the incompletive aspect) and

Set B pronouns (elsewhere).[54]

Semantically, the subjects of Agentive intransitives in Chol have an agent-like role,

whereas the subjects of non agentive intransitives are *affected* by the lexical verb, and are

better described as "undergoers;" the class of non agentive intransitives consists of

"eventual predicates that convey change of location, change of state, inchoative and phase

verbs" (Gutiérrez and Zavala 2005: 5).

Morphologically, intransitive predicates are split in the perfective aspect: the subjects

of agentive (unergative) intransitives are marked via Set A morphology, thus patterning as

transitive agents (S_A), as in (16). The subjects of non agentive (unaccusative) intransitives

are co-referenced in the verb with Set B pronominal markers, thus patterning as transitive

patients (S_O), as in (17):

---

[54] The main difference between Chol and Mopan in this respect is that the class of agentive intransitives in
Chol inflects with Set A in the perfective and Set B in the non perfective aspects, unlike Mopan Active Roots,
which only inflect with Set A.

(16) Tyi   beyñtisyete   tyi   **i**-cha'l-e-**Ø**   ty'añ
      PREP   SP:twenty-seven   PFV   **A3**-do-SS.DTV.PFV-**B3**   talk
      aw-alo'bil   che'-ñi
      A2-son   like.this=CL
      'On the twenty-seventh, your son spoke' (he made a phone call)

(17) ya'   tyi   sajty-i-**Ø**   pobre   alo'
      there   PFV   die-SS.IV.PFV-**B3**   SP: poor   boy
      'there he died, the poor guy'

Unlike non agentive (unaccusative) intransitives, which receive pronominal inflection directly on the verbal stem, as shown in (17), agentive (unergative) intransitives can only form their perfective with a light verb construction, in which the light verb *cha'l,* 'to do' receives the pronominal inflection, as shown in (16). The light verb acts as the matrix predicate, and the lexical verb acts as the syntactic object of the light verb (Zavala 2007). Because the verb *cha'l* is *syntactically transitive* (Coon 2010: 56), it is only natural that it is inflected with Set A and Set B pronominal markers. In the light verb construction shown in (18), Set A co-indexes the intransitive Subject (S_A), and Set B co-indexes the syntactic object, which is the lexical verb.

(18) tyi   **i**-cha'l-e-**Ø**   **ty'añ** aw-**alo'bil** che'-ñi   (cf. 16)
      PFV   **A3**-do-SS.DTV.PFV-**B3**   **talk**   A2-**son**   like.this=CL
      '...your son spoke' (he made a phone call)

Table 3.2: Split Intransitivity in Chol

Transitive in the Perfective

Tyi   **a**-mek'- e -**yoñ**   'You hugged me'
PFV   **A2**-hug-SS.TV.PFV-**B1**
      A   O

Tyi   **a**-cha'l-e-Ø   ajñ-el   Tyi   majl-i-**yoñ**
PFV **A2**-do-SS.TV.PFV-B3   run-NM   PFV   go-SS.IV.PFV-**B1**
    [S_A]   [S_o]
'You ran'   'I went'

Non Agentive (unaccusative) Intransitive in the Perfective		Agentive (unergative) Intransitive in the Perfective
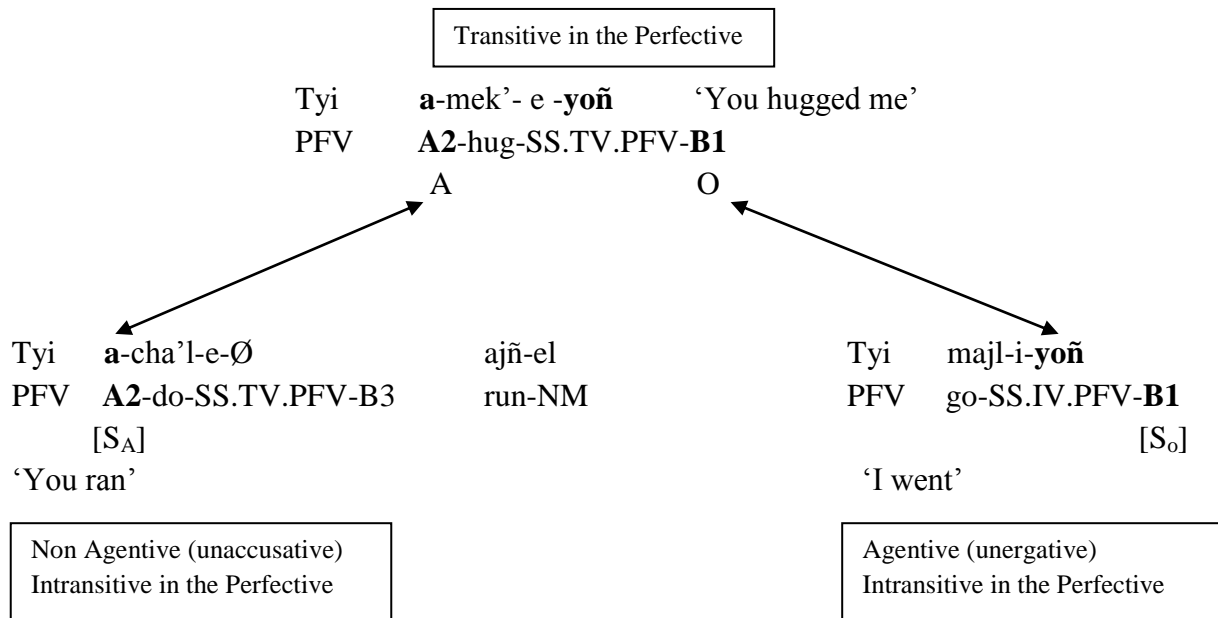
In addition to being a Split Intransitive or Agentive language, Chol also has certain verbs that behave as the intransitive predicates of Fluid-S languages (Gutiérrez and Zavala 2005, Zavala 2007, Vázquez Álvarez 2011). Fluid-S systems are:

> "…a fascinating group of languages which has syntactically based marking for transitive verbs—always marking A and O in the same way for a given verb—but uses semantically based marking for intransitive verbs—with direct marking reflecting the semantics of each particular instance of use. The typical situation in such language—which I call 'Fluid-S'—is for each intransitive verb to have the possibility of two kinds of marking for its core NPs—one (S_A, the same as on a transitive A) to be used when the referent of the S NP controls the activity, and the other (S_O, the same as on a transitive O) when control is lacking." (Dixon 1994: 78)

In the following example, we can see how the same verb can take both Set A and Set B case-role marking, triggering a slight change in meaning. In (19) S_O is co-indexed with Set-B attached to the verb stem, reflecting a less active semantics and less control over the action. In (20) S_A is co-indexed with Set-A in the light verb construction, reflecting that the thematic subject has more control over the action:

(19) Tyi   lets-i-**ø**   i-tyojol   (Gutiérrez and Zavala 2005:15
     PFV   ascend-SS.IV.PFV-**B3**   A3-price   reglossed)
     'The price went up'

(20) Tyi   **i-**cha'l-e-ø   lets-el   (Gutiérrez and Zavala 2005:15
     PFV   **A3-**do-SS.DTV.PFV-B3   ascend-NM   reglossed)
     'He climbed (on the ladder)'

3.2.3.2. Chol as an ergative language

In an ergative-absolutive system, the single core argument of an intransitive verb (S) patterns with the patient of a transitive verb (O). In a nominative-accusative system, the single core argument of an intransitive verb (S) patterns with the agent of a transitive verb (A). In a split ergative system, the single core argument of an intransitive verb sometimes follows the ergative-absolutive pattern, and sometimes follows the nominative-accusative pattern. Chol has been described as a split ergative language in a variety of sources (Comrie 1978; Quizar and Knowles-Berry 1990; Vázquez Álvarez 2002, 2011; Gutiérrez and Zavala 2005; Zavala 2007), but more recently it has been claimed to be a straight ergative language (Coon 2010). This discussion is important for our description of temporal language in Chol, because describing Chol as fully ergative or as split ergative affects how we analyze the aspectual markers. As will be explained below, under a theory of split ergativity, the aspect markers are analyzed as auxiliaries in both perfective and non perfective constructions. But under the view that Chol is a straight ergative language, there is only one authentic aspect marker, *tyi*, which codes perfective aspect[55], and the "aspectual markers" in the non perfective aspects are not really auxiliaries with aspectual meaning, but intransitive stative

---

[55] The implication is therefore that the only "authentic" aspect in Chol is the perfective.

predicates. This is obviously crucial for analyzing temporal language and co-speech gesture in Chol. Arguments in favor of both interpretations will be briefly summarized in this section.

In Chol, there are three basic aspects, perfective, imperfective, and progressive. All three are found in three main types of morphosyntactic constructions, which will be discussed in detail in section 3.1. For now, it will suffice say that some verbs take pronominal inflection directly on the stem, while other verbs receive the pronominal inflection in a light verb or in an auxiliary aspectual predicate. The latter have been called in the Mayanist literature "raising of the subject" constructions (Robertson 1980, 1992). These types of constructions, not uncommon in Mayan languages, involve a complex sentence with a primary predicate and a secondary predicate. In "raising" constructions the subject is moved or "raised" from the secondary predicate to the primary predicate, and the secondary predicate is introduced by a preposition. In Chol, these constructions have been described as "periphrastic auxiliary constructions" (Gutiérrez and Zavala 2005) and with the theory-neutral name "B-constructions" (Coon 2010). Examples will be given below.

In an Ergative-Absolutive system, the single argument of an intransitive verb (S) receives the same case-role marking as the Patient (O) of a transitive verb. In Chol this can be observed in the perfective of non agentive (unaccusative) intransitives and in the non perfective aspects (imperfective and progressive) of both non agentive and agentive intransitives.

The following example shows a non agentive predicate in the perfective. In (21), Set-B pronouns are used to co-reference the intransitive subject (S), which patterns as the transitive Patient (O):

(21) Tyi   majl-i-**Ø**   tyi   cholel
     PFV   go-SS.IV.PFV-**B3**   PREP   milpa
     'He went to the milpa'

Notice that in (21), the Set-B suffix that co-indexes the intransitive subject is attached directly to the verb. In the non perfective aspects, however, the subjects of both non agentive and agentive intransitives are marked via Set-B morphology in the aspectual markers. The structure of raising constructions, as described by Robertson, is similar to what we see in Chol in the non perfective aspects of intransitive predicates, illustrated in examples (22)-(25)[56]. In these constructions subjects are co-indexed not in the lexical verb, but in the auxiliaries *muk'* (IPFV) and *choñkol* (PROG), and the lexical verbs are introduced by the preposition *tyi*. Sentences (22) and (23) show non agentive intransitive predicates in the imperfective and progressive aspects respectively. Sentences (24) and (25) show agentive intransitive predicates in the imperfective and progressive aspects. In all four examples, the intransitive subjects are co-indexed in the auxiliaries by Set B suffixes, thus patterning as transitive patients (O):

(22) Muk'-**oñ**   tyi   chäm-Ø-el
     IPFV-**B1**   PREP   die-SS.IV.PFV-NM
     'I die'

---

[56] Of course, labeling sentences like (22)-(25) as "raising" constructions implies that the subject markers "originate" in the "lower" predicate (the lexical verb) and "move" to the auxiliary. But most importantly, it implies the theoretical stance that the elements in pre-verb position, namely the aspect markers—in this case *muk'* and *choñkol*—, are indeed primary *predicates*, to which secondary predicates are subordinated. For that reason, Cholanists sometimes label these constructions differently, for instance Gutiérrez and Zavala (2005) call sentences like (22)-(25) "periphrastic auxiliary constructions" and Coon (2010), although following Robertson closely, calls them "B-Constructions."

(23) Choñkol-**ob**   tyi   majl-Ø-el
     PROG-**B3.PL**   PREP   go-SS.IV.NPFV-NM
     tyi   tyuk'   kajpej   x-ixik-ob
     PREP   cut   coffee   N.CLF-woman-PL
     'The women are/were going to cut coffee'

(24) I   bajche'   muk-**Ø**   tyi   alas   y-ik'oty
     SP:and   how   IPFV-**B3**   PREP   play   A3-R.N
     yañ-bä   li   pi'ä'l-ob   che'=i
     other-REL   DEF   peer-PL   like.this=FIN
     '… and how he used to play with his peers like this…'

(25) Choñkol-**oñ**   tyi   alas   y-ik'oty   k-ijts'iñ-ob
     PROG-**B1**   PREP   play   A3-R.N   A1-little.brother-PL
     'I am playing with my little brothers'

In a Nominative-Accusative case marking system, the single argument of an intransitive verb (S) receives the same case-role marking as the Agent of a transitive verb (A). In Chol, this pattern can be observed in the light verb constructions of agentive (unergative) intransitive verbs, and in some forms of the non perfective aspects of non agentive (unaccusative) intransitive verbs.

As explained above in section (2.3.1.), agentive intransitives form their perfective and imperfective aspects with a light verb construction, in which the light verb *cha'l*[57] ("do") precedes the lexical verb, and is inflected for aspect and person. Sentences (26) and (27) show agentive intransitive predicates in the perfective and imperfective aspects

---

[57] "Light verb constructions" in Chol are inflected with Set A (which co-references S_A) and the third person absolutive Set B suffix -Ø (which co-references the lexical verb), and are preceded by aspectual markers; see for example sentences (26) and (27). By contrast "Periphrastic auxiliary constructions" (Gutiérrez and Zavala 2005) receive either Set A or Set B inflection, depending on the type of predicate. In both agentive and non agentive intransitives, the subject is co-indexed with Set B in the auxiliaries *muk'* (IPFV) and *choñkol* (PROG), and the lexical verbs is introduced by the preposition *tyi, as in* sentences (22) and (23). In non agentive intransitives, the subject can also be co-indexed with Set A in the lexical verb and not in the auxiliaries muk' and chonkol, as in (29).

respectively. In (26), S$_A$ is co-referenced in the light verb with the third person singular pronominal marker of the set of ergative pronouns, *i-*. In (27), S$_A$ is co-referenced in the light verb with the first person singular pronominal marker of the set of ergative pronouns, *k-*. In both cases the lexical verb is co-referenced in the light verb with the third person singular absolutive suffix, *-Ø*.

(26) Tyi   beyñtisyete   tyi   **i**-cha'l-e-Ø   ty'añ (cf.16)
       PREP   SP:twenty-seven   PFV   **A3**-do-SS.DTV.PFV-B3 talk
       aw-alo'bil   che'-ñi
       A2-son   like.this=CL
       'On the twenty-seventh, your son spoke' (he made a phone call)

(27) 'Tyi   dyes   mi   **k**-cha'l-eñ-Ø   ty'añ'
       PREP   SP: ten   IPFV **A1**-do-SS.DTV.NPFV-B3   talk
       'On the tenth I (will) speak'

The Nominative-Accusative pattern can also be observed in the imperfective and progressive aspects of non agentive intransitives. In (28), the single core argument of the imperfective predicate is co-indexed on the verb stem via Set-A morphology. The aspectual marker *mi* precedes the lexical verb. In (29), the intransitive subject of the progressive predicate is also co-indexed by a Set-A prefix in the verb, and also preceded by the aspectual marker, *choñkol*[58]:

(28) 'Baki ma'majlel' che'bi
       Baki   mi   **a**-majl-Ø-el   che'=bi
       where   IPFV **A2**-go-SS.IV.NPFV-NM   like.this=REP
       'Where do you go?' (Where are you going?), she said

---

[58] The progressive aspect of non agentive intransitives admits either Set A or Set B pronouns, which give rise to two different types of constructions: the "B-constructions" shown in sentence (23) , and the alternative construction shown in (27), where the aspectual marker *choñkol* precedes the verb, which takes Set A pronominal inflection.

(29) Choñkol-ix-ku   **i-**lajm-Ø-el-ob
     PROG-already-AFF   **A1**-dissappear-SS.IV.NPFV-NM-PL
     'Yes, they are already disappearing'

Some scholars have argued that the historical origin of the split ergative pattern is the nominalization and subordination of the lexical verb to a higher predicate. Specifically, this has been argued for Yucatec (Bricker 1981; Robertson 1992), Akatek (Zavala 1997) and more recently for Cholan (Zavala 2007). Under this proposal, a verbal head acts as the matrix predicate, and the lexical verb is nominalized and possessed; since possession is marked with the Set A pronouns, this gives rise to the appearance of the nominative-accusative pattern. Building on this proposal, Coon (2010: 52) claims that such subordination analysis for Chol split ergativity is also correct from a synchronic perspective. In other words, rather than a split ergative pattern, in Chol there is only the *appearance* of a split ergative pattern:

> The aspect marker is the syntactic matrix predicate; it takes a possessed nominalized clause as its single (internal) argument. The nominalized clause is third person, and like other third person internal arguments in the language, triggers no overt morphology on the aspectual predicate (third person set B is null). The subjects of the nominalized clauses are embedded PROs, controlled by higher possessors. The fact that possessors control both transitive and intransitive subjects, and that genitive and ergative marking are identical (=Set A), gives the appearance of a nominative-accusative pattern. (2010: 19)

Under Coon's analysis, the aspectual markers *mi, muk'/mu'* (for Imperfective) and *choñkol* (Progressive) are in fact intransitive stative verbs. In the Imperfective and Progressive aspects, the constructions where apparently the subject—of both transitives and intransitives—is marked with Set A morphology, which she names "A-constructions," are analogous to English "*possessive-ing*" constructions (30.b). According to Coon, in these

80

constructions Set A does not co-index here the subject, but the possessor; the subject is, as in a straight ergative pattern, indexed with Set B morphology, which in agreement with the nominalized clause is always third person singular "–Ø":

(30.a) Split Ergative analysis S=A≠O   (30.b) Ergative analysis S=O≠A

Mi	**a**-majl-Ø-el	Mi-Ø	a-majl-Ø-el
IPFV	**3A**-go-SS.IV.NPFV-NM	IV.STAT-**3B**	3A-go-SS.IV.NPFV-NM
	[**S$_A$**]	[**S$_O$**]	[Poss]
'You go'		'Your going happens'	

The so-called "raising" constructions are offered by Coon as further proof that the "aspect" markers are indeed intransitive verbs. In these constructions there is no raising of the subject, she argues, but rather "the aspect marker assigns Case to the thematic subject; the event-denoting stem appears in a locative adjunct" (2010: 109). The subordinated clause is therefore realized as an oblique argument, introduced by the preposition *tyi*:

(31.a) Split Ergative analysis S=A≠O   (31.b) Ergative analysis S=O≠A

Muk'-**oñ**	tyi	majl-Ø-el	Muk'-**oñ**	[tyi	majl-Ø-el]
IPFV-**B1**	PREP	go-SS.IV.NPFV-NM	IV.STAT-**B1**	PREP	go-SS.IV.NPFV-NM
[**S$_O$**]			[**S$_O$**]		
'I go'			'I engage in going'		

The question of whether an analysis of nominalization is correct from a diachronic or from a synchronic perspective goes far beyond the purpose of this dissertation; however, what is important for our analysis is to clarify the status of the aspect markers. Under a theory of split ergativity, the aspect markers for the Perfective, Imperfective, and Progressive aspects are grammaticalized aspectual particles—in other words, they are

always glossed PFV, IPFV, PROG, respectively. Under a theory of straight ergativity, only the Perfective aspect is a "true" aspectual particle, whereas the Imperfective and Progressive "aspect markers" are in fact intransitive stative predicates. This implies that *tyi* should be glossed PFV (Perfective), whereas *mi, muk'/mu'* and *choñkol* should be glossed as "intransitive stative verb."[59] This is a perfectly possible analysis, and it goes in line with what has been suggested for other elements of the sentence in pre-predicate position in other Mayan languages, like Mopan (Contini-Morava and Danziger 2013)[60]. However, if we chose to gloss these pre-verbs as "intransitive stative verbs," it would obscure the fact that all of these markers, whether they are fully grammaticalized forms or whether they still function as matrix verbs that control subordinate predicates, do in fact convey temporal-aspectual information.[61] So for the sake of simplicity, in this dissertation I gloss *mi, muk'/mu* as Imperfective (IPFV), and *choñkol* as Progressive (PROG).

---

[59] Obviously, under this premise Imperfective and Progressive aspects in Chol can only be expressed periphrastically.

[60] Contini-Morava and Danziger (2013) recently examined the distribution of echo vowels in Mopan. Although their analysis does not focus specifically on aspectual markers, they argue that "what has been described as preceding the predicate is actually a predicate, whereas what has been described as the predicate is actually a subordinated clause similar to a cleft" (2013:2). This proposal, which rests on Bricker's previous argument about the role of nominalized constructions in the transition of Yucatecan from a fully ergative to a split ergative pattern, is in some respects similar to Coon's argument about the nature of the pre-verb aspect markers in Chol.

[61] Maybe for this same reason, despite her own analysis, Coon still glosses *mi/muk/mu'* as 'IPFV' and *choñkol* as 'PROG,' instead of glossing them as "verb" which is what would be truly consistent with her own analysis.

3.3. Temporal Reference in Chol Mayan

In the previous sections, I have described the basic typological features and the predominant patterns for coding grammatical relationships in Chol. I concluded the previous section with a terminological clarification on how I shall analyze and gloss the pre-verb aspectual markers in the remainder of this Dissertation. In this section I describe how time is encoded in Chol grammar. I begin with a description of the aspect system that focuses on the morphosyntactic structure and the temporal semantics of the perfective, imperfective, and progressive aspects, and then I discuss other grammaticalized forms to express aspectual information. Next, I examine other mechanisms for expressing temporal information in Chol: I describe the class of temporal adverbials, the temporal particles *–ix* and *–tyo*, and other temporal expressions commonly used in Chol discourse. I also discuss briefly temporal metaphors in Chol. The section concludes with a description of *sequential predication* in Chol, a term I coined to explain how the temporal order of a sequence of events is contextually inferred in sentences composed of a minimum of two predicates sequentially connected to each other.

3.3.1. Grammatical Aspect

Chol has a perfective aspect and several non perfective aspects, the most important of which are imperfective, and progressive. There are also other grammaticalized and periphrastic constructions in Chol that convey aspectual information. All of them will be discussed in what follows.

Grammatical aspect is expressed in Chol predicates by means of a combination of a set of pre-verbal aspectual markers[62] and a set of status suffixes attached to the lexical verb. Table 3.3 shows the distribution of aspectual markers:

Table 3.3. Aspectual Markers

Perfective	*Tyi*
	Tsa'/ta'
Imperfective	*Mi,*
	muk'/mu'/mu
Progressive	*Choñkol*
	Yäkel
	Wo'li

Status suffixes in Mayan languages encode aspect, mood, and transitivity or intransitivity (Kaufman and Norman 1984; Kaufman 1990). In Chol, as table 3.4 shows, the imperfective and progressive aspects share the same status suffixes. This may suggest that the crucial meaning conveyed by the status suffixes in Chol is "boundedness" versus "unboundedness."

---

[62] As discussed in section 2.3.2., these "pre-verbs" are intransitive stative predicates, under a theory of straight ergativity (Coon 2010), or grammaticalized aspectual auxiliaries, under a theory of split ergativity (Vázquez Álvarez 2011).

Table 3.4. Status Suffixes

Type of predicate[63]	Perfective (Completive, bounded)	Non Perfective[64] (Incompletive, unbounded) Imperfective, Progressive
Root transitives (CVC)	Harmonic vowel	-Ø
Derived transitives	Non harmonic vowel	-Vñ
Agentive intransitives	-Ø	-Ø
Non agentive intransitives	-i	-Ø

Evidence that these status suffixes convey truly aspectual information comes from the fact that in casual speech the pre-verbs can occasionally be dropped in some contexts, and yet aspectual information can still be inferred from the status suffix. Sentence (32) shows an example of casual speech where the intransitive predicate in the perfective aspect is *not* preceded by the aspectual pre-verb, (*tyi, tsa'/ta'*):

(32) Lu'   lajm-**i**-Ø   kostumbre
      All   finish-**SS.IV.PFV**-B3   custom
      'All (our) tradition(s) disappeared'

In the next sections I describe the different morphosyntactic constructions and the temporal semantics characteristic of each aspect in Chol.

---

[63] Table 3.4 shows the most frequent predicate classes in Chol. Two minority and much less frequent predicate classes not discussed in this chapter are the two irregular transitive verbs (*om,* 'want,' *uji* 'know') and the class of ambitransitives. For a detailed description of the morphology of these predicate classes, see Gutiérrez Sánchez (2004) and Vázquez Álvarez (2011).

[64] I have created the category of "Non Perfective" for these status suffixes, which I gloss NPFV, and which comprises both Imperfective and Progressive status suffixes.

3.3.1.1. The Perfective

The perfective is an aspectual form that "presents the totality of the situation referred to …

without reference to its internal temporal constituency: the whole of the situation is

presented as a single unalysable whole, with beginning, middle, and end rolled into one; no

attempt is made to divide this situation up into the various individual phases that make up

the action ..." (Comrie 1976:3). The Perfective emphasizes the final phase of an event: it

indicates that the conditions that applied before the topic time, in Klein's terms (see section

1.1), no longer apply after the topic time.

Because it does not focus on the internal makeup of the event being described, the

Perfective is often characterized as presenting an "external viewpoint" (Comrie 1976;

Smith 1991[65]). The Perfective is also commonly described as presenting situations that are

"punctual," "bounded," or "liminal," because it "imposes boundaries on situations at the

contextual occasion" (Timberlake 2007: 292).

Not surprisingly, in Chol there are several possible grammatical constructions to form

the perfective, depending on whether the verb is transitive, non agentive intransitive, or

agentive intransitive. In careful speech, all verbal predicates are headed by a pre-verb

which is the aspectual marker: for the perfective, the pre-verbs are *tyi*[66] and *tsa'/ta'*.

Vázquez Álvarez (2011) and Coon (2010) have argued that *ta'* is a reduced version of the

full bare morpheme *tsa'*[67].The main difference between *tyi* (33) and *tsa'/ta'* is that the latter

---

[65] For a recent reconceptualization of the traditional view of the perfective as representing an "external" viewpoint, versus the imperfective as representing an "internal" viewpoint, see Gvozdanović (2012).

[66] As explained in footnote 45, the perfective marker *tyi* is homophonous with the preposition *tyi*, but it is completely unrelated.

[67] Vázquez Álvarez (2011) also reports other abbreviated forms of this morpheme: *ts* and *t*.

can take clitics and can function as predicates in their own right, as in (34.b), whereas *tyi* cannot:

(33) Tyi   majl-i-**Ø**   tyi   cholel   (cf. 21)
       PFV   go-SS.IV.PFV-**B3**   PREP milpa
       'He went to the milpa'

(34.a) **Ta'**   a-ñaty-ä-Ø?
        PFV   A2-understand-SS.DTV.PFV-B3
        Did you understand (it)?'

(34.b) **Tsa'**=ku
        PFV=AFF
        'Yes, I did'

Aspectual information is also encoded in the verbal stem. All perfective predicates contain a status suffix, which codes transitivity/intransitivity and perfectivity (see Table 3.4 above). This status suffix is a harmonic vowel[68] for root transitives, as shown in (35), and a non harmonic vowel for derived transitives, as shown in (36). Both types of transitives receive pronominal inflection in the stem, Set A co-indexing the transitive agent (A) and Set B co-indexing the transitive patient (O):

(35) Tyi   weñ   k-tyaj-**a**-Ø   chämel
       PFV   SP: a.lot   A1-find-**SS.TV.PFV**-B3   sickness
       'I found a lot of sickness' (I got very sick)

(36) Ta'   a-ñaty-**ä**-Ø?   (cf. 34.a)
       PFV   A2-understand-**SS.DTV.PFV**-B3
       'Did you understand (it)?'

---

[68] A repetition of the vowel of the root; for instance: the harmonic vowel of the CVC root *k'ux* 'bite' is *–u*: *k'ux-**u***.

The two classes of intransitive predicates also have different status suffixes and appear in two different types of morphosyntactic constructions. As illustrated in (37), non agentive intransitives are inflected for aspect directly in the stem, with the status suffix *–i,* and the single core argument is co-indexed with Set B pronominal markers, which are suffixed to the stem:

(37) Ta'=ix   sajty-**i**-Ø   k-sobriño   che'
     PFV=already   die-**SS.IV.PFV**-B3   A1-SP: nephew   like.this
     'My nephew already died'

Agentive (unergative) intransitives, however, do not inflect for aspect directly in the stem. This class of predicates can only form their perfective with a light verb construction—explained above in section (2.3.1.)—in which the verb *cha'l* 'to do' acts as the matrix predicate, and is inflected for aspect and person; the lexical verb thus becomes a nominal complement of the matrix predicate. Because the light verb *cha'l* is syntactically transitive, its status suffix is a non harmonic vowel (see Table 3.4), as shown in the following example:

(38) Ibäj-äch=ix   tyi   i-cha'l-**e**-yob   ty'añ
     REFL-AFF=already   PFV   A3-do-**SS.DTV.PFV**-PL   talk
     jiñ=tyo   mi   i-jil-Ø-el   li   tarjeta
     DET=until   IPFV   A3-finish-SS.IV.NPFV-NM DET   SP: card
     'They spoke to each other until the phone card finished'
     (until there was no more money in the phone card)

3. 3.1.2. The Imperfective

Linguists usually refer to the "imperfective" as a category in direct opposition to the perfective. Whereas the perfective is sometimes called "completive" aspect, because of their emphasis on a "completed" action, the imperfective is sometimes described as a "non completive" aspect. The imperfective is sometimes conceived as a category which simply indicates that a situation is not perfective, or not liminal (Timberlake 2007). Usually the imperfective is conceptualized as subdivided in two categories: habitual and progressive (Comrie 1976). In this dissertation and in the field of Chol linguistics in general, "imperfective" roughly correlates with Comrie's "habitual" and "non-continuous progressive" categories of Comrie's classification of aspectual categories (1976:25).

At a general level, the imperfective focuses on the internal phases of a situation, and for this reason it has been claimed to reflect an "internal" point of view (Comrie 1976; Smith 1991). In its habitual use, the imperfective describes "a situation which is characteristic of an extended period of time, so extended in fact that the situation referred to is viewed not as an incidental property of the moment but, precisely, as a characteristic feature of a whole period" (Comrie 1976: 27, 28). Sometimes the imperfective is simply used "to establish the existence of a state or activity as opposed to its absence … or to provide description" (Timberlake 2007: 294). Another common use of the imperfective is to refer to the repetition of a process; when this is the case, the imperfective is sometimes called "iterative."

In Chol, imperfective predicates are headed by the pre-verbs *mi* and *muk'/mu'/mu* in careful speech. Sentence (39) shows a typical imperfective predicate headed by the pre-verb *mi*. The main difference between *mi* and *muk'/mu'/mu* is that the latter can take clitics

and pronominal inflection, as in (40) and (41), and can also function as predicates in their own right, as in (42.b), whereas *mi* cannot. *Muk'/mu'/mu* are allomophs: as shown in (41), *muk'* is usually followed by vowel-initial suffixes, and *mu'/mu* are usually followed by consonant-initial clitics, as in sentence (40) (Coon 2010; Vázquez Álvarez 2011).

(39)   Jiñ   **mi**   i-mel-Ø-ob   ajal
       DET   **IPFV**   A3-do-SS.TV.NPFV-PL   Ajal
       'They do *Ajal*/The Evil Woman[69]'

(40)   **Mu'**=bi   i-weñ   loty   majl-Ø-el   i-tyak'iñ
       IPFV=REP A3-very   keep   go-SS.IV.NPFV-NM   A3-money
       'It is said he kept his money well hidden'

(41)   **Muk'**-oñ   tyi   chäm-Ø-el
       IPFV-B1   PREP die-SS.IV.NPFV-NM
       'I die'

(42.a) Mi   kej   k-äl-b-eñ-ety.   (42.b) **Muk**
       IPFV   PROSP   A1-say-APPL-SS.DTV.NPFV-B1   **IPFV**
       'I start to speak to you/I'm going to speak to you'   'Yes, ok'

Aspectual information is also encoded in the verbal stem. In the non perfective aspects, root transitives have null marking, as shown in (43), and derived transitive stems are formed by adding the status suffix –*Vñ* to the root, as shown in (44). Intransitive predicates also have null status marking in the non perfective aspects. However, as shown in (45), some intransitives appear with the suffix –*el*. Although in his most recent work Vázquez Álvarez glosses this suffix both as "Non Finite," (2011: 101,105,191) and as

---

[69] *Ajal*—also known in Spanish as *Mala Mujer*, "Evil Woman"—is a form of witchcraft in which an evil spirit, disguised as a person of the opposite sex to its victim, tries to lure its victim into sexual intercourse. If the sexual union is consummated with the Ajal, the victim dies.

"Status suffix for non-agentive imperfectives" (2011:193), in this dissertation I follow Zavala (2007) and Coon (2010) in glossing the suffix *–el* as "Nominalizer." This analysis is consistent with a general tendency in other Mayan languages to nominalize by means of *-Vl* suffixes (Zavala 2007).

(43) Jiñ   mi   i-mel-**Ø**-ob   ajal   (cf.39)
     DET   IPFV   3A-do-**SS.TV.NPFV**-PL   Ajal
     'They do *Ajal*/The Evil Woman'

(44) ma'añ   mi   k-ña'ty-**añ**-Ø   bajche'   ili
     NEG   IPFV   1A-know-**SS.DTV.NPFV**-3B   how   DET
     'I don't understand how is that' ('I don't understand how it goes')

(45) tanto   mi   i-lets-**Ø-el**   tyi   tye'
     SP:this.much   IPFV   A3-go.up-**SS.IV.NPFV-NM**   PREP   stick
     'It (the bean-plant) climbs up the stick up to here…'

In the Imperfective we find three types of grammatical constructions. Transitives and non agentive (unaccusative) intransitives receive overt Set A morphology directly on the lexical verb[70]. Agentive (unergative) intransitives form their imperfective with the light verb construction explained above in section 2.3.1. In addition, both types of intransitives can alternatively form their imperfective with the subject raising constructions described in 2.3.2. All three types of morphosyntactic constructions are illustrated in the following examples.

Sentences (46) and (47) show examples of a root transitive and a derived transitive in the imperfective aspect. As mentioned above, root transitives receive null status marking, whereas derived transitives have the suffix *–Vñ* after the root. In both types of transitives,

---

[70] And Set B *-Ø* marking in the aspectual marker under a theory of straight ergativity.

the stem is pre-fixed with Set A markers that co-index the argument in the role of Agent, and suffixed with Set B markers that co-index the argument in the role of Patient.

(46) Oraj=ach   mi   **i**-k'ux-**Ø**-**oñ**=**la**
     fast=CL   IPFV   **A3**-eat-**SS.TV.NPFV-B1.PL.INCL**
     'He eats us very fast' (an evil spirit)

(47) ma'añ   mi   **k**-ña'ty-**añ**-**Ø**   bajche'   ili   (cf.44)
     NEG   IPFV   **A1**-know-**SS.DTV.NPFV-B3**   how   DET
     'I don't understand like that' ('I don't understand how it goes')

Non agentive intransitives form their imperfective by means of overt pronominal inflection in the stem, as sentence (48) illustrates, whereas agentive intransitives form their imperfective with a light verb construction, as shown in (49). In (49) the light verb *cha'l*, 'to do,' is headed by the aspectual imperfective marker *mi*, and it receives Set A and Set B pronominal markers and the status suffix *-Vñ*. Set A co-indexes the subject of the intransitive predicate. The lexical verb, co-indexed in the light verb by *–Ø* absolutive marking, becomes the syntactic object of the light verb (Zavala and Gutiérrez 2005).

