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## **Foreword**

We are pleased to present the proceedings of the BLS 33 Special Session, held at UC Berkeley in February 2007. We would like to thank the contributors to this volume and all those who attended and participated in the conference.

Hannah J. Haynie

**SPECIAL SESSION:  
LANGUAGES OF MEXICO AND  
CENTRAL AMERICA**



# Problems in Zapotec Tone Reconstruction<sup>1</sup>

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## 0. Introduction

It seems obvious<sup>2</sup> that Zapotec languages, and the Otomanguean family to which they belong, have had tonal contrasts for thousands of years, yet most historical studies of Zapotec have ignored tone (excepting Swadesh 1947 and the unpublished work of Joseph Benton). Beam de Azcona (in press) is a historical study which compares five modern varieties and proposes a reconstruction of the Proto-Southern-Zapotec tonal system. That study is of special interest to Zapotecanist scholars, but challenges encountered in making the reconstruction should be of interest to a wider audience of linguists. The present paper is an account of what these difficulties were and what can be learned from them.

There are two ways in which the study of Southern Zapotec tone is most interesting. First, most studies in historical linguistics focus on segments rather than tone, and historical studies of tone are often more about tonogenesis than about changes that take place within long-standing tonal families. Thus, this study has the potential to add to our knowledge of what kinds of changes affect tone languages as they continue to evolve. Secondly, Zapotec languages are not only closely related in the genetic sense but they also exist in a linguistic area, where changes easily diffuse across genetic boundaries. In the end this and other difficulties encountered in the reconstruction are ones familiar from segmental reconstruction, and prompt questions about the nature of reconstruction itself, what its true end result is, and what benefit it has.

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<sup>1</sup> Thanks to Mark Post, Stephen Morey, Thomas Smith Stark, George Aaron Broadwell, Mark Sicoli, Christian DiCanio, Nicolas Hopkins, John Justeson, Terrence Kaufman, Michael Swanton, Pamela Munro, Heriberto Avelino, and Larry Hyman for informative conversations on topics covered in this paper, which may nevertheless contain errors of my own making.

<sup>2</sup> Tone is pervasive throughout the Otomanguean language family. In many of these languages it also has a high functional load, is intertwined not only with the lexicon but with the grammar, and is involved in complex phonological and morphological rules. A large number of tonal contrasts is also present in many Otomanguean languages. There are no obvious segmental environments to have conditioned any tonogenesis. There are no neighboring language families from which Otomanguean would have acquired tone via diffusion.

## **1. Problems Encountered in Making the Reconstruction**

### **1.1. Availability of Reliable Data**

Many Zapotecanist scholars have done a great deal of linguistic work while managing to avoid tone. Most of the linguists who have worked on Zapotecan languages are not native speakers of tone languages, and tone can be difficult to hear and analyze. In developing practical orthographies tonal diacritics are often deemed cumbersome and abandoned. As justification, some Zapotecanists point to the fact that tone has a lower functional load in Zapotec than in some other Otomanguean languages. While a linguist would be ridiculed for writing a phonological description without discussion of segments, and an orthography could not be developed without a consonant inventory, tone is in fact often ignored. In these cases comparative tonal data cannot be gleaned from other linguists' work.

Mostly because of this lack of data, I did not attempt tonal comparisons until I had done enough fieldwork on a second Zapotec language (beginning with Beam de Azcona 2004). To endeavor to make a reconstruction based solely on languages that one has done fieldwork on personally has both advantages and drawbacks. One is usually more confident of one's own data. Whether or not this is warranted, it can at least be said that a single linguist is likely to analyze or misanalyze things in the same way, and so at least the problem will not arise where the same sound or feature is assumed to be a distinct phenomenon in a separate language only because another linguist has analyzed it differently. Doing things this way means starting with a small but solid set of data, but clearly the result will be different than if one had comparable data from a wider range of languages.

Smith Stark (2003) defined four subgroups of Southern Zapotec: Extended Coatec(an), Miahuatec(an), Cisyau-tepecan, and Tlacolulita. The last of these is a single language about which virtually nothing is known save for Oscar Méndez's field notes from a brief trip there. In an earlier version of a comparative segmental study of Southern Zapotec (Beam de Azcona forthcoming a), as well as the tonal study in question here (Beam de Azcona in press), I concluded that Coatecan and Miahuatecan languages shared a common ancestor separate from Cisyau-tepecan, and presumably Tlacolulita. However, in more recent work on the segmental topic, and now with access to Méndez's fieldnotes, it has become apparent that Tlacolulita and Coatecan languages share a sound change in which Miahuatecan does not participate. This suggests the possibility that Tlacolulita may be closely related to Coatecan in a genetic sense but that many similarities between Coatecan and Miahuatecan are instead the result of recent contact. The tonal study is based on five varieties of one Coatecan and one Miahuatecan language. It is likely that many changes to the tonal systems of Southern Zapotec languages have happened fairly recently. Taking these factors into account, the lack of a phonological analysis available for Tlacolulita becomes more important, and the reconstruction attempted for Coatecan and Miahuatecan must be viewed differently if in fact they do not share a recent common ancestor and instead show the results of diffused tone changes.



## **1.2. Poor Existing Typology of Tone Changes (Versus Tonogenesis)**

We have such a wealth of historical studies of segments that there is a good typology in place for us to judge what types of segmental changes are common or expected. Compared to segmental studies we have relatively few studies of how tones, once they have already come into existence, change over time (but see Morey 2005, Strecker 1979, Bradley 1978:206-233, Weidert 1987, Li 1977). There also exists a conception among linguists that not all tone languages are the same. We think of tone as behaving differently in Africa than in Asia, and pitch contrasts vary widely in their nature in different languages of the Americas. To the extent that these preconceptions are true, can we expect the same types of changes to effect, say, a high tone in a Bantu language as in a Tai-Kadai language? One need only look at the way in which a term like “pitch-accent” is thrown around to know that we have not yet made a clear enough typology of the way pitch can be exploited linguistically to know what types of “tone languages” exist, much less the types of change which can be seen in each type.

We understand segmental change in terms of features. Consonants can vary so widely from each other, with complete or only partial disruption of airflow, several articulators that can be used, and different types of air pressure changes. Consonants can thus be described using long lists of features detailing voicing, place, and manner of articulation. Tones seem more like vowels in their fluidity. While a consonant could be made using tongue, lips, teeth, nose, glottis, and several easily identifiable points along the roof of the mouth, a vowel is basically made with the tongue and the glottis, sometimes with a little help from the lips or nose, and the vowel space is more relative. While the consonant space is intricately divided up with labels like “alveolar ridge” and “velum” the vowel space is chopped up into relative categories like “front”, “back”, “high”, “low”. Tones, at first glance, can be described in even less detail than vowels as we describe fundamental frequency along a height metaphor only (high, mid, low, but not front and back).

Sounds generally change in one or very few features while retaining some features of the original sound. We expect consonants to change from voiced to voiceless, or to change their place or manner of articulation, but to otherwise remain the same. We expect /s/ to become /t/ or /z/ or /ʃ/ but not /b/. Common vowel changes involve movement along either the vertical or the horizontal axis, or changes in lip rounding or nasal air flow. While the vowel space is more fluid, we can still imagine a few extreme changes which we would not expect to take place, for example /i/ > /b/. But what of tonal changes? The main descriptive feature of tones is fundamental frequency. Do we expect tonal changes mostly in the rapidity of vocal fold vibration?

A second division commonly made is between “level” and “contour” tones. Another criterion to consider is whether changes from one category to the other, or within categories, are more common. Is a change from high tone to falling tone more natural than a change from falling tone to rising tone? Strecker (1979) did posit a change from a rising tone to a falling tone in Lanna Tai, but there was an intermediary level stage (Morey 2005:157). Could such a change ever happen di-

rectly, or would a contour tone nearly always have to pass through another stage, either as a level or as a complex contour (rising-falling or falling-rising) tone before becoming a contour tone with the opposite directionality?

In truth though, there are more features that can be considered for tonal categories, though these vary greatly by language. In a particular language or language group certain tones may also entail voice quality distinctions, changes in duration, and effects on nearby segments and syllables. Tones given the same descriptive labels (high, low, falling, rising) can be realized quite differently in given languages. All of these factors must be taken into account before suggesting global typological generalizations of tonal change. Tones with labels such as “low” and “rising” may share some phonetic similarity in a particular language group, but this may not be true of “low” and “rising” tones elsewhere.

Considering that segmental changes usually result in a sound which still shares some attributes with the original sound, it is useful to consider in more detail how Zapotec tone categories resemble each other in different ways. If multiple tone features pertinent to Zapotec can be described, then it may help in the effort to identify what changes are most likely to take place. We might expect changes between tones which share some feature to be common, but if there appears to be a change between two tones which are unlike each other, it is likely that this happened in two or more stages, with the intermediate tone(s) sharing features with both the modern tone(s) and a tone that is presumed to have existed at an earlier time. With this objective in mind I formulated a list of features shared between Southern Zapotec tones, both the phonetic realizations of their pitch patterns, and other phonological details they hold in common in particular varieties or across the languages studied. Figure 1 shows six phonetic pitch patterns found thus far in Southern Zapotec languages, and lists the connections between each of these tonal categories. Contrastive glottalization is excluded here as it is historically not part of the tonal system, though it has become so in modern Coatec.

The first problem that becomes apparent is that nearly all the tones have something in common with all the other tones. Even the tones which are the most dissimilar to each other, ɿ and ʌ, ʌ and ʌ, are only one degree removed from each other since they bear more striking similarities to other tones which could serve as intermediaries. It is easy to imagine a contour tone shortening to a level tone, which over time could move in a different direction than the original contour. Thus, like vowels, tones would seem to be very fluid in nature, with fewer unnatural changes than consonants, which are more diverse phonologically.

While this exercise virtually failed to find two tones without features in common, it is unclear whether some of the shared features in Figure 1 are stronger than others, and more likely to enable sound change between those tones which share them.

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Figure 1: Properties of Southern Zapotec tones

	↑ “high”	↘ “high”	↓ “low”	↘ “low”	↑ “rising”
↘ “high”	allotones in most dialects	-----	-----	-----	-----
↓ “low”	level pitch pattern		-----	-----	-----
↘ “low” or “falling”	same effects on adjacent syllables in SBarL	-falling pitch -same effects on adjacent syllables in SBarL	allotones in some varieties	-----	-----
↑ “rising”	end in high pitch	end in high(ish) pitch	-long and glottalized in Coatec -same effects on adjacent syllables in SBarL -begin in low pitch	-long and glottalized in Coatec -begin in low(ish) pitch	-----
↘ “falling”	-not lengthened or glottalized in Coatec -begin in high pitch	-not lengthened or glottalized in Coatec -falling pitch pattern -begin in high pitch	end in low(ish) pitch	-falling pitch pattern -end in low(ish) pitch	contour pitch pattern

**1.2. Large Number of Correspondence Sets**

Figure 2 shows the tonal correspondences found between the San Baltazar Loxicha (SBalL) and Coatlán dialects of Coatec and the San Agustín Mixtepec (SAM), San Agustín Loxicha (SAL), and San Bartolomé Loxicha (SBarL) dialects of Miahuatec. When glottalization is indicated here for SAM, both checked and rearticulated vowels are found in the same correspondence set, although rising tone does not occur with rearticulated vowels. Each correspondence set is labeled with a letter, and similar correspondence sets which seem to be variations of each other are distinguished by adding a number (A1, A2, etc.). The number of cognates for which each correspondence set has been found for most dialects is given in the last column. A reconstruction is given for the most common correspondences<sup>3</sup>.

<sup>3</sup> The reasoning behind the proto-tones reconstructed is found in Beam de Azcona (in press).

Figure 2: Correspondences between varieties of Coatec and Miahuatec

	SBalL	Coatlanes	SAM	SAL	SBarL	tokens
A (*ɿ <sup>2</sup> )	ɿ?	ɿ?	ɿ?	ɿ?	ɿ?	15
A2	ɿ	ɿ	ɿ?	ɿ?	ɿ?	2
B (*ɿ <sup>2</sup> )	ɿ?	ɿ?	ɿ?	ɿ?	ɿ?	4
B2	ɿ	ɿ	ɿ?	ɿ?	ɿ?	7
B4	ɿ?	ɿ?	ɿ?	ɿ	ɿ?	1
C (*ɿ <sup>2</sup> )	ɿ	ɿ	ɿ?	ɿ ~ ɿ	ɿ ~ ɿ	4
C2	ɿ	ɿ	ɿ	ɿ ~ ɿ	ɿ ~ ɿ	2
C3	ɿ	ɿ	ɿ?	ɿ		1
D (*ɿ)	ɿ	ɿ	ɿ	ɿ	ɿ	11
D2	ɿ	ɿ	ɿ?	ɿ	ɿ	4
D3	ɿ?	ɿ?	ɿ	ɿ	ɿ	2
D4	ɿ	ɿ	ɿ	ɿ	ɿ	1
E (*ɿ)	ɿ	ɿ	ɿ	ɿ	ɿ	6
F (*ɿ)	ɿ	ɿ	ɿ	ɿ	ɿ	9
F2	ɿ	ɿ	ɿ	ɿ	ɿ	1
G (*ɿ ~ ɿ)	ɿ	ɿ	ɿ	ɿ ~ ɿ	ɿ	11
H (*ɿ, V)	ɿ ~ ɿ	ɿ ~ ɿ			ɿ ~ ɿ	9
H2	ɿ ~ ɿ	ɿ ~ ɿ			ɿ	1
I (*ɿ, VV)	ɿ	ɿ	ɿ	ɿ ~ ɿ	ɿ ~ ɿ	19
I2	ɿ	ɿ	ɿ	ɿ ~ ɿ	ɿ ~ ɿ	1
I3	ɿ	ɿ	ɿ?	ɿ ~ ɿ	ɿ ~ ɿ	1
I4	ɿ	ɿ	ɿ	ɿ ~ ɿ	ɿ ~ ɿ	1
I5	ɿ	ɿ	ɿ	ɿ ~ ɿ	ɿ?	1
J (*ɿ)	ɿ	ɿ	ɿ	ɿ	ɿ	8
J2	ɿ	ɿ	ɿ	ɿ	ɿ	1
K	ɿ	ɿ	ɿ	ɿ ~ ɿ	ɿ	1
L	ɿ	ɿ	ɿ	ɿ	ɿ	4
M	ɿ		ɿ	ɿ, ɿ		1
N	ɿ	ɿ	ɿ	ɿ	ɿ	4
N2	ɿ	ɿ	ɿ	ɿ	ɿ	3
O	ɿ	ɿ		ɿ	ɿ	1
P	ɿ			ɿ	ɿ	1
Q	ɿ	ɿ	ɿ	ɿ	ɿ ~ ɿ	1

In all there are thirty-three correspondence sets listed in Figure 2, a large number for a proto-language which I presume to have had three tones (6-9 suprasegmental types once glottalization is factored in). If we count variants (e.g. C1-3) as single types and leave to future work those types which are poorly attested, say fewer than 6 exemplars so far, we are left with correspondence sets A-J.

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Focusing on A-J, I have reconstructed high, low, and rising tones, occurring with and without the conditioning environment of glottalization. Besides my assumption that SAM is conservative in having this inventory, there is also currently no reason to reconstruct any other tone. Falling tones in the varieties considered seem to have developed recently from high tone (Coatec) and low tone (SBarL) and there are no mid tones in the varieties examined. Thus there are three tones posited to give rise to ten correspondence sets (leaving for future work any explanation of how sub-types, e.g. D1-4, have developed). More specifically, three tones are posited to give rise to seven unglottalized correspondence sets. Rising tone (D, E, F) and high tone (H, I, J) are each reconstructed for three separate correspondence sets. To explain how each single tone has split into three patterns, one expects to find conditioning environments, the next problem to address.

**1.3. Loss of Conditioning Environments**

Southern Zapotec languages are quite monosyllabic, having lost nearly all non-tonic vowels historically.<sup>4</sup> Both pre- and post-tonic vowels have deleted. The tone of pre-tonic vowels may have given rise to a register contrast in Coatec (Beam de Azcona forthcoming b), but otherwise appear to have been lost, while the tones from the deleted post-tonic vowels appear to have survived and combined with the tone of the tonic vowel in at least some cases, as shown in Figure 3.