(48) tanto   mi   **i**-lets-**Ø**-el   tyi   tye'   (cf.45)
     SP:this.much   IPFV   **A3**-go.up-SS.IV.NPFV-NM   PREP   stick
     'It (the bean-plant) climbs up the stick up to here…'

(49) Kuñtye' mi   **i**-cha'l-**eñ**-**Ø**   xäm-bal   aj-kok,
     slow   IPFV   **A3**-do-**SS.DTV.NPFV-B3**   walk-NM   CLF-tortoise
     jiñ   cha'añ   mi   i-chuk-Ø-Ø-ob
     DET   R.N   IPFV   A3-catch-SS.TV.NPFV-B3-PL
     'The tortoise walks slowly, that's why they catch it'

In addition to the morphosyntactic constructions discussed above, both non agentive and agentive intransitives can also form their imperfective with subject raising

constructions, illustrated respectively in (50) and (51). In both examples, the aspectual marker—which is always *muk'*, never *mi*—receives Set B pronominal inflection, and it is followed by the preposition *tyi*, which acts as a subordinator particle and introduces a nominalized[71] intransitive predicate.

(50) Muk'-**oñ**   tyi   chäm-Ø-el   (cf.41)
     IPFV-**B1**   PREP die-SS.IV.NPFV-NM
     'I die'

(51) …I   bajche'   muk-**Ø**   tyi   alas   y-ik'oty
     SP:and   how   IPFV-**B3**   SUB   play   A3-R.N
     yañ-bä   li   pi'ä'l-ob   che'i
     other-REL   DET   peer-PL   like.this
     '… and how he used to play with his peers like this…'

The imperfective conveys habitual meaning and it is also used to make generic statements, or to provide a description of a 'general knowledge' fact, as in (49). These kinds of imperfective statements are clearly atemporal. But when the imperfective is used to convey habitual meaning, it can also receive past, present, and future interpretations, depending on the context. For instance, sentence (51) was translated as "… *and how he used to play with his peers like this…"* because the general context of the conversation in which the sentence was uttered referred to a man's past childhood. Not knowing this context, however, and in the absence of any temporal adverbial anchor, it could perfectly have been translated as *"…and how he plays/he uses to play…"*, or even "*he will play.*" In

---

[71] Although non agentive intransitives almost always nominalize with an –*el* suffix, agentive predicates have other suffixes that have been analyzed as "nominalizers" by Zavala (2005, 2007) –*Vl* (as in *ts'eñ-al,* 'to laugh'), and -*bal* (as in *xäm-bal*, 'to walk'). Sometimes the root presents no overt nominalizer (as in *ñak*, 'to play', and sometimes the lexical verb is a "verbal noun" or "action noun," (as in *ty'añ*, 'word/to speak') (Gutiérrez and Zavala 2005).

(52), we find the same imperfective form encoding habitual meaning in the past, and habitual meaning in the present. The contrast is achieved by adding the temporal adverbs *wajali* 'back then, in the past, time ago' and *wa'li* 'now, in the present':

(52) Sik'ä'b   mi   k-päk'-Ø-Ø-loñ   je'el   wajali,
     Sugarcane   IPFV   A1-plant-SS.TV.NPFV-B3-1PL.EXCL   ADV   in.the.past
     pero   wa'li   ma'=ix   k-päk'-Ø-Ø-lojoñ
     SP: but   now   NEG=already A1-plant-SS.TV.NPFV-B3-1PL.EXCL
     'In the past we used to plant sugarcane as well, but now we don't plant it anymore.'

In the following example, the imperfective is used to convey futurity, by adding the deictic expression *ya' oraj* 'in that moment,' and a calendric adverbial, *tyi treyñta* 'on the thirtieth of the current month.' These modifiers thus function as temporal anchors, indicating that the topic time of (53) is after utterance time.

(53) **Ya'   oraj**   mi   k-cha'-cha'l-eñ-Ø   ty'añ   **tyi   treyñta**
     There SP:time IPFV A1-again-do-SS.DTV.NPFV-B3   talk   **PREP SP: thirty**
     'In that moment, I will talk (make a phone call) again on the thirtieth'

3.3.1.3. The Progressive

What is known in Chol linguistics as "progressive aspect" correlates with Comrie's "(continuous) progressive." The progressive too, like the imperfective, focuses on the internal phases of a situation or process, but its emphasis is on the ongoingness or continuousness of the situation described. The progressive "establishes that a process exists—is going on—at the contextual occasion" (Timberlake 2007: 287). When a progressive is used in direct speech in absence of any temporal anchor, it indicates that utterance time and topic time are simultaneous or overlap.

Just as in the perfective and imperfective aspects, in careful speech all progressive predicates are preceded by an aspectual pre-verb; the progressive aspectual markers are *choñkol* (in Tila), *yäkel*[72] (in Sabanilla), and *woli* (in Tumbalá). The difference between these three forms is purely a matter of regional variation; they all convey the same progressive meaning and are found in the same type of grammatical constructions. Each of the following examples illustrates a different regional variety of the progressive pre-verb. Sentence (54) was uttered by a speaker from Tila, sentence (55) by a speaker from Sabanilla and sentence (56) by a speaker from Tumbalá. All three pre-verbs can host clitics, as illustrated in (56), and pronominal inflection, as shown in (55). In the Tila dialect, *choñkol* has two allomorphs, *chonko* and *chon*, which are simply abbreviated forms of the full morpheme *choñkol* (Vázquez Álvarez 2011).

(54) Ili   **choñkol**   i-joch-Ø-Ø   i-bujk
     DET   **PROG**   A3-take.off-SS.TV.NPFV-B3   A3-shirt
     'This one is taking his shirt off'

(55) Ma'añ   **yäkel**-oñ   tyi   loty-Ø
     NEG   PROG-B1   PREP   lie-SS.TV.NPFV
     'I am not lying'

(56) **Wol**=ix   i-kaje   tyi   ju'l-Ø-el   loktor,
     PROG=already A3-start   PREP   arrive-SS.IV.NPFV-NM   SP: doctor
     ya'   tyi   Mariskal
     there   PREP   Mariscal
     'The doctor is starting to arrive in Mariscal'
     ('The doctor is now starting to go to Mariscal')

In the progressive, as in all non perfective aspects, the only predicate class that receives a status suffix is the class of derived transitives, which take the status suffix *–Vñ*,

---

[72] The Sabanilla variant is a borrowing from the Tzeltal progressive marker, *yakal* (Vázquez Álvarez 2011).

95

as shown in (57). All other predicate classes—root transitives, non agentive and agentive intransitives—receive null marking. Both types of transitives form their progressive with any of the three pre-verbs aforementioned, followed by the verbal stem, which receives Set A markers to co-index the argument in the role of Agent, and Set B markers to co-index the argument in the role of Patient, as illustrated in (57).

(57) Eske   k-alo'bil   chä'-äch
      SP:because   A1-son   like.this-AFF
      choñkol   **i-**ña'ty**-añ-Ø**
      PROG   **A1**-think- **SS.DTV.NPFV-B3**
      "Because this is how my son is thinking…" (about it)

Intransitive predicates form their progressive with two different types of morphosyntactic constructions. Whereas agentive intransitives can only form their progressive with subject raising constructions, non agentive intransitives can form their progressive both with subject raising constructions and with regular inflection in the stem. Sentence (58) shows an agentive predicate in the progressive. In subject-raising constructions, the pre-verb receives the pronominal inflection, and it is followed by the preposition *tyi*, which acts as a subordinator and introduces the lexical verb:

(58) Ma'añ   yäkel-**oñ**   tyi   loty-Ø   (cf. 55)
      NEG   PROG-**B1**   PREP lie-SS.DTV.NPFV-B3
      'I am not lying'

Unlike the subjects of agentive intransitives which can only be co-indexed with Set B absolutive suffixes, the subjects of non agentives can be co-indexed either with Set B absolutive suffixes or Set A ergative prefixes. Sentences (59.a) and (59.b) illustrate these

two alternative types of morphosyntactic constructions found in progressive agentive predicates. The non agentive predicate in (59.a) has the same structure as the agentive in (58): the subject is co-indexed in the pre-verb with Set B absolutive marking. By contrast, (59.b) shows the bare aspectual marker followed by the lexical verb, which receives Set A pronominal markers that co-index the intransitive subject. Both constructions are semantically equivalent.

(59.a) Chonkol-**ob**   tyi   lets-Ø-el   tyi   tye'
       PROG-**B3.PL**   PREP climb-SS.IV.NPFV-NM   PREP tree
       'They are climbing up the tree'

(59.b) Choñkol   **i**-lets-Ø-el-**ob**   tyi   tye'
       PROG   **A3**-go.up-SS.IV.NPFV-NM-**PL**   PREP tree
       'They are climbing up the tree'

The progressive does not always present an action as ongoing or continuous in the moment of speech. In the following example, the topic time precedes utterance time. In (60) the speaker recalls the explosion of a famous volcano, the Chichonal. The explosion is presented as a perfective, punctual event—with the precise time at which it happened—, which interrupts an ongoing action, the dawn. Despite the fact that there is no temporal adverb such as *wajali,* 'in the past, back then, time ago,' we know by context that the action is situated in the past, because the explosion happened in 1982.

(60)   Abälel tyi   sujty-i-Ø,   **choñkol**   **i-säk-añ**,
       night   PFV   turn-SS.IV.PFV-B3   **PROG**   **A3-white-INCH**
       'It (the day) turned night, it was becoming white (the day was breaking)

       a   las   seys   la   mañana   tyi   ñum-i-Ø
       SP: at SP:DET   SP:six SP:DET   SP:morning PFV   pass-SS.IV.PFV-B3
       it happened at six in the morning,

       li…   tyi   kaj   tyi   tyojm- Ø-el   ili
       DET   PFV   start PREP explode-SS.IV.NPFV-NM   DET
       ... that one, (the volcano), started to erupt'

3.3.1.4. Other grammaticalized forms to express aspectual information

In addition to the three basic aspects described above, there are other morphosyntactic constructions in Chol that convey aspectual information: the irrealis preterite, the prospective, and the perfect. In this section I discuss all of them.

The irrealis preterite was first identified by Vázquez Álvarez (2002, 2011), and is not usually addressed in other sources. In previous studies, the particle that carries the aspectual meaning of irrealis preterite, *kole*, had been categorized as adverb (Aulie and Aulie 1978: 37), and as mood: "/kole/ encodes an action that nearly occurred, but did not. Hence it establishes an IMMEDIATE mood for negative propositions" (Attinasi 1973: 209). Vázquez Álvarez points out, however, that it behaves syntactically as other aspectual markers: it precedes the verb and carries aspectual information, it can stand by itself as a full predicate and it can take clitics—although, unlike the other non perfective aspects (imperfective and progressive), it does not take pronominal inflection. It occurs with the same status suffixes as the other non perfective aspects. He also speculates that *kole* possibly originated in one of the two homophonous verbs "*kolel*" (to save oneself) or "*kolel*" (to grow up). Whether *kole* is already a grammaticalized aspect-status marker, or an

aspectual matrix verb on its way to becoming grammaticalized, what is clear is that it

encodes negative potentiality in the past. In other words, when a sentence is headed by *kole*,

the topic time always precedes the utterance time.

In the irrealis preterite, both transitive and intransitive verbs are preceded by the

aspectual marker *kole*; the lexical verb receives the same status markers as other non

perfective predicates— -*Vñ* for derived transitives, and null for root transitives, agentive

and non agentive intransitives. Sentences (61) and (62) show a transitive and an intransitive

predicate in the irrealis preterite. Both transitive and intransitive subjects are co-indexed in

the lexical verb via Set A morphology. In (61), Set B co-indexes the transitive patient.

(61) **Kole**   **k**-mety-**añ-Ø**   li   alo'
     IRR   **A1**-crush-**SS.DTV.NPFV-B3**   DET   boy
     ta'=bä   ñum-i-Ø
     PFV=REL   cross-SS.IV.PFV-B3
     'I almost crushed the boy that crossed'

(62) Che'   **kole**   **i**-sajty-**Ø**-el
     like.this   **IRR**   **A3**-die-**SS.IV.NPFV**-NM
     che'   tyi   tyojm-i-Ø   li   bolkañ
     when   PFV   explode-SS.IV.PFV-B3   DET   SP: volcano
     'So/this way she almost died when the volcano erupted'

Whereas *kole* indicates a negative potentiality in the past, the prospective aspectual

marker, *keje/kaje*[73] indicates potentiality in the future. This aspect marker had been

previously treated as "future tense" (Aulie and Aulie 1978; Warkentin and Scott: 1980;

Montejo López 1999). However, in more recent studies, it is treated as a form of

---

[73] *Keje/kaje* appear in free variation. In addition to the full forms *keje/kaje*, Vázquez Álvarez reports two abbreviated allomorphs: *ke/ka*. In my own data, in addition to the four morphemes reported by Vázquez Álvarez I have found other abbreviated forms, such as *kaj, kej*, and two not previously attested: *kij* and *ki*.

"periphrastic aspect" (Vázquez Álvarez 2011), or as a "prospective particle" (Coon 2010). Both authors agree that it is derived from the intransitive verb *kejel*, 'to begin.' The aspectual markers can appear by themselves, as in (63), or preceded by the perfective and imperfective aspectual pre-verbs, *tyi/tsa'/ta'* and *mi/muk'/mu',* as illustrated in (64) and (65). In both types of constructions, the subjects are co-indexed via Set A morphology in the lexical verb.

(63) Oñ=i   **keje**   chä'=äch   ojlil
     a.lot=CL **PROSP**   like.this=AFF   some
     i-bejl-b-eñ-Ø   i-ya'l-el
     A3-carry-APPL-SS.DTV.NPFV-B3   A3-water-NM
     'Some people are starting to carry its water/Some people are going to carry its water' (the water of a nearby well)

(64) **tyi**   **kaje**   i-tyop-Ø-Ø   jiñi   jamil
     PFV   **PROSP**   A3-break-SS.TV.NPFV-B3   DET   zacate
     'He started to break the zacate'

(65) Che'=jach   wuts-ul-oñla
     like.this=CL   POS-STAT-A1.PL.INCL
     mi   **kaje**   k-tyuk-Ø-la   ya'i
     IPFV   **PROSP**   A1-cut-B3-PL   there
     'Just like this, in this crouching position we are going to cut (coffee) there'

The periphrastic prospective aspect can also be expressed via argument raising (Vázquez Álvarez 2011). In (66), the subject of the predicate is co-indexed in the prospective pre-verb with Set A morphology, followed by the preposition *tyi*, which introduces the lexical verb *ty'añ*, 'to talk.'

(66) ma'aw-äk-Ø-Ø   baki **mi   i-kaj   tyi   ty'añ**
     IPFV.A2-give-SS.TV.NPFV-B3   where **IPFV 3A-start   PREP talk**
     'You leave her where she is going to speak' (you must accompany your daughter to
     the place where she will be picking up the phone call from my son)

When the aspectual pre-verb is preceded by the imperfective or perfective pre-verbs, and in argument raising constructions such as (66), two analyses are possible. Vázquez Álvarez argues that *keje/kaje* is a grammaticalized aspectual particle which, combined with the imperfective pre-verb, offers a prospective reading, as in (65), and when combined with the perfective pre-verb, it offers instead an inceptive reading, as shown in (64). A second type of analysis proposed by Coon in her earlier work (2004) is that in all contexts *keje/kaje* is not a true aspectual marker, but a grammaticalized version of the verb stem *kej*, 'start,' thus all "prospective" constructions can be analyzed as regular intransitive verbs to which other verbs are subordinated[74]. Whether we consider that *kaj(e)/kej(e)* is an aspectual marker in its own right, or a grammaticalized version of *kejel*, or something in between— probably it is a grammaticalized version of *kejel* currently on its way to becoming a fossilized aspectual marker—what is clear is that it has a temporal meaning, indicating that the action is starting, had started, or is/was about to happen in a near future. That near future need not be, of course, the future with respect to the moment of speech. In other words, the topic time need not necessarily come after the utterance time. For instance, the topic time of (67) is located *before* utterance time:

---

[74] In other words, under Vázquez Álvarez's analysis (2002, 2011), *keje/kaje* and its allomorphs will always be glossed as prospective (PROSP), irrespectively of whether they appear by themselves or preceded by perfective or imperfective aspectual pre-verbs. Under Coon's (2004) analysis, *keje/kaje* should always be glossed as a regular intransitive verb, 'start.'

(67) Kaje   i-cho'-Ø-Ø-e   k-mama   wajali
     PROSP A3-peel-SS.TV.NPFV-B3=CL   A1-mother   in.the.past
     'In the past, my mom started to peel it/was going to peel it' (*achiote*, a condiment)

Whereas the prospective aspect indicates reference to a "pre-state" (Bohnemeyer 1998), the perfect describes the "post-state" of a situation. In other words, it "indicates the continuing present relevance of a past situation" (Comrie 1976:52). It is rather different from the other aspects so far discussed, because it does not focus so much on the internal temporal makeup of an action, but rather "relates some state to a preceding situation" (Comrie, ibidem).

In Chol, the perfect aspect is indicated with the suffix *–em,* as illustrated in (68). When *–em* follows a root that ends with a bilabial consonant, the perfect suffix is realized as its allomorph *-eñ*, (Coon 2010: 204), as shown in (69). Only the non agentive intransitive verbs and certain passive predicates and positional roots can be inflected with the perfect aspectual suffixes, *-em* and *–eñ* (Vázquez Álvarez 2002, 2011; Coon 2010). Sentences (68) and (69) show non agentive intransitive predicates in the perfect; the single core argument of the intransitive verb is co-indexed in the verb with Set B. Sentences (70) and (71) show a passive transitive verb and a positional root in the perfect; note that when combined with the positional root, the perfect has a stative meaning, as illustrated in (71).

(68) Ñajty=bi=ku   tyäl-**em**-ob
     Far.away=REP=AFF   come-**PRF**-B3
     'Yes, it is said that they indeed have come from far away'

(69) Wajali   ju'b-**eñ**=tyo   xapom
     back.then   descend-**PRF**=still soap
     'Back then, the (price of the) soap had still been low'
     (The price of the soap was still low)

(70) Me-j-k'-**em**-oñ   (Coon 2010:205)
     Hug.PASS-**PRF**-B1
     'I have been hugged'

(71) Weñ   sok-**em**   k-jol
     SP: very   tangled-**PRF**   A1-head
     'My head is all tangled up' (I'm very confused)

Having described the aspect system in Chol, I now turn to other mechanisms of this language for encoding temporal information. In the next sections I shall address temporal adverbials, temporal particles, discourse principles, and sequential predication.

3.3.2. Temporal adverbials

Temporal adverbials are "by far the richest class of temporal expressions, and in contrast to tense and aspect, they are found in all languages" (Klein 2009: 40). However, temporal adverbials have not been as extensively researched as other temporal categories, especially compared to tense and aspect (Binnick 1991; Klein 2009). In Chol, temporal adverbials can be divided into four different morphosyntactic categories: temporal adverbial particles, temporal lexical adverbials, temporal adverbial phrases, and temporal adverbial clauses. All different types will be described in what follows.

3. 3.2.1.Temporal adverbial particles

There are two temporal adverbial particles in Chol: *cha'* 'twice, two times, again' and *bele* 'always, all the time, continuously'. *Cha'* and *bele* have been previously categorized simply as "adverbial particles"[75] (Attinassi 1973:122; Coon 2010: 238). However, in this

---

[75] The other adverbial particles that belong in this lexical class are *lu'*, 'all, completely', *wa'*, 'fast, immediately, quickly' and *weñ*, a borrowing from Spanish (buen, 'good'), which functions as intensifier and

dissertation I classify them as *temporal* adverbial particles because semantically they clearly correspond to the class of temporal quantificational adverbials described by Smith (1981) and Rathert (2004, 2011), among others. Quantificational adverbials "do not introduce a single time but act as bound variables that can range over situations" (Rathert 2011:244). Semantically, *cha'* is an iterative quantificational adverb, and *bele* is frequentive quantificational adverb (cf. Swart 1991). *Cha'* and *bele* always precede the predicate, and can take pronominal inflection, as shown in (72) and (73). *Bele* can appear with (73) or without (74) pronominal inflection:

(72) Komo   jiñi   alemañ   tyi   i-**cha'**   puts-i   maj…
     SP:as   DET   SP: german   PFV   A3-again   run.away-SS.IV.PFV   DIR
     '…As the german guy ran away again…'

(73) Kurañterux   mi   i-**bele**   koty-añ-Ø
     SP: healer   IPFV   A3-always   help-SS.TV.NPFV-3B
     'The healer always helps'

(74) Pe   añ   xi'baj   wa'li, **bele**   añ.
     SP:but   EXT   evil.spirit   now   always   EXT
     'But there are evil spirits nowadays, there always are'

3.3.2.2. Temporal lexical adverbials

Table 3.5 lists the most common temporal lexical adverbs in Chol:

---

has different translations depending on the context: 'a lot, many, completely, well'. *Lu', wa'* and *weñ* behave morphosyntactically like *cha'* and *bele*.

Table 3.5. Temporal Adverbs

A'bi	Yesterday
Bixetyik	Sometimes, from time to time, occasionally
Ch'uj	Always, all the time, continuously
Ijk'ä(l), yijkäle	Tomorrow, the next day
Jal	(for) a while, taking some more time, taking a long time
Ñaxañ	First
Oñi	Long time ago
Sajmä	A while ago, earlier today, at an earlier time, in a previous day
Wajal(i)	Some/long time ago, back then, before, in the past
Wa'li, wa'ali, wäle	Now, today, nowadays, in the present
Wale	In a moment
Wi'il(is)	Last, lastly, finally

Morphosyntactically, this class differs from the temporal adverbial particles *cha'* and *bele* in that all these are lexical adverbs and free standing morphemes, they cannot take pronominal inflection and they have a relatively flexible position in the sentence. Unlike *cha'* and *bele*, which always precede the predicate, this class of temporal adverbs may or may not precede the predicate.

From a semantic point of view, this class of temporal adverbials comprises three different types of adverbs: *bixetyik* and *ch'uj* are quantificational adverbials (like *cha'* and *bele*, described in section 3.2.1.); *jal* is a durational adverbial, and *a'bi, ijkäl, oñi, sajmä, wajali, wa'li, wa'le, ñaxañ and wi'il* are positional deictic adverbials. In what follows I discuss and give examples of each of these three subtypes.

Bixetyik and *ch'uj* are frequentive quantificational adverbials, because they refer to the frequency of the situation described. *Bixetyik*, illustrated in (75), is used to describe

habitual actions that happen occasionally. *Ch'uj*, as shown in (76), is semantically equivalent to *bele*; it indicates that the duration of topic time is infinite.

(75) **Bixetyik**   mi   k-majl-Ø-el   tyi   ch'uj-el.
      Sometimes   IPFV   A1-go-SS.IV.NPFV-NM   PREP   mass-NM
      'Every now and then I go to mass'

(76) **Ch'uj**   añ-oñla   tyi   mal   (cf. 7)
      always   EXT-B1.PL.INCL   PREP   inside
      'We are always inside (of our house)'

Jal can be used to talk about the duration of an event, as in (77), or to refer to actions that, from the point of view of the speaker, will take some more time to complete, as in (78). It is etymologically related to the intransitive verb *jalejel*, 'to last.'

(77) Pe   mach   lok'-Ø-Ø   kwenta   ibajñel,
      SP:But   NEG   take.out-SS.IV.NPFV-B3   SP:worth   DET
      jal   ibajñel,   **jal**
      taking.long   DET   taking.long
      'But that one by itself (coffee) is not worthy, it takes too long, too long'
      (The coffee takes such a long time to be ready for pick up, that if it is the only staple you cultivate, it is not profitable)

(78) **Jal**=tyo,   mach   tyäl-Ø-Ø   li   yujkel   bäyi
      a.while=still   NEG   come-SS.IV.NPFV-B3   DET   earthquake   PH
      'It still took a while, the earthquake hadn't come yet'
      (It still took some time before the earthquake happened)

W*a'li/wa'ali/wäle, wale, wajal(i), oñi, a'bi, sajmä, ijk'ä(l)/yikäle, ñaxañ* and *wi'il* are positional deictic adverbials. These type of temporal adverbials "are context dependent and have to be interpreted in relation to the utterance time" (Rathert 2011: 238). *Wa'li, wa'ali*, and *wäle* seem to be allomorphs in free variation. They all indicate that the topic time

overlaps to some extent with utterance time. Their natural opposites are the adverbs *wajali*, with a final *–i* that most times is pronounced but sometimes can be dropped, and *oñi*. Both *wajal(i)* and *oñi* index that topic time precedes utterance time. In the following sentence we can appreciate the past/present contrast between *wajali* and *wa'li*:

(79) Sik'ä'b   mi   k-päk'-Ø-Ø-loñ   (cf.52)
       Sugarcane IPFV A1-plant-SS.TV.NPFV-B3-1PL.EXCL
       je'el   **wajali**,   pero
       ADV   in.the.past   SP: but
       wa'li   ma'=ix   k-päk'-Ø-Ø-lojoñ
       now   NEG=already   A1-plant- SS.TV.NPFV-B3-1PL.EXCL
       'In the past we used to plant sugarcane as well, but now we don't plant it anymore.'

A'bi, 'yesterday', and *sajmä*, 'earlier (today)' locate topic time deictically before utterance time, whereas *ijk'ä(l)* 'tomorrow' locates topic time after utterance time. Another variant of *ijk'ä(l)*, mostly used in Tila, and by older speakers, is *yijkäle*.

(80) **A'bi**   ma'añ tyi   k-mos-o-Ø   lak-waj,
       Yesterday   NEG PFV   A1-cover-SS.TV.PFV-B3   A1.PL.INCL-tortilla
       jiñ   cha'añ   tyi   i-kux-u-Ø   jiñi   tsuk   tyi   abälel
       DET PREP   PFV   A3-eat-SS.TV.PFV-B3 DET   mouse   PREP night
       'I didn't cover my tortillas yesterday, for that reason the mouse ate them at night'

(81) Che'   choñko   weñ   ajle   **sajmä…**
       like.this   PROG   a.lot   say.PASS   earlier
       'They were being told like this earlier today…'

(82) **Yijkäle**   lu'   lok'-Ø-el-Ø   x-pex
       next.day   all   go.out-SS.IV.NPFV-NM-B3   N.CLF-duck
       'The next day all the ducklings came out'

There is another type of positional adverbials, which "indicate the position of a situation in a series of (possible) situations" (Klein 1994: 149). In Chol, these are *ñaxañ* and *wi'il(is)*, illustrated in (83). *Ñaxañ* indicates that the action described comes first in a sequence of events, and *wi'ilis* means the opposite, that an action or situation comes last in a sequence of events:

(83) **Ñaxañ** mi a-lu' k'el-e-Ø komare,
First IPFV A2-all look.at-IMP-B3 SP: comadre
wi'ilis ma' a-ñup'-Ø-Ø
lastly IPFV.A2 A2-close-SS.TV.NPFV-B3
'First look at the whole thing, *comadre*[76], and then you close it' (a book)

3.3.2.3. Temporal adverbial phrases

In general, temporal adverbial phrases have either adverbs or temporal noun phrases as their core constituents (Binnick 1991: 301). In Chol, temporal adverbial phrases are typically composed of a preposition and a noun phrase, or a preposition and a clock calendar adverbial, or a relational noun and a noun phrase. The preposition *tyi* 'at, in, within', can introduce a temporal noun, as shown in (84), or a clock calendar adverbial, as shown in (85):

(84) lwego weñ ñoj wokol xäm-bal **tyi abälel**
SP: then very a.lot problem walk-NM PREP night
'Then[77] it is very problematic hanging out at night'

---

[76] '*Comadre*' is a term of the ritual kinship system, known as *compadrazgo,* which means literally 'co-mother.' It usually refers to the godmother of the speaker's child, although it can be used more loosely to refer to other female relatives who belong in the kin group of the speaker's child godmother.

[77] The loanword *lwego*, 'then' functions here as a discourse marker, not as a temporal adverbial.

(85) sijom   mi   i-päk'-Ø-Ø-e   **tyi   nobyeñbre**
     tornamilpa   IPFV   A3-plant-SS.TV.NPFV-B3-CL   PREP   SP: November
     'He plants *tornamilpa*[78] in November'

The following table lists the basic time units in Chol. Most of these are lexical nouns

that have temporal meaning, with the exception of *säk-añ* and *ik'-añ*, which can also be

analyzed as adjectives (*säk* 'white', *ik'* 'dark') modified by the Inchoative suffix *–añ*, so the

literal meaning of *säk-añ* is 'getting white' and of *ik'añ* 'getting dark'. Both forms,

however, are completely lexicalized and can be translated respectively as 'dawn' and

'twilight'.

Table 3.6 Temporal nouns

K'iñ(il)	Day
Abälel	Night
Xiñk'iñil	Midday
Xiñabälel	Midnight
Säkañ	In the early morning, at dawn
Ik'añ	In the twilight, when it's getting dark
Semañaj, waxk'iñ	Week
Uj	Month
Yorojlel/yorajlel	Season, moment (abstract)
K'iñtyuñil	Dry season
Yorajlel ja'al	Wet season
Ja'	Year
Oraj	Hour, time, moment (abstract)
Jumujk	Moment, a short while

The body part *paty*, 'back', can also function occasionally as a relational noun

introducing a temporal adverbial phrase. The following is an example of a metaphoric

expression that refers to the afternoon, which can be understood in Chol quite literally as

---

[78] Secondary, optional corn planting that in Tila happens between the months of September and November.

'midday behind' or 'at the back of the midday', or more freely as 'leaving the midday behind our backs.'

(86) **Paty   xiñ-k'iñil**,   muk=ix   k-majl-Ø-el-la
      Back   mid-day   IPFV=already   A1-go-SS.IV.NPFV-NM-PL.INCL
      'It's past midday, we are leaving'

The subordinator *che'* (see also section 3.2.4. on temporal adverbial clauses) can also introduce temporal nouns, as illustrated in (87):

(87) Mu=ch   i-k'el-Ø-oñ-ob   **che'   ik'-añ**
      IPFV=AFF   A3-see-SS.TV.NPFV-B1-PL   when   dark-INCH
      'Yes, they come to see me at twilight/when it's getting dark'

Temporal adverbial phrases can also indicate the frequency and/or habituality of an event or situation; semantically, these types of temporal adverbial phrases are akin to quantificational adverbials. Days, weeks, months and years can be modified by a quantifier, which consists of a numerical base and the generic numeral classifier[79] *-p'ej*. Conversely, temporal questions can be asked by combining the interrogative temporal adverb *jay* 'how many' with the generic numeral classifier *-p'ej* and the corresponding temporal noun. This is illustrated in (88.a) and (88.b):

(88.a) **Jay-p'ej**   **k'iñ**   mi   i-k'äñ-Ø-Ø-ob   jiñi   xapun?
        how.many-CLF   day   IPFV   A3-use-SS.TV.NPFV-B3-PL   DET   SP:soap
        'How many days do they use that soap?' (How long does a soap bar last?)

---

[79] Chol has a complex system of numeral classifiers, which has been described in detail by Attinasi (1976: 218-220). He lists up to a total of thirty-three numeral classifiers that are suffixed to a numerical base, and convey descriptive information about the noun they modify, such as type, form, shape, consistency, texture, etc.

(88.b) Añ **jum-p'ej** **uj**
EXT one-CLF month
'One month' (It is one month; there is soap for a month; it lasts for a month)

The frequency of an event or the number of times that an action is performed can also

be expressed with the combination of a numeral and the verb *sujtyel*, 'to turn, to spin'. This

expression is literally understood as 'X number of turnings' within an action.

(89) Ah tsa'=äch k-u'b-i-Ø **juñ-sujtyel**
INTJ PFV=AFF A1-perceive-SS.DTV.PFV-B3 one-turn
'Oh, yes, I saw her once'

Frequency can also be expressed with the existential predicate combined with the

temporal noun *kiñil*; the resulting construction is semantically equivalent to the simple

adverb *bixetyik*, 'sometimes,' as illustrated in (90):

(90) Che' muk'-oñ tyi chobal **añ** **kiñil**
When IPFV-B1 PREP clean.milpa EXT day
mi i-ts'äp-Ø-Ø ochel ch'ix tyi j-k'ä.
IPFV A3-stick.in-SS.TV.NPFV-B3 DIR thorn PREP A1-hand
'When I am cleaning the cornfield, sometimes a thorn sticks into my hand'

Habituality or the constant repetition of an event can be conveyed with the adverb

pejtye' 'all, every' and a temporal noun, as shown in (91) and (92):

(91) **Pejtye'** **oraj** añ jiñi
All SP: time EXT DET
'There is that all the time'

(92) Mi   a-jop-Ø-Ø   li   ixim   **pejtye**   **k'iñ**
     IPFV   A3-pile.up-SS.TV.NPFV-B3   DET corn   all   day
     'You pile up corn all every day'

Iterativity is also conveyed by means of reduplication of the numeral that precedes the temporal noun:

(93) **Ju-jum-p'ej**   k'iñ   mi   i-choñ-Ø-Ø
     One-RED-CLF   day   IPFV   A3-sell- SS.TV.NPFV-B3
     waj   jiñi   x-ixik
     tortilla   DET   N.CLF-woman
     'Every day that woman sells tortillas'

While the generic numeral classifier –*p'ej* is obligatory with days and months, it is not mandatory with years. In order to express the number of years that have passed or will pass since any given reference time, it is also possible to attach a numeral directly to *ja'*—in which case the meaning of the phrase is 'x years ago' or 'x number of years since the reference point'—or to *ja'bil*—in which case the meaning is 'x number of years from now'. Semantically, these phrases are equivalent to temporal positional adverbials. In the following examples, a deictic relationship is established between utterance time and topic time: in (94), utterance time precedes topic time; in (95), topic time precedes utterance time.

(94) **Juñ-ja'**   mi   k-lok'-Ø-el   tyi   k'el-juñ
     One-year   IPFV   A1-go.out-SS.IV.NPFV-NM   PREP   look.at-book
     'One year from now I finish studying'

(95) **Juñ-ja'bil**   tsajñ-oñ   tyi   xäm-bal   tyi   kolem ja'
     One-year.ago   PFV.go-B1   SUB   walk-NM   PREP big   water
     'One year ago I went to the sea'

3.3.2.4. Temporal adverbial clauses

Temporal adverbial clauses are typically introduced by the adverbs *cheñak* and *che'*, both of which mean 'when'. The resulting construction introduced by *cheñak* or *che'* is a temporal adverbial clause subordinated to a main verb. The main difference between *cheñak* and *che'* is that *che'* is mostly used in imperfective constructions, as shown in (98), while *cheñak* can be used with both perfective (96) and imperfective (97) constructions (Vázquez Álvarez 2011). In the following examples, the subordinated temporal adverbial clauses appear in brackets.

(96) Tyi   ujty-i-Ø   gera
     PFV   finish-SS.IV.PFV-B3   SP: war
     [**cheñak**   **tyi**   ñum-i-yob   jiñi…   Karañsa]
     when   PFV   pass-SS.IV.PFV-B3.PL   DET   SP: Carranza
     'The war happened/finished when those *Carrancistas*[80] passed by'

(97) Pero   wajali   mi   k-ts'äñs-añ-loñ
     SP: but back.then   IPFV   A1-kill-SS.DTV.NPFV-1PL.EXCL
     cha'-k'oj,   ux-k'ojty   yu'bi   k'äñchoj,
     two-CLF   three-CLF   perhaps   snake
     [**cheñak** max=tyo   ba'añ **mi**   k-mel-Ø-Ø-oñ   promesa]
     when   NEG=yet   where IPFV A1-do-SS.TV.NPFV-B3-1PL.EXCL SP:promise
     'But back then, I used to kill perhaps two or three *nauyacas,*[81]
     when we weren't used to making promise[82] yet.'

---

[80] The "*Carrancistas*" were the people of Venustiano Carranza, president of Mexico between 1917-1920, who played an important role in the Mexican Revolution.

[81] Käñchoj,(*nauyaca* in Spanish) is a Bothrops Asper.

[82] The *promesa*, literally 'promise' is a ritual that consists in offering food, liquor, and candles to a supernatural entity, in exchange for something asked or for protection against something. In this case, the ritual was addressed to the *Witso'*, the Lord/Owner of the Earth, whose pets are snakes, and thus the man was asking the *Witso'* not to send his pet-snakes to his cornfield.

(98) [**Che' muk'**-oñ tyi chobal] añ kiñil (cf. 90)
 when IPFV-B1 PREP clean.milpa EXT day
 mi i-ts'äp-Ø-Ø ochel ch'ix tyi j-k'ä.
 IPFV A3-stick.in-SS.TV.NPFV-B3 DIR thorn PREP A1-hand
 'When I am cleaning the cornfield, sometimes a thorn sticks into my hand'

 Finally, temporal adverbial clauses may also be introduced by the interrogative pronouns *jalaj* and *jalix. Jalaj* usually refers to events that have not yet occurred, whereas *jalix* usually refers to events that have already taken place. In other words, *jalaj* introduces clauses where the topic time may or may not precede utterance time, whereas *jalix* is mostly used in clauses where the topic time precedes utterance time. In (99), *jalix* introduces an interrogative temporal adverbial clause. In (100) *jalaj* functions as a subordinator; the resulting construction is an interrogative clause functioning nominally.

(99) **Jalix** tyi jul-i-yety?
 When PFV arrive-SS.IV.PFV-B3
 'When did you arrive?'

(100) Tyi a-su'b-e-yoñ [**jalaj** mi a-majl-el] (Gutiérrez 2005: 37
 PFV A2-say-SS.TV.PFV-B1 when IPFV A2-go-NM retranscribed and
 'You told me when you were leaving' reglossed)

3.3.3. Temporal Particles

Temporal particles are not extremely wide-spread cross-linguistically, in contrast, for example, to temporal adverbials, which are found in all known languages. Temporal particles are bound morphemes that have a fixed position in the sentence and are not mandatory, and from a morphosyntactic perspective are "somewhere between temporal adverbials and suffixes or prefixes" (Klein 2009:41). In Chol, there are two particles that

conform to this description: *-ix,* usually loosely glossed as 'already' and *-tyo,* 'still/yet'. They belong to the category of what is known in Chol linguistics as "second position clitics" (Vázquez Álvarez 2002, 2011, Coon 2004, 2010), a group of enclitics that attach to either the verbal stem, to the aspectual auxiliaries, to non verbal predicates, or to the negative particle, and contain aspectual and modal information.

-Ix is usually translated as 'already,' as in (101), but Coon rightfully points out that it is more or less equivalent to the Spanish 'ya': "a reflector of aspect as well as a discourse marker that can serve to transmit an emotional intensity about designated information and to create cohesion in the discourse" Koke 1996: 267, quoted in Coon 2010: 230). For this reason, translating *–ix* as 'already' in some contexts may sound artificial, or even inaccurate, as in (102), where it has a more "discursive" role. When attached to the negation, it means that the situation discussed does not exist any longer, so it is better translated as 'no longer, not anymore', as in (103). *–Ix* combines freely with any of the above discussed grammatical aspects. In (104) we see an example of this clitic combined with the perfective pre-verb.

(101)   Wa'li   i-yorojlel=**ix**   chobal
        Now   A3-season=already   clean.milpa
        'Now it's already the season of cleaning the milpa'

(102)   Che=**ix**=ku   durse   mi   k-mel-Ø-Ø-oñ,
        Like.this=already=AFF   SP:sweet   IPFV   A1-do-SS.TV.NPFV-B3-A1.PL.EXCL
        che'   mi   i-mel-Ø-Ø   loñk-mama
        like.this   IPFV   A3-do- SS.TV.NPFV-B3   A1.PL.EXCL-mom
        'Indeed, that's how we used to make the sweet (gruel),
        that's how my mom used to do it'

(103) Ma=**ix**   kostumbre   wal=**ix**   che',
      NEG=already   tradition   now=already   like.this
      sik'ä'b   ma'=**ix**   k-päk'-Ø-Ø-lojoñ,
      sugar.cane   NEG=already   A1-plant-SS.TV.NPFV-B3-A1.PL.EXCL
      porke   ma=**ix**   k-mel-Ø-Ø-oñ
      because   NEG=already   A1-do-SS.TV.NPFV-B3-A1.PL.EXCL
      chicha
      chicha
      'Now, there is not such tradition any more, we don't plant sugar cane any longer,
      since we don't make chicha[83] anymore'

(104) Majl-Ø-el-ob   tyi   buty'-ja,
      Go-SS.IV.NPFV-NM-B3.PL   PREP   stream.water
      ta'=**ix**   sajty-i-yob
      PFV=already   die-SS.IV.PFV-B3.PL
      'They went away with the stream, they (already) died'

-Tyo indicates that a situation still holds or is still happening, or not happening yet,

if it is attached to the negation. For this reason, despite the fact that it can combine with any

aspect, it adds a certain 'perfect' flavor to the action or situation described. Like –*ix*, it can

be attached to non verbal predicates, as in (105), to the negative particle, as in (106), to any

verbal stem, as in (107), and to the aspectual pre-verbs, as in (108).

(105) Añ=**tyo**   jiñi   X-ñek   mi   y-äl-Ø-Ø-ob
      EXT=still   DET   N.CLF-black IPFV   A3-say-SS.TV.NPFV-B3-PL
      'There still is/was the one they call X-ñek[84]'

---

[83] Beer made from corn or sugar cane

[84] The *X-ñek*, a supernatural character of Chol folklore, is a small black man who torments horses and abuses
women.

(106)   …cheñak   max=**tyo**   ba'añ   (cf. 97)
        when   NEG=yet   where
        mi   k-mel-Ø-Ø-oñ   promesa
        IPFV   A1-do-SS.TV.NPFV-B3-1PL.EXCL   SP:promise
        '(That was the time) when I wasn't used to making promise yet.'

(107)   "Papa,   mama,   a-werañ,   ma'añ aw-äk-Ø-Ø
        SP: dad   SP: mom   A3-brother   NEG   A2-give-SS.TV.NPFV-B3
        i-tyäjl-e**tyo**"   che'=bi   li   y-ijñam=i
        A3-touch.PASS-B2.yet   like.this=REP   DET   A3-wife=FIN
        'Your dad, your mom, your brother, don't let them touch you yet', said his wife

(108)   Ix   choñkol=tyo   jojch-Ø-Ø-el
        DET   PROG=still   hatch-SS.IV.NPFV-B3-NM
        'This one is still hatching'

When combined with the determinant *jiñ-*, it means 'until.' In this particular use it behaves deictically, linking the topic time with a reference point, which may or may not coincide with the time of utterance. In sentences (109) and (110), *jiñtyo* co-occurs with imperfective and perfective predicates. In the absence of any adverbials, the relationship between topic time and utterance time must be inferred from the context:

(109) Jiñ=**tyo**   mi   k-tsep-Ø-Ø-lojoñ
      DET=**until**   IPFV   A1-cut-SS.TV.NPFV-B3-A1.PL.EXCL
      'Until we cut it (past, present)/ until the moment when we will cut it'

(110) Jiñ=**tyo**   tyi   ujty-i-Ø   i-ts'äk-añ-Ø=i
      DET=**until**   PFV   finish-SS.IV.PFV-B3   A3-heal-SS.DTV.NPFV-B3=FIN
      'Until he finished healing it (a deer)'

The temporal particles –*ix* and –*tyo* can also function deictically when combined with the existential predicate *añ* and with the particle *la* [85]. The number of days or months that have passed since any given reference point (which may or may not be the utterance time) and the topic time is expressed by a combination of the existential predicate *añ*, followed by the clitic –*ix* 'already', and the number of time units. This temporal adverbial phrase is more or less semantically equivalent to the temporal adverb 'ago' in English, as illustrated in (111.a):

(111.a) **añ-Ø=ix**   chäm-p'ej   k'iñ   (Vázquez Álvarez 2011: 144
       EXT-B3=already   four-CLF   day   reglossed)
       'It was four days ago'

Conversely, the number of days or months that will pass until a certain point of reference is reached is expressed with the particle *la'*, followed by the clitic -*tyo* 'until', 'yet', the preposition *tyi* and the number of time units. The construction '*la'tyo* + *tyi* + temporal noun' locates topic time after utterance time, as shown in (111.b):

(111.b) **la'=tyo**   tyi   chäm-p'ej   k'iñ   (Vázquez Álvarez 2011: 144
       PART=yet   PREP   four-CLF   day   reglossed)
       'It will be in four days'

---

[85] This particle may possibly be related to the locative adverb *la'*, 'here'.

3.3.4. Other temporal expressions and temporal metaphors.

In this section I discuss some expressions commonly used in Chol discourse and narratives to convey temporal information. I will first discuss the deictic uses of the existential predicate, *añ*, and the discourse-framing function of the perfective predicate *ujtyi*, 'to happen, to finish'. I then describe some temporal metaphors in Chol and their relationship to the moving-ego and moving-time cognitive models (Lakoff 1993) described in Chapter 1.

When the existential predicate combines with temporal nouns and particles and with verbal predicates inflected for aspect, it conveys rich temporal information, acting as a deictic anchor linking topic time and utterance time. In narrative contexts, a common phrase is the existential predicate followed by a verb in the perfective aspect, as illustrated in (112). This would be the equivalent to the English narrative expression "once upon a time (the situation described happened)." In (112), topic time precedes time of utterance.

(112) **Añ**   **tyi**   i-k'ux-u-yoñ   jiñi   ts'i'
       EXT   PFV   A3-bite-SS.TV.PFV-B1   DET   dog
       'Once (upon a time) that dog bit me'

Another common narrative expression is the existential predicate, with the clitic *–ix*, followed by the irrealis preterite (see also section 3.1.4.). In contrast to "*añ tyi…*", a sentence introduced by "*añix kole…*" refers to a situation that could have happened but indeed never happened; depending on how close the hypothetical situation came to becoming real, in some contexts *añix kole* can be equivalent to 'almost', although a more neutral translation could be 'once upon a time (the situation described) could have

happened/almost happened'. The resulting construction deictically locates topic time before utterance time.

(113) **Añ=ix**　　**kole**　　k-majl-Ø=e　　　　　tyi　ja'　je'el
EXT=already　IRR　　A1-go-SS.IV.NPFV=CL PREP　water　ADV
'Once (upon a time) I almost drowned' (Lit. 'I went to the river')

The verb *ujtyel*, 'to finish' is commonly used in narrative contexts to introduce situations that happened in the past. Although *ujtyel* literally means 'to finish,' in narrative contexts it is better translated as "to happen." The aspectual contour of this verb implies that in Chol temporal thought a situation can only be understood as truly having happened when it is finished, or completed. When in a narration *ujtyel* is used in the perfective in third person singular '*ujtyi*', it deictically locates topic time before utterance time, and in a sense it also conveys realis mood. The expression *che' tyi ujtyi…* "it happened like this" (114) is a common rhetoric device to introduce a story, whereas the expression *che' tyi ujtyi (bajche') jiñi* or "that happened/that's how it happened" is commonly used as a formal closure to stories[86]. This particular function of *tyi ujtyi* is very similar to the expression *'añ tyi…'* discussed above, and sometimes indeed appears preceded by it, as illustrated in (115).

(114) **Che'**　　　　**tyi**　　**ujty-i-Ø-Ø**　　　　　　jiñi　k-primo

like.this　　　PFV　happen-SS.IV.PFV-B3　　DET　A1-cousin
la'　tyi　Belisaryo…
there　PREP　Belisario
'This happened to my cousin there in Belisario…'

---

[86] For other formulaic openings and closings characteristic of Chol narratives, see Josserand and Hopkins (1990).

(115) **Añ**   **tyi**   **ujty-i-Ø-Ø**   yañ=bä   wiñik,
      EXT   PFV   happen-SS.IV.PFV-B3   other=REL   man
      cha'añ=bi   käläx=ix   mi   i-chuk-Ø-Ø   me'
      PREP=REP   a.lot=already   IPFV   A3-capture-SS.TV.NPFV-B3   deer
      'It happened (once upon a time) to another man,
      because he used to hunt a lot of deer…'

Chol has a few temporal metaphors derived from a transitive verb (*tyaj*) and two

verbs of movement (*kotyel* and *majlel*). The transitive verb *tyaj* 'to find', is sometimes

combined with the temporal noun *oraj*, a borrowing from Spanish, that means literally

"hour", and also 'time' but in the sense of time as a punctual moment—as mentioned in

Chapter 2 (Section 2.3)—, not time as abstract substance. The resulting temporal metaphor,

tyaj oraj, literally means 'to find the time/moment (in which something happens)'. In this

construction the verb *tyaj* is inflected for person and aspect; the transitive agent is marked

with Set A pronouns. Conceptual metaphor theorists could claim that this is a possible

example of the "moving ego" cognitive model explained in Chapter 1.

(116) Añ   che'   tyi   **i-tyaj-a-Ø**   **oraj**
       EXT   like.this PFV   A3-find-SS.TV.PFV-B3   SP:hora
       li   ñoxal=i,   ta'=bi   keje   weñ   chuk-choko
       DET   husband=FIN   PFV=REP PROSP   SP:a.lot   grab-POS
       jiñi   x-almis   y-ik'oty   chuty   k'ujts
       DET   N.CLF-musk   A3-R.N   small   cigar
       'The husband found the time when he started to mix up musk with a small cigar'
       ('The time came when the husband started to mix up musk with a small cigar')

Another expression similar to *tyaj oraj* is the verb *kotyel,* 'arrive' combined with the

possessed temporal noun *yorajlel*, 'time, season'. This is a nominalized form of the

loanword *oraj* discussed above. However, unlike *tyaj oraj*, the metaphor *kotyel+possessor-*

yorojlel can be argued to reflect the 'moving time' cognitive model discussed in Chapter 1. The equivalent of this expression in English is 'someone's time has come', and it is probably a calque from the equivalent Spanish expression 'llegarle su hora a alguien', which reflects the moving time cognitive pattern. It is important to point out that Set A in this expression co-indexes the possessor, not the subject of the intransitive verb, as illustrated in (117). The latter is co-indexed in the predicate with Set B pronominal inflection. In Chol, just as in Spanish, this expression can be understood as the moment when something is about to disappear or someone is about to die.

(117) Ta=ix   koty-i-Ø   i-yorojlel   [bajlum]   wa'li
      PFV=already arrive-SS.IV.PFV-B3   A3-time   [jaguar]   now
        'Its time (the time of the jaguars) has come now' (Now there are no more jaguars)

Finally, another "moving time" metaphor in Chol consists of a combination of the verb *majlel*, 'go', and a temporal noun. This metaphoric expression has a 'perfect' aspectual contour; it indicates the number of temporal units that have occurred since a reference point in the past until the time of utterance. It is equivalent to the Spanish 'van x años', and similar to the English 'x years have passed.' The intransitive subject is co-indexed in the predicate with Set A prefixes.

(118) Kwareñta   años   mi   i-majl-Ø
      SP:forty   SP:years   IPFV   A3-go-SS.IV.NPFV
      'Forty years go (since I got married)'
      ('Forty years have passed ever since I got married')

3.3.5. Sequential Predication

In the previous sections I have described how temporal information is encoded in Chol. I have argued that in Chol the location of topic time with respect to utterance time can be specified, if the speaker so wishes, but it is not obligatorily marked on the verb, as is the case in "tense" languages. In this section I describe another mechanism for talking about temporal relations between events in absence of any deictic anchors that help to determine the location of topic time with respect to the time of utterance or to any other reference time.

   As we have seen in the previous sections, the easiest way to specify the relationship between topic time and the time of utterance in Chol is by means of temporal positional deictic adverbs[87], for instance *wajali* 'in the past, back then', *wa'li* 'now', etc. But in absence of any deictic anchor, sometimes the relationship between topic time and utterance time can be inferred contextually. This mechanism is called temporal anaphora. It consists on "the contextual determination of topic times" (Bohnemeyer 2009:84), and it has been studied in Yucatec (Bohnemeyer 2009), but not yet in Chol. Bohemeyer argues that in absence of tense, and even in absence of temporal adverbials it is possible to infer the topic time of an utterance because perfective sentences include "natural reference points[88]" (henceforth NTRPs), and "the topic times selected in a given discourse context are

---

[87] As we have seen in section 3.3.2.2., these are only needed when reference is being made to something other than the time of utterance, which is usually the default reference point.

[88] "A time interval t is a natural reference point (NTRP) in a given discourse if t is identified in that discourse as either (a) the coding time of some utterance or (b) a calendrical time interval or (c) an event time (the "run time" of an event described in the discourse" (Bohnemeyer 2009: 117)

123

preferred to be identical to or include NTRPs identified in the same discourse context"
(2009: 118).

The mechanism of temporal anaphora in Yucatec is aspect-based, and the same is true
for Chol. So, for instance, the following sentence, out of context, could receive a future
interpretation, due to the presence of the prospective *keje*:

(119) Pe   ñoj   keje   tyi   cha'l-eñ-Ø   ty'añ!
      SP:but a.lot   PROSP   PREP   do-SS.TV.NPFV-B3 talk
      'But he will talk a lot / he is going to talk a lot'

However, if we look at the wider stretch of discourse in which sentence (119) is
included, the appropriate interpretation varies. The topic time of (119) needs to be identical
or at least include the topic time of the perfective predicates that precede it, shown in (120),
which are its natural reference points:

(120) Añ   che'i   ta'=ix   ujty-i-Ø   ts'äk   i-ñichim=i,
      EXT   like.this PFV=already finish-SS.IV.PFV-B3   light   A3-candle=FIN
      'As he finished lighting up his candle…

      ta'=ix   kaje   tyi   ty'añ   jiñi   wiñik,
      PFV=already   PROSP   PREP   talk   DET   man
      …the man started to talk…

      pe   ñoj   keje   tyi   cha'l-eñ-Ø   ty'añ!
      SP:but a.lot   PROSP   PREP   do-SS.TV.NPFV-B3 talk
      … but he started to talk a lot!'

In Chol there are certain grammatical contexts that comprise two or more predicates,
one of which is the temporal anchor or reference point for the other(s). I call these

sequential predicates. A sequential predicate is a syntactic-prosodic unit composed of a minimum of two predicates that describe two (or more) events sequentially connected to each other. In a sense, sequential predication can be considered a special case of temporal anaphora, because the topic time of the utterance, and which predicate is the anchor or "natural reference point" for the other is inferred contextually, in absence of any other positional adverbials like *ñaxañ* 'first' and *wi'il(is)*[89] 'last' which "indicate the position of a situation in a series of (possible) situations" (Klein 1994: 149). In sequential predication the two or more predicates are connected to each other by means of:

a) An explicit temporal ordering: having occurred something, something else occurs, as shown in (121)

b) A logical assumption within Chol culture, a type of 'universal truth predicate' as shown in (122)

c) A causal relationship: when X happens, Y happens (later) as a consequence of that, as shown in (122)

d) A conditional relationship: if X happens, then Y happens (later) as shown in (123)

e) A purpose or end goal: X is done so that Y can happen (later), as shown in (124)

Sentence (121) is an example of sequential predication where the temporal order of the two events can be inferred from the aspectual forms of each predicate. The first predicate, a perfective, is a "natural reference point," in Bohnemeyer's terms, for the

---

[89] Discussed in section 3.3.2.2.

second one. In this example, as in most cases where the first predicate is a perfective, the

completion of the first event signals the beginning of the next event:

(121) Ujty-i-Ø   pechom,
    Finish-SS.IV.PFV-B3 make.tortilla
    mu=x   kaj   tyi misuj-el,   pejtyel,   jiñi
    IPFV=already PROSP   PREP sweep-NM   everything DET
    'Tortilla-making being finished, (then) I start to sweep, (and) all (the other stuff)'

In the following example, (122), a causal relationship is established between two

predicates: when one kills an *uch'chañ*[90], the winds bring one's milpa down. The first

event, the killing of the snake, is the cause of the second one, the destruction of the milpa.

This sequential predicate is also an example of a typical "universal truth" statement, within

the context of Chol culture. The statement in (122) is just as obvious for the Chol person as

the statement "if you heat water up to 212 degrees Farenheit, it boils" is for a Western

person.

(122) porke   lak-tsäñs-añ-Ø   uch'chañ,
    SP: because   A1.PL.INCL-kill-SS.TV.NPFV-B3 boa
    mi   i-yäñs-añ- Ø   lak-chol
    IPFV   A3-bring.down-SS.TV.NPFV-B3   A1.PL.INCL-milpa
    'Because (when) we kill a boa, (then) it brings our milpa down'.

In the next sentence, the temporal order of the two predicates is inferred from the

conditional structure of the sentence: *if* a situation occurs, then a second type of situation

occurs. The subordinated conditional clause is the temporal anchor or reference point for

---

[90] A type of snake (a boa) commonly found in the cornfields in Tila.

the main clause; in other words, the condition expressed by the first predicate precedes its hypothetical result, expressed by the second predicate. In addition, the verb in the conditional sentence is inflected with perfective aspect, thus acting as a natural reference point for the second predicate:

(123) Mi tsa'=äch   tsäñ-ä-Ø,
   COND PFV=AFF   cool.something.down -SS.TV.PFV-B3
   mux   majl-Ø-el   k-säk-Ø-Ø   kälä ja'
   IPFV=already go-SS.IV.NPFV-NM A1-wash-SS.TV.NPFV-B3 near water
   'If indeed it cooled down (the corn), (then) I go to wash it at the river'

  Finally, another type of sequential predication is possible when one of the two predicates is a purpose clause subordinated to a main clause, as illustrated in (124):

(124) Mi   i-ts'u'-Ø-Ø-ob,
    IPFV   A3-suck-SS.TV.NPFV-B3-PL
    cha'añ mi i-lok'-Ø-el   jiñi beneno li lukum
    PREP IPFV A3-get.out-SS.IV.NPFV-NM DET SP:poison DET snake
    'They suck it out, so that the poison of the snake may come out'

  As illustrated in the above examples, each sequential predicate consists of a minimum of two verb clauses. The two clauses can be juxtaposed, as in (121) and (122), or one may be subordinated to the other one, as in (123) and (124). Subordinated clauses in sequential predicates can be introduced by a subordinating particle, like the conditional particle *mi* 'if' in (123), or by a preposition, like *cha'añ* 'so that, in order to' in (124). Occasionally, borrowings from Spanish may also be used to connect sequentially two predicates. In (125), the temporal connection between the first predicate—a subordinate conditional clause—and the second predicate—the main clause—is emphasized by the borrowed Spanish temporal adverb, *entonces,* 'then':

(125) Mi   yä=x   añ   jiñi   aläl=i,
       COND there=already   EXT   DET   child=FIN
       entonse   mi   kaj   lak-loty-Ø-Ø
       SP: then   IPFV PROSP   A1.PL-keep-SS.TV.NPFV-B3
       'If/when there is already a child (if the baby has already been born)
       then we start to take care of him/her'

Above I have argued that a sequential predicate is a syntactic-prosodic unit. Sequential predicates are characterized by rising intonation at the end of the first clause, followed by a small pause, and then falling intonation at the end of the second clause, followed by a full pause. This intonation contour is key to distinguishing single sentences containing sequential predicates from multiple sentences each containing one predicate. Syntactic information alone cannot always make this distinction. Interestingly, this prosodic pattern is similar to the intonation of each of the chained clauses that form tail-head linked utterances in Papuan languages (de Vries 2005). Tail-head linkage is "a way to connect clause chains in which the last clause of a chain is partially or completely repeated in the first clause of the next chain" (de Vries 2005:363). Sentence (126) is an example of tail-head linkage from Kombai, a Papuan language:

(126) Kombai   (de Vries 2005: 364)
    a. Kha-negena /   refe fe   büwene-n-a /   khumolei.#
       go.3SG.NF-until.DS year one   finished.3SG.NF-TR-DS die-3SG.NF
       'It went on during one year and then he died.'

    b. Khumolei-n-a /   ifamano. #
       die.3SG.NF-TR-DS bury.3PL.NF
       'He died and they buried him.'

In tail-head linked utterances such as the one illustrated in (126), "The verb… in the tail clause … has a final, falling contour (#), sharply contrasting with the intonation of the head clause, a rising contour followed by a pause (/)" (de Vries 2005: 364). In order to see the similarities between the prosodic features of sequential predicates in Chol and this type of intonation contour characteristic of tail-head linkage in Papuan languages, we must zoom in the intonation contour of each of the chained clauses. As example (126) shows, there are five predicates in this chained structure: the first sentence is composed of the predicates "go," "finish," and "die." The second sentence is composed of the predicates "die" and "bury." The intonation contour of "go/-finish/-die#" (raising after "go" and "finish" and falling after "die") is replicated in "die/-bury#" (raising after "die", falling after "bury"). Sequential predication differs syntactically from tail-head linkage in that the last verb of the first clause is not necessarily repeated in the first clause of the next sentence. However, as illustrated in (127), the intonation contour of Chol sequential predicates is equivalent to the intonation contour of *each* of the chained clauses: raising intonation after the first predicate (/), and falling intonation after the second predicate (#):

(127) Mu=x   ju'b-eñ-ob **/**
  IPFV=already descend-PRF-B3.PL
  mux   i-lok'-Ø-el   maj **#**
  IPFV=already 3A-exit-SS.IV.NPFV-NM DIR
  'Taken down (her skin), (then) she goes out'[91]

---

[91] This sentence is taken from the story of the X-Chejchejmbak, an evil spirit who looks like a normal woman in daytime, but at night she pulls down her skin, as if it was a dress, and then goes out to scare people, her body magically transformed into a skeleton.

Another formal characteristic of sequential predicates is that they are structured in certain syntactic frames. In a typical sequential predicate consisting of two verb clauses, each verb clause is inflected with aspect and one serves as an "anchor" to the other. A number of combinations are possible, depending on the aspect inflection of each of the clauses that form the sequential predicate. Table 3.7 summarizes the most frequent aspectual combinations found in the syntactic frames of sequential predicates.

Table 3.7. Sequential predicates: basic syntactic frames

Perfective-based	Imperfective-based
PFV + IPFV	IPFV + IPFV
PFV + PROSP	IPFV + PROSP
PFV + PFV	PROSP + PROSP
PFV. COND + IPFV	PROSP + IPFV
PFV. COND + PROSP	COND + IPFV
	COND + PROSP
	PROG + IPFV
	PROG + PROSP
	PROG + PFV

I have divided sequential predicates in two basic categories: "Perfective-based" and "Imperfective-based." When the verb of the first clause of a sequential predicate is inflected with the perfective aspect, it acts naturally as anchor or reference point for the temporal relationship established between the two predicates, as it is usually the case in temporal anaphora. The perfective signals completion of an action or situation, and once this has been established, the situation described by the other predicate is possible. It inevitably becomes the "departure point" of the sequence established between the two verb clauses. This was illustrated in example (121) above, repeated below. I have called those sequential predicates whose anchor is thus established by a perfective predicate "Perfective-based":

(128) Ujty-i-Ø   pechom /   (cf. 121)
     Finish-SS.IV.PFV-B3   make.tortilla
     mu=x   kaj   tyi   misuj-el,   pejtyel,   jiñi #
     IPFV=already PROSP   PREP sweep-NM   everything   DET
     'Tortilla-making being finished, (then) I start to sweep, (and) all (the other stuff)'

The category of "Imperfective based" sequential predicates is more heterogeneous. In this category belong all those sequential predicates which are not "Perfective based." Here the sense of sequence is often achieved by a succession of events, as in the combinations of several Imperfective predicates (129) or several Prospective predicates (130); in these cases, usually the first predicate is assumed to occur first in the sequence of events. Sometimes an anchor is established as a hypothetical condition, which is obviously expressed with a conditional clause, as in example (123) above. Finally, although less common in my data, I have also found Progressive predicates serving not so much as "departure points," but as "departure frames" for other situations: a situation or action is described as "unfolding" or "happening," and then some other situation happens, as illustrated in (131).

(129) Mi   lak-ch'äx-Ø-Ø /
     IPFV   A1.PL-boil-SS.TV.NPFV-B3
     mi   lak… k'ux-Ø-Ø #
     IPFV   A1.PL eat-SS.TV.NPFV-B3
     'We boil it (chayote), (then) we eat it'

(130) Kej tyepaño juloñi
     Kej   i-tyemp-añ-ob   juloñi /
     PROSP A3-gather-SS.DTV.NPFV-B3.PL   rifle
     ke kuchtyako
     kej   i-kuch-Ø-tyak-ob #
     PROSP A3-carry-SS.TV.NPFV-PL-B3.PL
     'They start to gather rifles, (then) they start to carry them'
     'They are going to gather rifles, (then) they are going to carry them'

(131) Choñkol=bi   tyi   ty'añ, /
     PROG=REP   PREP   speak
     tyi   bum   yajl-i-Ø   jiñi   wiñik #
     PFV   suddenly   fall-SS.IV.PFV-B3   DET   man
     'It is said that he was talking, (then) suddenly he fell down'

To sum up, sequential predicates are syntactic-prosodic units composed of a minimum of two predicates sequentially connected to each other by means of a temporal or logical relationship, or a causal, conditional, or teleological relationship. They are identified by a very specific intonation contour: rising intonation at the end of the first clause, followed by a small pause, and then falling intonation at the end of the second clause, followed by a full pause. The mechanism for inferring the order of the predicates is, like in temporal anaphora, aspect-based. When the first predicate is inflected with perfective aspect, it becomes the natural reference point of the temporal sequence, and therefore it precedes the second predicate. When the first predicate is inflected with a non perfective aspect, the order of the predicates also depends on the syntactic structure of the sentence. When the sequential predicate is formed by a string of non perfective predicates, usually the first predicate is assumed to occur first in the sequence of events. When the sequential predicate is formed by a conditional clause subordinated to a main clause, the predicate of the conditional clause is assumed to precede the predicate of the main clause. When the sequential predicate is formed by a purpose clause subordinated to a main clause, the main clause comes first and the purpose clause comes second in the sequence of events.

CHAPTER 4

TEMPORAL GESTURE

4.1. Introduction: finding temporal gestures in Chol

In the previous chapters of this dissertation I have presented ethnographic and linguistic evidence which suggested that a linear notion of time was neither predominant in Chol language nor in Chol culture. Having established these facts, in this chapter I turn to the central question of this dissertation: do Chol temporal gestures reflect a linear understanding of time? In order to answer this question, I first identify the contexts of speech where we might expect to find linear temporal gestures. I discuss the classical distinction between "Series A" and "Series B" time, proposed by McTaggart (1908), and how these two different types of temporal relationships are expressed in natural languages in two different types of temporal speech, that we shall call deictic temporal language and sequential temporal language. I argue that it is precisely in these speech contexts where we might expect to find temporal gestures that may or may not be linear. It will be argued that Series A, or tense-like temporal relationships are expressed in Chol mostly by deictic temporal adverbials. The expression of Series B time, or sequential time, is predominantly done by means of sequential predication. Therefore, in this chapter I examine the frequency and types of gestures co-occurring with each of these categories. It will be shown that these two categories of speech behave rather differently in terms of gesture occurrence. Deictic temporal adverbs are very rarely gestured, and when they are, the meaning of the gestures is unrelated to time. However, sequential predicates do have co-speech gestures that show relationships of events in time. In section 4.4 I zoom in on this category and I examine different examples of gestures co-occurring with sequential predicates. I will argue that

some of these gestures depict relationships of events in time, but such relationships are not represented in Chol gesture and, by extension, in Chol thought, as abstract timelines.

4.1.1. Deictic temporal language and sequential temporal language

In a classical piece on the philosophy of time, the idealist philosopher McTaggart (1908) argued that there are two basic types of temporal relationships, which he called respectively "Series A" and "Series B." "Series A" temporal relationships refer to "the series of [event] positions running from the far past through the near past to the present, and then from the present to the near future and the far future," whereas "Series B" temporal relationships refer to a "series of positions that runs from earlier to later" (1908: 458). A crucial difference between these two different types of temporal relationships is that Series A time is inherently deictic and is calculated with respect to a here-now, which we call "present," whereas in Series B the relationships between events are non deictic, or "permanent" in McTaggart's terms: "If [an event] M is ever earlier than [another event] N, it is always earlier. But an event, which is now present, was future and will be past" (1908: 458). In other words, the reference point for any given event in Series B time is another event, not the ephemeral, ever shifting here-now or present that is the reference point in Series A time.

In natural languages, this qualitative difference between what McTaggart called "Series A" and "Series B" temporal relationships is conveyed through two different types of linguistic strategies, that we shall call deictic temporal language and sequential temporal language. But, as we have seen in Chapter 3, natural languages have yet another strategy for expressing temporal information that does describe the relative location of an event with respect to the moment of speech or with respect to some other reference time: aspect. In

Traugott's (1978) classical work on temporal language, she proposed a tri-partite classification of temporal language, partly based on McTaggart's distinction between Series A/Series B time, to which she added the non-locational category of aspect; she argued that "Tense relates or locates situations and events with respect to the time of utterance, sequencing orders them with respect to each other, and aspect is a way of viewing situations and events as wholes, or as journeys, in other words, as objects with spatial characteristics" (1978: 373). Therefore, in Traugott's foundational work, "tense" is akin to Series A past/present/future temporal relationships, "sequencing" corresponds to McTaggart's Series B earlier/later temporal relationships, and aspect simply does not convey any kind of locational relation between events.

Now let us examine these three different categories of temporal language in light of Klein's (1994, 2009) distinction between Topic Time and Utterance Time. As we have seen in Chapter 3, aspect, a non deictic, "non locational" category is only concerned with the internal make-up of an action, situation, or event; it does not describe the relative location of an event with respect to some other event or to the moment of speech; rather, it describes the event from a qualitative point of view. Thus in aspect, by definition, the relationship between Topic Time and Utterance Time is left unspecified. By constrast, "tense" ("Series A") deictically locates Topic Time with respect to Utterance Time: it tells us whether an event happened before, at the same time, or after the moment of speech. Finally, in "sequencing" ("Series B") a relationship of anteriority and posteriority is established between a minimum of two different times: the Topic Time of an utterance and some other reference time.

Considering these three qualitatively different forms of temporal language, namely, aspect-based time, deictic (tense-like) time, and sequential time, we now turn to one of the central questions of this Dissertation: in which of these three different temporal categories may the linearity of temporal representation be originated? Given the fact that "linearity" is a spatial category, and that, at least since Euclidean geometry it has been established that a *line* is the shortest distance between two *points*, it could be argued that a "*timeline*," by definition, is the spatial representation of the relative location of (a minimum of) two *temporal events*. Under this definition, aspect-based temporal language does not seem a likely candidate for generating a linear representation of time, given its inherent non-locational, non-spatial, non-relational semantics. However, deictic ("Series A") temporal language and sequential ("Series B") temporal language both express the relative location of two different temporal events: in deictic tense-like expressions, the two different events are Topic Time and Utterance Time. In sequential language, the two different events are Topic Time and some other reference time.

If we accept the premise upon which this Dissertation is based, namely, that there exists an inextricable connection between language, gesture, and mental imagery (McNeill 1992, 2005), then it might be reasonable to assume that, in order to maximize our chances of finding linear gesture, we must examine those categories of speech that have two different event times: deictic temporal language ("Series A"), and sequential temporal language ("Series B").

Although Chol makes extensive use of grammatical aspect and lacks grammatical tense, as explained in Chapter 3 it has *optional* means for expressing tense-like ("Series A") and sequential ("Series B") relationships between two or more events. Series A, or tense-

136

like temporal relationships are conveyed in Chol mostly by deictic temporal adverbials[92], as shown in sentence (1). The expression of Series B time, or sequential time, is predominantly done by means of sequential predication, as illustrated in (2):

(1) Kaje   i-cho'-Ø-Ø-e   k-mama   wajali   (cf. Ch.3, 67)
     PROS   A3-peel-B3-SS.TV.NPFV   A1-mother   in.the.past
     'In the past, my mom started to peel it'

(2) Ujty-i-Ø   pechom /   (cf. Ch. 3, 121)
     Finish-SS.IV.PFV-B3   make.tortilla
     mu=x   kaj   tyi   misuj-el,   pejtyel,   jiñi #
     IPFV=CL   PROSP   PREP sweep-NM   everything   DET
     'Tortilla-making being finished, (then) I start to sweep, (and) all (the other stuff)'

    It is precisely in linguistic contexts similar to the ones exemplified in (1) and (2) that existing studies with languages that have mandatory grammatical tense have documented linear gestures that represent relationships of events in time (see for instance Calbris 1990; Cienki 1998; Cooperrider and Nuñez 2009; Casasanto and Jasmin 2012). For this reason, this is where we might expect to find such linear gestures in Chol speech.