Figure 3: Cognates between Isthmus and Southern Zapotec

Isthmus Zapotec	Coatec (SBarL)	Miahuatec (SAM)	Gloss
chònná	chǒn	tzǒn	three
màní <sup>?</sup>	mǎn	mǎ <sup>?</sup>	animal
ràlé	ndǎl	ndxǎl	H-be.born

Correspondence sets D-F are all reconstructed with rising tone. Since rising tone is expected to be one of the original Zapotec tones, based partly on the inventory of Isthmus Zapotec, and also appears to occur in some cases as a melding of earlier low followed by high tone, one thought that occurs is that one of D-F might be original rising tone while one or both of the others could be a more recent composition and a result of the vowel loss.

An important issue, addressed below in §2.1, is the timing of the Southern Zapotec vowel loss. If it had already taken place by the time of the Proto-Southern-Zapotec horizon, the tonal reconstruction is less complicated and less dependent on outside confirmation from other branches. However, if the vowel loss spread areally then tonal changes resulting from the vowel loss happened in already divergent languages. Given the likelihood of the latter scenario, one might expect that original rising tone would be the most likely to persist and that rising tone

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<sup>4</sup> One exception is the stative prefix *na-*. It has reduced to *n-* before consonant-initial roots in Coatec, but sometimes remains a full pre-tonic syllable in Miahuatec. Other than this, pretonic syllables now exist on Southern Zapotec mostly through compounding.

formed through vowel loss might not result uniformly across varieties, since each variety might have responded differently to the loss of tone-bearing syllables. However, words like those in Figure 3 belong to correspondence D, which shows the most agreement between Coatec and Miahuatec. D-F all must have been rising tone at the Proto-Miahuatec stage, but only D is also rising in Coatec. We can understand this fact either as the result of an already-monosyllabic common ancestor, or else as a common reaction to the areally-spread vowel loss.

With a significant conditioning environment completely gone from the modern languages, one has to look outside of the Southern Zapotec group for guidance. Again, finding reliable tone data is a problem. Tone is marked in the Sierra Juárez (Nellis & Nellis 1983) and Isthmus (Pickett et al. 1978) Zapotec dictionaries, although not consistently (i.e. many words are recorded without tone) in the latter. Surely a large-scale comparison with these and other Zapotec languages will soon reveal more about the tonal history of the Zapotecan family at large, but for the time being so few cognates have been found in these sources that offering explanations for the patterns found still feels overly speculative.

## **2. Larger Problems Brought to the Fore by the Reconstruction**

The process of reconstructing Proto-Southern-Zapotec brings up questions about the nature of reconstruction itself, and causes one to reflect on the reality of language use in Oaxaca over the last few millennia.

### **2.1. Timing of Southern Zapotec Vowel Loss**

Further advances in the reconstruction of Southern Zapotec tone will have to look for explanatory conditioning environments to distinguish between correspondence sets D, E, and F with rising tone, and H, I and J with high tone. Thus far, there do not appear to be any consonantal conditioning factors. One might imagine, for example, that tones from deleted post-tonic syllables could have “passed through” sonorous consonants more easily than if voiceless obstruents intervened, but looking at the remaining coda consonants there are no solid generalizations to be made. Vowel length, which contrasts in San Agustín Mixtepec, is a possible conditioning environment to distinguish between H and I, but how these would have differed from J remains unclear. The tones found on lost syllables, particularly post-tonic syllables, are the most likely instigators of unexplained diversity in the modern tonal systems. As explained above, the deletion of post-tonic vowels and a lack of reliable data from other branches of Zapotec still makes finding these generalizations difficult, though this is sure to improve in the coming years as more fieldwork is done on more Zapotec languages. However, while looking for existing polysyllabic Zapotec languages with tone descriptions, one has to wonder about the relative timing of the vowel loss in Southern Zapotec and what is being aimed for with the reconstruction of the proto-language.

Most Valley Zapotec languages are today monosyllabic, much like Southern Zapotec languages are, but Colonial Valley Zapotec, as documented by Córdova (1578 a&b), was still polysyllabic little more than four hundred years ago. In the

South it is more difficult to tell what the colonial language was like. There are polysyllabic words cited in colonial sources on the South, and there are also indigenous-produced Zapotec documents from the colonial Southern Sierra, but it appears from these that at the time it was Colonial Valley Zapotec and not the local languages being used administratively. Likewise there are Zapotec loanwords into Spanish which retain Zapotec vowels, such as toponyms from the South, but again these may come from Valley Zapotec. In a very few cases, though by no means overwhelming, now-deleted vowels seem to still appear sporadically on a few words in Peñafiel questionnaires from the Southern Zapotec area dating from the late nineteenth century.

There simply is not enough good evidence to suggest one way or another when the unstressed vowels were lost from Southern Zapotec languages. The overwhelmingly monosyllabic nature of Southern Zapotec roots today would lead us to reconstruct a monosyllabic language via the comparative method, but it seems quite possible that vowel loss spread areally after these languages were already somewhat differentiated. It is difficult to reconstruct phonological material for what is supposed to be a common ancestor, if all of the daughter languages have lost this material. The lost vowels could probably be reconstructed by looking up and out beyond Southern Zapotec to related, conservative languages, but one has to wonder just how much phonological material we ought to be reconstructing based not on daughter languages but instead nieces. Since vowels have been reconstructed fairly reliably for Proto-Zapotec it is also possible to assume the same post-tonic vowels were in place in Proto-Southern-Zapotec, but we lack a reliable reconstruction of tone for Proto-Zapotec and cannot deduce the tones of post-tonic syllables in Proto-Southern-Zapotec so easily. We can imagine that the tones from deleted vowels may have sometimes combined with other tones, other times conditioned tonal changes in other ways, and perhaps other times they may have been lost along with their vowels. In sum, the tonal correspondences found in Southern Zapotec today have probably been influenced by these other tones, themselves complicated to reconstruct, in ways that are not insignificant.

The problem of vowel loss in the reconstruction of Proto-Southern-Zapotec is two-fold. The monosyllabic daughter languages would lead us to reconstruct a monosyllabic proto-language. A monosyllabic proto-language is disadvantageous both because it does not show us the potential conditioning environment from the lost syllables, and also because it is not at all clear, and in fact is maybe not even believable, that the most recent common ancestor of Southern Zapotec languages was a monosyllabic language.

## **2.2. The Relationship of Coatec and Miahuatec to One Another**

Coatec and Miahuatec are spoken side by side. Coatec is today considerably reduced geographically, as it gives way to Spanish in town after town. Miahuatec is similarly endangered in some locales, but thriving in many more. In part of the Miahuatec-speaking area, including the historical center around Miahuatlán, there is and has been contact with Coatec for as long as anyone can remember. In both

speech communities it is not uncommon to meet an older adult man who has traveled the region at one time or another for labor or trade purposes, and who has learned to speak the other language. A younger man, or a woman, or any speaker who has not been previously exposed to the other language will not understand, for example, a text recorded in it, if hearing the language for the first time. However, once given real-life exposure to the language intelligibility is fairly easily acquired and the linguistic similarities reveal themselves to the speakers.

Because of their similarity and geographic proximity, a close genetic relationship between Miahuatec and Coatec has been assumed (at least by the few people to ever ponder the question). When I first undertook the tonal reconstruction, the results of another segmental project also led me to believe that Miahuatecan and Coatecan shared a genetic node together. However, revisions of that segmental project (Beam de Azcona forthcoming a) based on new data now suggest a different scenario in which Miahuatec migrated into the South later than Coatec, or at least did not participate in some early changes together. Miahuatec and Coatec do show later shared innovations and it might even be speculated that when they first came into contact in the South they were still mutually intelligible varieties of a single language, but they were also already divergent, distinct varieties used by people with distinct identities.

If this newer hypothesis is correct, that Miahuatec and Coatec are not as much sisters as they are neighboring cousins, then the assumptions behind the reconstruction start to look different. The most recent common ancestor shared by Miahuatec and Coatec may have been spoken long ago in the Valley, and may have sounded quite different than whatever we reconstruct from the modern languages.