---

[92] Specifically, by lexical temporal adverbials (cf. Ch.3, section 3.2.1) and by those temporal adverbial phrases which are semantically equivalent to temporal deictic adverbials. See for instance Ch. 3, section (3.2.3.), sentences (94) and (95), where a deictic relationship is established between utterance time and topic time. Examples (94) and (95) come from grammatical elicitation sessions that were not video-taped. Unfortunately, the sample of speech video-recorded for this part of the Dissertation did not include any examples of utterances like (94) and (95), thus this kind of deictic reference will have to be further investigated in my next research project. Other categories of speech that in certain specific contexts (and not always) behave deictically, like the adverbial particles –*ix* and –*tyo* (see for instance Chapter 3, examples 109, 110, 111 a, 111b) are partly discussed in the following sections of this chapter, although a more extensive study on this particular topic is in preparation. In this dissertation I therefore focus in the class of lexical deictic temporal adverbials, which, by definition, in all contexts function as deictic relators between topic time and utterance time.

4.1.2. Methodology

In order to analyze the frequency and types of gesture co-occurring with deictic temporal adverbs and with sequential predicates in Chol, I collected data from three Chol women (see Appendix D for participant data). The three speakers were monolingual and non-literate[93]; I conducted and video recorded semi-structured interviews in Chol. The semi-structured interviews consisted of a number of open-ended questions which aimed at eliciting different types of temporal speech; three different types of temporal sequences were discussed in the interviews:

- Short-term temporal sequences: the speakers were asked questions about how to prepare certain types of food, or activities which can be completed in a short period of time, like several hours or a few days.

- Intermediate temporal sequences: the interview included questions about agricultural cycles, which are usually completed in several months or in a year, or yearly cycles which are repeated (alternance of wet and dry seasons, etc).

- Long-term temporal sequences: a special emphasis was put in eliciting differences between how things used to be "before" and how things are "now," things that people remember of their lives which happened long time ago; things they used to do before and now they do not do anymore.

---

[93] As explained in the Introduction, although there are some male monolingual speakers of Chol, most monolingual and non literate speakers of Chol are women.

The semi-structured interviews were transcribed and processed with Transana, a software designed to align text with images. I then created a database to register all the sentences from these three speakers that contained either temporal adverbs or sequential predicates. Each entry in the database was coded for a) presence or absence of gesture b) if a gesture was present, what type of gesture was it?[94] c) what was the gesture's meaning and shape? Based on these data, in this chapter I first make a comparison between the frequency and types of gesture co-occurring with temporal adverbs[95] and sequential predicates. I then look at some examples of gestures co-occurring with deictic temporal adverbs and with sequential predicates respectively. I close the chapter with a discussion of the type of cognitive representation of time that is implied in Chol temporal gestures.

4.2. Lexical Temporal Adverbs versus Sequential Predicates

We begin by asking the question of whether the classes of temporal adverbs and sequential predicates are gestured at all by Chol speakers, and if that is the case, whether there is a difference between these two classes in terms of the presence or absence of gesture. For each speaker, we tabulated all the sentences that contained either a sequential predicate or a temporal adverb, and then checkmarked those that contained a co-speech gesture. For sentences with temporal adverbs, those would be gestures co-occurring specifically with the temporal adverb or immediately before it[96]; for sequential predicates, those would be

---

[94] Using McNeill's (1992) classic gesture typology with some modifications; see Section 4.3 for details on these gestural categories

[95] Initially, all temporal adverbs were coded, not just those with deictic reference. Discussion of this appears below.

[96] The phenomenon of gesture anticipation is well documented and explained in the literature. Gestures are either synchronous with speech, or anticipate "by a brief interval the co-expressive linguistic segments"

gestures co-occurring within the breath group or groups that make up the sequential predicate.

Many sentences contained mixed types of temporal reference, for instance, a sentence with sequential predicates may also contain a temporal adverb, or a sentence may contain a temporal adverb and a clitic, etc. The most common combination is that of a sequential predicate with a clitic, or a sentence that contains a temporal adverb and also a clitic, or a temporal adverb which has its own clitic attached—for instance *wajalix*, 'it was (already) long time ago'. We thus divided sequential predicates and temporal adverbs into two different categories: the "pure" category referred to those sequential predicates or sentences with deictic temporal adverbs occurring by themselves, and the "combined" category referred to those sentences that also contained a clitic. In what follows I present figures for both "pure" and "combined" types of temporal reference.

As we saw in Chapter 3, not all lexical temporal adverbials are deictic. Semantically, some of these adverbials were defined as "positional" adverbials, because they specified the location of topic time with respect to utterance time, as illustrated in sentence (1) above, where the deictic temporal adverbial *wajali* 'in the past, back then', locates topic time before the moment of speech. Other lexical adverbials like *jal* 'taking a long time' are non deictic, non locational, or non relational: these do not convey any kind of "Series A" temporal relationships. We first examined whether there was a difference in terms of presence or absence of gesture within the class of temporal lexical adverbials, between deictic and non deictic temporal adverbials. Table 4.1. shows the distribution of

---

(Kendon 1972, 1980; McNeill 1992:25). For this reason we included in the sample the gestures that occurred immediately before the temporal adverb.

gestures for deictic and non deictic temporal lexical adverbs; These figures were calculated based on those sentences that included only "pure" lexical temporal adverbials, and did *not* include any clitics or other mixed types of temporal reference:

Table 4.1. Gesture occurrences in pure Temporal Adverbs						
	Deictic Temporal Adverbs			Non Deictic Temporal Adverbs		
	Total	Gestured	Percentage	Total	Gestured	Percentage
Speaker 1	17	7	41%	3	1	33%
Speaker 2	44	5	11%	3	2	67%
Speaker 3	14	8	57%	1	0	0%
Total	**75**	**20**	**27%**	**7**	**3**	**43%**
Mean	25	6.7	37%	2.3	1	28%
SD	16.5	1.5	23%	1.15	1	35%

The data set contained relatively few instances of non deictic adverbs used by the Chol monolingual speakers; with so few examples, it is difficult to make any generalizations or predictions about the gestures co-occurring with non deictic temporal adverbs. But, at the very least, these data reveal that gesture occurrence is overall low in deictic temporal adverbs. Although in this sample gesture occurrence is lower in deictic temporal adverbs than in non deictic temporal adverbs, a χ^2 test of independence showed that the difference between deictic and non deictic temporal adverbs was not statistically significant ($\chi^2 = 0.0832$, p=0.36). Therefore, in what follows I shall discard non deictic temporal adverbs from the sample of temporal speech analyzed, on the grounds that first, semantically these do not convey "Series A" or "Series B" temporal relationships; second, the data set did not contain enough examples to allow us making any inferences about gestural patterns in this category of speech; and third, even if we tried to make such inferences, the difference between deictic and non deictic temporal adverbs in terms of gesture occurrence was not

statistically significant. Therefore, the question of the frequency and types of gestures co-occurring with non deictic temporal adverbs is a matter of future investigation.

I now turn to compare figures for gesture occurrence between the two categories of speech that I have identified as relevant for the study of linearity in temporal gesture: deictic temporal adverbs, which convey "Series A" or tense-like relationships between topic time and utterance time, and sequential predicates, which convey "Series B" or sequencing relationships between topic time and some other reference time. Is there a difference between these two different linguistic categories in terms of presence or absence of gesture? Table 4.2. shows the total occurrences of gestures for the syntactic classes of deictic temporal adverbs and sequential predicates respectively. These figures were calculated based on those sentences that included only one "pure" type of temporal reference, either a sequential predicate, or a deictic temporal adverb, and did *not* contain temporal clitics or other types of temporal reference.

Table 4.2. Gesture occurrences by syntactic class						
	Pure Deictic Temporal Adverbs			Pure Sequential Predicates		
	Total	Gestured	Percentage	Total	Gestured	Percentage
Speaker 1	17	7	41%	6	3	50%
Speaker 2	44	5	11%	14	11	79%
Speaker 3	14	8	57%	5	5	100%
Total	**75**	**20**	**27%**	**25**	**19**	**76%**
Mean	25	6.7	37%	8.3	6.3	76%
SD	16.5	1.5	23%	4.9	4.2	25%

A χ^2 test of independence showed that there is a significant difference between pure temporal adverbs and pure sequential predicates in terms of the presence of co-speech gestures that cannot be due to chance (χ^2 =19.97, p= >.001). Gestures co-occur much more

frequently with sequential predicates (76%) than with utterances that contain deictic temporal adverbs (27%). We can infer from these data that Chol monolingual speakers have a tendency to gesture much more often in sequential predicates than in utterances that contain deictic temporal adverbs. The pattern was very similar across the three speakers, with standard deviation of 23 percentage points for deictic temporal adverbs and 25 percentage points for sequential predicates.

As I explained above, very often deictic temporal adverbs and sequential predicates occurred with other types of temporal reference, especially with the temporal clitics *–ix* 'already' and *-tyo* 'still'. One could ask whether the presence of such temporal particles had a significant impact in the levels of gesture occurrence. Table 4.3 shows the percentage of gestures co-occurring with utterances that contained combined temporal reference, namely those sentences which contain a temporal deictic adverb and a temporal clitic, and those sequential predicates which contain a temporal clitic.

Table 4.3. Gesture occurrences in combined syntactic classes						
	Combined Deictic Temporal Adverbs			Combined Sequential Predicates		
	Total	Gestured	Percentage	Total	Gestured	Percentage
Speaker 1	6	1	17%	14	14	100%
Speaker 2	28	5	18%	6	6	100%
Speaker 3	15	3	20%	3	2	67%
Total	**49**	**9**	**18%**	**23**	**22**	**96%**
Mean	16.3	3	18%	7.7	7.3	89%
SD	11.1	2	2%	5.7	6.1	19%

These data show that gestures accompany combined sequential predicates significantly more oftne than combined deictic adverbs (Yates' χ^2 =35.046, p= >.0010). χ^2 tests of independence and Yates' χ^2 tests (adjusted for low frequency of gesture occurrence)

were also executed to compare the proportion of gestured to non gestured utterances in pure and combined deictic temporal adverbs and the proportion of gestured to non gestured utterances in pure and combined sequential predicates (Pure versus combined deictic temporal adverbs χ^2=1.139, p= 0.285; Pure versus combined sequential predicates Yates' χ^2=2.304, p=0.13). These results show that in the "combined" category, the proportion of gestured to non-gestured sentences remains as in the "pure" category: low for temporal deictic adverbs—27% in pure deictic temporal adverbs and 18% in combined deictic temporal adverbs—and high for sequential predicates—76% in pure sequential predicates and 96% in combined sequential predicates[97]. This is illustrated in figure 4.1 below:

Figure 4.1. Proportion of gestured to non gestured utterances in pure and combined sequential predicates and deictic temporal adverbs

---
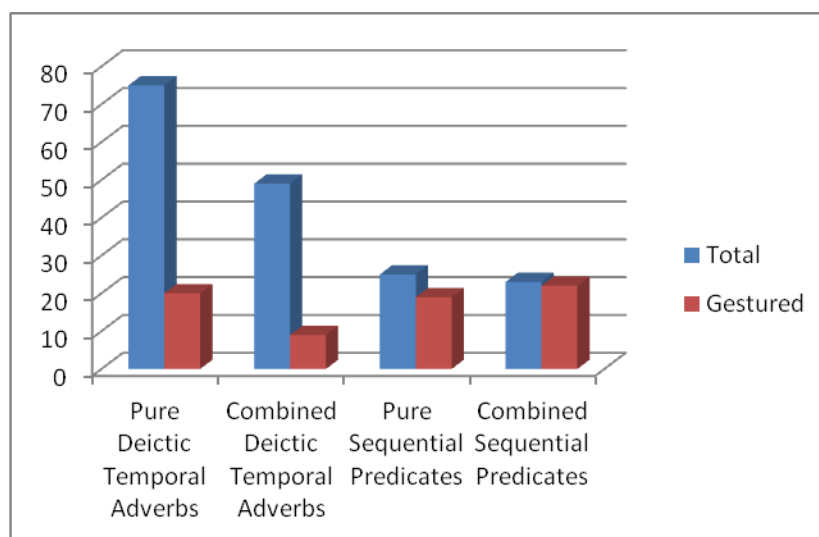
[97] In addition, these data also show that the small difference in terms of gesture occurrence between the "combined" and "pure" types of temporal reference varies with the type of utterance where clitics occur: gesture occurrence is a little bit lower when the clitics co-occur with sentences that contain deictic temporal adverbs, and slightly higher when the clitics co-occur with sequential predicates. Again, this will be a matter for future investigation.

Because these data show a very similar pattern of gesture occurrence in sentences that contained a deictic temporal adverb or a sequential predicate only, and sentences that contained a clitic in addition to a deictic temporal adverb or a sequential predicate, we will not exclude from our sample those sentences that contained the clitics –*ix* and –*tyo*. The final step is therefore to calculate the total occurrences of gesture in all sequential predicates (N=48), and in all sentences that contain deictic temporal adverbs (N=124).

Table 4.4. Total gesture occurrence by syntactic class						
All Deictic Temporal Adverbs			All Sequential Predicates			
	Total	Gestured	Percentage	Total	Gestured	Percentage
Speaker 1	23	8	35%	20	17	85%
Speaker 2	72	10	14%	20	17	85%
Speaker 3	29	11	38%	8	7	88%
Total	**124**	**29**	**23%**	**48**	**41**	**85%**
Mean	41.33	9.67	29%	16	13.67	86%
SD	26.73	1.53	13%	6.93	5.77	1%

The data from Table 4.4 show a significant difference in gesture occurrence between sequential predicates and deictic temporal adverbs (χ^2 = 55.168, p= >.001): overall, sequential predicates are almost always gestured, whereas deictic temporal adverbs are gestured much less often. The pattern is very similar across the three speakers, with a standard deviation of only 13 percentage points in the class of deictic temporal adverbs and 1 percentage point in the class of sequential predicates. Figure 4.1 shows the total distribution of gestured to non gestured utterances for all temporal deictic adverbs and for all sequential predicates; the total sample of utterances analyzed is N=172:

**Figure 4.2. Proportion of gestured to non gestured utterances
in all Deictic Temporal Adverbs and all Sequential Predicates**
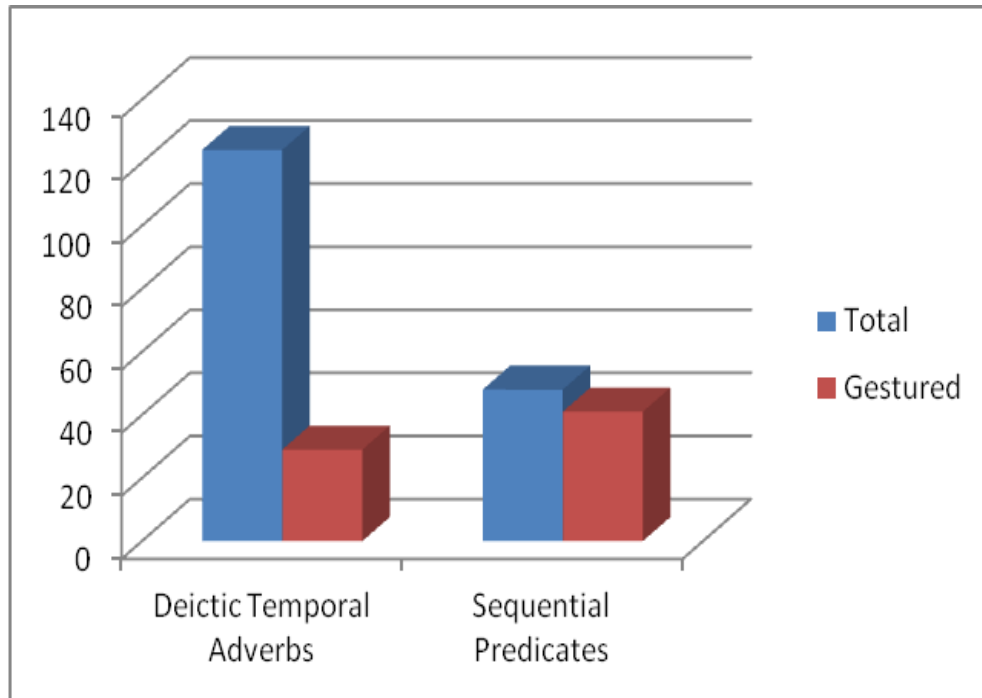
This quantitative analysis shows that, overall, sequential predicates are gestured most of the time, whereas temporal adverbs are not. Why could this be? One possible explanation may lie in the concept of "communicative dynamism" (Firbas 1971), which was adapted by McNeill (1992) based on Firbas to explain why gestures sometimes do not occur. Communicative dynamism (henceforth CD) is:

…the extent to which the message at a given point is 'pushing the communication forward' […] A reference to an event provides a momentary focus and this focus can be on any of the event lines. As the speaker moves between levels and event lines[98], at any given moment, some element is in focus and other elements recede to the background (cf.Grosz 1981). This focal element will have the effect of 'pushing the communication forward' on its event line and will provide its own peak of CD." (McNeill 1992: 207)

According to McNeill, sentences that are higher in CD have more gestures than sentences low in CD; within the sentence, the elements that have more CD are the ones that more often have co-speech gestures. As we have seen in Chapter 3, deictic temporal adverbs, as opposed to aspect marking, are optional in Chol. The evidence from gesture non-occurrence is that at the intra-sentential level, the CD of deictic temporal adverbs is low. Sequential predicates on the other hand by definition provide a semantic context which "pushes the communication forward", which may explain why these are almost always gestured.

---

[98] The terms of 'event lines' and 'levels' are relevant in McNeill's methodology, which consisted on showing cartoons to people and then asking them to tell the story in the cartoon to an interviewer. In his analysis of the narratives and gestures that people would produce after watching a cartoon, McNeill argued that any given story is composed of five event lines that make up three narrative levels: the narrative level 'consists of references to events from the world of the story proper'. At this level there is an event line made up of 'the sequence of events in the story'. The metanarrative level is the narrator's 'explicit references to the structure of the story as they build it up.' At this level there are two event lines: 1) the different event lines that make up the narrative of the story, for example the different individual stories that make up the whole story; and 2) the temporal sequence implied in the act of viewing the cartoon itself. Finally, the paranarrative level is the narrator's references to their own experience of receiving or telling the story. At the paranarrative level there are also two event lines: 1) The event line of the person's memory of the story in the cartoon and 2) 'The sequence of recounting the cartoon to a listener: the interpersonal narrative' (McNeill 1992: 184-187).

4.3. Gestures co-occurring with deictic temporal adverbs

In the following two sections we will "zoom in" on the two syntactic categories previously discussed, namely deictic temporal adverbs and sequential predicates, and we will examine the type of gestures co-occurring with them. We will first look at the co-speech gestures of deictic temporal adverbs.

For this part of the study, I created a separate database with all the utterances that contained a temporal deictic adverb. Then, each gesture co-occurring with a temporal deictic adverb was classified and described in terms of its shape and meaning. The classification was based on McNeill's classic gesture typology (1992: 12-22), with some modifications; co-speech gestures were coded as beats, deictics, metaphorics, and iconics[99]. McNeill's class of "deictic" gestures was further subdivided into two subclasses: real deixis and abstract deixis. "Real deixis" means that speakers were pointing at actual people, objects, or features of the landscape; "abstract deixis" is a form of spatialization of abstract concepts; it means that speakers were pointing at something, but the object of the deixis could not be located in the room or the near landscape. In addition to these basic types, the table also included the categories of "none," "combined," and "undetermined." "None" obviously accounts for those deictic adverbs that did not occur with a co-speech gesture. The "combined" category included those sequential predicates in which more than one gesture type was present; finally, "undetermined" was the category reserved for those co-speech gestures that we simply could not interpret. The results are summarized in Table 4.5:

---

[99] A summary of McNeill's typology is given in Appendix B. Because this is a clause-by clause analysis, McNeill's class of "cohesives" (1992: 16), which can only be appreciated at the discourse level, will not be considered here.

Table 4.5. Types of gestures co-occurring with deictic temporal adverbs		
	Total	Percentage
None	95	77%
Beats	9	7%
Abstract deixis	2	2%
Real deixis	4	3%
Metaphoric	8	6%
Iconic	0	0%
Combined	1	1%
Undetermined	5	4%

Table 4.5 shows that the most common gestures co-occurring with deictic temporal adverbs were beats and metaphorics. The other gesture types are below 5%, so really generalizations, predictions or explanations cannot be made based on these figures for these gesture types. The low level of CD characteristic of deictic adverbs also explains the distribution of the different gesture types. According to McNeill, "no gesture" conveys the lowest level of CD, followed by beats. As Table 4.5 shows, 77% of the deictic temporal adverbs were not gestured; when they were gestured, the most common gestures (7%) were beats. McNeill also argues that iconics convey the highest level of CD; not surprisingly, not a single iconic gesture was identified co-occurring with deictic temporal adverbs (0%).

Do the beats co-occurring with deictic temporal adverbs have some kind of "temporal" meaning? Beats are gestures in which "the hand moves along with the rhythmical pulsation of speech" (McNeill 1992:15); they have a meta-narrative meaning, and "reveal the speaker's conception of the narrative discourse as a whole" (*ibidem).* It would be tempting to infer some kind of temporal information from beats, as if they represented some kind of rhythmic temporality, or even some cyclical or repetitive notion of time. However, the inherent semantics of deictic temporal adverbs is at odds with such a

notion of rhythmic temporality; one could expect to find beats co-occurring with certain types of aspectual markers—maybe with progressives or imperfectives—, or even with the non deictic temporal adverbs that convey an idea of repetition (*cha'*, 'twice') or unfoldingness in time (*jal* 'taking a long time'*, bele* 'always', etc.), but certainly not with deictic adverbs. For this reason I am inclined to believe that beats in Chol discourse, as in many other languages, have a meta-narrative function, or at least do not convey any kind of specific temporal information.

What about metaphoric gestures? Do they convey some kind of temporal information? Interestingly, six out of the eight metaphoric gestures co-occurring with or immediately preceding deictic temporal adverbs were conduits (McNeill 1992). A conduit is a metaphoric gesture by means of which some abstract concept is recreated as an object. The "object" can be held and is manipulated by the speaker; for this reason basic conduits are often represented by hands that seem to be holding, containing, or presenting some imaginary object. Another tempting idea would be that the "object" that speakers are recreating in these types of metaphoric gestures is the concept of time itself. However, a close examination of these gestures and the context of speech revealed that the conduits did not refer to the concept of time, but to other components of the utterance. The following is an example of the prototypical metaphoric gesture co-occurring with a temporal deictic adverb:

(3) Jiñ=me=ku   cha'añ   [ya' añ-oñ   ili   wä]leyi[100]
     DET=PART=AFF   PREP   there EXT-B1   DET   now
     Metaphoric: 2SH, loose B spread, P vertical AB, 2SM
     'Indeed, because of that, now we are there'

Figure 4.3. "Now we are there"
Metaphoric gesture (conduit) co-occurring with temporal deictic adverb

The sentence refers to a change of religion; the speaker had been explaining that back then, they were not Christians; but when they became Christians a number of good changes happened in her life. Then she utters the sentence "Because of that, now we are there," and in this context "there" refers specifically to the new religion. The conduit is represented by two palms vertical that seem to be holding an object; it metaphorically refers to the concept of being in one place. The "object" being held or contained is the speaker's family, "we," and the "container" is the religion, which is the new "place" where the speaker is in the present. The conduit therefore does not refer specifically to the deictic temporal adverb *wäleyi*, 'now', or to the concept of time.

---

[100] Square brackets are the standard convention to mark the duration of the gesture, left bracket marks the onset—or preparation phase, if it has it—, right bracket marks the end of the main stroke—or retraction phase, if it has it.

4.4 Gestures co-occurring with sequential predicates

In section 4.3 I have shown that in the very few examples in which the deictic adverbs were gestured, the gesture did not have a "temporal" semantics. Rather, it referred to a different element of the utterance. In this section we will examine the gestures co-occurring with sequential predicates; I begin by recalling some essential information about sequential predicates. Then I will describe the different types of gestures that co-occur with these sequential predicates. Finally, I conduct a qualitative analysis of selected examples in order to offer an interpretation about the meaning of these gestures and to determine whether they convey some kind of temporal information, and if they do, whether the kind of temporality they reflect is "linear" or not.

As explained in detail in Chapter 3[101], a sequential predicate is a syntactic-prosodic unit utterance composed of a minimum of two predicates, each of them describing two (or more) events that are sequentially connected to each other by means of:

a) An explicit temporal ordering: having occurred something, something else occurs.[102]

b) A logical assumption within Chol culture, a type of 'universal truth predicate'

c) A causal relationship: when X happens, Y happens (later) as a consequence of that

d) A conditional relationship: if X happens, then Y happens (later)

e) A purpose or end goal: X is done so that Y can happen (later).

---

[101] For a complete description of sequential predicates and examples of types of sequential predicates please see section 3.5 of Chapter 3.

[102] This is similar to Labov's (1972) definition 'minimal narrative' or 'narrative', depending on the number of verb clauses and temporal junctures that make up the sequential predicate.

Each sequential predicate consists of a minimum of two verb clauses, which can be connected by means of juxtaposition, subordination, a preposition, a temporal noun, or occasionally borrowings from Spanish. Another formal characteristic of sequential predicates is that they are always structured in certain syntactic frames. In a typical sequential predicate consisting of two verb clauses, each verb clause is inflected with aspect and one serves as an "anchor" to the other[103].When the first of the verb clauses of a sequential predicate is inflected with the perfective aspect, it acts naturally as the anchor of the temporal relationship between the two predicates; I called this type of sequential predication "Perfective-based." By contrast, in "Imperfective-based" predicates the first of the verb clauses is inflected with the imperfective, progressive, prospective aspects. The following examples illustrate Perfective-based (4) and Imperfective-based (5) sequential predicates:

(4) Ujty-i-Ø   pechom /   (cf. 2)
     Finish-SS.IV.PFV-B3   make.tortilla
     mu=x   kaj   tyi   misuj-el,   pejtyel,   jiñi #
     IPFV=CL   PROSP   PREP sweep-NM   everything   DET
     'Tortilla-making being finished, (then) I start to sweep, (and) all (the other stuff)'

(5) Mu=x   ju'b-eñ-ob /   (cf. Ch.3. 127)
     IPFV=already   descend-PRF-B3.PL
     mux   i-lok'-Ø-el   maj #
     IPFV=already   3A-exit-SS.IV.NPFV-NM   DIR
     'Taken down (her skin), (then) she goes out'

For this part of the study, I created a separate database with all the sequential predicates used by the three monolingual speakers in the semi-structured interviews. Each

---

[103] See Table 3.7 in Chapter 3, "Sequential Predicates: Basic syntactic frames"

sequential predicate was classified as either "Perfective based" or "Imperfective based." Then, each gesture co-occurring with a sequential predicate was classified in terms of the same categories explained in Table 4.5. The results are summarized in Table 4.6.

4.6 Types of gestures co-occurring with sequential predicates						
	Perfective-based		Imperfective-based		Total	
None	1	8%	6	17%	7	15%
Beats	1	8%	1	3%	2	4%
Abstract deixis	3	25%	1	3%	4	8%
Real deixis	1	8%	7	19%	8	17%
Metaphoric	1	8%	4	11%	5	10%
Iconic	1	8%	5	14%	6	13%
Combined	2	17%	6	17%	8	17%
Undetermined	2	17%	6	17%	8	17%
Total	12		36		48	

The meaning of the gestures co-occurring with sequential predicates is difficult to interpret if we look at it *only* from a quantitative perspective; the data from Table 4.6 need to be interpreted with caution, given that, for instance, at least 17% of the gestures accounted for belong in the "combined" category; most of these complex gestures consisted of a combination of beats, metaphorics, and iconics, therefore careful consideration of these combined gesture types could have an impact in the total percentages of each of the other categories. The fact that only one beat was found in the Perfective-based predicates does not mean that there were no other gestures in which beats were not present; it means that only that particular example passed Eilfort's "beat filter" (McNeill 1992:380), but many others were dubious examples and therefore put in the "undetermined" category; other beats appeared in combination with other types of gesture in the "combined" category.

Nevertheless, some broad generalizations can be extrapolated from these data, before we attempt a more qualitative interpretation of the gesture forms and meanings.

As table 4.6 shows, overall the most common gesture type co-occurring with sequential predicates were deictics. The sum of the percentages of abstract deixis (8%) and real deixis (17%) adds up to a total of 25%; if we discard the "none" category and re-calculate that measure with respect to the total number of gesture occurrences, deictics account for a total of 29% of all co-speech gestures co-occurring with sequential predicates. Of the McNeillian types, the second most common are iconics, followed by metaphorics; beats are relatively uncommon (only 4%), but as explained above this could be justified by their presence in other categories (combined and undetermined).

Interestingly, some differences can be observed between the Perfective-based and Imperfective-based categories in terms of the type of co-speech gestures. Overall, abstract deixis is more common in Perfective-based predicates (25%) than in Imperfective-based predicates (3%). The difference between these two grammatical categories in terms of the presence of abstract deixis is marginally significant (Yates' χ^2=3.27, p=0.07) . Although in this sample real deixis and iconic gestures co-occur more frequently with Imperfective-based than with Perfective-based sequential predicates, these results are not statistically significant (real deixis: Yates' χ^2=0.2 p=0.65; iconics: Yates' χ^2=0.614, p=1). There is not much difference in the distribution of metaphoric gestures between Perfective-based (8%) and Imperfective-based (11%) (Yates' χ^2=0.074, p=0.78).

We shall now discuss some examples of the prototypical gestures co-occurring with Perfective and Imperfective-based predicates. Figure 4.4 represents a deictic gesture co-occurring with an Imperfective-based sequential predicate. In this case, the speaker is

pointing at a real location in the room—the hearth in the kitchen, where coffee-boiling would take place; her deictic gesture co-occurs with the first event of the sequential predicate, "we boil (coffee)"; there is no accompanying gesture for the second event, "then we drink it", her hand just returns to rest position. There is therefore no gesture referring to the temporal relationship between the two events of boiling and of drinking.

(6) [Mi   k-chäx-Ø-Ø-la,
     IPFV A1-boil-SS.TV.NPFV-B3-PL1.INCL
     mi   k-chäx-Ø-Ø-la], /
     IPFV A1-boil-SS.TV.NPFV-B3-PL1.INCL
     'We boil it, we boil it,
     Deictic (real): RH B, PTU pointing towards the kitchen's fire

     mu=ku   k-chäx-Ø-Ø-la, /
     IMPF=AFF   A1-boil-SS.TV.NPFV-B3-PL1.INCL
     kape-Ø-Ø-la #
     drink-B3-SS.TV.NPFV-A1.PL.INCL
     Yes, we boil it, (then) we drink it'

Figure 4.4. "We boil it, we boil it"
Deictic gesture co-occurring with Imperfective-based sequential predicate

As can be seen in Figure 4.4, the deixis that co-occurs with imperfective-based sequential predicates like (5) has spatial meaning, not temporal meaning.

Figure 4.5 represents an abstract deictic gesture co-occurring with a perfective-based sequential predicate.

(7) [Mi   tsa'   ujty-i-Ø   k-waj],/
     COND   PFV   finish-SS.IV.PFV-B3 A1-tortilla
     'Tortilla-making being finished,
     Deictic (abstract): RH, D Bi-Dir moving up and down, pointing towards centre

     [mu=x   k-säk-Ø-Ø=e   k-sa'] #
     IPFV=CL   A1-wash-SS.TV.NPFV-B3=CL   A1-pozol
     (then) I wash my pozol'
     Deictic (abstract): RH, D Bi-Dir moving up and down, landing in centre-right periphery

Figure 4.5. 'Tortilla-making being finished, then I wash my pozol''
Abstract deictic gesture co-occurring with Perfective-based sequential predicate

In this gesture, the two events that make the sequential predicate are represented by two separate strokes; the first stroke represents the first event, and it is spatially located at the speaker's centre; with two fingers extended, the speaker moves her hand up and down, landing at the centre of the gestural space; then she makes a parabolic shape moving up again, and then down, but this time landing in a separate location, at her centre-right periphery; what is being pointed at here is the relative metaphorical location of the two sequential events; the finished event—the preparation of the tortillas—is spatially located at the speaker's centre, whereas the event that follows after that, the washing of the corn, is located in the centre-periphery area. Equally important is the "parabolic" shape which metaphorically represents the connection between the two events. In this case the gesture does seem to refer to the temporal relationship between the two narrated events.

In both imperfective-based and perfective based sequential predicates, the Chol speakers produced gestures that metaphorically represented a temporal relationship between two events. These gestures present two main variants: some of these are "L" shapes where a first event is represented by a linear gesture going in one direction, and a second event is represented by another linear gesture going in a different direction; another, more frequent gesture shape is a "bridge" or a parabola; obviously the "bridge" has a beginning point and an end; parabolic shapes may represent either a sequential connection between these two points, or just the development or "unfoldingness" in time of the first event.

Figure 4.6 represents the L-shaped type. It consists of a complex gesture co-occurring with the sentence "you get into the truck, then you go." The gesture is partly metaphoric and partly deictic; it is deictic insofar as it is pointing towards the approximate

158

location of the road that leads out of the village, where people take a truck to go to other villages. It is metaphoric insofar as the gesture also represents two different events, getting into the car, and leaving the village; there is a sense of contrast between these two events, which is spatialized in an "L" shape.

(8)   [Ma   aw-ochel-Ø   tyi   karo],
      IPFV.A2   A2-get.into-SS.IV.NPFV   PREP car
      RH A with extended thumb PF, moving along the vertical axis

      [ma   a-majl-Ø-el]
      IPFV.A2   A2-go-SS.IV.NPFV-NM
      'You get into the car, (then) you go'
      RH A with extended thumb TB, moving along the horizontal axis
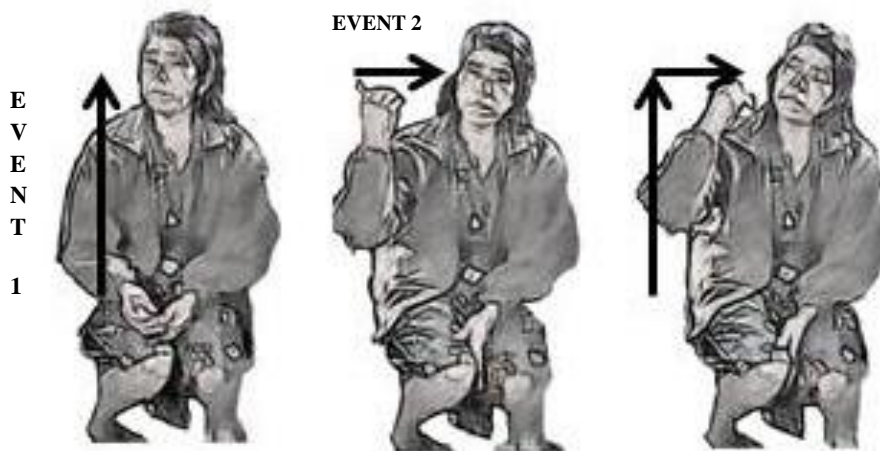
Figure 4.6. "You get into the car, then you go."
L-shaped gesture co-occurring with sequential predicate

"Bridge" shaped or parabolic gestures often co-occur with both types of sequential predicates. They may or may not consist of two separate gesture strokes. But parabolic gestures can be modified depending on whether they occur with an imperfective-based or with a perfective-based sequential predicate. Figure 4.7 represents a parabolic gesture co-

occurring with an Imperfective-based sequential predicate. The departing point is a metaphoric gesture, possibly a conduit, co-occurring with the first clause of the sequential predicate: "when/if there is no corn"[104]. Then, the speaker makes a bridge-shaped gesture co-occurring with "(then) we buy it." The parabola may reflect a sequential connection between the departing situation and how it is resolved; it may also convey information about the "unfoldingness" of the situation in time, or it may simply reflect the non-punctual, unfinished semantics of the imperfective predicate it co-occurs with.

(9) [Mach=ku   ba-'añ   lak-ixim],
     NEG=AFF   NEG-EXT   1A.PL.INCL-corn
     2SH loose B spread, PTU

     [Mi   k-mäñ-Ø-Ø-la]
     IPFV   A1-buy-SS.TV.NPFV-B3-A1.PL.INCL
     2DH: RH B PTD moving from centre to centre-left periphery
          LH loose B spread PTU
     'If/when there is no corn, we buy it'

Figure 4.7 "If there is no corn, then we buy it".
Bridge-shaped gesture co-occurring with Imperfective-based sequential predicate

---

[104] "When/if there is no corn" refers to the situation of not having corn in one's own fields; in this context it does not refer to a famine or general shortage of corn in the area.

Figure 4.8 is an example of a parabolic type of gesture occurring with a Perfective-based sequential predicate. It consists of two separate gesture strokes, co-occurring with each clause.

(10) [Mi   tsa'=äch   tsäñ-ä-Ø], /
      COND   PFV=AFF   cool.down-SS.IV.PFV-B3
      'If/when indeed it has cooled down / once it has finished cooling down
      Deictic: RH loose B, P vertical TC, PF, Bi-Dir: moving up and down

      [Mu=x   majl-Ø-el   k-säk-Ø-Ø   kälä   ja'] #
      IPFV=CL   go-SS.IV.NPFV-NM A1-wash-SS.TV.NPFV-B3   PREP   water
      (then) I go to wash it close to the river'
      Metaphoric: RH loose B, progressively turning into a loose C; P vertical TC, PF,
      moving from bottom-up and from centre towards centre-right periphery
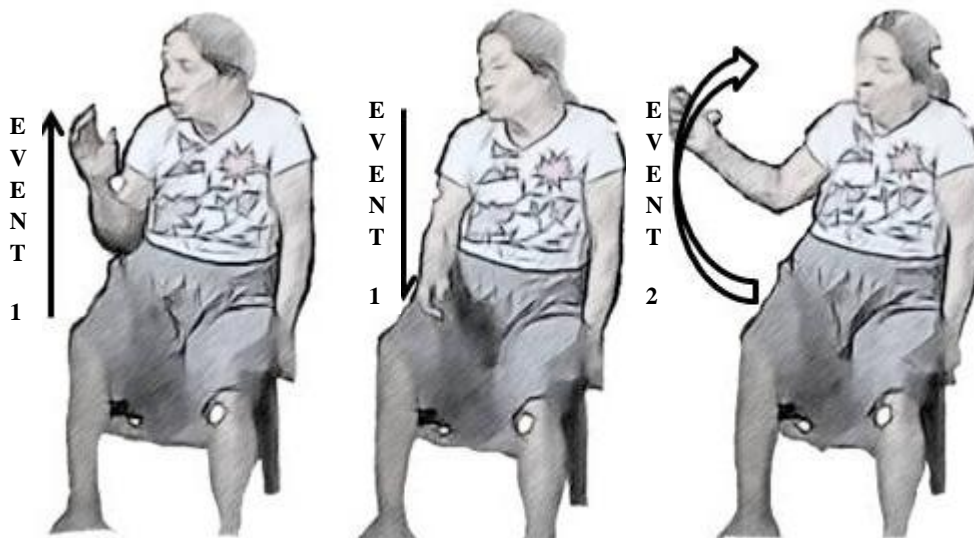
Figure 4.8. "When it's cooled down, I go to wash it"
Vertical and parabolic-shaped gestures co-occurring with Perfective-based
sequential predicate

The gesture that co-occurs with the perfective clause "if/when it has cooled down / once it has finished cooling down" is a vertical stroke repeated twice, and hitting a point

161

right in the central space in front of the speaker's body. The double stroke metaphorically represents the completion of the first event, which is spatialized as a definite point, located at the centre of the gestural space, which can be "hit" by the speaker. By contrast, the second gesture, co-occurring with the imperfective clause "(then) I go to wash it in the river," is another parabolic shape, similar to the one in Figure 4.7, but with a vertical orientation. It moves from bottom up, departing from the "perfective point," and then drawing a half-moon in the right-central-periphery area. In this case the parabolic shape represents an unfinished action, which, unlike the perfective, cannot be located at any particular point and can't be "hit," but it can be "traced."

Gestures like the ones represented in 4.5 and 4.8 are not uncommon with Perfective-based sequential predicates. In both examples, the first gesture is a definite, punctual, completed action that sets the stage for the next event. The speaker "hits" the point in time, then spatializes the second event at a different location. Usually the second stroke is a parabolic-shaped gesture, which may represent an open, unfinished action. It almost seems as if in the gestures co-occurring with Perfective-based sequential predicates, there was a first layer which is not about time itself, but about "placing" an event, usually right in front of the speaker; once the initial event is "placed," then a temporal relationship can be established with a second event.

I therefore argue that sequential predicates have co-speech gestures that show relationships of events in time. But are these relationships spatialized as a line? The L-shaped gesture is literally a "line" with a "corner." The bridge-shaped gesture may not seem radically different from the linear temporal gestures that co-occur with tense, but still it is not quite a "line;" even though it implies a connection between two points, the connection

162

traced is never a straight line, but a parabola. It begins at one point, then goes up, then goes down. It also differs fundamentally from linear temporal gestures with respect to the direction of motion. For instance, in a pattern that relates to literacy conventions, in the temporal gestures of English and Spanish speakers the progression of time is consistently represented with movement from left to right along the transversal axis (Calbris 1990; Cienki 1998; Cooperrider and Nuñez 2009; Casasanto and Jasmin 2012). By contrast, Chol temporal gestures move from left to right (4.5), from right to left (4.7), or from bottom up (4.8).[105]

4.5 Conclusions

In this chapter I have described Chol temporal gesture. In the Introduction I argued that, in order to answer the question of whether Chol temporal gesture was linear, we had to examine those contexts of speech that referred to a temporal relationship between a minimum of two events; In Chol, such contexts are utterances that contain deictic temporal adverbs—which refer to "Series A" temporal relationships, in McTaggart's (1908) terms, or to "tense"(-like) relationships in Traugott's (1978) terms—and sequential predicates—which refer to "Series B" temporal relationships in McTaggart's terms, or "sequencing" in Traugott's terms.

The first interesting finding is that these two different types of temporal language behave rather differently in terms of gesture occurrence. Gestures rarely co-occur with deictic temporal adverbs, and when they do, these are mostly beats, or they have a non

---

[105] Recall that the three speakers interviewed for this study were non literate. This finding therefore is in line with previous studies that have shown the impact of literacy in temporal cognition (Tversky, Kugelmass & Winter 1991; Bergen and Chan Lau 2012).

temporal semantics. Sequential predicates, by contrast, are almost always gestured. Overall, the most common gesture types co-occurring with sequential predicates are deictics (both abstract and real pointing), iconics, and metaphorics, whereas beats are relatively uncommon. Another interesting finding is that abstract deixis occurs more frequently with Perfective-based predicates than with Imperfective-based predicates.

A qualitative analysis of the gestures co-occurring with sequential predicates revealed that some of these gestures indeed encoded temporal information. Two common gesture shapes frequently co-occurring with sequential predicates were "L-shapes" and "parabolic" shapes. "L-shapes" represented two different events, each of which was spatialized as a "line," but each line run in a different direction. A temporal, dyadic relationship between the two events in L-shaped gestures is spatially represented as two contrasting directions. The second type of gestures discussed were the "parabolic" shapes. I also offered two possible interpretations to the meaning of these "parabolic-shaped" gestures: first, the gesture may represent a metaphoric "bridge" or a connection between two events. Another possible interpretation is that the parabola metaphorically represents the "unfoldingness" or development of a situation in time. In fact, similar types of gestures have been reported for both speakers of English (Cooperrider and Núñez 2009) and for speakers of Yucatec Maya (Le Guen and Pool Balam 2012). The authors of these studies offer contrasting interpretations about the meaning of these semi-circular gestures. Cooperrider and Núñez call these parabolic gestures "bridging," and they argue that they express a metaphorical connection between two points located in an imaginary timeline. By contrast, Le Guen and Pool Balam call these "rolling gestures," and they argue these represent the unfoldingness of an event in time, or a cyclical notion of time.

As we have seen, in the case of Chol, if these parabolic gestures do in fact represent some metaphorical connection between two different events, temporal progression is not represented as uni-directional movement along an imaginary timeline: unlike the "bridging" gestures of English speakers where temporal progression is consistently oriented left-to-right, the "parabolic" gestures of Chol speakers move indistinctly from left-to-right, right-to-left, and even from bottom-up. On the other hand, it is also possible that these gestures reflect, like the "rolling" gestures of Yucatec speakers, the unfoldingness of an event in time. I do not believe, however, that the parabolic gestures of Chol speakers represent a cyclical concept of time, as Le Guen and Pool Balam have claimed for the rolling gestures of Yucatec speakers. As I argued in Chapter 2, the Chol concept of time is neither cyclical, nor linear; I proposed that Bourdieu's (1963) description of a temporal system made of activities that are experienced as "islands of time," and which become "benchmarks" for other activities, was closer to the Chol notion of time than the "cyclic" or "linear" spatial metaphors. I also argued in Chapter 2 that a fundamental contrast in Chol temporal thought was "completed versus non completed." The examples I gave from Chol time reckoning systems illustrated that the relative order of events in both the ceremonial and agricultural calendars was established by means of completed or punctual activities that act as benchmarks for other (not yet completed) activities. Individual events, or "islands of time," in Bourdieu's terms, act as benchmarks for other events, and these follow an internal logical order that does not conform to an abstract linear (or cyclical) system.

Interestingly, the gestures that co-occur with Perfective-based predicates seem to illustrate precisely this pattern of temporal thought. In Perfective-based sequential predicates, the perfective base of the predicate often co-occurred with either vertical linear

gestures or with abstract pointing. In these particular cases it seemed as though there was a first layer that had to do with the act of "placing" an event; once this perfective, completed event has been "placed," another event can develop out of it. When the second verb in the sequential predicate was an imperfective predicate, it was often accompanied by a parabolic gesture. Thus what these gestures may reflect is first, a dyadic, sequential relationship between two events, and second, a *qualitative contrast* between two different types of events: a finished, completed, perfective event that acts as "benchmark," and an unfinished, not completed, non perfective event that cannot be "placed" or "pointed out," but can be "traced," and which develops or unfolds literally "from" the first, punctual event.

We are now in a position to offer a preliminary answer to the question of whether Chol temporal gesture is linear. I argue that Chol temporal gestures are *sequential* gestures, insofar as they metaphorically represent a sequential connection between two or more events, but these are not necessarily spatially represented in gesture as abstract timelines. In the linear temporal gestures of speakers of languages that have mandatory grammatical tense, the progression of time is spatially represented by adding distance along the temporal axis. But what is somehow emphasized in Chol gesture is not distance, but a dyadic relationship between qualitatively different types of events, which often reflects the aspectual semantics of the sentences where these gestures co-occur.

Therefore, the striking difference between deictic temporal adverbs and sequential predicates in terms of gesture occurrence can be further explained in light of the different types of temporal relationships ("Series A" and "Series B") that these two linguistic categories represent. It is no wonder that these two different types of temporal expressions have such different patterns of co-speech gesture, considering that they refer to two

166

fundamentally different types of "time." In McTaggart's terms, we could argue that Chol temporal gesture represents "Series B" temporal relationships; or at the very least, it can be safely argued that "Series A" time is not gesturally salient in Chol. Although McTaggart (1908) argued that "Series A" time was more *basic* than "Series B" time, at least in the case of Chol, the basis for temporal thought, language, and gesture seems to be grounded on Series B temporal relationships.

CHAPTER 5

TIME BEYOND THE SENTENCE

5.1. Introduction

In Chapter 4 I have analyzed the type of co-speech gestures that occurred in those grammatical contexts that were most likely to trigger linear representations of time. These were deictic adverbs with temporal reference and sequential predicates. Although deictic temporal adverbs were almost never gestured, I did find temporal gestures co-occurring with sequential predicates that represented relationships of events in time. A qualitative analysis of these gestures revealed that, although they metaphorically reflected a sequential arrangement of two or more events, such arrangement was not spatialized as a straight line. Nonetheless, the gestures sometimes reflected aspectual imagery—those that co-occurred with perfective predicates were often represented as points that could be hit, or even as objects that could be "placed". This was rarely the case for spontaneous gestures co-occurring with the non-completive aspects, namely imperfective, progressive, or prospective predicates. In Chapter 4 I have also argued that Chol temporal gesture reflects "Series B" temporal relationships, in McTaggart's terms.

Could it be that in the semi-structured interviews we were not asking the "right" type of questions in order to elicit linear gestures? As I have shown in Chapter 4, I did elicit a considerable number of utterances that contained some kind of temporal reference, of the kind that in other studies have been shown to occur consistently with linear gestures (cf. Casasanto and Jasmin 2012). But there are other possible ways of eliciting temporal speech and gesture. Cooperrider and Núñez (2009), for example, conducted a study where they

168

showed participants an image that portrayed the compressed story of the universe; then participants were asked to tell the story of the universe to another participant. Casasanto and Jasmin (2012) asked English speakers to gesture deliberately about earlier and later events. These were two canny studies, which aimed at eliciting temporal gestures, and which showed some good evidence for the psychological reality of the abstract timeline as manifested in English speakers' gestural repertoire. These studies show that asking people to think explicitly about time, or to tell stories in which the central topic is the passage of time is a good strategy for eliciting temporal gestures. Could something like this be replicated with Chol speakers, in order to maximize our chances of finding (linear) temporal gestures?

In the previous chapter, I examined temporal gesture focusing on how temporal relationships between events were represented in gesture and speech at the clause level. This chapter incorporates two different techniques for exploring temporal thought in Chol. The first technique is a continuation of the analysis of temporal gesture described in Chapter 4. In the first part of this chapter, I examine temporal gesture at the discourse level. In sections 5.2, 5.3 and 5.4 I describe a quasi-experimental task inspired by previous studies on temporal gesture that have asked speakers to talk about the concept of time, or to tell stories in which the central topic is the passage of time. The second technique is a textual analysis of a Chol traditional story. In section 5.5 I analyze how temporal relationships between events are constructed in the context of free storytelling. I conclude the chapter with some reflections about the main differences between the gestures of English and Chol speakers in storytelling, and about the narrative structure of Chol traditional stories.

5.2. Dickens in Chol

Inspired by other studies that have examined temporal gestures in contexts where speakers were asked to talk explicitly about time or to tell stories that focused on the passage of time, I designed a comparative task that consisted of asking English and Chol speakers to tell a story about time, *A Christmas Carol*, by Charles Dickens (1843)[106]. I chose this story for several reasons: first, it is a story in which time plays a central role, quite literally. In *A Christmas Carol* time is personified in the characters of three Ghosts: the Ghost of Christmas Past, the Ghost of Christmas Present, and the Ghost of Christmas Future. In addition, deictic time is also represented as three different space-time locations which the main character, Ebenezer Scrooge, visits with the help of the three Ghosts. It is thus a story about time, and about time travel. Second, the story has some elements—like, for instance, the ghosts talking to Scrooge in dreams—that could be easily translated both linguistically and culturally into some kind of intelligible narrative in Chol.

The three English speakers were undergraduate students of the University of Virginia. They were told that the experiment was about storytelling, and that they would have to tell a story to another person, who was an international student—this "international student" was another researcher pretending to be a student. First, the participants were asked if they knew the story of *A Christmas Carol*. They all did. Then they were asked to tell the story of *A Christmas Carol* to the "international student" in as much detail as possible, and as carefully as possible, because in the second part of the experiment the international student was going to retell that story to someone else. The complete procedure and the real goal of the study were explained to them during debriefing.

---

[106] This methodology is also not novel in classic anthropological studies, see for example Bohanan (1966).

The three Chol speakers were monolingual and non literate[107]. Because they did not know the story of *A Christmas Carol*, they had to be told the story before they could tell it to a third person. But what would be the most effective and less strange way of presenting the stimulus to them? One possibility was creating a visual stimulus, like a cartoon or a booklet with silent pictures of the story of *A Christmas Carol*. However, it would have been rather difficult to create a cartoon that could convey the most important points of *A Christmas Carol* only with silent pictures, for people who did not know the story. The second option would be creating some kind of auditory stimulus. Storytelling is in fact an activity pretty common in Chol culture. People are used to hearing stories from other people and then telling those stories to other people. So I tried to reproduce this cultural context in a quasi-experimental setting. First, a very simplified version of the story was translated into Chol (see Appendix C), in consultation with a bilingual assistant. This version of *A Christmas Carol*, although much simpler, contained the full argument of the story in a nutshell, and kept the most important features and characters of the story. At the beginning of the task I would explain to the speakers that my assistant was going to tell them a story, and that I would like them to retell the story to me later. Then I would leave the room, come back when my assistant had finished telling the story, and ask the speakers to tell me what my assistant had told them. This was an ethnographically non invasive procedure, much simpler than using a visual stimulus, and which yielded interesting results.

For each gesture performed in English and in Chol, it was coded: 1) At what narrative level it occurred, 2) Whether it was temporal and 3) If it was temporal, whether it

---

[107] In my next research project, I plan to compare my existing data from nonliterate monolingual speakers of Chol with the temporal gestures of two different additional groups: bilingual speakers of Chol-Spanish who are non-literate, and bilingual speakers of Chol-Spanish who are literate.

was linear. These three categories had to be determined examining gesture in conjunction with its co-speech. The three narrative levels—narrative *per se*, metanarrative, and paranarrative—were determined by the content of the speech. The narrative level is the plot of the story; it "…consists of references to events from the world of the story proper. The defining characteristic of sentences at this level is that the listener takes them to be a faithful simulacrum of world occurrences in their actual order." (McNeill 1992:185). The metanarrative level consists of metalinguistic references to the structure of the story; it presents "the story about the story" (ibidem, 186). The paranarrative level consists of sentences that make a reference to the context where the storytelling is happening; the speaker abandons the role of narrator and gives her opinion about the events in the story, or makes a reference to her interlocutor.

A gesture was defined as temporal when 1) it co-occurred with clearly codable temporal language 2) its semantic content was temporal and it did not fulfill any explicit metapragmatic function in discourse. Temporal gestures were coded as "linear" when they were spatialized along an axis which represented the shortest possible distance between two separate points, or along which at least three collinear points could be located. This excluded gestures that were *morphologically* linear, but not *semantically* linear.[108]

---

[108] It is important to clarify that certain kind of gestures may be *morphologically* linear, in the sense that the speaker may, for instance, extend her forearm from her lap pointing at something in the landscape, and the trajectory of such a gesture may be linear; or she may make a linear gesture while enacting spatial movement from a character in a story. But this kind of linear movement does not reflect a linear conception of time. A temporal gesture was considered to be metaphorically "linear" when speakers were pointing, tracing, enacting movement, placing characters or objects along an implied timeline, or connecting points along such a timeline.

5.3. Temporal gestures in English

In this section I describe the type of gestures that the English speakers produced when they were telling a story in which the concept of time plays a central role, and which made them think and talk explicitly about time. I will first explain briefly the distribution of gestures at each narrative level, and then I will give some examples of prototypical temporal gestures in English.

The results for this part of the study are summarized in Table 5.1:

Table 5.1. English speakers' gestures						
	Total number of gestures	Narrative	Metanarrative	Paranarrative	Temporal gestures	Linear temporal gestures
Speaker 1	60	58	2	0	8	8
Speaker 2	41	40	0	1	7	6
Speaker 3	37	29	2	6	7	4
Total	138	127	4	7	22	18

When telling the story of *A Christmas Carol*, the three English speakers produced many gestures accompanying their speech (N=138). Overall, most of the gestures (92%) occurred at the narrative level; gestures occurring at the metanarrative (2%) and paranarrative (5%) levels of dicourse were fairly uncommon. This makes sense given the narrative structure of the stories. The three speakers intiated their story with a brief metanarrative statement, for instance "the story is set in England," and then moved quickly into the narrative level proper. Occasionally, they would step out of the narrative level and make a metanarrative or paranarrative commentary, but most of the speech belongs to the narrative level. The

three narrations were overall very similar in content, structure, and gestures. The following

is an example of one of the three stories:

> Uhm, so the Christmas Carol is the story of a man, a very old man named Ebenezer Scrooge, and uhm, he works with money, he works for a bank, and his job is to collect money from people who the bank has loaned money, given money out to, who can't pay, and he's very mean about it, he's a very greedy old man, and he has no sympathy for people. And the story starts on a Christmas Eve, and uhm, he goes home after a long day, making people, making all his employees work on a Christmas Eve, because he hates Christmas, he hates giving, and uhm that night he falls asleep and he… uh… two… of his… two ghosts who he used to… the dead ghosts of people he used to work with come to him, and uhm, supposedly from hell I guess, and tell him that he needs to change his ways because he's a very evil man, and they say that he will be visited that night by three more ghosts. Uhm, the ghost of the Christmas Past, Christmas Present, and Christmas Future. And so… the ghost of the Christmas Past is a cute little girl, who takes him back and they… discover part of why Scrooge is very mean, it's 'cause the only woman he's… the only girl he's ever loved rejected him when he was very young, about eighteen years old. And then she uh… brings him back to the present, and the ghost of the Christmas Present takes him to the house of one of his employees, and they see like the whole family gathered around, and having a very sharing Christmas Eve, even though they're poor, the fact that they're all together in Christmas is what matters, and Scrooge starts to see the error of his ways. And then the ghost of the Christmas Future shows up, and he looks like the image of death. And he takes Scrooge to a graveyard in the future, where Scrooge is dead in a few years, and his grave is untended, and there's trees and there's branches and vines all over, noone cares that Scrooge is dead, and people rejoice when he dies, and so… he's taken back and he decides that he has to change his ways and so he wakes up the next morning and he invites everyone over to his house, and gives people loads of money and he has a big feast at his house with lots of food, and he's changed his ways and becomes a very generous and kind person.

In the previous example, the story is introduced by the metanarrative statement "The

Christmas Carol is the story of a man, a very old man named Ebenezer Scrooge." Typically

these kinds of metanarrative statements co-occurr with metaphoric conduit gestures. As

explained in Chapter 4, a conduit is a metaphoric gesture by means of which some abstract

concept is recreated as an object that can be held and is manipulated by the speaker.

Conduit gestures co-occurring with these kinds of metanarrative statements often represent

the story being told, which is held or presented as an object in the speaker's palm. Immediately after, the speaker quickly shifts to the narrative level. Occasionally the flow of the narration is interrupted by quick metanarrative or paranarrative commentaries; when the speakers comment on themselves or speak directly to their interlocutors, they typically produce metaphorical or deictic gestures. In the story reproduced above, the speaker shifts for a brief moment into the paranarrative level when he interrupts the narration of the story to add a a detail which he is unsure about: "supposedly from hell, I guess;" as he utters this sentence, he points at the floor—in Christian folklore, hell is supposed to be located under the earth. Another example of a typical paranarrative statement, from another speaker, "he was less of a Scrooge, you know," was also accompanied by a deictic gesture, this time pointing towards the interlocutor.

Not surprisingly, all the temporal gestures happened at the narrative level. 16% of the total number of gestures were coded as temporal, and most of these were also linear. These results are consistent with previous studies which have argued that, for speakers of English, time is understood in terms of the spatial metaphor of a line (Clark 1973; Cienki 1998; Cooperrider and Núñez 2009; Sweetster and Núñez 2006; Radden 2004; Lakoff and Johnson 1999; Evans 2003; Boroditsky and Casasanto 2008). More specifically, my results were consistent with studies that have argued that the orientation of this timeline is predominantly lateral (Casasanto and Jasmin 2012), with time flowing from the gesturer's left (past) to his right (future); the center of the gestural space is reserved for objects, characters or events that happen in the present. Figure 5.1 is a prototypical example of this lateral timeline:

Figure 5.1 Lateral timeline in English

"…the ghost of the Christmas past,   Christmas present,   and Christmas future"

(1)   […the ghost of the Christmas past], [Christmas present], [and Christmas future]
                                [1]   [2]   [3]
         [1] Metaphoric: RH loose B spread, vertical palm
         [2] Metaphoric: RH loose B spread, vertical palm moving AB towards right
         periphery
         [3] Metaphoric: RH loose B spread, vertical palm moving AB towards right
         periphery

The type of linear gesture shown in Figure 5.1 is identical to the gestures reported by previous studies, Cooperrider and Núñez's "downward chopping gestures" or Casasanto and Jasmin's "relaxed karate chop gestures." They present past, present, and future as definite locations along the linear continuum of time, as three collinear points which can be "hit" by the speaker. In other words, they represent "Series A" temporal relationships between events. In this particular example, what is being gestured is the relative ordering of past, present and future: even though the past is not located at the speaker's left periphery, it is of course the leftmost collinear point in the timeline.

English speakers may also produce canonical deictic gestures that point at any of these spatialized time locations. The following examples do not belong to a single sentence;

176

they are taken from two different moments in the story told by another speaker. (2) and (3), shown in Figure 5.2, represent these two morphologically different types of abstract deictic gestures: a pointing gesture with index finger extended (a), and a vertical palm karate-chop gesture (b), similar to the one shown in Figure 5.1.

Figure 5.2. Abstract deixis in lateral linear gestures

(a) "the ghost of the Christmas past"   (b) "the ghost of the Christmas present"

(2) … he's visited by three ghosts, and the first one is… the ghost of the Christmas [past].
    Abstract deixis: RH loose D, index and little finger extended, PTB, moving PF

(3) …and he was visited by a second ghost, and it was the ghost of the Christmas [present]
    Abstract deixis: RH loose B, vertical palm TC

The gestures in Figure 5.2 function indexically to locate past and present along the speaker's mental timeline. Figure (a) illustrates how time is presented as a visible location which can be clearly pointed at. The gesture stroke co-occurs precisely with the word

"past." Cooperrider and Núñez (2009) also reported that pointing gestures were among the most common temporal gestures when speakers were telling the story of the universe. They argue that such pointing gestures "often occur after a speaker has already populated the space with an imaginary timeline" (2009: 191). After describing the events that take place in Scrooge's past, the speaker goes on to narrate that Scrooge is taken "back" to the present. In (b), the speaker hits the second point in the imaginary timeline with a vertical-palm, loose karate chop gesture (analogous to the one illustrated in Figure 5.1.), located right in front of her body, at the center of the gesture space. It again co-occurs precisely with the word "present."

The following gesture, co-occurring with example (4) and shown in Figure 5.3, is a little bit different. It represents a blend of an iconic gesture with a metaphoric space-time location:

(4) … and then he was visited by the ghost of the Christmas future,
who brought him [to the future].
C-VPT Iconic: RH 5, PTD, moving AB towards right periphery

"…who brought him to the future"
Figure 5.3 Iconic-metaphoric blend of character and temporal location

Most of the gestures that this speaker had produced during her re-telling of the story were iconics. This is not surprising; iconics are, according to McNeill, the most common gesture types occurring at the narrative level (1992:189). Iconic gestures depict two different viewpoints that the speaker may adopt when telling a story: the character viewpoint, (C-VPT) in which the speaker's hand or body "enact the character" (1992: 190), and the observer viewpoint (O-VPT), in which "the depiction is concentrated in the hand, the character shown as a whole hand, and the voice accordingly is that of an observer/narrator." Up to this point in the narration, most of the gestures that the speaker had produced were observer-viewpoint iconics; from this "narrator-observer" perspective, she would move the characters of the story, represented by her right hand in the shape of a "blob," along the pre-established timeline. But in (4) she adopts the character-viewpoint perspective, as if her hand was literally moving an object towards her right periphery, where the future is located. Her hand becomes one of the characters, the Ghost, taking Scrooge to the new spatialized time location. This type of gesture is similar to the "animating" gestures described by Cooperrider and Núñez (2009: 22), or even to Müller's "performing" gestures, where "hands act as if they would perform an instrumental action" (Cienki and Müller 2008:22), in this case the action of literally grabbing someone and placing him in a different spatio-temporal location.

5.4. Temporal gestures in the "Dickens in Chol" task

In the previous section I analyzed the gestures produced by English speakers when telling the story of *A Christmas Carol*; in general, these gestures were no different from the temporal gestures reported by previous studies with speakers of different Indo-European languages like English (Casasanto and Jasmin 2012, Cooperrider and Núñez 2009, Cienki 1998) and French (Calbris 1991). In this section I add comparative evidence by examining the speech and gestures produced by the monolingual Chol speakers when telling the story of *A Christmas Carol*.

5.4.1. The Chol stories: overview of speech content, relevant themes and gesture occurrence

Let us begin by analyzing the structure and content of the Chol narratives. Just as the three English speakers produced three retellings of the *Christmas Carol* that were very similar, the Chol speakers also gave three very similar versions of the *Christmas Carol*. However, the Chol stories were very different in structure and content from the English stories. Once I re-entered the room, I would ask the speakers to tell me the story that my assistant had told them. The three of them started out their stories framing them with a paranarrative commentary: "he told me that…" and then they would proceed to give their versions of the story, which were approximately as long as the English speakers' stories (between one and two and a half minutes each). If the speakers did not mention anything about the dream or the ghosts, I would ask them if they remembered whether the man had a dream; if the answer was affirmative, I would ask them to tell me more about that dream. Finally, I

would ask them whether there had been any "ghosts" in the story, and if so, who were these ghosts.

The fundamental themes that were highlighted in the three Chol stories were 1) There was a man who had a lot of money and did not want to share it with anyone else, and 2) This man did not want to die alone. The theme of the man being visited by ghosts in dreams was secondary to these other two main themes; it was only partially explained by two speakers. In particular, the crucial role of the three different ghosts was simply not mentioned by any of the Chol speakers, not even after having been explicitly asked about it. I reproduce here one of the three Chol stories, which contains the main themes mentioned above, and reflects the speakers' puzzlement when asked to elaborate on the details of the dream.

L: Lakchich, chuki tyi isu'beyety aj Moy?	*My elder sister, what did Moy tell you?*
S: Jiñ tyi… isu'beyoñ jiñ che' li… chukbi tyi itya'k'iñ wiñik	He told me that… it is said there was a man who was stingy for his money.
Chukbi tyi itya'k'iñ, mach ibaj mi ik'äñ.	It is said he was stingy for his money, he doesn't use it.
Mach ibaj mi icha'leñ li wiñiki. Mm, che' meku.	The man doesn't do anything (to the money). Mm, that's it.
Che'bä machbi… mach weñ yom… chuki mi… imäñ, ich'äm.	Like it is said that this one… didn't want to… there was nothing he wanted to buy, (so that) he could have it.
Machbi yom.	It is said he didn't want to.
Mach meku.	There was no way, indeed.
Mm. Pero che' añ laktya'k'iñ müch k'äñla.	Mm. But when/if we have our money, we use it.
Muk k'äñla. Muku jk'äñla.	Yes, we use it. We use it, of course.
Añäch chukbä tyi itya'k'iñ.	But yes, there are those who are stingy for their money. There are the stingy ones.
Añku chukbä.	
Añku, mach yom ik'äñ itya'k'iñ. Machku yom, chekuyi.	Yes, there are those who do not want to use their money. This one indeed does not want to.

181

L: *Chuki yañbä tyi isu'beyety? Chuki yañbä?*

And… what else did he tell you? What other things?

S: A, kabäl chu' tyi isu'boñ.
Kabä jiñächbi li… chukbä li…
k'äñ itya'k'iñ
Jiñächbi chukbä li…
ik'äñ itya'k'iñ
i machbi yom ibajñel sajtyel li wiñiki.
Machbi yom ibajñel sajtyel,
machbi yom ibajñel sajtyel

Oh, he told me many things.
Many (things), this one yes, it is said… the one who was stingy… for using his money, it is said that (there was) this one who was stingy… for using his money
and the man doesn't want to die alone.
it is said that he doesn't want to die alone,
it is said that he doesn't want to die alone.

L: *Chukoch mach yom ibajñel sajtyel?*

Why doesn't he want to die alone?

S: Chukalioch mach yom bajñel sajtyel…

Mmm. Mach iba'añ ipi'äl,
mach iba'añ [iyalipeñal]
Mach iba'añ… mach iba'añ majch icha'añ.
Machku ba'añ. Mmm. Chebikuyi.

Who knows why he doesn't want to die alone…

Mmm, he didn't have a wife,
he didn't have children.
He didn't have… he didn't have anybody.
Anybody at all. Mmm. That's how it was.

L: *Tsajñi tyi wäyel jiñi wiñik?*

Did the man go to sleep?

S: Tsajñibi! Tsajñibi tyi wäyel,
ta'bi cha'pixi ibäj,
pe ta'bi cha'wäyi.
Ta'bi cha'wäyi. Ta'biku.
Ta'bi cha' ochi wäyel.
Ta'biku cha'ochi wäyel.

Yes, it is said he did! It is said that he went to sleep, it is said that he woke up again, but he went back to sleep again.
So he fell asleep again. That's it.
He went back to sleep.
He went back to sleep.

L: *Chuki tyi ñajayi?*

What did he dream about?

S: Chuka tyi ñajle…
ma'añ chuki tyi ñajle yubil,
añku chu' ki tyi ñajle.

What on earth did he dream…
there's nothing he dreamt about,
or maybe there was something he dreamt…

L: *Añku…*

Yes, there is…

S: Añäch. Añku.
Mach jiñ cha'añ cha'wäyi.

Jiñkuyi. Jiñkuyi.
Che'bi tyi ujtyi jiñi. Che' meku.

Yes, there must have, there must have been something. Isnt't that why he went back to sleep?
Yes, indeed. Yes, indeed.
That's how that (story) ends. Just like that.

L: Tyi ik'ele ch'ujleltyak?	*Did he see any ghosts?*
S: Tsa'bi ik'ele! Ta'biku ik'ele!	Yes he did! Of course it is said he did!
L: Bakibä ch'ujleltyak?	*What ghosts?*
S: Bajche' jiñi…mukbä sajtyelob.	Like these… the (ghosts) of the dead.
Aa, jiñku mukbä sajtyelobi,	Uhm, the ghosts of the dead ones,
jiñku mukbä sajtyelobi… jiñächi.	the ghosts of the dead ones… yes indeed.
Chä'ächi. Komo jiñ, mukbä isajtyelobi… Jiñächi.	Yes, indeed. Like, the dead ones… yes indeed.
Porke che' li… li sajtyelob cheñ, bajñebälob chiñ, k'ux tyayemob.	Because these… the dead ones, they are all alone, they suffer a lot.
P'ump'umoñ, ma'añoñ majch,	Poor us, (when) we don't have anyone,
jiñ cha'añ mukbä sajtyelob ixi…	because… those who are dead…
mach iba'añ machbä icha'añ. Chekuyi.	they don't have anyone. That's how it is.
Che' tyi ujtyi iwa' jiñ.	That's how that (story) finishes.

The two prominent themes in the Chol stories were the stinginess of the man and his fear of dying alone. In Chol culture, as in many other Maya and Mesoamerican cultures, being rich without redistributing part of one's richness to the community is in fact socially sanctionable behavior, which might have very negative consequences for the person. Thus, it makes sense that this is one of the elements of the story that caught the Chol speakers' attention. The fear of dying alone is of course related to the first theme. Chol households are typically not just comprised of a nuclear family, but of an extended family, which usually includes the elderly. Even if an old person may choose to live in his or her own house by him/herself, it is usually not too far away from their children's homes. Dying alone is something as odd and incomprehensible to a Chol person as not being married or having children of one's own. From the Chol perspective, it makes sense that a person so odd who keeps money for the sake of money and does not want to spend it, neither for himself, nor for his family or for his community, would be repudiated and thus condemned to living and dying by himself. The Chol narratives, rather than reproducing the "tensy" and

linearly arranged sequence of events in *A Christmas Carol*, concentrated on those aspects which were more salient to them, the oddities of the man and of the overall situation: a person who, having money does not want to spend it, does not want to have a family of his own, but is afraid of dying alone.