### **2.3. The Reality of the Comparative Method**

We do not know how recently Miahuatec and Coatec shared a common ancestor, i.e. how closely they are related in the genetic sense. We do not know how recently they lost their unstressed vowels. We can reconstruct a proto-language and call it Proto-Southern-Zapotec, based on data from Coatec and Miahuatec, but we don't know if the label is accurately applied to this exercise and we don't know if the monosyllabic forms which are easiest to reconstruct ever existed. Perhaps what we reconstruct is not a parent language at all, but a composite language, a made-up language with dominant features taken from different modern varieties. Some features reconstructed truly are jointly (or even singly) inherited traits going back to an earlier ancestor language. Others are traits which perhaps once were found only in a weak minority variety may have subsequently spread with later-acquired prestige. We take the features which are most common, or which we know through other means must have pre-dated competing reflexes, and reconstruct them, but it is unsatisfying compared to what the reality must have been.

The earlier students of Indo-European did not realize that the family-tree diagram was merely a statement of their method; they accepted the uniform parent languages and their



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sudden and clear-cut splitting, as historical realities...In actual observation, however, no speech-community is ever quite uniform. (Bloomfield 1984:311)

Bloomfield talks about a previous generation of scholar as buying into the reality of proto-languages. Any linguist will agree, whilst in conversation with another, that ancestor languages were never uniform but were just as complex as modern languages. Having given it a moment's thought, any linguist would agree that a language like Proto-Zapotec not only had geographical dialects but sociolects. There must have been speech indicators that went along with being a member of the nobility or a warrior class. There were priests, housewives, scribes, peasants, intellectuals, cliques of teenagers, and perhaps even *muxes* (the Isthmus Zapotec word for the openly gay male transvestites of today). They all had their personalities and eccentricities. Some said /u/ conforming to a trend while others said /o/ and shook their heads at those who were less traditional. "No speech community is ever quite uniform." We know this, but we don't remember it.

So if Proto-Southern-Zapotec is not the real ancestor language of Coatec and Miahuatec, and maybe not even a real language, what is the point of reconstructing it? We reconstruct because reconstruction is a pleasant pastime. We reconstruct because we are driven to emulate our predecessors (and to gauge the importance of the comparative method to the identity of modern Linguistics, one need only consider how often students are told that Linguistics began with Sir William Jones, as if Pāṇini had never existed). We reconstruct because of the allure of the unknown past, and the possibility of learning about past languages, through our partially-false notion that proto-languages are true ancestors. But even given these flawed motives, reconstruction is still a worthwhile endeavor. By going about the process of comparison we are made keenly aware of the correspondences between languages, the details in which they agree and disagree. And we are made to think about issues like the reality of language contact and areal diffusion, and language variation in ancient times. Even if the proto-language reconstructed is not, taken as a whole, the ancestor of modern daughter languages, individual forms from the composite language may indeed be equivalent to early forms that are ancestors to individual modern forms. These forms were around the region at an earlier time than today, and gave way to the modern forms. That is still true even if they did not exist in a single, impossibly uniform, common ancestor language.

### **3. Conclusion**

Reconstruction is a worthwhile endeavor, though one must be careful to conceive it in the right way, carefully and skeptically. If reconstruction is to be undertaken, an overwhelmingly tonal family deserves a tonal proto-language. In order to achieve this, more attention ought to be paid to tone in synchronic descriptions. It is hoped that more tonal descriptions of Zapotec languages, and more reconstruction of other subgroups within Zapotec, will further the efforts began recently with the reconstruction of Southern Zapotec tone discussed here. Such efforts

ought to contribute greatly not only to our knowledge of Zapotec historical linguistics, but to the historical and typological study of tone languages at large.

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*Problems in Zapotec Tone Reconstruction*

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# Argument Quantification and Qualification in Upper Necaxa Totonac<sup>1</sup>

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## 0. Introduction.

Upper Necaxa Totonac (UNT) has, on the surface, a fairly ordinary parts-of-speech system with four major word classes — noun, verb, adjective, and adverb. The class of adverbs, however, includes a large number of words denoting property concepts (Beck to appear):

- (1) a. **ʔapóʔ** ta:pa:ya:wá: tʃiʃkú  
**ʔapóʔ** ta:pa:-ya:wá: tʃiʃkú  
fatly side-stand man  
'that man is pot-bellied' (LC)
- b. **kanít** kiʔwanʔó:ʔ tʃitʃi  
**kanít** kiʔ-wan-ʔo:-ʔ tʃitʃi  
**showing.teeth** mouth-say-TOT-PFV dog  
'the dog bared all of its teeth' (LC)

These *descriptive adverbs* are syntactically distinct from adjectives in that they are exclusively predicate modifiers and they are not potentially adnominal modifiers. Nevertheless, descriptive adverbs are functionally similar to some uses of

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\* Upper Necaxa Totonac, a member of the isolate Totonac-Tepihua language family, is spoken in the Sierra Norte of the state of Puebla, Mexico. Uncited data are from my field notes. I would like to thank my friends in Patla and Chicontla, who have had the good grace and patience to work with me. Thanks are also due to Alexandra Aikhenvald, Judith Aissen, Pamela Munro, Enrique Palancar, and Roberto Zavala for helpful discussion of this paper. The remaining errors are my own. This research was funded by a SSHRC grant to the Upper Necaxa Field Project. The abbreviations used are: 1,2,3 = first-, second-, third-person; ALTV = allative; CLS = classifier; CMT = comitative; CS = causative; CTD = containing instrument; DSD = desiderative; DTV = determinative; FUT = future; IMPF = imperfective; INCH = inchoative; INST = instrumental; LOC = locative; OBJ = object; PL = plural; PFV = perfective; PO = possessive; PROG = progressive; QTV = quotative; SEM = semblative; SG = singular; ST.PL = stative plural; SUB = subject; TOT = totalitative.

adjectives in that they attribute a property to one of the arguments of the verb (usually the subject).

It seems likely that the existence of a robust class of descriptive adverbs is related to the inflectional characteristics of the language. These include: the lack of number inflection in the NP; the preferential marking of number of subject and object on the verb; the quantification of subject and object through verbal morphology; and the marking of semantic roles of objects by verbal morphology. Taken together, these facts paint a picture of a language that preferentially quantifies and qualifies NPs through inflectional and syntactic operations on sentential predicates, an extreme variation on the strategy of head-marking in the sense of Nichols (1986).

### 1. Descriptive Adverbs

Adverbs in UNT, in addition to encompassing the usual expressions of time, manner, and place, include expressions of other types of meaning as well. The most relevant of these are the *descriptive adverbs*, which express property concepts (Thompson 1988):

- (2) *tʃaláx* ‘brittle, fragile’  
*tʃi pʃ* ‘dense’  
*tʃi:f* ‘blurry’  
*ʔonʔó:ʔ* ‘curly, twisted, tangled’  
*lampú:ʔ* ‘wet’  
*ʔamáŋ* ‘rounded, full’  
*ʔanán* ‘red or yellow of ripe fruit’  
*ʔoxóʔ* ‘baggy, sack-like’  
*mox* ‘round and bulky, spherical’  
*pilóʔ* ‘turned up at brim’  
*poŋʔó:ʔ* ‘bubbly, foamy’  
*stiléʔ* ‘star-shaped’  
*s’ó:ʔo* ‘salty’  
*tax* ‘lit up, illuminated’  
*tsutsóʔ* ‘red’  
*ʃkúta* ‘sour’

The words in (2) are clearly adverbs, as shown in (3):

- (3) a. **lantáʔ** tato:kʌná:ʔ naktʃiwíʃ lakstín  
**lantáʔ** ta-ta-wakʌ-na:n-ʔ nak=tʃiwíʃ  
**flat.on.belly** 3PL.SUB-INCH-be.high-ST.PL-PFV LOC=rock

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lakstín  
 children  
 ‘the children are lying on their bellies on the rock’ (CF)

b. **piloʔtsá** la:ʔ kintáʔnu  
**piloʔ**=tsá      la:-ʔ      kin-táʔnu  
**turned.up**=now   do-PFV   1PO-hat  
 ‘my hat has got its brim turned up’ (RM)

c. **mox** wakáʔ iʃma:séʔ ʔo:ʃúm  
**mox**      wakáʔ      iʃ-ma:séʔ      ʔo:ʃúm  
**round**   be.high   3PO-nest      wasp  
 ‘the wasp nest is up there all big and round’ (SC)

d. **ʃkúʔa** kinkaán tʃauM  
**ʃkúʔa**      kinka-án-Ø      tʃauM  
**sour**      nose-go-IMPF      tortilla  
 ‘the tortilla smells sour’ (LB)

As seen in these examples, the descriptive adverbs appear in the pre-verbal slot generally reserved for verbal modifiers such as adverbs, ideophones, and adverbial particles. Not coincidentally, adjectives also can appear in this position in some constructions:

(4) a. **tsewaní** nataʃtú ʃatsilím wa:ʔ ʃaʔaʔán taʃtú  
**tsewaní**   na-ta-ʃtú      ʃa-tsilím      wa:ʔ  
**beautiful**   FUT-INCH-out      DTV-crackling      completely

          ʃa-ʔaʔá-n      ta-ʃtú  
           DTV-big-PL      INCH-out

‘the pork cracklings will be beautiful, just big ones will come out’ (RM)

Syntactically, however, adjectives are distinguishable from adverbs in that they are unmarked modifiers of nouns (Beck 2000, 2002), whereas adverbs are not:

(5) a. mat tama:ʃtumá:ná:ʔ naiʃtuxán aʔtín **ʔáʔa** tʃiwíʃ  
 mat      ta-ma:-ʃtu-má:-ná:-ʔ      nak=iʃ-tuxán      aʔ-tin  
 QTV      3PL.SUB-CS-out-PRG-ST.PL-PFV      LOC=3PO-foot      CLS-one

**ʔáʔa**      tʃiwíʃ  
           **big**      rock

‘they are getting it out from under the base of a big rock’ (JR)

- b. \*ka:ná: **wiléʔʔ** kǐwǐ  
 \*‘a very twisted tree’ (LB)
- c. ka:ná: **wiléʔʔwa** kǐwǐ  
 ka:ná: **wiléʔʔ-wa** kǐwǐ  
 truly **twisted**-SEM tree  
 ‘a very twisted tree’ (LB)

The adjective in (5a) functions as an adnominal modifier, while the adverb in (5b) is ungrammatical in this position. As shown in (5c), adverbs require the semblative suffix *-wa* to appear in this position.

Even though adverbs and adjectives are separate parts of speech, they show considerable functional overlap:

- (6) a. ka:ná: **wiléʔʔ** stáklǐ kǐwǐ  
 ka:ná: **wiléʔʔ** stáklǐ kǐwǐ  
 truly twisted grow-PFV tree  
 ‘the tree grew very twisted’ (LB)
- b. ka:ná: **wiléʔʔwa** stáklǐ kǐwǐ  
 ka:ná: **wiléʔʔ-wa** stáklǐ kǐwǐ  
 truly twisted-SEM grow-PFV tree  
 ‘the tree grew very twisted’ (LB)

These two sentences are synonymous: (6a) does not seem to be amenable to a gloss such as ‘the tree grew twistedly’, nor is (6b) amenable to a gloss such as ‘the twisted tree grew’. Instead, both qualifiers attribute a property to the subject of the sentence and both function as “small clause” predicate complements. Thus, descriptive qualities can be attributed to arguments by the adjunction of modifying elements to a verbal predicate in much the same way that grammatical categories such as nominal number are indicated morphologically on the verb.

## 2. Inflection, Agreement and Quantification in UNT

### 2.1. Nominal Number

NPs in UNT are only optionally marked for number using a variety of pluralizing affixes, most commonly */-n(V)/* where V is a harmonic copy of the last vowel in the stem (Beck 2004):

- |                                  |   |                                     |
|----------------------------------|---|-------------------------------------|
| (7) <i>tʃik</i> ‘house’          | > | <i>tʃikni</i> ‘houses’              |
| <i>maʃát</i> ‘mushroom’          | > | <i>maʃátŋa</i> ‘mushrooms’          |
| <i>pi:ʃká:ʃ</i> ‘civic official’ | > | <i>pi:ʃká:ʃŋa</i> ‘civic officials’ |
| <i>akakulúʃ</i> ‘scorpion’       | > | <i>akakulúʃŋu</i> ‘scorpions’       |
| <i>stáyq</i> ‘squirrel’          | > | <i>stáyán</i> ‘squirrels’           |



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<i>slulúku</i> ‘lizard’	>	<i>slulukún</i> ‘lizards’
<i>púksni</i> ‘Spanish cedar’	>	<i>puksnín</i> ‘Spanish cedars’

As shown by these examples, C-final stems take the [-nV] form of the suffix while V-final stems simply take [-n]. Most nouns referring to humans, animal names, and bodyparts use the suffix *-nin*:

(8) <i>kimakán</i> ‘my hand’	>	<i>kimakanín</i> ‘my hands’
<i>kiláknj</i> ‘my lower leg’	>	<i>kilaknín</i> ‘my lower legs’
<i>kutʃu.nún</i> ‘doctor’	>	<i>kutʃu.nunín</i> ‘doctors’
<i>puʃnún</i> ‘picker’	>	<i>puʃnunín</i> ‘pickers’
<i>ma:ʔeʔawqʔe.nj</i> ‘teacher’	>	<i>ma:ʔeʔawqʔe.ninín</i> ‘teachers’
<i>lu.nún</i> ‘lame person’	>	<i>lu.nunín</i> ‘lame people’

However, despite the fact that it is possible to pluralize nouns, speakers rarely choose that option: plurals of non-humans are textually infrequent, and some younger speakers are unable to reliably produce these forms. What this means is that number-marking of nouns is not inflectional (i.e., an obligatory grammatical category), but is rather *quasi-inflectional* (Mel’čuk 1993-2000, 2006).

## 2.2. Verbal Number

Transitive verbs in UNT agree in person and number with their subject and objects:

- (9) a. **ik**laʔtsiná:**n**  
**ik**-laʔtsín-ya:-**n**  
 1SG.SUB-see-IMPF-2OBJ  
 ‘I see you’
- b. **kin**ta-laʔtsín  
**kin**-**ta**-laʔtsín-Ø  
 1OBJ-3PL.SUB-see-IMPF  
 ‘they see me’

Number and person of subject are marked cumulatively by a single affix.

<i>ik</i> - ‘1SG.SUB’	<i>-t/-V</i> ‘2SG.SUB’	Ø ‘3SG.SUB’
<i>-w</i> ‘1PL.SUB’	<i>-tit</i> ‘2PL.SUB’	<i>ta-</i> ‘3PL.SUB’

Number and person of objects are marked by separate affixes:

<u>Person</u> : <i>kin</i> - ‘1OBJ’	<u>Number</u> : Ø ‘SG.OBJ’
<i>-n</i> ‘2OBJ’	<i>ka:-</i> ‘PL.OBJ’

Thus, plurality of first- and second-person objects is marked by a combination of two affixes, as in (10):

- (10) a. ka:talaʔtsiná:n  
ka:ta-laʔtsín-ya:-n  
 PL.OBJ-3PL.SUB-see-IMPF-2OBJ  
 ‘they see you guys’
- b. kinka:talaʔtsiná:n  
kin-ka:ta-laʔtsín-ya:-n  
 1OBJ-PL.OBJ-3PL.SUB-see-IMPF-2OBJ  
 ‘they see us’

Agreement is obligatory in person for all arguments and in number for all animate arguments; however, number-marking on NPs is optional (in fact, dispreferred):

- (11) a. ika:putsayá:u $\text{m}$  tʃitʃí  
 ik-ka:-putsá-ya:-w tʃitʃí  
 1SG.SUB-PL-search-IMPF-1PL.SUB dog  
 ‘we<sub>EXC</sub> look for the dogs’
- b. ika:putsayá:u $\text{m}$  tʃitʃí n  
 ik-ka:-putsá-ya:-w tʃitʃí-n  
 1SG.SUB-PL-search-IMPF-1PL.SUB dog-PL  
 ‘we<sub>EXC</sub> look for the dogs’

When both subject and object are third-person, the number of only one can be marked on the verb; the number of the other is optionally marked on the NP:

- (12) a. taputsá tʃitʃí  
 ta-putsá-Ø tʃitʃí  
 3PL.SUB-search-IMPF dog  
 ‘they look for the dog/dogs’
- b. taputsá tʃitʃí n  
 ta-putsá-Ø tʃitʃí-n  
 3PL.SUB-search-IMPF dog-PL  
 ‘they look for the dogs’
- c. \*ʃlakán putsá tʃitʃí (n)  
 ‘they (*ʃlakán*) look for the dog(s)’

- d. ka:putsá tʃitʃí  
 ka:-putsá-Ø                      tʃitʃí  
 PL.OBJ-search-IMPF          dog  
 ‘s/he/they look for the dogs’
- e. ka:putsá tʃitʃí n  
 ka:-putsá-Ø                      tʃitʃí-n  
 PL.OBJ-search-IMPF          dog-PL  
 ‘s/he/they look for the dogs’
- f. \*taka:putsá tʃitʃí (n)  
 ‘they look for the dog(s)’

The sentences in (12a) and (12d) are preferred, the choice between the forms depending on the relative discourse salience of the subject and object. (12b) and (12e) are possible, though uncommon, while the form *\*taka.putsá* is ungrammatical (12f). The form *putsá* in this context would also be ungrammatical (12c), showing that number-marking of NP arguments is an inflectional (i.e., obligatory) category of verbs, although there are some restrictions on it (see Beck 2001 for further discussion).