The dream was only mentioned spontaneously by two of the three speakers. They did not seem to remember the details of the content of the dream, but they remembered some isolated scenes; for instance, Speaker 2 said that the man dreamt about himself, that he was alone and he had no wife; he also dreamt about people who were dead. Speaker 3 was even more precise, saying that he had dreamt about the *place* where he grew up and how it was like when he was a child; he had also dreamt about the *cemetery* where he was going to be buried, and he didn't want to die alone. Nobody said anything about the three ghosts. When asked about whether they could remember anything about any ghosts in the man's dream, two speakers said that those must have been the ghosts of dead people, which again is an interpretation that makes a lot of sense in Chol culture. The Chol actually believe that one of the ways that the dead can communicate with the living is through dreams. Furthermore, events and situations that happen in dreams are sometimes taken at face value, as if they had happened in one's waking life. Nobody could remember the names of the three ghosts, not even the speaker who talked about the different moments in the man's life. In this speaker's story, those two different event times were linked to two different *locations*: the house where he grew up, and the cemetery, as if what mattered was the concept of *place,* not the concept of deictic, "Series A" time. In other words, in line with what I previously argued in Chapter 4, although Chol has linguistic resources for the expression of deictic time—in fact, the speaker who commented on Scrooge's past used the deictic adverb

wajali, 'back then', 'long time ago'—it was by no means central in the Chol interpretation of *A Christmas Carol*, and nor even salient enough to comment on it.

As for the expression of "Series B," sequential temporal relationships, they were mostly absent from the Chol narratives, which probably means that the story of the *Christmas Carol* was not interpreted by the Chol speakers in sequential terms. The Chol retellings did not reflect an argument "line" that followed any kind of sequential order, or where earlier/later relationships between episodes could be established; instead, they gave descriptive "snapshots" of the general themes of the story, the stinginess of the man, and his unwillingness to die alone. In the retelling transcribed above, the only example of a sequential predicate *tsajñibi tyi wäyel, taˊbi chaˊpixi ibäj, pe taˊbi chaˊwäyi* "It is said that he went to sleep, it is said that he woke up again, but he went back to sleep again" was not gestured.

If the two themes that were crucial in the original story, the names of the ghosts, and the concept of doing "time travelling" between the different moments throughout Scrooge's life were conspicuously absent from the Chol narratives, how did that affect gesture production? Table 5.2 summarizes the distribution of gesture occurrences across the three Chol speakers' narratives.

Table 5.2. Chol speakers' gestures						
	Total number of gestures	Narrative	Metanarrative	Paranarrative	Temporal gestures	Linear temporal gestures
Speaker 1	22	6	6	10	0	0
Speaker 2	5	1	1	3	0	0
Speaker 3	0	0	0	0	0	0
Total	27	7	7	13	0	0

At first sight, the numbers in this chart might seem a little bit shocking, especially in comparison to the figures of Table 5.1. What is most striking about these results is that, in the three stories, not a single example of any kind of temporal gesture was identified. However, taking into consideration the content of the stories and what we have learned of Chol temporal gesture in Chapter 4, these results are perfectly logical. First, the fact that both "Series A" and "Series B" temporal relationships were not relevant in the Chol stories partially explains the absence of temporal gestures. Despite the fact that the Chol version of *A Christmas Carol* that was explained to the speakers contained a great deal of explicit temporal reference, and especially temporal deictic adverbs, in their retellings the Chol speakers used very few temporal deictic adverbs, and even fewer sequential predicates. As we have seen in Chapter 4, temporal deictic adverbs are very rarely gestured in Chol, so it is not surprising that out of the few occurrences of temporal deictic adverbs across the three stories none of them were gestured. Second, as I explained above, the Chol "stories" were not structured in a clear sequential order. The overall narrative structure did not revolve around the relative sequential ordering of past, present, and future, which was so clearly articulated in the English speakers' narratives, and the stories contained very few examples of earlier/later relationships between events.

Overall, Chol speakers produced few gestures. Probably the most surprising data come from Speaker 3, who did not make a single gesture during her retelling of the story; she kept her hands in a semi-relaxed position, holding her knees, and only making quick self-adjustments—touching her hair, or rinsing the sweat of her face with her tee-shirt. It is worth noting that immediately before doing the "Dickens in Chol" task, I had conducted a

186

semi-structured interview with her, during which she had been gesturing freely[109]. Interestingly, this woman was in her middle twenties, so among the three Chol speakers she was closest in age to the undergraduate students of the University of Virginia. Her story was the longest and most detailed of the three, and she was the speaker who could recall more details about the dream.

5.4.2. Gestures at the paranarrative, metanarrative, and narrative levels of discourse

Even though we did not find any examples of (linear) temporal gestures for the Chol group, it is worth commenting on the distribution of gesture occurrences across the three narrative levels. As can be seen in Table 5.2, most of the gestures in the Chol stories co-occurred with paranarrative commentaries; fewer gestures appeared at the metanarrative and narrative levels of discourse. Overall, most of the gestures across the three levels were metaphorics and beats. Metaphorics appeared mostly at the metanarrative and narrative levels of discourse, whereas beats occurred at all three levels. In what follows I present some prototypical examples of the gestures that two of the Chol speakers produced when re-telling the story of *A Christmas Carol*.

Figure 5.6 shows the typical arrangement for the "Dickens in Chol" experiment: Moisés Vázquez, my bilingual assistant, is sitting at the speaker's right; when I come back after he has finished telling the story of *A Christmas Carol*, I sit down at the speaker's left, and I ask her to tell me the story that Moisés has just told her. In response to my request, the Chol speakers would start to tell me what they remembered, always framing their

---

[109] See below for further discussion on how gesture, or its absence in this case, serves as metapragmatic commentary on the relative aritificiality of the task.

stories with a paranarrative commentary of the type "he told me that…" These types of paranarrative commentaries co-occurred mostly with deictic gestures, like the one shown in Figure 5.4 below.

(5) Tyi   [i-su'b-e-Ø   x-]Moyses   jiñi…
     PFV   A3-say-SS.IV.PFV-B3   NCLF-Moyses   DET
     'Moyses said that…
     Deictic: RH loose B spread, palm vertical, moving AB, pointing at assistant

     ya'=bi añ   tyi   a-lukar wajali,
     ADV=QUOT   EXT   PREP A2-place back.then
     it is said that there at your place (in your home country)

     am=bi   am=bä   i-tya'k'iñ
     EXT=QUOT   EXT=REL A3-money
     back then it is said there was one who had his money'

Figure 5.4. "He said that…"
Deictic gesture, paranarrative level of discourse

This is an interesting example, because the sentence does contain temporal reference. In particular, it contains a deictic temporal adverb, *wajali* "back then, long time ago, in the past," which situates the time of the narrated story in the past, long before the moment of speech. It also contains spatial reference "there at your place." The paranarrative introduction thus aims at situating the story both in space and time; however, neither the deictic temporal adverb, nor the adverbial (spatial) subordinate clause were gestured; with a vertical palm, the speaker pointed at my bilingual assistant, Moisés, as if showing *who* was "the source" of the story was more important than "when" and "where" the story took place. Even though this gesture does not have the prototypical morphology of a deictic gesture (index or index and middle finger extended), it is very clearly directed towards Moisés. The gesture was preceded by the speaker's gaze; she looked at Moisés quickly, then opened up her right arm directing her hand towards him.

It is not surprising finding deictic gestures such as the one discussed above and illustrated in Figure 5.4 co-occurring at the paranarrative level. McNeill has argued that the gestures occurring in narrative contexts are usually adapted to the pragmatic functions of each discourse level:

> Iconics appear at the narrative level, where the content consists of emplotted story events; iconic gestures exhibit these events. Metaphorics appear at the metanarrative level, where the content consists of the story structure itself viewed as an object or space; metaphoric gestures present the story as an object or an arrangement in space. Pointing appears at all levels when orientation or change of orientation is the focal content… Finally, beats appear when there are rapid shifts of level (1991: 189).

In the Chol retellings, however, the iconic gestures which according to McNeill typically appear at the narrative level were almost nonexistent. Deictics, beats, and metaphoric gestures occurred at the three levels of discourse discussed by McNeill,

paranarrative, metanarrative, and narrative. The following excerpt, from another speaker, is

an example of the type of gesture typically found at each narrative level:

(6) Jiñ   tyi   [i-su'b-e-yoñ   che'   li…]
     DET   PFV   A3-say-SS.TV.PFV-B1   like   DET   **PARANARRATIVE**
     'He told me that…
     Deictic: RH loose B, palm vertical, moving AB, pointing at assistant

     [Chuk=bi]   [tyi   i-tya'k'iñ]   wiñik.
     Stingy=QUOT   PREP A3-money   man   **METANARRATIVE/**
     It is said there was a man who was stingy for his money   **NARRATIVE**
     Beat   Beat

     [Chuk=bi]   tyi   itya'k'iñ,
     Stingy=QUOT   PREP A3-money
     It is said he was stingy for his money   **METANARRATIVE/**
     Metaphoric 'container': RH PTU forming cup,   **NARRATIVE**
                             moving towards up then down,
                             LH PTU moving under RH

     [Mach   ibaj   mi   i-käñ-Ø].
     NEG   DET   IPFV   A3-use-B3
     He doesn't use it.'   **NARRATIVE**
     Metaphoric: 2 SH PTU forming cup, open and close,
                 returning to rest position.

The story begins with the paranarrative statement 'he told me that;' as she is uttering

that sentence, the speaker turns her body slightly towards her right, where Moisés is sitting,

and points at him with the whole palm of her right hand; This gesture is almost identical to

the one shown in Figure 5.4. As she finishes this paranarrative commentary, she re-adjusts

her position and faces me; the next two clauses are in an intermediate position between the

paranarrative and narrative levels of discourse; semantically, they refer to the events of the

story proper, so in this sense they belong to the narrative level; however, the quotative

particle *–bi* adds a certain narrative distance; it fulfills the metalinguistic function of indicating that what is being said is hearsay. For this reason it is difficult to classify the utterances that contain this particle into the strictly metanarrative or narrative categories. In this particular example, it seems that the quotative is somehow signaling the transition between the paranarrative frame of the story "he (my interlocutor) told me that…" and the narrative level proper "he (the character in the story) doesn't use it (his money)"; Thus, I propose that the utterance "it is said that there was a stingy man" belongs to an intermediate discourse level that integrates elements from the metanarrative and the narrative levels. The gestures that accompany this sentence are two beats, illustrated below in Figure 5.5. As McNeill has argued, beats take place when a character is introduced in a narration (1999: 195), and also "to present some of the discourse-pragmatic content that also is part of storytelling […] Thus a clause in which a beat is found often performs, not the referential function of describing the world, but the metapragmatic function of indexing a relationships between the speaker and the words uttered." This is precisely what the beats are indexing in this example. On the one hand, the introduction of the character of the stingy man. On the other hand, they fulfill the metapragmatic function of indicating that the speaker only knows the story because somebody else told her.

"It is said there was a man who was stingy for his money"
Figure 5.5. Beats, metanarrative and narrative levels of discourse

After this sentence, there is a slight pause, and the speaker repeats almost the same utterance "it is said he was stingy for his money;" the gesture co-occurring with this sentence is metaphoric; she brings her right hand underneath her left hand, forming a "cup" with both hands; this metaphoric gesture is re-elaborated with a much clearer shape in the next sentence, which belongs to the narrative level proper, shown in Figure 5.6.

"He doesn't use it"
Figure 5.6. Metaphoric conduit, narrative level of discourse

As she is uttering the sentence "he doesn't use it," she brings her right hand from underneath her left hand. She performs this metaphoric conduit with both hands, as if showing an empty "cup" to her interlocutor; maybe this metaphoric conduit represents her idea of "nothingness." This type of gesture is repeated several times in her retelling of the story, any time that she talks about the things that the man did not have or did not want to buy with his money. An alternative interpretation of this metaphoric gesture could be that what she is "presenting" in her "cup" is the image of what, for the speaker, is the central moral dilemma of the story: what is the point of having money if we don't spend it?

5.5. The narrative structure of Chol stories

In the previous section, I have argued that when retelling the story of *A Christmas Carol* Chol speakers did not produce any kind of temporal gestures, as opposed to the English speakers, who consistently gestured past/present/future concepts and earlier/later temporal relationships between events along the transversal axis. I have also argued that the Chol retellings consisted of "snapshots" that focused on particular *themes*, not of sequentially ordered episodes. Although storytelling is in fact an activity pretty common in Chol culture, it could be argued that the absence of an argument "timeline" and of temporal language and gesture in the Chol stories was due to the oddity of the setting, or to the fact that the story of *A Christmas Carol* is inspired by a Western concept of time. Although the Chol version of the *Christmas Carol* incorporated both "Series A" and "Series B" temporal relationships, as I argued in the previous section, these were not salient in the Chol retellings. Most gestures occurred at the paranarrative level, a point to which I will come back in the conclusion of this chapter.

The theme-centered structure of the Chol stories raises the question of whether this type of non linear organization of discourse was some kind of "side effect" of this particular quasi-experimental task, or whether it is characteristic of Chol storytelling in general. In order to answer this question, in this section I briefly examine the narrative structure of a traditional Chol story, this time focusing on the organization and content of the speech, rather than on the co-speech gestures. Unlike the "Dickens in Chol" stories analyzed in the previous section, this story was simply elicited by asking the speakers to tell me a traditional Chol story of their choice, a story that perhaps their parents or grandparents used to tell them when they were young. The story I have selected is known in

the oral traditions of other Mayan languages, like Mopan (Danziger, personal communication).[110]

The two comadres[111]

I añ abi jiñi…	And it is said there was that one…
mukbä imajlel ichuk abi ipuy tyi jajpa'	the one that goes to grab snails at the river,
mi yäl.	they say
Entonse ta' bi… ta'bi ityeñbe ijol	Then, it is said that she hit her on her head,
jiñi ya' tyi ja' jiñi yu'bi aj jiñi piä'li.	there at the river, her companion.
Ta'bi ñumi ipäy tyi otyoty aj jiñi piä'li.	Her companion went to fetch her at her home
"Komla tyi chuk puy komare" che'bi.	"Let's go to grab snail," she says
"Komla tyi chuk puy komare" che'bi.	"Let's go to grab snail," she says
Pero komo ma'añik ta',	But since she was not,
mach abi komarejich,	It is said that she was not her (true) comadre,
i ke… xi'bajix yubil aj jiñi.	She had already started… (to become) a witch.
Mmm. Che' abi mi yäl ah bajche'…	Mmm, it is said like this…
ta'bi majli ah tyi chuk puyi.	She went to grab snail.
Entonse jiñ abi jiñi,	Then it is said
ikomare yubil ta' ñumi ipäy majleli.	Perhaps her comadre went to fetch her
Ya' abi ñukiña ya' tyi ja'i,	It is said she was face down there at the river,
wo' abi ichuktyak aj puy mi imeli,	It is said she was grabbing snail,

---

[110] Although (for the reasons explained in Chapter 1 and in footnote #91) the speaker happened to be a woman, storytelling is not a gendered activity in Chol culture.

[111] See interlinear glosses in Appendix E

Pero tyi iye'bal abi jiñi tyuñ	but it is said under a stone
mi ichok oche ijol,	she puts her head
yebalbi ixajlel mi iyäk ah ijoli,	under her stone it is said she gave her head
Entonse ta' tyäli yub aj jiñi.	then she came
Ta'meku abi ityembe ijol.	indeed, it is said she hit her head
Ta'bi sujtyi tyi ajñel jiñi x-ixik.	it is said that the woman turned around to run
Che' ta' mi yäl aha, kpapa, kmama	that's what my dad, my mom told me
bajche' jiñ.	like this
Mhm, che' añ bajche'jiñi.	Mm, that's how it is.
Che' mi yäl ah bajche' jiñi. Aha.	So they said like this. Aha.
Jiñ ah mukbä yäl kpapa wajali	That's what my dad used to tell me back then
bajche' jiñi.	Like this.

The events told in this story are clearly not aligned in chronological order. In this Chol story, earlier events do not precede later events; rather, they are narrated in the following order:

1-a woman is grabbing snails at a river
2-the woman is hit on the head by a friend
3-the friend of the woman who has been hit in the head goes to pick her up at her home
4-the friend of the woman invites the woman to grab snails
5-the woman's comadre turns into a witch
6-the woman is grabbing snails
7-the friend/comadre fetches the woman at her home
8-the woman is grabbing snails at a river
9-the fake comadre hits her on the head
10-one of the two women (we don't know which one) runs away

If we think of each of these events as an "episode" of the story, it is impossible to establish a sequential relationship between each of these "episodes;" the story "jumps" from one episode to another, and we see the two characters, a woman and her comadre-witch, moving freely between different scenes that do not follow a sequential order. A sequential re-ordering of the Chol text—which is *not*, I must underscore, in the text itself—would yield a narrative in which the main episodes are ordered as follows:

1-a woman is visited by her comadre (who is a witch)
2-the comadre-witch invites the woman to grab snails at a river
3-the two comadres go to the river and one of them starts to grab snails
4-while the woman is grabbing snails, the comadre-witch hits her on the head
5-one of the two comadres runs away

With the exception of what seems to be the culmination of the story (the running away of one of the two comadres), which is mentioned approximately at the end of the story, a sequential connection between the different episodes-events that make up the story, where earlier events precede later events, cannot be inferred from the Chol text alone.[112] The story, however, contains several junctures—at least four—that conform to the Labovian definition of minimal narrative: "a sequence of two clauses which are temporally ordered… In alternative terminology, there is a temporal juncture between the two clauses, and a minimal narrative is defined as one containing a single temporal juncture." (Labov 1972: 360-361). The four minimal narratives also possess the "first this, then that" structure characteristic of native American traditional narratives (Hymes 1981, 2003), which is "built upon a base of pairing, or better perhaps, binary relationships" (1981: 106). This is

---

[112] This lack of linearity in narrative structure has also been documented in Tzeltal narratives (Pitarch 1996, 2010).

absolutely in line with the concept of sequential predication explained at lenght in the preceding chapters, and with what has been argued about Chol temporal thought: that is based in dyadic relationships between events.

The four minimal narratives in the story of the two comadres are:

a) a woman is grabbing snails at a river
a') the woman is hit on the head by a friend

b) the friend of the woman who has been hit in the head goes to pick her up at her home
b')the friend of the woman invites the woman to grab snail

c) the woman is grabbing snails at a river
c') the fake comadre hits her on the head

d) the woman is hit on the head
d') one of the two women (we don't know which one) runs away

Each of these four minimal narratives represents a self-contained scene of the story of the two comadres. The fact that these self-contained scenes are not presented in the Chol story following the earlier-later sequential order that yields canonical linear "narratives"[113] does not mean that the Chol text lacks an internal organizational structure. An ethnopoetic analysis (Hymes 1981) of this text reveals that it is structured in four parts: an introduction, a first stanza (first scene), a second stanza (second scene), and a formal closure.

---

[113] By "canonical linear narrative" I mean a narrative in which events are iconically presented in chronogical sequence.

1	I añ abi jiñi… mukbä imajlel ichuk abi ipuy tyi jajpa' mi yäl.	INTRODUCTION (Paranarrative/ metanarrative level)
2	Entonse ta' bi… ta'bi ityeñbe ijol jiñi ya' tyi ja' jiñi yubil aj jiñi piä'li.	
3	Ta'bi ñumi ipäy tyi otyoty aj jiñi piä'li.	STANZA 1 Scene 1 (Narrative level)
4 4'	"Komla tyi chuk puy komare" che'bi. "Komla tyi chuk puy komare" che'bi. } COUPLET	
5 5'	Pero komo ma'añik ta', mach abi komarejich, } COUPLET	
6	i ke… xi'bajix yubil aj jiñi.	
7	Mmm. Che' abi mi yäl ah bajche'…	
8	ta'bi majli ah tyi chuk puyi.	
9	Entonse jiñ abi jiñi, ikomare yubil ta' ñumi ipäy majleli.	STANZA 2 Scene 2 (Narrative level)
10 10'	Ya' abi ñukiña ya' tyi ja'i, wo' abi ichuktyak aj puy mi imeli, } COUPLET	
11 11'	Pero tyi iye'bal abi jiñi tyuñ mi ichok oche ijol, yebalbi ixajlel mi iyäk ah ijoli, } COUPLET	

12
12'
12''
	Entonse ta' tyäli yub aj jiñi.
	     Ta'meku abi ityembe ijol.
	     Ta'bi sujtyi tyi ajñel jiñi x-ixik. } TRIPLET	

13	Che' ta' mi yäl aha, kpapa, kmama bajche' jiñ.	FORMAL CLOSURE (Paranarrative level)
14 14'	Mhm, che' añ bajche'jiñi. Che' mi yäl ah bajche' jiñi. Aha. } COUPLET } COUPLET	
13'	Jiñ ah mukbä yäl kpapa wajali bajche' jiñi.	

The quadripartite structure of the story of the two comadres is in fact, fairly common in the oral narratives of native American languages (Hymes 1981); other Chol traditional narratives have also been reported to consist of four parts, and according to Josserand and Hopkins (1991) this four-part division can be traced back to the hieroglyphic texts of the Classic period (200 AD-600AD). The Introduction consists of two clauses which present, in a nutshell, the argument of the story: a woman went to grab snails in the river *and* was hit in her head; these two clauses also contain the first minimal narrative (one temporal juncture), in lines 1, 2. This formal introduction is presented by the speaker to her audience as a "pre-view" of the story. It also fulfills the metapragmatic function of establishing that the story that is about to be told belongs to the genre of folklore, or hearsay. The two clauses contain three quotative particles (*a'bi*, and *=bi,* 'it is said') and a verb of speaking that has the same function as the quotative particles (*mi yäl=* s/he/they say).

The narrative level proper is divided in two self-contained scenes, each one presented in a stanza. In the first scene, a woman goes to fetch her comadre and invites her to grab snails in the river. We learn that the woman who invites her comadre to grab snails is actually a witch, but the other comadre does not know it, so she accepts the invitation and they head for the river. This first scene contains the second minimal narrative (lines 3, 4), and it sets the stage for the second scene, which happens at the river. The second scene contains two temporal junctures: in the third minimal narrative (lines 10 and 11), the victim is grabbing snails *and* the fake comadre, who is a witch, hits her in the head; in the fourth minimal narrative (lines 12 and 12'), the fake comadre hits the woman in the head *and* one of the two women runs away.

200

The fourth part of the text is a formal closure; in this last section, the speaker comes back to the paranarrative level, explaining that her parents used to tell this story to her. The phrase "*che' añ bajche' jiñ*," that's how it is/was', is a formal closure characteristic of Chol narratives (Hopkins and Josserand 1990).

This ethnopoetic analysis therefore reveals that this Chol story is highly structured; in addition, it is rich in parallelism, a stylistic resource widely documented in Mesoamerican oral traditions (León-Portilla, 1985; Bright, 1990; Edmonson, 1985, among others) which consists of the repetition of groups of lines or verses in parallel structures, sometimes called *couplets* (or triplets, or "lists," depending on the number of repeated verses). In the Mayan family of languages[114], there are two main types of parallelism: semantic and syntactic. Semantic parallelism consists in the repetition of the same concept or idea in two consecutive lines, whereas syntactic parallelism is based on the repetition of "(1) a frame, "part of which appears in both lines of the verse, and (2) one or more slots which are filled by pairs of variable elements that complement each other" (Bricker 1989: 371). The variable element(s) introduced in the repeated frame may be synonyms, near-synonyms, words that belong to the same lexical class, or antonyms. Here are some examples of semantically and syntactically parallel verses in the Chol story of the two comadres:

---

[114] The use of parallelism has been widely documented in the Mayan family of languages, for example in Yucatec (Hanks 1988; Edmonson and Bricker, 1985; Bricker, 1989; Mudd 1979; Vapnarsky, 2008), Quiche (Norman, 1980; Du Bois, 1986; Tedlock, 2010; Edmonson , 1971), Tojolabal (Brody, 1986), Ixil (Townsend, 1979), Tzotzil (Gossen, 1985, 1989; Haviland, 1988; Bricker, 1989, 2010), Tzeltal (Monod Becquelin, 1987), Ch'orti (Monod Becquelin and Becquey, 2011) and Chol (Hopkins and Josserand, 1990, 2005; Rodríguez, 2013). Parallelism and coupleting are used especially in literary texts and in ritual language, but also in dialogues and conversations.

Table 5.3. Syntactic and semantic parallel couplets in the story of the two comadres	
Syntactic parallelism (10) ya' abi ñukiña ya' tyi ja'i, (10') wo' abi ichuktyak aj puy mi imeli,	It is said she is grabbing there at the river It is said she is doing grabbing snails
Semantic parallelism (5) Pero komo ma'añik ta' (5') mach abi komarejich	But since it was not it is said she was not her comadre
Syntactic and semantic parallelism (4) "Komla tyi chuk puy komare" che'bi. (4') "Komla tyi chuk puy komare" che'bi.	"Let's go to grab snails, comadre" she says "Let's go to grab snails, comadre" she says

Finally, although as I mentioned at the beginning of this section this narrative analysis was focused on the form and structure of the speech and not on gesture, it is worth quickly pointing out that the gestures that the Chol speakers produced when telling the story of the two comadres were mostly metaphorics, beats, and iconics. The metaphoric gestures were similar to the ones produced during the retelling of the "Dickens in Chol" story, mostly conduit gestures presenting the story as an object, or pointing gestures towards the interlocutor. Iconic gestures, were, however, much more common in this unconstrained traditional narrative, than in the "Dickens in Chol" retellings. No temporal co-speech gestures of the type described in Chapter 4 were identified in this traditional narrative. However, a detailed analysis of the co-speech gestures that occur in this genre of speech is a matter of future investigation that requires a more extensive corpus of traditional stories.[115]

---

[115] This is one of the possible directions in which I would like to develop my postdoctoral research

5.6. Conclusions

In this chapter I have examined how temporal relationships between events are represented in gesture and speech in two different contexts (constrained and unconstrained) of storytelling. The first context of storytelling was inspired by other gesture studies which have examined the gestures that people produce when asked to retell a story; in these studies, the story may already be known by the speakers, or it may have been previously presented to them, usually in the form of a visual stimulus, like a cartoon or a video (McNeill 1991; Cooperrider and Núñez 2009). Other studies have analyzed the gestures that English speakers produce when asked explicitly to think about time and to reflect upon temporal gestures (Casasanto and Jasmin 2012). Inspired by these studies, I created a task that would allow me to compare the speech and gestures that English and Chol speakers would produce when asked to retell a story in which the concept of time plays a central role: *A Christmas Carol*, by Charles Dickens.

When asked to tell the story of the *Christmas Carol*, the English speakers produced a consistent pattern of linear temporal gestures, gesturing both deictic, Series A (past/present/future) and sequential, Series B (earlier/later) temporal relationships along the transversal axis. These results are identical to the type of temporal gestures reported by previous studies on temporal gesture with different Indo-European languages like English (Casasanto and Jasmin 2012; Cooperrider and Núñez 2009; Cienki 1998) and French (Calbris 1991). Chol speakers, however, produced much fewer gestures than the English speakers, and none of the gestures that they produced were identified as temporal. Interestingly, some temporal language was present in the Chol retellings, but it was not accompanied by gesture.

203

One of the main differences between the gestures produced by the English and Chol speakers was that, whereas most of the gestures produced by the English speakers occurred at the narrative level, Chol gestures occurred mostly at the paranarrative level. These were either pointing gestures (directed towards the Chol assistant who had told them the story, or to myself), or metaphoric gestures that presented the story as a manipulable object. This paranarrative interest in the Chol retellings is clearly present both in the speech and in the gestures. The Chol retellings were characterized by the recurrence of the quotative particle (-*bi*/*abi*), which fulfilled a double function: first, it served as a metapragmatic commentary on the context in which the retelling of the story was taking place. The quotative particle in Chol, as in other Mayan languages, for example in Yucatec "provides a means for framing a report of one communication within another―especially speech within speech." (Lucy 1993: 118). Second, by presenting the story as reported speech, the speaker adds a certain narrative distance between the content of the speech and him or herself as originator of that speech. In other Maya languages, like Mopan, the use of the quotative particle to frame speech as hearsay is crucial especially when reporting "under doubtful empirical conditions" (Danziger 2010: 211). Adding narrative distance in this linguistic and cultural context thus becomes necessary, especially given cultural attitudes towards the uttering of falsehood.[116] It is precisely this phenomenon that may account for the saliency of gesture at the paranarrative level in the Chol speakers' stories, and for the very few gestures produced at the narrative level, none of which seemed to capture the temporal organization of events in the story.

---

[116] For a deep analysis of cultural and linguistic attitudes towards truth and falsehood in Mopan discourse, see Danziger (2006) and (2010).

Another characteristic of the Chol retellings was that they did not seem to be organized according to a linear-sequential alignment of episodes; in other words, in the Chol retellings the events were not reported in the same order as they were originally presented in the *Dickens in Chol* text. Rather, the Chol retellings presented independent, self-contained descriptions of particular themes, among which no particular sequential order was established. In the second context of storytelling discussed in this chapter, I analyzed the narrative structure of a traditional Chol story, in order to find out whether this non sequential, non linear presentation of the different events that make up a story was specific to the Chol retellings of *A Christmas Carol* or was also characteristic of Chol narratives in general.

In principle, a clause-by-clause translation of the "story of the two comadres," like the Chol retellings of *A Christmas Carol*, revealed a lack of linearity (or of iconic presentation of sequential events) in the sense that events were not reported in the order in which they occured. The story did contain a number of "minimal narratives," in the Labovian sense of the term, but the connections between these minimal narratives did not necessarily follow a sequential order. An ethnopoetic analysis of the text revealed a distinctive organizational structure. Rather than presenting episode after episode in a temporal order which is assumed to present the events in the same order in which they occurred ("earlier events are followed by later events"), the Chol text was divided into four parts, each of which was a self-contained unit of discourse: an introduction, a first scene, a second scene, and a formal closure; this quadripartite structure shows a different organizational principle where relationships between events are not necessarily projected in an abstract "timeline" that contains the plot of the story. Although the text lacks the type of

iconicity chararcteristic of chronological narratives, the four "unordered" minimal narratives can actually be ordered by the hearer thanks to the repetition of elements that are second in one sequence as the first element in another sequence. To a certain extent, it could be argued that this is a type of "sequential predication" at the discourse level. As long as there is a dyad of one event before another, and then the second of these events is repeated as the first of another dyad, one can reconstruct a "sequence," and even a whole story. This is a poetic affordance derived of one of the types of temporal reference characteristic of Chol, sequential predication, that tensed languages do not possess. It could be considered as a stylistic device equivalent to the "before/after" (of languages that have these prepositions) which allows the non iconic presentation of events. This sequential-predication based narrative style does not require iconic-chronological presentation of events, and nevertheless makes the text perfectly understandable.

Although in order to be able to make any generalizations about the narrative structure of Chol stories more detailed analysis of an extensive corpus of Chol traditional stories is needed, at least the preliminary data presented in this chapter seem to suggest that in storytelling, both in constrained (*Dickens in Chol*) and unconstrained (*The two comadres*) contexts, the different events that make up a story may not necessarily be presented as episodes that follow a "linear" (iconic, chronological, sequential) order. Rather, the organizational structure of Chol narratives seems to be based in self-contained scenes that, are, in a sense, like Bourdieu's "islands of time" (as discussed in the conclusion of Chapter 2).

CHAPTER 6

TIME IN LANGUAGE, GESTURE, AND THOUGHT

I began this dissertation describing the prevalent model that has been used especially in the field of cognitive science and among conceptual metaphor scholars to explain how people think about time. This model assumes that most human beings think about time in terms of space, and in particular, in terms of a line. According to this model, time is conceived as uni-dimensional movement along a stationary linear landscape ("moving-ego" model), or as an array of events that moves linearly towards a stationary experiencer-observer ("moving-time" model). Conceptual metaphor theorists usually explain this uni-dimensional, linear experience of time based on an assumed "natural" experience that all human beings share by virtue of having the same kinds of bodies and interacting with the environment in basically the same kinds of ways (Clark 1973; Lakoff and Johnson 1999; Núñez 2006; Kranjec 2011). Thus this model of temporal cognition is based on the assumption that notions of time are purely generated by sensorimotor experience, regardless of the language one speaks and of one's cultural background.

A few cognitive linguists and conceptual metaphor scholars interested in temporal cognition, however, have developed a more nuanced approach that contemplates that linguistic and cultural factors may exert at least some influence in shaping specific temporal cognitive patterns (Evans 2003; Boroditsky 2011; Núñez and Cornejo 2012). The questions that I have tried to answer in this dissertation stem from an anthropological critique of the assumed universality of this linear conception of time: do linguistic and cultural factors influence temporal conceptualization? Is the metaphoric mapping of time onto the domain of space, and in particular, the mapping via "timelines" or "axes" a

cognitive universal? In this dissertation I have argued that evidence from Chol seems to suggest that the linear model of time is not universal. I have made this argument by analyzing Chol temporal thought from three different angles: first, I examined ethnographic evidence from my fieldwork among the Chol Maya (Chapter 2). Next, drawing on the premise that there exists an inextricable relationship between language, gesture, and mental imagery, I examined how temporal relationships are encoded in the Chol Maya language (Chapter 3). Third, I analyzed the co-speech gestures that co-occur with temporal language in Chol Maya (Chapters 4 and 5).

6.1. Linear time, cyclical time, and non-spatial time: time in Chol culture.

In the second chapter of this dissertation I articulated the critique of the universality of the linear notion of time drawing on anthropological literature and on ethnographic data from my fieldwork among the Chol Maya. I first argued that the linear model of time is deeply rooted in a cultural model that is specifically Western, and which defines time as "measurable duration." In this cultural model, the duration of an event (or the sum of the durations of different events) is perceived as a homogeneous substance that can be measured and that "flows." This notion of time as a "flowing substance" is precisely what is behind the so-called "moving-time" cognitive model discussed in Chapter 1. The flowing of time is also conceived as uni-directional, or irreversible: time "flows" from past through present to future, and from earlier events to later events. This irreversible, arrow-like quality of the flow of time is represented in Western ideology as movement along a continuum or line. In this continuum, specific events can be located "in the objectified configuration of points on a line" (Whorf 1941).

As I argued in Chapter 2, the first generation of anthropologists who studied cultural notions of time pointed out that there was nothing natural or universal about this model of temporality. At first, non-Western notions of time were described as "cyclical." Cyclical notions of time were attributed to peoples that were supposed to be "closer to nature" than Western societies, like peasant societies (Evans-Pritchard 1940; Gurvitch 1961); they were also associated with religious traditions that incorporated notions of re-birth (Gupta 1992). But the next generation of students of time soon became weary of this structuralist view that neatly divided social constructions of time into "Western/lineal" and "non-Western/cyclical," pointing out that "lineal" and "cyclical" were metaphors artificially introduced by the analyst (Leach 1961). This critique, however, has not yet been fully articulated in the Maya area, and Maya societies continue to be predominantly described as having a cyclical notion of time, both in scholarly works and more generally in popular culture (León Portilla 1980; Nash 1970; Gossen 1974, 1979; Schele and Freidel 1990).

Building on the anthropological critique of the lineal/cyclical dichotomy (Leach 1961; Bourdieu 1963; Gupta 1992; Fabian 1983), in Chapter 2 I argue that the Chol Maya notion of time is neither linear nor cyclical. I have attempted to make this argument by examining the systems for time reckoning currently used by Chol people. Inspired by Bourdieu, I proposed that Chol understandings of temporality are based on events/activities that are subjectively experienced as "islands of time," (Bourdieu 1963) and which become "benchmarks" for other activities. I argue that although certain events or activities are certainly experienced as repetitive by the Chol (for instance the seeding of one's *milpa* or the celebration of a particular religious festival), this does not necessarily mean that these events are understood as "cyclic." Neither are the "islands of time" or separate

activities/events that comprise the agricultural and religious calendars projected into the abstract "synoptic illusion" (Bourdieu 1977) of a line where earlier events precede later events, and which extends ad infinitum. Rather, I argued, Chol temporal thought seems to be based on *dyadic relationships between events*. The relative order of events in both the ceremonial and agricultural calendars is established by means of completed or punctual activities that act as benchmarks for other (not yet completed) activities; for instance, the bending of the corn plant needs to be complete and finished before the harvest can begin, or once the celebration of the Lord of Tila has been completed, then preparations for the Holy Week can begin. Dyadic relationships between events follow an internal logical order that does not conform either to an abstract linear or cyclical system.