### 2.3. Other Types of Quantification in Verbs

In addition to requiring the number of NP arguments to be marked on the verb, UNT can also quantify the verb’s arguments with the quasi-inflectional suffix *-ʔo:* ‘totalitative’:

- (13) namakʃtimi:ʔo:tsá kinkapéx  
 na-makʃtimí:-ʔo:-Ø=tsá                      kin-kapéx  
 FUT-be.piled.evenly-TOT-IMPF=now    1PO-coffee  
 ‘now my coffee is going to be all piled up evenly’ (LB)

The totalitative suffix is especially interesting in that its position relative to other morphemes in the verb varies, depending on what particular element in the clause it quantifies — the event (14a), the subject (14b), or the object (14c) (Beck, Holden, & Varela n.d.):

- (14) a. natawaʔo:kutumá:ná:ʃ  
 na-ta-wa-ʔo:-kutun-má:-na:n-lí  
 FUT-3PL.SUB-eat-TOT-DSD-PROG-ST.PL-PFV  
 ‘they are wanting to eat everything up’

- b. natawakutumã:ʔo:ná:t  
 na-ta-wa-kutun-mã:-ʔo:-na:n-li  
 FUT-3PL.SUB-eat-DSD-PROG-**TOT**-ST.PL-PFV  
 ‘everyone is wanting to eat’
- c. natawakutumã:na:nʔó:t  
 na-ta-wa-kutun-mã:-na:n-ʔo:-li  
 FUT-3PL.SUB-eat-DSD-PROG-ST.PL-**TOT**-PFV  
 ‘they are wanting to try [i.e., eat] everything’

As with the attribution of properties to NPs, quantification can be carried out by ad-verbal elements whose semantic effects “filter down” to the verbal arguments.

#### 2.4. Marking of Semantic Roles of Arguments

UNT lacks prepositions and marks the semantic roles of arguments other than ACTOR and UNDERGOER using a range of applicative morphemes and bodypart prefixes (Beck 2004, 2006). For instance, the verb *ta.li.tanká:* ‘X fells Y with Z aided by W’ has a transitive base *tanká:* ‘X fells Y’ and contains two applicatives, the comitative *ta:-* and the instrumental *li:-*, subcategorizing for three objects:

- (15) wiʃ nakta:li:tanka:yá:n kǐwǐ ʔentú: kimatʃ:tkán  
 wiʃ na-ik-ta:-li:-tanká:-ya:-n kǐwǐ ʔen-tú:  
 you FUT-1SG.SUB-**CMT-INST**-fell-IMP-2OBJ tree CLS-two  
 kin-matʃi:t-kan  
 1PO-machete-PL.POS  
 ‘I and you are going to fell the tree with our two machetes’

Likewise, the verb *ta.pu.lq ʔmakamín* ‘X directs Y at Z using W aided by A’ has a transitive base, *makamín* ‘X throws/sends Y’, and contains three applicatives — the comitative *ta:-*, *pu:-* ‘containing instrument’, and the allative applicative *lqʔ-*. In all, it subcategorizes for four objects:

- (16) ika:ta:pu:lqʔmakaminá:n tʃiwíʃ kistánky kintsakatán  
 ik-ka:-ta:-pu:-lqʔ-makamín-ya:-n tʃiwíʃ kin-stánky  
 1SG.SUB-PL.OBJ-**CMT-CTD-ALT**-direct-IMP-2OBJ stone 1PO-brother  
 kin-tsakát-kan  
 1PO-sling-PL.PO  
 ‘I and my brother throw stones at you guys with our slings’

In clauses like these, the applicatives mark the grammatical relation and semantic role of the arguments. There is no case or other marking within the NP for this purpose, nor are there prepositions. Instead, information about the semantic and

syntactic roles of the NPs in the clause is encoded on the verb rather than by separate lexical elements or morphology associated with the noun.

### **3. Head-Marking and Beyond in UNT**

Upper Necaxa Totonac shows a strong preference for the “loading” of information into the predicate phrase, including information about the arguments of that predicate. Verbs are inflected for number of their arguments; number is not inflectional for nouns and nouns can be quantified by verbal affixes. The semantic roles of NPs are indicated by derivational means, and the language has a dedicated class of adverbs for attributing properties to NPs.

The first of these three characteristics, and to a lesser extent the second two, are familiar from the typology of polysynthetic languages and fall under what Nichols (1986) terms “head-marking” of syntactic relations:

Head-marking relations: for a pair of elements X and Y where Y is a syntactic dependent of X, their syntactic relation is indicated by some morphosyntactic feature of X.

The most frequently observed types of head-marking involve encoding of either semantically “empty” structural information about the relation between head and dependent (e.g., possessive markers), or information about inherent semantic or grammatical features of the dependent (e.g., person/number agreement). UNT, however, seems to exemplify a third type of relation in which additional semantic or grammatical information not inherent to the dependent or its structural configuration is marked on the head (or in the phrase governed by the head).

This is seen most clearly in the quantificational effects of the totalitative suffix, which conforms to the strict definition of head-marking. However, the use of descriptive adverbs seems also to conform — if not to the letter — to the spirit of head-marking in that qualification of an argument is carried out by an element within the predicate phrase. It may be that future typological investigation of other strongly head-marking languages will reveal the presence of lexical and quasi-inflectional strategies for argument quantification and qualification similar to those found in Upper Necaxa Totonac.

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## Agent Focus in Yukatek and Lakandon Maya

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### 0. Introduction

This paper discusses agent focus (AF) constructions in Yukatek and Lakandon Maya.<sup>1</sup> AF as a distinct grammatical construct has been noted and investigated for languages all over the world, and analyzed in different ways depending on the language specific circumstances.

Aissen (1999) mentions Dyrbal (Dixon 1972) as an example of a language where AF is a form of anti-passive construction that requires the object to be demoted to an oblique constituent. Several Mayan languages, on the other hand, have a specific morphological AF-marker that basically marks a transitive verb phrase as intransitive while still retaining a transitive function, a construction that is discussed below (cf. Aissen 1999).

In Yukatek and Lakandon Maya, AF constructions require changes in *status marking* on the verb that in part, are syntactically motivated. Status markers signal valence and determine aspect-mood (AM) inflection, but although the observed changes are required syntactically, they are also dependent on semantic features connected to the roles of agent-patient.

Lucy (1994) argues that the interaction between verb roots and status marking in Yukatek reveals argument structure as a feature of both categories. Lucy's proposal is applied to AF constructions in Yukatek and Lakandon Maya in order to explain the grammatical properties of the construction and the observed changes in status marking.

The suggestion here is that relative *agent salience* determines the use of status markers in AF constructions and that a hierarchy along those lines is proposed to

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<sup>1</sup> Yukatek and Lakandon Maya are both languages belonging to the Yukatekan branch of the Mayan language family. The Lakandon Maya data presented in this paper was collected by the author in the field between 2003-2006; first under the auspices of the Project for the Documentation of the Languages of Meso-America (PDLMA, <http://www.albany.edu/pdlma>), and later as a documentation of Lakandon Maya funded by the Endangered Languages Documentation Programme (ELDP, <http://www.hrhelp.org>), grant IGS0038. I wish to extend my gratitude to both organisations for supporting my research.



explain the changes in status marking as they can be observed in both Yukatek and Lakandon Maya.

### 1. Agent Focus in Mayan Languages

*Agent extraction* is a grammatical operation that is used to grammatically highlight the agent in a transitive clause. As indicated above, such an operation can be analysed in various ways depending on the strategies used in individual languages.

Verb-initial ergative languages (e.g. Mayan languages) often show morpho-syntactic consequences from the extraction of the agent, which are not present in subject- or object extraction.

In many Mayan languages, the extraction of an agent requires an AF construction that is morphologically intransitive, but semantically and functionally transitive. AF constructions are present in Mayan languages from different branches of the Mayan family tree: e.g. Ixil (Mamean), Jakaltek (Q'anjob'alan), K'iche' (K'ichean), Tzotzil (Tzeltalan), and Tz'utujil (K'ichean). These languages all make use of either of two available reflexes of the reconstructed proto-Mayan suffixes *\*-on* and *\*-wa* (Aissen 1999; Yasugi 2005).

An example of a construction from Tz'utujil is seen in (1), below:

- (1) *Naq x-Ø-(X-)sok-ow-i?*<sup>2</sup>  
 who COM-3SG.B-hurt-AF-TERM  
 'Who hurt him?' (Dayley 1985:352)

In (1), the agent has been removed from the verb compound and is represented by the free-standing indefinite pronoun *naq* ('who'). Accompanying this extraction is the AF-marker *-ow*.

A possibly special case in the Mayan context is discussed by Aissen (1999) who argues that AF verbs in Tzotzil are *inverse* as part of a system of *obviation* (cf. Aissen 1997).

Obviation is the hierarchical marking of third person subjects and objects as *proximate* or *obviate* so as to function as a referential tracking device for nominals. In obviation systems there is an established hierarchy following parameters like human/non-human, definite/indefinite and individuated/non-individuated, where human, definite, and individuated are proximate, and the opposite features are obviate.

Aissen argues for the presence of such a system in agent focus constructions in Tzotzil since they are only used when the agent is lower on the proximate/obviate hierarchy. AF verbs are furthermore only possible to use if the agent and the patient both are marked in third person. This restriction is not found

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<sup>2</sup> (X-) marks the extracted agreement marker while -Ø(-) marks an invisible, but present agreement marker.

in Tz'utujil, for example, where first person agents and patients are allowed in agent focus constructions (Aissen 1999:452).

An example of an AF verb in Tzotzil is seen in (2). The agent focus marker in Tzotzil is a reflex of the proto-Mayan suffix *\*-on*.

- (2) *B'uch'u i-Ø-(X-)kolta-on li tzeb-e?*  
who COM-3SG.B-help-AF the girl-ENC  
'Who helped the girl?' (Aissen 1999:453)

In preparation for the analysis of AF constructions in Lakandon in the remainder of the paper, it may be noted that Tzotzil has no apparent restrictions regarding AM-marking on AF verbs. All available tense, aspect, and mood markers appear to be available for AF verbs in Tzotzil. As stated, AF verbs are also morphologically intransitive, a situation that is not paralleled in Yukatek and Lakandon Maya.

## 2. Verbal Case Marking in Yukatek and Lakandon

Yukatekan and Cholan languages have a typologically rare *intransitive split* system (split-S) that is governed by aspect<sup>3</sup> (cf. Bohnemeyer 2004). Intransitive verbs in the *plain* status, mark the subject with the ergative marker (setA). Intransitive verbs in the *completive* and *dependent* statuses mark the subject with the absolutive marker (setB).

Since the split only concerns intransitive subjects, transitive verbs have an ergative-absolutive marking of agent and object, respectively, regardless of status. Below, (3-6) are examples from Lakandon Maya illustrating this:<sup>4</sup>

- (3) Root transitive: Incompletive  
*k-in-jätz'-ik-Ø*  
INC-1SG.A-hit-PLN.TR-3SG.B<sup>5</sup>  
'I am hitting him'

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<sup>3</sup> Aspect in this sense is inseparable from the notion of *status* (cf. Kaufman 1990) which primarily indicates the valence of a verb, but which also interacts with aspect-mood as well as person inflection.

<sup>4</sup> The orthographic conventions used in this paper follow the Official Mayan Orthography with two notable exceptions: /h/ marks high tone and /ʔ/ the glottal stop.

<sup>5</sup> Abbreviations used in glossing: 1: first person, 2: second person, 3: third person, A: ergative marker, AF: agent focus, B: absolutive marker, CAUS: causative, COM: completive aspect, CP: completive status, DEP: dependent status, DET: determiner, DUB: dubitative, ENC: enclitic, EXCL: exclusive, EXIST: existential, FUT: future, IMP: imperative, INC: incompletive aspect, IND: independent form, IV: intransitive, NEG: negative, OST: ostensive form, SG: singular, PL: plural, PLN: plain status, TERM: phrase final, TR: transitive, TRZ: transitivizer suffix

- (4) Root transitive. Completive  
*t-in-jätz'-aj-Ø*  
 COM-1SG.A-hit-CP.TR-3SG.B  
 'I hit him'
- (5) Root intransitive: Incompletive  
*k-inw-ehm-an*  
 INC-1SG.A-go.down-PLN.IV  
 'I am going down' / 'I am descending'
- (6) Root intransitive: Completive  
*7ehm-Ø-een*  
 go.down-CP.IV-1SG.B  
 'I went down' / 'I descended'

The marking of aspect and status also depends on the semantic and formal classification of the verb root. This is discussed in section 4. First we turn to look at the somewhat special case of AF in Yukatek and Lakandon Maya.

### 3. AF and Agent Extraction in Yukatek and Lakandon Maya

In Yukatek Maya, the grammatical operation of agent extraction has been called *ergative extraction* (Kaufman 1991) and described as a process that *may* apply as a result of a focus construction highlighting the agent in a clause (ibid:173).

AF constructions in Yukatek and Lakandon Maya are different from the ones Aissen presents for Tzotzil in several respects. Some of these differences are discussed here as a comparison between two distinct strategies.

In Yukatek and Lakandon Maya, the ergative person marker (setA) is extracted from the verb compound, leaving the transitive verb phrase *partially* marked as intransitive although it still has a transitive function. The person (cross reference) marker is removed from the inflected verb to occupy a preverbal position. This situation is no different from e.g. AF verbs in Tzotzil, but in contrast, the extracted verb in Yukatek and Lakandon Maya morphologically *retains* transitive status marking. However, a change in status marking also occurs where only the *plain* and *dependent* status markers are available in AF constructions.

There is also a restriction on available AM-markers where only three AM-categories are permitted, i.e. the *incompletive/habitual*, (*indefinite*) *future*, and the *completive*. Yukatek and Lakandon Maya allow the full range of persons in an agent focus construction, making the inverse analysis found in Tzotzil non-applicable to AF constructions in Yukatek and Lakandon Maya. There is furthermore no trace of a reflex of the reconstructed agent focus suffixes *\*-on* or *\*-wa* in Yukatek and Lakandon Maya. In examples (7-11), AF constructions are exemplified with data from Lakandon Maya:

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- (7) *mahk (X-)kihn-s-**ej**-Ø*  
 who die-CAUS-DEP.TR-3SG.B  
 ‘Who killed it?’
- (8) *xiiraj raji7 (X-)kihn-s-**ej**-Ø b'ahrum*  
 man 3SG.IND die-CAUS-DEP.TR-3SG.B jaguar  
 ‘It was this man who killed the jaguar’
- (9) *mana7-Ø mahk (X-)ir-**ej**-Ø*  
 NEG.EXIST-3SG.B who see-DEP.TR-3SG.B  
 ‘No one saw him’
- (10) *mahk b'ihn (X-)kihn-s-**ik**-Ø*  
 who FUT die-CAUS-PLN.TR-3SG.B  
 ‘Who is going to kill it?’
- (11) *a-je7 xiiraj raji7 (X-)kihn-s-**ik**-Ø b'ahrum*  
 DET-OST man 3SG.IND die-CAUS-PLN.TR-3SG.B jaguar  
 ‘This man, it is he who kills jaguars’

In (7-9) the completive aspect is implied given the past reading of the examples although no explicit completive marker is present on the verb. All three examples are inflected with the dependent status marker. In (10) the future marker *b'ihn* is combined with the plain status marker *-ik* and in (11) the incomplete/habitual reading is present along with the same status marker.