6.2. The expression of time in Chol language and gesture

The question of the universality of the linear model of time can also be explored by examining how people *talk* about time, or more precisely, how temporal relationships between events are encoded in language. Considering that most of the studies that show evidence for the psychological reality of a "timeline" have been conducted with languages that have tense as their main grammatical strategy for expressing relationships between events[117], examining how speakers talk about temporal relationships in languages that lack grammatical tense becomes an empirical necessity. This was the goal of Chapter 3, where I described how time is encoded in Chol Mayan.

---

[117] With a few notable exceptions, such as Mandarin, Yucatec, and Mopan; see Chapter 1 for a review of this literature.

Following the classical work of McTaggart (1908) and Traugott (1978), in this dissertation I have argued that there are three qualitatively different forms of expressing temporal relationships between events: deictic temporal language, sequential language, and aspect-based language. In natural languages, relationships of pastness, presentness, and futurity between a narrated event and the moment of speech—McTaggart's "Series A" temporal relationships—are expressed by means of tense, or tense-like resources[118]. Following McTaggart, Traugott, Lyons, Comrie, and others, I call this type of temporal language "deictic," because it locates the time of the main predicate of the sentence with respect to the moment of speech. By contrast, earlier/later relationships between events—McTaggart's "Series B" temporal relationships—are expressed in natural languages by means of a variety of linguistic resources that authors like Traugott have called "sequencing," or "sequential language." In sequencing, events are ordered with respect to each other, and earlier/later relationships are established between the predicates of a sentence, usually irrespective of the moment of speech. Finally, aspect-based language does not convey any kind of locational relation between events or between the time of the narrated event and the moment of speech. As Comrie argued, "Aspect is not concerned with relating the time of the situation to any other time-point, but rather with the internal temporal constituency of the situation." (Comrie 1976:5).

In Chapter 3 I described in detail how these different types of temporal relationships between events are expressed in Chol grammar. As explained at length in that chapter, most predicates in Chol are inflected for aspect, which can leave deictic (past/present/future) and

---

[118] As explained in detail in Chapter 4, Traugott's concept of tense is not restricted to grammatical tense; it includes a whole set of different linguistic resources which are not grammatical tense, but express tense-like relationships between verbal predicates, for instance, some temporal adverbials, some temporal particles, etc.

sequential (earlier/later) relationships between events unspecified. I therefore discussed at length the relevant contrasts in aspect morphology in Chol focusing on the temporal semantics of the perfective, imperfective, and progressive aspects, and in other grammaticalized forms for expressing aspectual information in Chol. I also argued that, although Chol lacks grammatical tense, it has *optional* resources for expressing "Series A" and "Series B" temporal relationships. Series A, or tense-like temporal relationships are conveyed in Chol by the lexical class of deictic temporal adverbials. The expression of "Series B" time, or sequential time, is done by means of the syntactic mechanism that I have called sequential predication. I defined sequential predicates as syntactic-prosodic units composed of a minimum of two predicates sequentially connected to each other by means of a temporal or logical relationship, or a causal, conditional, or teleological relationship. I further argued that sequential predicates are structured in certain syntactic frames; in a typical sequential predicate consisting of two verb clauses, each predicate is inflected for aspect and one predicate serves as temporal "anchor" to the other. Depending on the aspect inflection of the predicate that acts as temporal anchor, sequential predicates can be classified into two different groups: Perfective-based and Imperfective based. This distinction is relevant, as I later show, in the analysis of the gestures co-occurring with sequential predicates.

Having described how these qualitatively different types of temporal relationships are encoded in Chol grammar, in Chapter 4 I turn to one of the central questions of this dissertation: is Chol temporal gesture linear? In order to answer this question, I first examine the concept of "timeline," and then I identify the grammatical contexts in which "timelines" are more likely to occur. I defined "timeline" as the spatial representation of the

relative location of (a minimum of) two temporal events. Under this definition, aspect-based temporal language does not seem a likely candidate for generating a linear representation of time, given its inherent non-locational, non-spatial, non-relational semantics. However, deictic ("Series A") temporal language and sequential ("Series B") temporal language both express the relative location of two different temporal events: in deictic, tense-like expressions, the two different events are the time of the narrated event, and the moment of speech. In sequential language, the two different events are the time of the narrated event and some other reference time (the "temporal anchor"), one of which precedes the other. Therefore, in order to find out whether Chol temporal gesture is linear, I analyzed the gestures that co-occur with deictic temporal adverbs and sequential predicates.

In Chapter 4 I performed quantitative and qualitative analyses which revealed that deictic temporal adverbs and sequential predicates behave rather differently in terms of gesture occurrence. I showed that deictic temporal adverbs rarely have co-speech gestures, and when they do, gesture content is not related to temporal relationships. Sequential predicates, on the contrary, are almost always gestured, and some of these gestures depict temporal relationships between events. Based on these results I argued that "Series A" time is not gesturally salient in Chol, and that Chol temporal gesture mostly represents "Series B" temporal relationships. This is an interesting fact, because it may mean that "Series A" time is perhaps not spatially represented in cognition at all. Although McTaggart (1908) and others have argued that "Series A" time is more *basic* than "Series B" time, at least in the case of Chol, the basis for temporal thought, language, and gesture seems to be grounded on "Series B" temporal relationships.

Some gestures co-occurring with sequential predicates seemed to be finely attuned to the aspectual semantics of the predicates they co-occurred with. For example, abstract deixis (pointing at imaginary event/locations, people, objects, or elements of the landscape) was more common with Perfective-based than with in Imperfective-based sequential predicates. In Perfective-based sequential predicates, the perfective predicate that functioned as temporal "anchor" often co-occurred with either vertical linear strokes or with abstract pointing. In these particular cases it seemed as if there was a first layer that represented the act of "placing" an event; once this perfective, completed event had been "placed," another event could develop out of it.

The data analyzed in Chapter 4 showed that Chol temporal gesture does not reflect the relative positioning of events along an axis or timeline. What these gestures seem to reflect is first, a *dyadic, sequential relationship between two events*, and second, sometimes they also show a *qualitative contrast* between two different types of events. Especially in the case of sequential predicates where the first predicate was inflected for perfective aspect, and the subsequent predicates were inflected for any of the non-perfective aspects, the qualitative contrast was represented as an abstract deictic gesture co-occurring with the perfective predicate followed by an open-ended gesture co-occurring with the non-perfective predicate. In these cases the finished, completed, perfective event acts as "benchmark," and an unfinished, not completed, non perfective event that cannot be "placed" or "pointed out," but can be "traced," develops or unfolds literally "from" the first, punctual event.

The linguistic and gestural data analyzed in Chapters 3 and 4 dovetail nicely with the ethnographic data presented in Chapter 2, where I had argued that Bourdieu's (1963)

214

description of a temporal system made of activities that are experienced as "islands of time," and which become "benchmarks" for other activities, was closer to the Chol notion of time than the "cyclic" or "linear" spatial metaphors. As I had argued in Chapter 2, a fundamental contrast in Chol temporal thought was "completed versus non completed." The examples I gave from Chol time reckoning systems illustrated that the relative order of events in both the ceremonial and agricultural calendars was established by means of completed or punctual activities that act as benchmarks for other (not yet completed) activities. As shown in Chapter 3, the contrast between completed versus non completed events is also of paramount importance in Chol language—perfective versus non perfective aspects—and, as illustrated in Chapter 4, it is sometimes depicted in sequential gestures—abstract pointing co-occurring with perfective, "benchmark" events, versus open-ended, parabolic gestures co-occurring with non perfective events. The three types of data put together seem to suggest that Chol temporal thought is based on dyadic relationships between events which follow an internal logical order that does not conform to an abstract linear (or cyclical) system.

6.3. Temporal relationships in narrative contexts

The last part of this dissertation explores how temporal relationships between events are organized at the discourse level. In Chapter 5 I first examined the speech and its co-occurring gestures in a constrained context of storytelling (the "Dickens in Chol" task). I also analyzed the content and organization of speech in an unconstrained context of storytelling (the story of *The Two Comadres*). The preliminary data presented in that chapter seemed to suggest that in Chol storytelling, both in constrained and unconstrained

215

contexts, the different events that make up a story may not necessarily be presented as episodes that follow a linear order. Rather, the structure of Chol narratives seems to be based on groups of self-contained scenes.

In the constrained context of storytelling, three speakers of English and three speakers of Chol were asked to tell the story of *A Christmas Carol* to an interviewer. Not surprisingly, the stories of English and Chol speakers were different both with respect to their narrative structure and to the type of gestures that speakers produced. While English speakers produced a consistent pattern of linear temporal gestures, gesturing both deictic, Series A (past/present/future) and sequential, Series B (earlier/later) temporal relationships along the transversal axis, Chol speakers produced much fewer gestures, and none of these gestures were identified as temporal. English and Chol gestures also differed with respect to the narrative levels where they co-occurred; while most of the gestures produced by the English speakers occurred at the narrative level, Chol gesture was predominantly paranarrative. As for the organizational structure of the stories, whereas in the English stories earlier events preceded later events, the Chol stories did not seem to be organized according to a linear-sequential alignment of episodes. Rather, they seemed to be based on independent, self-contained descriptions of particular themes, among which no particular sequential order was established.

This non-linear structure of Chol stories was also confirmed in the unconstrained context of storytelling, where I analyzed the narrative structure and speech content of a traditional Chol story, *The Two Comadres*. Like in the "Dickens in Chol" stories, in *The Two Comadres* it was virtually impossible to establish a sequential order between episodes, as characters seemed to be moving freely between self-contained scenes, jumping

216

"forward" and "backwards" between different moments in the story. A brief ethnopoetic analysis of the text revealed that the Chol text was divided into four parts, each of which was a self-contained unit of discourse: an introduction, a first scene, a second scene, and a formal closure.

The preliminary data discussed in Chapter 5 go in line with the argument outlined in the previous chapters of this dissertation. Just like in the ethnographic, linguistic, and gestural data discussed in the first four chapters of this dissertation, in narrative contexts temporal relationships between events are self-contained, and not necessarily projected onto an abstract "timeline" that contains the plot of the story. Chol storytelling is an act that requires the active participation of the narrator's audience: in order to understand the narrative development of a story the audience needs to identify and connect the sets of "minimal narratives" that make up the story. These minimal narratives, composed of two events that are sequentially connected to each other by means of a temporal juncture (Labov, 1972) are somehow similar to the sequential predicates analyzed in Chapters 3 and 4, where one event acts as benchmark for the other. From this perspective, Chol storytelling is also based, to a certain degree, on *dyadic relationships between events*.

6.4. Final considerations

In her famous piece *Lineal and Nonlineal Codifications of Reality* anthropologist Dorothy Lee argued:

> In our own culture, the line is so basic, that we take it for granted, as given in reality. We see it in visible nature, between material points, and we see it between metaphorical points such as days or acts. It underlies not only our thinking, but also our aesthetic apprehension of the given; it is basic to the emotional climax which has so much value for us, and, in fact, to the meaning of life itself. In our thinking about personality and character, we have assumed the line as axiomatic… But is the line present in reality? (Lee, 1950:91)

In this dissertation I have attempted to give an answer to this deep philosophical question posed by Lee more than fifty years ago. In early anthropological and psychological studies on cultural variation in perception (Segall, Campbell, and Herskovits 1963; Jahoda 1966) it has been pointed out that being exposed to different environments, and to specific cultural practices associated with those particular environments, can lead people to perceive and experience the world in very different ways. We live in a "carpentered world" (Segall 1963), and it is unquestionable that linearity is an ubiquitous ingredient of Western material culture. It is therefore no wonder that lines have become preferred metaphors through which we apprehend non tangible aspects of reality. Among these, the concept of time is one of the basic structural domains of human experience, and perhaps one of the most abstract concepts the human intellect struggles to make sense of. As Lee points out, in Western societies people tend to "see" lines everywhere, both between material points and between metaphorical points, "such as days or acts." In fact, the psychological reality of the linear representation of time has been argued to be

validated—also cross-culturally and cross-linguistically—not only by scores of linguistic and behavioral experiments, but also more recently by neuroscientific research[119].

This dissertation has addressed the question of whether such linearity of temporal representation is a cognitive universal. I have attempted to tackle this question by examining ethnographic, linguistic, and gestural data from speakers of Chol Maya. Throughout the different chapters of this dissertation I have shown that metaphorical "timelines" are extremely rare in Chol culture, in Chol language, and in Chol gesture. Rather, temporal thought in Chol, I have argued, is grounded in *dyadic relationships* between events. This type of temporal thought does not reflect and is not grounded in what Leach called "innocent geometrical metaphors" (1961), be these linear or cyclical. It is not based on spatial categories, but rather on self-contained *relationships* between events.

Although this dissertation has focused on how time is represented in Chol gesture and thought, the results of this research also add data to the fascinating and classical anthropological question of the relationship between language and thought, and to the debate about the empirical validity of the hypothesis of linguistic relativism. Decades after the Whorfian hypothesis of linguistic relativity was formulated, researchers working on the interface between language, culture and cognition continue to be divided into those who argue for the universality of a human cognitive base, and those who defend the cultural and linguistic specificity of different ways of experiencing the world. As I argued in the Introduction, embodied views of cognition, which assume that cognitive processes are universally based on perceptual and sensorimotor experience rather than on cultural and linguistic factors, are gaining ground among researchers interested in temporal thought. For

---

[119] See for instance Bonato et al., 2012 for a comprehensive review of this literature.

instance, Kranjec has argued that "systematic constraints and patterns found in space (e.g. the physical environment, the mechanical properties of our bodies and the organization of our perceptual systems) seem to influence how we gesture, talk, and think about temporal relations." (2011: 735). Like Kranjec, conceptual metaphor theorists and those who adopt an embodied view of cognition often support their claims by showing gestural data that exemplify a linear imagery of time, which is often assumed to be the natural outcome of how our bodies interact with the physical environment.

In recent cognitive linguistics research, it has explicitly been argued that "abstract concepts find structure in the body and the environment, and not merely in the semantic relations among particular lexical items" (Kranjec 2011: 747). In this dissertation, however, I have shown data which illustrate that gesture is, at the very least, sensitive to grammatical features: the data from monolingual speakers of Chol Maya showed that different types of grammatical structures such as tense-like expressions, sequential predicates, and different aspectual categories (Perfective versus Imperfective-based sequential predicates) exhibit different patterns of co-speech gestures. If we acknowledge—as it is widely acknowledged by those very same scholars who downplay the role of language and culture in shaping cognition—that gesture does in fact reflect mental imagery, or "thought," then based on the Chol data we must acknowledge that mental imagery is at the very least, influenced by grammatical categories, if not entirely based on them. The data presented in this Dissertation exemplify that abstract thought is not necessarily anchored to a universal level of bodily experience as some cognitive psychologists have suggested (Langacker 1987; Clark 1973; Lyons 1977; Miller and Johnson-Laird 1976; Alverson 1994) but instead is mediated by linguistic and cultural conventions (Sapir 1929; Whorf 1941; Lucy 1992;

220

Pederson, Danziger, Levinson, Kita, Senft, Wilkins 1998; Kita, Danziger & Stolz 2001; Levinson 2003; Danziger 2005, 2008, 2010b, 2011). This dissertation, focused on the domain of time, has provided gestural evidence from Chol Maya which suggests that, at the very least, cultural conventions and the language that one speaks influence the way that one thinks about time.

APPENDIX A

LIST OF ABBREVIATIONS

/	Raising intonation
#	Falling intonation
-	Morpheme boundary
=	Clitic boundary
1	First person
2	Second person
3	Third person
A	Set A (Ergative)
ADV	Adverb(ial)
AFF	Affirmative
AFV	Affective
AUX	Auxiliary
APPL	Applicative
B	Set B (Absolute)
CL	Clitic
CLF	Classifier
COND	Conditional
DET	Determiner
DIR	Directional
DS	Different subject (de Vries)
DTV	Derived transitive verb
EXCL	Exclusive
EXT	Existential predicate
FIN	Phrase final enclitic
HON	Honorific
IMP	Imperative
IPFV	Imperfective
INCH	Inchoative
INCL	Inclusive
INTJ	Interjection
IRR	Irrealis
IV	Intransitive verb
N-	Non-
N.CLF	Noun classifier
NEG	Negation, negative
NF	Non-future (de Vries)

222

NM	Nominalizer/nominalization
NPFV	Non perfective
LV	Light verb
PART	Particle
PASS	Passive
PFV	Perfective
PH	Phatic particle
PL	Plural
POS	Positional
POSS	Possessive
PREP	Preposition
PRF	Perfect
PROG	Progressive
PRON	Pronoun
PROSP	Prospective
PURP	Purposive
QUOT	Quotative
RED	Reduplication
REFL	Reflexive
REL	Relative
REP	Reportative
R.N	Relational noun
SG	Singular
SP	Borrowing from Spanish
SS	Status Suffix
SS.TV.PFV	Status suffix for transitive verb in the Perfective
SS.TV.NPFV	Status suffix for transitive verb in the non Perfective
SS.DTV.PFV	Status suffix for derived transitive verb in the Perfective
SS.DTV.NPFV	Status suffix for derived transitive verb in the non Perfective
SS.IV.PFV	Status suffix for intransitive verb in the Perfective
SS.IV.NPFV	Status suffix for intransitive verb in the non Perfective
SUB	Subordinator
STAT	Stative suffix
TR	Transitional sound (de Vries)
TV	Transitive verb

Gesture classification and coding conventions, adapted from McNeill (1992)

1. GESTURE TYPE

Representational: "represents attributes, actions, or relationships of objects or characters" (McNeill, 1992: 377)

a) **Iconic:** "bears a close formal relationship to the semantic content of speech (…) it displays, in its form and manner of execution, aspects of the same scene that speech also presents" (McNeill 1992: 78)

b) **Metaphoric:** "present an image of an abstract concept, such as knowledge, language itself, the genre of the narrative, etc." (McNeill 1992. 80)

Deictic: "finger points or other indications of either concrete or imaginary objects or people" (McNeill, 1992: 377)

a) **Real Deixis:** points at real locations, objects or people

b) **Abstract deixis:** points at imaginary locations, objects or people

Beats: "formless hands that convey no information but move in rhythmic relationship to speech" (McNeill, 1992: 377)

2. GESTURE FORM (McNeill 1992: 379-380)

1. Hand form

a) <u>Handedness:</u>

RH= Right hand

LH= Left hand

2 SH=Both hands, same shape

2DH=Both hands, different shapes

b) <u>Hand shape</u>: hand shape approximates the finger-spelling shapes of ASL

c) <u>Palm and finger orientation</u>:

P/FTU= palm/finger toward up

TD= toward down

TC=toward center

AB=away from body (outward)

TB=toward body (inward)

AC=away from center (left or right)

P vertical=palm vertical

d) Place in gesture space where gesture is articulated, according to the following diagram:

Figure B.2. Divisions of the gesture space
After Pedelty (1987)
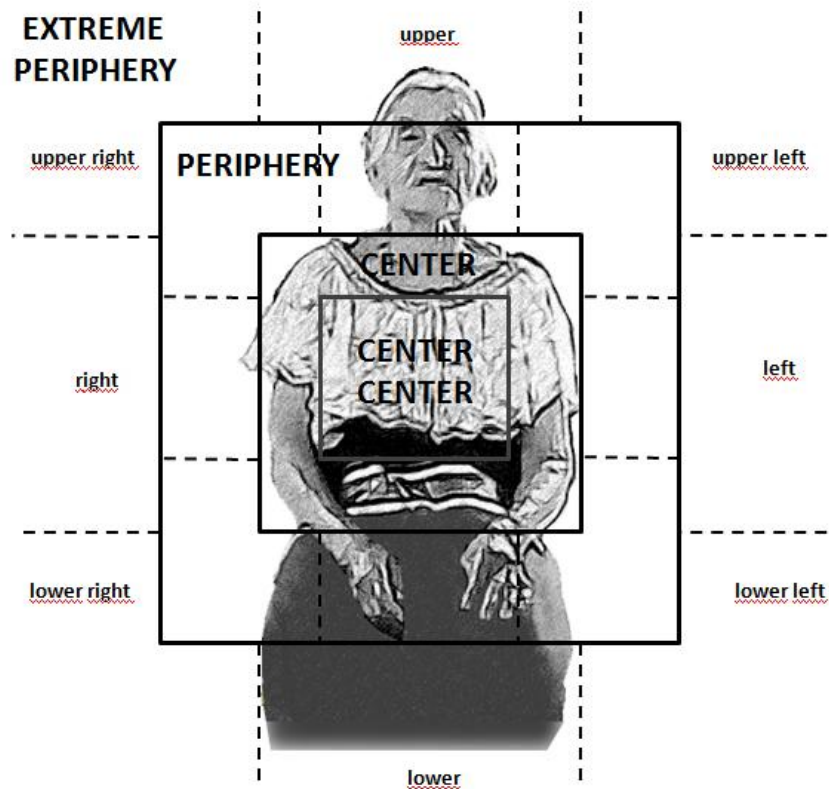
2. Motion

TB = toward the body

AB = away from body

PF = parallel to front of body

PS= parallel to side of body

3. Direction

Uni-1= unidirectional, one movement

Uni-2 = two movements, effort exerted in one direction, the other movement returning the hand to the starting place

BiDir = bidirectional, two movements with effort exerted in both directions

2SM= both hands move in same way (mirror images)

2DM=each hand moves in its own way (describing one action)

4. Duration:

Square brackets are the standard convention to mark the duration of the gesture, left bracket marks the onset—or preparation phase, if it has it—, right bracket marks the end of the main stroke—or retraction phase, if it has it.

Jiñ=me=ku   cha'añ   [ya'   añ-oñ   ili   wä]leyi
DET=PART=AFF   PREP   there EXT-B1   DET   now
'Indeed, because of that, now we are there'

Metaphoric: 2SH,   loose B spread,   P vertical   AB,   2SM
Gesture type   handedness   hand shape   orientation   motion   direction

Figure 4.3. "Now we are there"
Metaphoric gesture (conduit) co-occurring with temporal deictic adverb

"Dickens in Chol" script, with free translation in English

Añbi juñtyikyil kixtyaño, weñ kabäl itya'k'iñ.

It is said there was a person, who had a lot of money

Ñoj chukbi.

It is said he was very stingy.

Mukbi iweñ loty majlel ityak'iñ, ma'añbi mi isaj jisañ, ibajñejach icha'añbi.

It is said he kept his money well hidden, he wouldn't share anything, he kept everything for

himself.

Ma'añ iyijñam, ma'añ iyalo'bilob, ma'añ chu' añ icha'añ.

He didn't have a wife, or kids, he didn't have any family.

Jiñachbi tyak'iñ, i ma'añ mi isaj käñ, yä'ächbi ilotyo icha'añ.

For that reason, he wouldn't spend any money, and he kept everything for himself.

Ambi jump'ej abälel, ta'bi maj tyi wäyel.

One night, he went to sleep.

Tyi kej tyi ñajal.

He started to dream.

Tyi ñajälel ta'bi säk tyäli li Ch'ujlel Wajalixbä.

In his dream, he was visited by the Ghost of the Things Past

I Ch'ujlel Wajalixbä ta' bi weñ kej ipäsbeñtyel bajche' tyi koli wajali, cheñak chutyo.

And the Ghost of the Things Past showed him how he grew up, when he was young

Tyi kej weñ päsbeñtyel weñ tijikña ipusik'al cheñak chutyo, i bajche' yila iyotyoty baki tyi koli yik'oty ityatyob, iyerañob, y bajche' muk tyi alas yik'oty yañbä ipiä'lobä.

He started to show him how happy he was when he was still young, and how it was at his home where he grew up with his parents, his brothers, and how he used to play with his friends.

Che' jiñi, li wiñik ta'bi p'ixi, i ta'bi cha' ochi wäyel.

And just like that, the man woke up again, and he went back to sleep.

Ta'bi kej cha'weñ ñajlem yañbä Ch'ujlel, li Ch'ujlel Choñkolbä Ñumel Wa'li.

He started to dream another Ghost, the Ghost of What is Happening Now.

Jiñi Ch'ujlel ta'bi weñ kej ipäsbeñtyel bajche' choñkol ñuñsañ oraj jiñi wiñiki.

This Ghost started to show him how he was living

Ta'bi ipäsbe bajche' ñoj chuk, jiñ cha'añ ma'añ ipiä'lob, ibajñe ichumul tyi iyotyoty.

He showed him how stingy he was, and for that reason he didn't have any friends, he lived all alone in his home.

Che' jiñi, li wiñik ta'bi cha'p'ixi, i ta'bi cha' ochi wäyel.

And that way, the man woke up again, and went back to sleep.

Ta'bi kej cha'weñ ñajlem yañbä Ch'ujlel, li Ch'ujlelbä Tyalbä.

He started to dream again with another Ghost, the Ghost of the Things to Come.

Ili Ch'ujlel ta'bi kej päsbeñ bajche' mi ikajel tyi ñoxañ i bajche' mi ikajel tyi sajtyel.

This Ghost showed him how he was going to grow old, and how he was going to die

Ta'bi ipäsbe baki mi kej mujkel tyi kap'sañto.

He showed him how he was going to be buried in the cemetery.

Chä'äch bajche' ibajñel, ma'añ majch iyujty'añ.

He was all alone, there was nobody to mourn for him

Ta'bi icha'p'ixi li wiñiki, ta'bi icha'weñ kej ipeñsaliñ.

The man woke up again, and he started to think again.

"Mach kom bajñel sajtyel, mach kom lajmel che' bajche' jiñ" Che'bi.

"I don't want to die alone, I don't want to end like that" He said.

Jiñ cha'añ, tyi ik'extyä ipusik'al, ta'bi ikäyä ichuklelbä, i ta'bi iweñ keje tyi ikäñ itya'k'iñ

yik'oty ipiälob.

For that reason, he changed his heart, and he quit his stinginess, and he started to use his

money with his friends.

Che'bi tyi ujtyi jiñi

That's the end of the story.

APPENDIX D

Chol Participants Data

Chapter 4- Semi-structured interview

Speaker	Age	Monolingualism	Literacy	Municipio (variant spoken)
1	62	Yes	Non literate	Sabanilla
2	49	Yes	Non literate	Tumbalá
3	78	Yes	Non literate	Tila

Chapter 5- Dickens in Chol task

Speaker	Age	Monolingual	Literacy	Municipio (variant spoken)
1	78	Yes	Non literate	Tila
2	52-53	Yes	Non literate	Tila
3	27	Yes	Non literate (but attended school for a couple of years; still, can't read or write, although she could recognize some letters)	Tila

The Two Comadres

```
I              añ     abi    jiñi…
SP:and         EXT    REP    DET
And it is said that there is this one…
```

```
Muk=bä        i-majl-Ø-el                i-chuk-Ø        abi    i-puy
IPFV=REL      A3-go SS.IV.NPFV-NM -       A3-catch-B3    REP    A3-snail
tyi           jajpa'          mi         y-äl-Ø.
PREP          river           IPFV       A3-say-B3
The one that goes to catch her snails to the river, s/he says
```

```
Entonse       ta'=bi…      ta'=bi      i-tyeñ-be-Ø            i-jol
SP:then       PFV=REP      PFV=REP     A3-hit-APPL-B3        A3-head
Then she hit her head
```

```
jiñi    ya'    tyi    ja'    jiñi    yu'bi    aj     jiñi    piä'l=i.
DET     there  PREP   water  DET     maybe    N.CL   DET     friend=FIN
There at the river, her companion
```

```
Ta'=bi         ñäm-i-Ø                    i-päy-Ø         tyi     otyoty
PFV=REP        pass-SS.IV.PFV-B3          A3-fetch-B3     PREP    house
aj       jiñi    piä'l=i.
N.CL     DET     friend=FIN
her companion went to fetch her at her home
```

```
 "K-om-la              tyi    chuk   puy    komare"      che'=bi.
  A1-want-A1.PL         PREP   catch  snail  SP:comadre   like.this=REP
"Let's go to catch snail," she said
```

```
"Komla                tyi    chuk   puy     komare"      che'bi.
  A1-want-A1.PL        PREP   catch  snail    SP:comadre   like.this=REP
"Let's go to catch snail," she said
```

```
Pero          komo         ma'añik      ta',
SP:but        SP: since     NEG          PFV
But since she was not,
```

```
mach    abi    komare=jich,
NEG     REP    SP:comadre=AFF
it is said that she was not her (true) comadre,
```

i   ke   xi'baj=ix   yu'bi aj   jiñi.
SP:and   PROSP   witch=already maybe N.CLF   DET
and maybe she had already started… (to become) a witch.

Mmm.
Mmm.

Che'   abi mi y-äl-Ø   ah   bajche'…
like.this   REP IPFV A3-say-B3 INTJ like
it is said like this…

ta'=bi   majl-i-Ø   ah tyi chuk-Ø   puy=i.
PFV=REP go-SS.IV.PFV-B3 INTJ PREP catch-B3 snail=FIN
it is said she went to grab snail.

Entonse jiñ abi jiñi,
SP: then   DET REP DET
Then it is said

 i-komare   yu'bi ta' ñäm-i-Ø
A3-SP:comadre   maybe PFV pass-SS.IV.PFV-B3
i-päy-Ø   majl-Ø-el=i.
A3-fetch-B3   go SS.IV.NPFV-NM=FIN
perhaps her comadre went to fetch her

Ya' abi ñuk-ul -ña   ya' tyi ja'=i,
There REP face.down-STAT-AFV there PREP river=FIN
It is said she was facing down, there at the river,

wo' abi i-chuk-Ø-tyak   aj puy mi i-mel=i,
PROG REP A3-grab-B3-PL   N.CL snail IPFV A3-do=FIN
It is said she was catching snails,

pero   tyi iye'bal abi jiñi tyuñ
SP:but   PREP under   REP DET stone
but it is said under a stone

mi i-chok-Ø   oche i-jol,
IPFV A3-throw-B3 DIR A3-head
she puts her head

ye'bal=bi   i-xajlel   mi i-yäk-Ø   ah i-jol=i,
under=REP A3-stone   IPFV A3-give-B3 INTJ A3-head=FIN
under her stone it is said she gave her head

233

Entonse   ta'   tyäl-i-Ø   yub   aj   jiñi.
SP: then   PFV   come-SS.IV.PFV-B3   maybe   N.CL   DET
then it seems she came

Ta'   meku   abi   i-tyeñ-be-Ø   i-jol.
PFV   AFF   REP   A3-hit-APPL-B3   A3-head
indeed, it is said she hit her head

Ta'=bi   sujty-i-Ø   tyi   ajñel   jiñi   x-ixik.
PFV=REP   turn-SS.IV.PFV-B3   PREP   run   DET   N.CL-woman
it is said that the woman turned around to run

Che'   ta'   mi   y-äl-Ø   aha,   k-papa,   k-mama
like.this   PFV   IPFV   A3-say-B3   INTJ   A1-dad   A1-mom
that's what my dad, my mom told me

bajche'   jiñ.
like.this   DET
like this

Mhm.
Mhm.

che'   añ   bajche'   jiñi.
like.this   EXT   like   DET
hat's how it is.

Che'   mi   y-äl-Ø   ah   bajche'   jiñi.   Aha.
Like.this   IPFV   A3-say-B3   INTJ   like   DET   INTJ
So they say like this. Aha.

Jiñ   ah   muk=bä   y-äl-Ø   k-papa   wajali
DET   INTJ   IPFV=REL   A3-say-B3   A1-dad   back.then
That's what my dad used to tell me back then

bajche'   jiñi.
like   DET
Like this.

BIBLIOGRAPHY

Alejos García, José. *Ch'ol / Kaxlán : Identidades Étnicas Y Conflicto Agrario En El Norte De Chiapas, 1914-1940*. 1. ed. ed. México :: Instituto de Investigaciones Filológicas, Centro de Estudios Mayas, Universidad Nacional Autónoma de México, 1999.

———. *Wajalix Ba T'an. Narrativa Tradicional Ch'ol De Tumbalá, Chiapas*. Cuaderno 20. edited by Centro de Estudios Mayas Instituto de Investigaciones Filológicas México D.F.: Universidad Nacional Autónoma de México, 1988.

Alverson, Hoyt. *Semantics and Experience : Universal Metaphors of Time in English, Mandarin, Hindi, and Sesotho*. Parallax. Baltimore :: Johns Hopkins University Press, 1994.

Arcos López, Nicolás. "Los Clasificadores Numerales Y Las Claes Nominales En Ch'ol." M.A. Thesis, Centro de Investigaciones y Estudios Superiores en Antropología Social, 2009.

Arcos Mendoza, Marcos, ed. *Juñ Ch'älbilbä Tyi Lakty'añ Ch'ol. Libro De Literatura En Lengua Chol De Chiapas*. México D.F.: Secretaría de Educación Pública, 1999.

Attinasi, John. "Lak T'an: A Grammar of the Chol (Mayan) Word." Doctoral Dissertation, University of Chicago, 1973.

———. *Lexicality and Grammaticality in Chol Mayan*. Los Angeles: University of California, 1976.

Aulie, H. Wilbur. *Diccionario Ch'ol-Español, Español-Ch'ol*. Vocabularios IndíGenas ; 21. edited by Evelyn W. de Aulie and Wilbur H. Aulie. 1. ed. ed. México :: Instituto Lingüístico de Verano, 1978.

Barnes, Robert H. *KéDang : A Study of the Collective Thought of an Eastern Indonesian People*. Oxford :: Clarendon Press, 1974.

Basso, Keith H. *Wisdom Sits in Places: Landscape and Language among the Western Apache* . Albuquerque: University of New Mexico Press, 1996.

Bergen, Benjamin, and Ting Ting Chan Lau. "Writing Direction Affects How People Map Space onto Time." [In English]. *Frontiers in Psychology* 3 (2012-April-10 2012).

Binnick, Robert I. *Time and the Verb: A Guide to Tense and Aspect*. New York :: Oxford University Press, 1991.

Bloch, Maurice. "The Past and the Present in the Present." *Man* 12, no. 2 (1977): 278-92.

Boas, Franz. "Museums of Ethnology and Their Classification." *Science* 9, no. 228 (1887): 587-89.

Bohannan, Laura. "Shakespeare in the Bush." *Natural History* 75.7 (1966): 28-33.

Bohnemeyer, Jürgen. "Temporal Anaphora in a Tenseless Language." In *The Expression of Time*, edited by Wolfgang Klein and Ping Li, 83-128. Berlin: Mouton de Gruyter, 2009.

———. "Temporal Reference from a Radical Pragmatics Perspective: Why Yucatec Does Not Need to Express 'after' and 'Before'." *Cognitive Linguistics* 9, no. 3 (1998): 239-82.

———. "Time Relations in Discourse. Evidence from a Comparative Approach to Yukatek Maya." Doctoral Dissertation, Catholic University of Brabant, 1998.

Bonato, Mario, Marco Zorzi, and Carlo Umiltà. "When Time Is Space: Evidence for a Mental Time Line." *Neuroscience & Biobehavioral Reviews* 36, no. 10 (11// 2012): 2257-73.

Boroditsky, Lera. "Does Language Shape Thought?: Mandarin and English Speakers' Conceptions of Time." *Cognitive Psychology* 43, no. 1 (8// 2001): 1-22.

———. "How Languages Construct Time." In *Space, Time and Number in the Brain : Searching for the Foundations of Mathematical Thought*, edited by Stanislas Brannon Elizabeth Dehaene. London ;: Academic Press, 2011.

Boroditsky, Lera, and Daniel Casasanto. "Time in the Mind: Using Space to Think About Time." *Cognition* 106 (2008): 579-93.

Bourdieu, Pierre. "The Attitude of the Algerian Peasant Towards Time." In *Mediterranean Countrymen*, edited by Julian Pitt-Rivers. Paris: Recherches Mediterraneennes, 1963.

———. *Outline of a Theory of Practice*. Cambridge ;: Cambridge University Press, 1977.

Bricker, Victoria R. "El Hombre, La Carga, Y El Tiempo." In *Los Zinacantecos; Un Pueblo Tzotzil De Los Altos De Chiapas*, edited by Evon Vogt, 355-70. Mexico: Dirección General de Publicaciones, Instituto Nacional Indigenista, 1966.

———. "The Ethnographic Context of Some Traditional Mayan Speech Genres." In *Explorations in the Ethnography of Speaking*, edited by Richard Bauman and Joel Sherzer, 368-88: Cambridge University Press, 1989.

———. "La Función Del Paralelismo En La Narrativa Tzotzil." In *Figuras Mayas De La Diversidad*, edited by Aurore Monod Becquelin, Alan Breton and Mario Humberto Ruz. México, D.F.: Universidad Nacional Autónoma de México, Centro Peninsular en Humanidades y Ciencias Sociales, 2010.

———. "The Source of the Ergative Split in Yucatect Maya." *Journal of Mayan Linguistics* 2 (1981): 83-127.

Bright, William. "'With One Lip, with Two Lips': Parallelism in Nahuatl." *Language* 66, no. 3 (1990): 437-52.

Brody, Jill. "Repetition as a Rhetorical and Conversational Device in Tojolabal (Mayan)." *International Journal of American Linguistics* 52, no. 3 (1986): 255-74.

Brown, Penelope. "Time and Space in Tzeltal: Is the Future Uphill?". *Frontiers in Psychology* 3 (2012).

Bunzel, Ruth L. *Chichicastenango*. Guatemala: Editorial J. de Pineda Ibarra, Ministerio de Educación, 1981.

Calbris, Geneviève. *The Semiotics of French Gestures*. Bloomington: Indiana University Press, 1990.

Campbell, Lyle, and Terrence Kaufman. "Mayan Linguistics: Where Are We Now?". *Annual Review of Anthropology* 14 (1985): 187-98.

Casasanto, Daniel, and Kyle Jasmin. "The Hands of Time: Temporal Gestures in English Speakers." *Cognitive Linguistics* 23, no. 4 (2012): 643-74.

Caso, Alfonso. *Los Calendarios PrehispáNicos*. [1. ed.] ed. México1967.

Cienki, Alan. "Metaphoric Gestures and Some of Their Relations to Verbal Metaphoric Expressions." In *Discourse and Cognition: Bridging the Gap*, edited by Jean-Pierre Koenig, 189-204: Stanford: CSLI Publications, 1998.

Cienki, Alan, and Cornelia Müller, eds. *Metaphor and Gesture*, Gesture Studies. Amsterdam/Philadelphia: John Benjamins Publishing Company, 2008.

Clark, Herbert H. "Space, Time, Semantics, and the Child." In *Cognitive Development and the Acquisition of Language*, edited by Timothy E. Moore, 27-63. New York: Academic Press, 1973.

Coe, Michael D. *The Maya*. Rev. ed. ed. London :: Thames and Hudson, 2005.

Colby, Benjamin N. *The Daykeeper, the Life and Discourse of an Ixil Diviner*. edited by Lore M. Colby Cambridge, Mass. :: Harvard University Press, 1981.

Comrie, Bernard. *Aspect: An Introduction to the Study of Verbal Aspect and Related Problems*. Cambridge ;: Cambridge University Press, 1976.

———. "Ergativity." In *Syntactic Typology. Studies in the Phenomenology of Language.*Edited by Winfred P. Lehmann, 329-94. Austin :: University of Texas Press, 1978.

———. *Language Universals and Linguistic Typology. Syntax and Morphology*. Oxford [England] :: B. Blackwell, 1981.

———. *Tense*. Cambridge [Cambridgeshire] ;: Cambridge University Press, 1985.

Contini-Morava, Ellen, and Eve Danziger. "Discourse Functions of the Mopan Maya Echo Vowel Enclitic." In *SSILA Annual Meeting 2013*. Boston, MA, 2013.

Coon, Jessica. "Complementation in Chol (Mayan): A Theory of Split Ergativity." Doctoral, Massachusetts Institute of Technology, 2010.

———. "Roots and Words in Chol Mayan. A Distributed Morphology Approach." B.A., Reed College, 2004.

Cooperrider, Kensy, and Rafael Núñez. "Across Time, across the Body. Temporal Transversal Gestures." *Gesture* 9, no. 2 (2009): 181-206.

Dahl, Øyvind. "When the Future Comes from Behind: Malagasy and Other Time Concepts and Some Consequences for Communication." *International Journal of Intercultural Relations* 19, no. 2 (//Spring 1995): 197-209.

Danziger, Eve. "Deixis, Gesture and Cognition in Spatial Frame of Reference Typology." *Studies in Language* 34, no. 1 (2010): 167-85.

———. "Distinguishing Three-Dimensional Forms from Their Mirror-Images: Whorfian Results from Users of Intrinsic Frames of Linguistic Reference.". *Language Sciences* 33, no. 6 (2011): 853-67.

———. "The Eye of the Beholder: How Linguistic Categorization Affects "Natural" Experience." In *Complexities: Anthropological Challenges to Reductive Accounts of Social Life*, edited by Susan McKinnon and Sydel Silverman, 64-80. Chicago: Chicago University Press, 2005.

———. "On Trying and Lying: Cultural Configurations of the Gricean Maxim of Quality." *Intercultural Pragmatics* 7, no. 2 (2010): 199-219.

———. "A Person, a Place, or A thing? Whorfian Consequences of Syntactic Bootstraping in Mopan Maya." In *Crosslinguistic Perspectives on Argument Structure*, edited by Melissa Bowerman and Penelope Brown: Taylor and Francis Group, LLC, 2008.

———."The Thought that counts: Understanding Variation in Cultural Theories of Interaction." In *The Roots of Human Sociality: Culture, Cognition and Human Interaction*. Stephen P. Levinson and Nicholas Enfield (eds.) NY: Berg Press. (2006): 259-278

———. "Split Intransitivity and Active-Inactive Patterning in Mopan Maya." *International Journal of American Linguistics* 62, no. 4 (1996): 379-414.

De Vries, Lourens. "Towards a Typology of Tail-Head Linkage in Papuan Languages." *Studies in Language* 29, no. 2 (2005): 363-84.

Díaz Peñate, José. *La'lakts'isjbuñ lakty'añ ch'ol*. Gobierno del Estado de Chiapas, 1992.

Dickens, Charles. *A Christmas Carol*. Charlottesville, Va. :: University of Virginia Library, (1843) 1993.

Dixon, Robert M. W. *Ergativity*. Cambridge [Cambridgeshire] ;: Cambridge University Press, 1994.

Du Bois, John W. . "Self-Evidence and Ritual Speech." In *Evidentiality: The Linguistic Coding of Epistemology*, edited by Wallace Chafe and Johanna Nichols. Advances in Discourse Processes, 313-36. New Jersey: Ablex Publishing Corporation, 1986.

Duncan, Susan D. "Gesture, Verb Aspect, and the Nature of Iconic Imagery in Natural Discourse." *Gesture* 2, no. 2 (2002): 183-206.

Durkheim, Emile. *The Elementary Forms of the Religious Life*. New York: The Free Press, 1965
1912

Edmonson. *The Book of Counsel: The Popol Vuh of the Quiche Maya of Guatemala*. New Orleans:
Middle American Research Institute, Tulane University, 1971.

Edmonson, Munro S., and Victoria R. Bricker. "Yucatecan Mayan Literature." In *Supplement to the
Handbook of Middle American Indians*, edited by Victoria R. Bricker, 44-63, 1985.

Einstein, Albert. "The Foundation of the Generalised Theory of Relativity." Translated by M.N.
Saha and S.N. Bose. In *The Principle of Relativity: Original Papers by A. Einstein and H.
Minkowski*. Calcutta: University of Calcutta, 1920 [1916].

———. "On the Electrodynamics of Moving Bodies." In *The Principle of Relativity*, edited by
Perrett W. and Jeffery G.B. London: Methuen and Company, Ltd., 1920 [1905].

Eliade, Mircea. *The Myth of the Eternal Return*. [New York]: Pantheon Books, 1954.

Evans-Pritchard, E. E. *The Nuer, a Description of the Modes of Livelihood and Political Institutions
of a Nilotic People*. Oxford: At the Clarendon Press, 1940.

Evans, Vyvyan. *The Structure of Time : Language, Meaning, and Temporal Cognition*. Amsterdam
:: John Benjamins Pub., 2003.

Fabian, Johannes. *Time and the Other : How Anthropology Makes Its Object*. New York ::
Columbia University Press, 1983.

Farriss, Nancy M. "Remembering the Future, Anticipating the Past: History, Time, and Cosmology
among the Maya of Yucatan." *Comparative Studies in Society and History* 29, no. 3 (1987):
566-93.

Fauconnier, Gilles, and mark Turner. "Rethinking Metaphor." In *The Cambridge Handbook of
Metaphor and Thought*, edited by Ray Gibbs, 53-66. Cambridge: Cambridge University
Press, 2008.

Firbas, Jan. "On the Concept of Communicative Dynamism in the Theory of Functional Sentence
Prespective." *Philologica Pragensia* 8 (1971): 135-44.

Fishman, Joshua A. "Bilingualism with and without Diglossia; Diglossia with and without
Bilingualism." *Journal of Social Issues* 23 (1967): 29-38.

Geertz, Clifford. "Person, Time, and Conduct in Bali." In *The Interpretation of Cultures : Selected
Essays*, edited by Clifford Geertz. New York: Basic Books, 1973.

Gell, Alfred. *The Anthropology of Time : Cultural Constructions of Temporal Maps and Images*.
New York :: Berg :, 1992.

———. *Metamorphosis of the Cassowaries : Umeda Society, Language and Ritual*. London ::
Athlone Press ;, 1975.

239

Gossen, Gary H. *Chamulas in the World of the Sun; Time and Space in a Maya Oral Tradition*. Cambridge: Harvard University Press, 1974.

———. "Temporal and Spatial Equivalents in Chamula Ritual Symbolism." In *Reader in Comparative Religion : An Anthropological Approach*, edited by William Armand Lessa and Evon Z. Vogt, 116-29. New York :: Harper & Row, 1979.

———. "To Speak with a Heated Heart: Chamula Canons of Style and Good Performance". In *Explorations in the Ethnography of Speaking*, edited by Richard Bauman and Joel Sherzer, 389-413: Cambridge University Press, 1989.

———. "Tzotzil Literature." In *Supplement to the Handbook of Middle American Indians*, edited by Victoria Bricker and Munro Edmonson. Austin: University of Texas Press, 1985.

Guillaume, G. "Immanence Et Transcendance Dans La Catégorie Du Verbe: Esquisse D'une Théorie Psychologieque De L'aspect." *Journal de Psychologie* (1933): 355-68.

Gupta, Akhil. "The Reincarnation of Souls and the Rebirth of Commodities: Representations of Time in "East" and "West"." *Cultural Critique*, no. 22 (1992): 187-211.

Gurvitch, George. *The Spectrum of Social Time*. Dordrecht: Reidel, 1961.

Gutiérrez, Pedro. "Las Clases De Verbos Intransitivos Y El Alineamiento Agentivo En El Chol De Tila, Chiapas." M.A., CIESAS, Centro de Investigaciones y Estudios Superiores en Antropología Social, 2004.

Gutiérrez, Pedro, and Roberto Zavala. "Chol and Chontal: Two Mayan Languages of the Agentive Type." In *The Typology of Stative-Active Languages*. Max Planck Institute for Evolutionary Anthropology, Leizpig, 2005.

Gvozdanovic, Jadranka. "Perfective and Imperfective Aspect." In *The Oxford Handbook of Tense and Aspect*, edited by Robert I. Binnick, 781-802. Oxford ;: Oxford University Press, 2012.

Hall, Edward T. *Beyond Culture*. 1st ed. ed. Garden City, N.Y. :: Anchor Press, 1976.

Hanks, William F. "Grammar, Style, and Meaning in a Maya Manuscript." *International Journal of American Linguistics* 54, no. 3 (1988): 331-65.

Haviland, John B. "'We Want to Borrow Your Mouth': Tzotzil Marital Squabbles." *Anthropological Linguistics* 30, no. 3/4 (1988): 395-447.

Hill, Clifford A. "Linguistic Representation of Spatial and Temporal Orientation." Paper presented at the Proceedings of the 4th Annual Meeting of the Berkeley Linguistics Society, Berkeley, 1978.

Hopkins, Nicholas, and Kathryn Josserand. "Chol Ritual Language." Famsi.

———. "Lexical Retention and Cultural Significance in Chol (Mayan) Ritual Vocabulary." *Anthropological Linguistics* 47, no. 4 (2005): 401-23.

240

Hopkins, Nicholas, and Kathryn Josserand. "The Characteristics of Chol (Mayan) Traditional Narrative." In *Homenaje a Jorge A. Suárez. Lingüística Indoamericana E Hispánica*, edited by Beatriz Garza Cuarón and Paulette Levy, 297-314. Mexico: El Colegio de México, 1990.

Husserl, Edmund. *The Phenomenology of Internal Time-Consciousness*. Bloomington: Indiana University Press, 1964.

Hymes, Dell H. "Discovering Oral Performance and Measured Verse in American Indian Texts." In *"In Vain I Tried to Tell You": Essays in Native American Ethnopoetics*, edited by Dell H. Hymes, 309-41. Philadelphia: University of Pennsylvania Press, 1981.

———. *Now I know only so far: Essays in ethnopoetics*. U of Nebraska Press, 2003.

———. "Breakthrough into performance." No. 26-27. Università di Urbino, 1973.

Imberton Deneke, Gracia. "La Vergüenza. Enfermedad Y Tensiones Sociales Entre Los Indígenas Choles De Chiapas, México." In *Salud E Interculturalidad En América Latina*, edited by Gerardo Fernández Juárez. Quito: Abya-Yala, 2006.

———. "Suicidio, Entendimientos Locales Y Cambio Social Entre Población Chol De Chiapas." Doctoral Dissertation, UNAM, 2012.

Jahoda, G. "Geometric Illusions and Environment: A Study in Ghana." *British Journal of Psychology* 57, no. 193-199 (1966).

Jiménez Jiménez, Enrique, and Jorge Guzmán Gutiérrez. *Säkläji'b Ty'añ Ch'ol*. Tuxtla Gutiérrez: Gobierno del Estado. Secretaría de Educación. Subsecreatría de Educación Federalizada. Dirección de Educación Indígena., 2007.

Jorio, Andrea de. *Gesture in Naples and Gesture in Classical Antiquity : A Translation of La Mimica Degli Antichi Investigata Nel Gestire Napoletano, Gestural Expression of the Ancients in the Light of Neapolitan Gesturing*. edited by Adam Kendon Bloomington :: Indiana University Press, (1832) 2000.

Josserand, J. Kathryn, and Nicholas Hopkins. "Tila Y Su Cristo Negro: Historia, Peregrinación Y Devoción En Chiapas, México." *Mesoamerica* 49 (2007): 82-113.

Josserand, Kathryn. "The Narrative Structure of Hieroglyphic Texts at Palenque." In *Sixth Palenque Round Table*, edited by Merle Greene Robertson and Virginia Fields. Norman: University of Oklahoma Press, 1991.

Kant, Immanuel. *Critique of Pure Reason*. edited by Norman Kemp Smith. Abridged ed. ed. New York: Modern Library, 1958.

Kaufman, Terrence. "Algunos Rasgos Estructurales De Los Idiomas Mayanses Con Referencia Especial Al K'iche'.". In *Lecturas Sobre La LingüÍStica Maya*, edited by Nora C. England and Stephen R. Elliott, 59-114. La Antigua Guatemala, Guatemala :: Centro de Investigaciones Regionales de Mesoamérica ;, 1990.

Kaufman, Terrence, and William M. Norman. "An Outline of Proto-Cholan Phonology, Morphology and Vocabulary.". In *Phoneticism in Mayan Hieroglyphic Writing*, edited by John Justeson and Lyle Campbell, 77-166. Albany: Institute for Mesoamerican Studies, State University of New York, Albany, 1984.

Kendon, Adam. "Gesticulation and Speech: Two Aspects of the Process of Utterance." In *The Relation between Verbal and Non Verbal Communication*, edited by M. R. Key. The Hague: Mouton, 1980.

———. "Some Relationships between Body Motion and Speech." In *Studies in Dyadic Communication*, edited by A. Siegman and B. Pope, 177-210. New York: Pergamon Press, 1972.

Kern, Stephen. *The Culture of Time and Space 1880-1918*. Cambridge, Mass. :: Harvard University Press, 1983.

Kita, Sotaro, Eve Danziger, and Christel Stolz. "Cultural Specificity of Spatial Schemas, as Manifested in Spontaneous Gestures." In *Spatial Schemas and Abstract Thought*, edited by M. Gattis. Cambridge, MA: MIT Press, 2001.

Klein, Wolfgang. "How Time Is Encoded." In *The Expression of Time*, edited by Wolfgang Klein and Ping Li. Berlin ;: Mouton de Gruyter, 2009.

———. *Time in Language*. London ;: Routledge, 1994.

Klimov, G.A. "On the Character of Languages of Active Typology." *Linguistics* 131 (1974): 11-25.

Koob Schick, Hildegard María. "Fonología Del Chol De Salto De Agua, Chiapas." B.A., Escuela Nacional de Antropología e Historia, 1979.

Kövecses, Zoltán. *Metaphor : A Practical Introduction*. New York :: Oxford University Press, 2002.

Kranjec, Alexander, and Laraine McDonough. "The Implicit and Explicit Embodiment of Time." *Journal of Pragmatics* 43 (2011): 735-48.

La Farge, Oliver. *The Year Bearer's People*. edited by Douglas S. Byers New Orleans, La.: The Department of Middle American Research, The Tulane University of Louisiana, 1931.

Labov, William. "The Transformation of Experience in Narrative Syntax." In *Language in the Inner City; Studies in the Black English Vernacular*, 354-95. Philadelphia: University of Pennsylvania Press, 1972.

Lakoff, George. "The Contemporary Theory of Metaphor." In *Metaphor and Thought*, edited by A. Ortony, 202-51. Cambridge, U.K.: Cambridge University Press, 1993.

———. *Philosophy in the Flesh : The Embodied Mind and Its Challenge to Western Thought*. edited by Mark Johnson New York :: Basic Books, 1999.

Lakoff, George, and Mark Johnson. *Metaphors We Live By*. Chicago: The University of Chicago Press, 1980.

Langacker, Ronald W. *Foundations of Cognitive Grammar*. Stanford, Calif. :: Stanford University Press, 1987.

Le Guen, Olivier, and Lorena I. Pool Balam. "No Metaphorical Timeline in Gesture and Cognition among Yucatec Mayas." *Frontiers in Psychology* 3 (2012).

Leach, Edmund Ronald. "Two Essays Concerning the Symbolic Representation of Time." In *Rethinking Anthropology*, 124-36. [London]: University of London, Athlone Press, 1961.

———."Time and False Noses." In Stephen Hugh-Jones, James Laidlaw. *The Essential Edmund Leach: Anthropology and society*. Vol.1. (1951) 2000.

Lee, Dorothy. "Lineal and Nonlineal Codifications of Reality." *Psychosomatic Medicine* 12 (1950): 89-97.

León-Portilla, Miguel. "Nahuatl Literature." In *Supplement to the Handbook of Middle American Indians*, edited by Victoria R. Bricker, 7-43. Austin: University of Texas Press, 1985.

León Portilla, Miguel. *Time and Reality in the Thought of the Maya*. edited by Alfonso Villa Rojas Boston: Beacon Press, 1973.

Levine, Robert. *A Geography of Time: The Temporal Misadventures of a Social Psychologist, Or How Every Culture Keeps Time Just a Little Bit Differently*. New York: Oneworld Publications, 2006.

Levinson, Stephen , and Wilkins David, eds. *Grammars of Space: Explorations in Cognitive Diversity*. Cambridge, UK ;: Cambridge University Press, 2006.

Levinson, Stephen C. *Space in Language and Cognition: Explorations in Cognitive Diversity*. Cambridge, UK ;: Cambridge University Press, 2003.

Lincoln, J. Steward. *The Maya Calendar of the Ixil of Guatemala*. Vol. Contribution 528, Washington, D.C.: Carnegie Institution of Washington Publications, 1942.

López López, Rubén. "Una Aproximación Al Léxico Comparativo Del Chol De Los Municipios De Sabanilla, Tila Y Tumbalá, Chiapas." M.A. Thesis, Centro de Investigaciones y Estudios Superiores en Antropología Social, 2005.

López Martínez, Sergio. "The Bank of Miracles: Saints, Piligrimage and Money Circulation at the Sanctuary of Tila, Chiapas." In *110th Meetings of the American Anthropological Association*. New Orleans, 2010.

———. "Santos Familiares Y Brujos. Análisis De Creencias Y Disputas Sociales En Dos Relatos Choles." *Entre Diversidades* (2013) 1:149-170.

Lucy, John Arthur. *Grammatical Categories and Cognition : A Case Study of the Linguistic Relativity Hypothesis*. Studies in the Social and Cultural Foundations of Language. Vol. 13, Cambridge [England] ;: Cambridge University Press, 1992.

———. *Language Diversity and Thought: A Reformulation of the Linguistic Relativity Hypothesis*. Studies in the Social and Cultural Foundations of Language. Vol. 12, Cambridge: Cambridge University Press, 1992.

———. "Metapragmatic Presentationals: Reporting Speech with Quotatives in Yucatec Maya." In *Reflexive Language: Reported Speech and Metapragmatics*, edited by John Arthur Lucy, 91-125. New York: Cambridge University Press, 1993.

Lupiáñez, Juan, Julio Santiago, and Ana Torralbo. "Flexible Conceptual Projection of Time onto Spatial Frames of Reference." *Cognitive Science* 30 (2006): 745-57.

Lyons, John. *Semantics*. Cambridge ;: Cambridge University Press, 1977.

Malotki, Ekkehart. *Hopi Time : A Linguistics Analysis of the Temporal Concepts in the Hopi Language*. Berlin ;: Mouton, 1983.

Martínez Cruz, Victoriano. "Los Adjetivos Y Conceptos De Propiedad En Chol." M.A. Thesis, Centro de Investigaciones y Estudios Superiores en Antropología Social, 2007.

Martínez Pérez, Carolino. "Análisis Morfosintáctico De La Frase Nominal Y La Construcción De Los Nombres De Acción En La Lengua Chol De Tila, Chiapas." M.A. Thesis, Centro de Investigaciones y Estudios Superiores en Antropología Social, 2005.

Merriam-Webster online dictionary. http://www.merriam-webster.com

McNeill, David. *Gesture and Thought*. Chicago :: University of Chicago Press, 2005.

———. *Hand and Mind : What Gestures Reveal About Thought*. Chicago :: University of Chicago Press, 1992.

McTaggart, J. Ellis. "The Unreality of Time." *Mind* 17, no. 68 (1908): 457-74.

Meillassoux, C. "Recherche D'un Niveau De Détermination Dans La Société Cynégétique." *L´homme et la Société* 6 (1967): 95-105.

Miles, Suzanna W. "An Anaylysis of Modern Middle American Calendars: A Study in Conservation." In *Acculturation in the Americas*, edited by Tax Sol, 273-84. Chicago: University of Chicago Press, 1952.

Miller, George A. *Language and Perception*. edited by P. N. Johnson-Laird Cambridge, Eng. :: Cambridge University Press, 1976.

Miracle, Andrew, and Juan de Dios Yapita Moya. "Time and Space in Aymara." In *The Aymara Language and Its Social and Cultural Context*, edited by M. Hardman, 33-56. Gainsville: University of Florida Press, 1981.

Mithun, Marianne. "Active-Agentive Case Marking and Its Motivation." *Language* 67 (1991): 510-46.

Monod Becquelin, Aurore. "Le Tour Du Monde En Quelques Couplets. Le Parallélisme Dans La Tradition Orale Maya." In *Kalevala Et Traditions Orales Du Monde*, edited by J. Fernandez-Vest, 467-88. Paris: Éditions du CNRS (Colloques internationaux), 1987.

Monod Becquelin, Aurore, and Cédric Becquey. "De Las Unidades Paralelísticas En Las Tradiciones Orales Mayas." *Estudios de Cultura Maya* 32 (2011): 107-50.

Montejo López, Bernabé. *Na'al Ty'añ Ch'ol*. edited by Gobierno del Estado de Chiapas México1999.

Moore, Kevin Ezra. "Space to Time Mappings and Temporal Concepts." *Cognitive Linguistics* 17, no. 2 (2006): 199-244.

———. "Spatial Experience and Temporal Metaphors in Wolof: Point of View, Conceptual Mappping, and Linguistic Practice." Doctoral dissertation, University of California, Berkeley, 2000.

Morales Bermúdez, Jesús. *Antigua Palabra Narrativa IndíGena Ch'ol*. México :: UNICACH :, 1999.

Mudd, Rosemary. "Spanish Loan Words in Yucatec Maya Narrative Couplets." In *Papers in Mayan Linguistics*, edited by Laura Martin, 50-62. Columbia: Lucas Brothers, 1979.

Munn, Nancy "The Cultural Anthropology of Time: A Critical Essay." *Annual Review of Anthropology* 21 (1992 1992): 93-123.

Nash, June C. *In the Eyes of the Ancestors; Belief and Behavior in a Maya Community*. New Haven: Yale University Press, 1970.

Newton, Isaac. *The Mathematical Principles of Natural Philosophy*. London :: printed for Benjamin Motte, 1729.

Nietzsche, Friedrich Wilhelm. *The Gay Science : With a Prelude in German Rhymes and an Appendix of Songs*. edited by Bernard Arthur Owen Williams, Josefine Nauckhoff and Adrian Del Caro New York :: Cambridge University Press, 2001.

———. *Thus Spoke Zarathustra : A Book for Everyone and Nobody*. edited by Graham Parkes Oxford ;: Oxford University Press, 2005.

Norman, William M. "Grammatical Parallelism in Quiche Ritual Language." *Proceedings of the Sixth Annual Meeting of the Berkeley Linguistics Society* (1980): 387-99.

Núñez, Rafael E., and Carlos Cornejo. "Facing the Sunrise: Cultural Worldview Underlying Intrinsic-Based Encoding of Absolute Frames of Reference in Aymara." *Cognitive Science* 36, no. 6 (2012): 965-91.

Núñez, Rafael E., Benjamin A. Motz, and Ursina Teuscher. "Time after Time: The Psychological Reality of the Ego- and Time-Reference-Point Distinction in Metaphorical Construals of Time." [In eng]. *HMET* 21, no. 3 (01/01 2006): 133-46.

Pederson, Eric, Eve Danziger, Stephen Levinson, Sotaro Kita, Gunter Senft, and David Wilkins. "Semantic Typology and Spatial Conceptualization." *Language* 74, no. 3 (1998): 557-89.

Pérez Chacón, José L. *Los Choles De Tila Y Su Mundo. Tradición Oral.* [in Edición bilingüe: Chol - Español.]. Translated by Miguel Pérez López and Alfonso Pérez López. Tuxtla Gutiérrez: Gobierno del Estado de Chiapas. Instituto Chiapaneco de Cultura., 1988. 1993.

Perlmutter, David. "Impersonal Passives and the Unaccusative Hypothesis." Paper presented at the Fourth Annual Meeting of the Berkeley Linguistics Society, University of California, Berkeley, 1978.

Pinker, Steven. *The Language Instinct*. New York, NY :: W. Morrow and Co., 1994.

Pitarch, Pedro. *The Jaguar and the Priest. An Ethnography of Tzeltal Souls*.University of Txas Press. Austin: 2010

———.Ch'ulel: Una etnografía de las almas tzeltales. Fondo de Cultura Económica. México, D.F.:1996

Quizar, Robin, and Susan Knowles-Berry. "Ergatividad Escindida En Los Idiomas Mayas." In *Lecturas Sobre La LingüÍStica Maya*, edited by Nora C. England and Stephen R. Elliott, 301-18. La Antigua Guatemala, Guatemala :: Centro de Investigaciones Regionales de Mesoamérica ;, 1990.

Radden, Günter. "Where Time Meets Space." In *The Metaphors of Sixty: Papers Presented on the Occasion of the 60th Birthday of Zoltán Kövecses.*, edited by R. Benczes and S. Csábi, 210-26. Budapest: Eötvös Loránd University, 2006.

Rappaport, Roy A. *Ritual and Religion in the Making of Humanity*. Cambridge, U.K.: Cambridge University Press, 1999.

Rathert, Monika. "Adverbials." In *The Oxford Handbook of Tense and Aspect*, edited by Robert I. Binnick, xxxvii, 1089 p. :. Oxford ;: Oxford University Press, 2012.

———. *Textures of Time*. Studia Grammatica. Vol. 59, Berlin: Akademie, 2004.

Redfield, Robert K. *Chan Kom, a Maya Village*. edited by Alfonso Villa Rojas [Washington, D.C.]: Carnegie institution of Washington, 1934.

Reichenbach, Hans. *Elements of Symbolic Logic*. New York: Macmillan Co., 1947.

Rice, Prudence M. *Maya Calendar Origins : Monuments, Mythistory, and the Materialization of Time*. 1st ed. ed. Austin :: University of Texas Press, 2007.

Robertson, John S. *The History of Tense/Aspect/Mood/Voice in the Mayan Verbal Complex*. Austin :: University of Texas Press, 1992.

———. *The Structure of Pronoun Incorporation in the Mayan Verbal Complex*. New York: Garland, 1980.

Rodríguez, Lydia. "Repetición Y Paralelismo En Una Ceremonia De Pedida Matrimonial Chol." *Entre Diversidades* (2013) 1:121-147.

Rubel, Arthur J. "Prognosticative Calendar Systems." *American Anthropologist* 67, no. 1 (1965): 107-10.

Ruz, Mario Humberto. *Tabasco En Chiapas: Documentos Para La Historia Tabasqeuña En El Archivo Diocesano De San Cristóbal De Las Casas*. edited by Centro de Estudios Mayas. Vol. Cuaderno 23, item 194, México: UNAM, Instituto de Investigaciones Filológicas, 1994.

Sapir, Edward. "The Status of Linguistics as a Science." *Language* 5, no. 4 (1929): 2017-214.

Schele, Linda., and David A. Freidel. *A Forest of Kings : The Untold Story of the Ancient Maya*. New York :: William Morrow, 1990.

Schumann, Otto G. *La Lengua Chol, De Tila (Chiapas)*. Cuadernos. México: Universidad Nacional Autónoma de México, 1973.

Segall, M.H., D.T. Campbell, and M.J. Herskovits. "Cultural Differences in the Perception of Geometrical Illusions." *Science* 139 (1963): 769-71.

Shinohara, Kazuko. *Epistemology of Space and Time*. Kwansei, Japan: Kwansei Gakuin University Press, 1999.

Shinohara, Kazuko, and Prashant Pardeshi. "The More in Front, the Later: The Role of Positional Terms in Time Metaphors." *Journal of Pragmatics* 43, no. 3 (2011): 749-58.

Smith, Carol. *The Parameter of Aspect*. Dordrecht ;: Kluwer Academic Publishers, 1991.

———. "Semantic and Syntactic Constraints on Temporal Interpretation." In *Syntax and Semantics: Tense and Aspect*, edited by P.J. Tedeschi and A. Zaenen, 213-37. New York: Academic Press, 1981.

Swart, H. de. "Adverbs of Quantification: A Generalized Quantifier Approach." Doctoral Dissertation, Groningen University, 1991.

Sweetser, Eve, and Rafael E. Núñez. "With the Future Behind Them: Convergent Evidence from Aymara Language and Gesture in the Crosslinguistic Comparison of Spatial Construals of Time." *Cognitive Science* 30, no. 3 (May-June 2006): 401-50.

Taube, Karl A. "A Prehispanic Maya Katun Wheel." *Journal of Anthropological Research* 44, no. 2 (1988): 183-203.

Tedlock, Barbara. *Time and the Highland Maya*. Rev. ed. ed. Albuquerque :: University of New Mexico Press, 1992.

Tedlock, Dennis *2000 Years of Mayan Literature*. Berkeley: University of California Press, 2010.

Tenbrink, Thora. "Reference Frames of Space and Time in Language." *Journal of Pragmatics* 43 (2011): 704-22.

Thompson, E. P. "Time, Work-Discipline, and Industrial Capitalism." *Past & Present*, no. 38 (1967): 56-97.

Thompson, J. Eric S. *Maya Hieroglyphic Writing; Introduction*. Washington1950.

Timberlake, Alan. "Aspect, Tense, Mood." In *Language Typology and Syntactic Description*, edited by Timothy Shopen, 3 v. :. Cambridge ;: Cambridge University Press, 2007.

Townsend, Paul G. "Couplets in Ixil Maya Poetic Genre." In *International Congress of Americanists*. Vancouver, 1979.

Traugott, Elizabeth C. "On the Expression of Spatio-Temporal Relations in Language." In *Universals of Human Language*, edited by J.H. Greenberg: Stanford University Press, 1978.

Turner, Victor W. *The Ritual Process: Structure and Anti-Structure*. Chicago: Aldine Pub. Co. 1969.

Tversky, Barbara, Sol Kugelmass, and Atalia Winter. "Cross-Cultural and Developmental Trends in Graphic Productions." *Cognitive Psychology* 23 (1991): 515-57.

Valin, R. *L'envers Des Mots: Analyse Psychomécanique Du Langage.* Quebec: Presses de l'Université Laval, 1994.

Vapnarsky, Valentina "Paralelismo, Ciclicidad Y Creatividad En El Arte Verbal Maya Yucateco." *Estudios de Cultura maya* 32 (2008): 151-96.

Vázquez Álvarez, Juan Jesús. "A Grammar of Chol, a Mayan Language." Doctoral Dissertation, University of Texas, 2011.

———. "Morfología Del Verbo De La Lengua Chol De Tila, Chiapas." M.A., CIESAS Centro de Investigaciones y Estudios Superiores en Antropología Social, 2002.

Villa Rojas, Alfonso. "The Concepts of Space and Time among the Contemporary Maya." In *Time and Reality in the Thought of the Maya*, edited by Miguel León-Portilla, 113-59. Norman and London: University of Oklahoma Press, 1988.

Vogt, Evon Z. *ZinacantáN: A Maya Community in the Highlands of Chiapas*. Cambridge :: Belknap Press of Harvard University Press, 1969.

Vygotsky, Lev S. *Thought and language*. A. Kozulin, ed. Cambridge: MIT Press, 1986.

Warkentin, Viola, and R. Brend. "Chol Phonology." *Linguistics* 132 (1974): 87-101.

Warkentin, Viola, and Ruby Scott. *Gramática Ch'ol*. edited by Summer Institute of Linguistics México1980.

Whittaker, A., and V. Warkentin. *Chol Texts on the Supernatural*. México D.F.: Summer Institute of Linguistics of the University of Oklahoma, 1965.

Whorf, Benjamin Lee. *Language, Thought, and Reality; Selected Writings*. [Cambridge]: Technology Press of Massachusetts Institute of Technology, 1978.

———."The punctual and segmentative aspects of verbs in Hopi" In *Language, Thought, and Reality; Selected Writings*. [Cambridge]: Technology Press of Massachusetts Institute of Technology, 1978.

———. "The Relation of Habitual Thought and Behavior to Language." In *Language, Culture, and Personality, Essays in Memory of Edward Sapir*, edited by Leslie Spier. Menasha: Sapir Memorial Publication Fund, 1941.

———."An American Indian Model of the Universe." International Journal of American Linguistics 16(2): 67. 1950.

Yu, Ning. "The Metaphorical Orientation of Time in Chinese." *Journal of Pragmatics* 44, no. 10 (8// 2012): 1335-54.

Zavala, Roberto. "Functional Analysis of Akatek Voice Constructions." *International Journal of American Linguistics* 63 (1997): 439-74.

———. "Split Intransitivity and Agentivity in Cholan and Other Mayan Languages." In *Berkeley Linguistics Society, 33*. University of California, Berkeley, 2007.