In (12), below, the changes in status marking between AF constructions and non-focused ones are displayed with data from Yukatek, which is almost identical to the Lakandon data with the exception of the optional *j+* clitic that is unattested for Lakandon Maya AF constructions.

- (12) Transitive status marking in “objective” and “agentive” constructions in Yukatek (after Kaufman 1991: 173).

Aspect/Status markers	Objective voice	Agentive (AF) voice <sup>6</sup>
Completive	<i>-aj</i>	<i>(j+)...-e(j)</i>
Indefinite future	<i>-e(j)</i>	<i>-ik</i>
Plain/Incomplete	<i>-ik</i>	<i>(j+)...-ik</i>

The changes sketched in (12) are what the present paper proposes to explain from a syntactic and a semantic point of view. Kaufman reports that the changes are

<sup>6</sup> This was not the case in Colonial Yukatek where an agent focused verb phrase in the completive took an unidentified suffix (*-i*). There has been a reanalysis in Modern Yukatek and Lakandon of this suffix to match the dependent status marker.

unclear, but that the status suffixes could be explained by relating each of them to a proto-Mayan nominalization suffix. I will argue for a different explanation here.

Before moving on to these explanations it should be noted that AF constructions are not required when fronted by an agent pronoun form. The example in (11) should be contrasted to the one in (13), below:

- (13)a *ra7ji7 k-u-kānah-t-ik-een 7uhch*  
 3SG.IND INC-3SG.A-guard-TRZ-PLN.TR-1SG.B before.EXCL  
 'He took care of me.' (HB050225\_1KYYM\_3)

The precise motivations for when AF constructions are used as opposed to when they are not remain to be investigated. From a cursory look at examples from my own corpus of analysed Lakandon Maya speech, it appears that AF verbs (unsurprisingly) are used in two contexts: 1) when the identity of the agent is in question, and 2) when the agent is emphasised for other reasons such as reminding the addressee of the identity of the agent.

#### 4. Grammatical Explanations for AF in Lakandon and Yukatek

As stated at the outset of the paper, there are both syntactic and semantic motivations behind the grammatical changes mainly concerning status marking that are associated with AF in Yukatek and Lakandon Maya. I will start by discussing some syntactic features of these constructions and leave the semantics for section 6 since they need to be introduced by Lucy's analysis of verb roots in Yukatek in section 5, in order to make sense.

AF in Yukatek and Lakandon Maya results in a construction where the extracted, focused agent is followed by a dependent clause. Syntactically, the head of an AF construction maps onto free-standing AM-markers, such as *tz'o7k* and *7uhch*, which are analysed as heads, or one-place predicates that take the following verb phrase as an argument (cf. Bohnemeyer 1998). Bohnemeyer notes that focused- and relative phrases are identical in a morpho-syntactic sense, which means that an AF construction appears identical to a headless relative phrase.

There are two main pieces of evidence for why the verb phrase should be analysed as depending on the extracted agent in the form of an interrogative or personal pronoun, 1) the prefixed aspect marker *k-* is absent in AF constructions. This would not have been the case if the verb functioned as an independent verb phrase, 2) The interrogative marker *wa(h)*, which occupies the syntactic slot *directly after* the main predicate is placed after the focused pronoun form and not after the following verb phrase, as seen in (14):

- (14) *raji7 wah (X-)kānah-t-ik-Ø*  
 3SG.IND Q guard-TRZ-PLN.TR-3SG.B  
 'Is it he who takes care of her?'

The only two available statuses in dependent/subordinate verb phrases are the plain- and the dependent status. The completive status cannot be used in a subordinate, i.e. “non-finite” construction. It is therefore not surprising that the completive status is unavailable for AF constructions when placed in the context of the analysis presented here.

The formal and semantic analysis of AM-marking by Bohmeyer (1998) for Yukatek suggests that the plain and the dependent status have “unbounded” and “bounded” characters, respectively, something that may go some way in explaining why the “bounded” dependent status marker is assigned to completive AF constructions.

However, it does not explain why non-focused dependent constructions are marked with the unbounded plain status in AF constructions. This should not be expected if the unbounded-bounded distinction is to be maintained. Bohmeyer observes that AM- and status marking “conflates” in AF constructions, but this is only an observation and it does not explain the changes from a syntactic viewpoint. Therefore, I now turn to a semantic analysis of the observed changes in status marking in Yukatek and Lakandon Maya.

### **5. Argument Structure as an Inherent Feature of Lexical Stems**

John Lucy (1994) proposes a classification of verb stems in Yukatek according to their inherent *argument structure*. The presence of argument structure as a semantic feature in verb stems can be observed from the way those stems interact with case and aspect (i.e. person- and status marking in my terms).

Lucy argues, for Yukatek, that there is a large class of *agent-patient* salient stems (Kaufman 1991: *root transitives*), a smaller group of *agent* salient ones (Kaufman 1991: *action verbal nouns*, or *avns* and *affect roots*), and a still smaller group of *patient* salient stems (Kaufman 1991: *root intransitives*).

The way in which formal marking by derivational and inflectional affixes and phonological changes to the stem is applied, provides clues as to how they should be understood and classified from a language internal perspective.

Agent-patient salient stems (transitive roots) are inflected with an ergative marker (set A) to mark the agent, and an absolutive marker (set B) to mark the patient. As transitive stems, they require no additional marking to indicate their transitive status (example 3 repeated):

- (3) *k-in-jätz'-ik-Ø*  
INC-1SG.A-hit-PLN.TR-3SG.B  
'I am hitting him'

Agent salient stems are intransitive stems that denote an activity or an act involving an agent. They are made transitive using the *-t* suffix (Lucy: *affective*) to indicate an increase in valence.

- (14) *k-u-siht'-t-ik-Ø*  
 INC-3SG.A-jump-TRZ-PLN.TR-3SG.B  
 'He jumps (over) it'

Patient salient stems are oriented towards processes of becoming or of changing state. When they are derived to form a transitive construction, they take the causative *-s* suffix, to indicate agency in making a patient change state.

- (15) *k-uy-ehm-s-ik-Ø*  
 INC-3SG.A-go.down-CAUS-PLN.TR-3SG.B  
 'He lowers it/He takes it down'

Valence increasing operations by 1) derivation (i.e. *-t* and *-s*), 2) valence decreasing ones by phonological means, and 3) the presence/absence of inflected status markers are observed in order to discover unmarked forms of verb stems that are indicative of their natural state.

From observing these formal markings, Lucy proposes that the plain status (Lucy: *imperfective*) is *agent* salient; the dependent status (Lucy: *gnomic perfective*) is *agent-patient* salient; and the completive (Lucy: *perfective*) status is *patient* salient. The comparisons can be seen in (16), below:

- (16) Interaction of case and status in Yukatek<sup>7</sup> (after Lucy 1994:635)

Stem → Status ↓	Agent: <i>siht'</i>	Agent/Patient: <i>kuch</i>	Patient: <i>kihm</i>
<i>Plain</i>			
Agent	<b>in-siht'=0=0-0-0</b>	in-siht'=t=0-0-ik-ech	-
Agent/Patient	in-kuuch=0=L-0-0	in-kuch=0=0-0-ik-ech	a-kuhch=0=H-0-ul
Patient	in-kihm=s=aj-0-0	in-kihm=s=0-0-ik-ech	a-kihm=0=0-0-il
<i>Dependent</i>			
Agent	siht'=0=0-n-ak-en	in-siht'=t=0-0-0-ech	-
Agent/Patient	kuuch=0=L-n-ak-en	<b>in-kuch=0=0-0-0-ech</b>	kuhch=0=H-0-uk-ech
Patient	kihm=s=aj-n-ak-en	in-kihm=s=0-0-0-ech	kihm=0=0-0-ik-ech
<i>Completive</i>			
Agent	siht'=0=0-n-aj-en	in-siht'=t=0-0-aj-ech	-
Agent/Patient	kuuch=0=L-n-aj-en	in-kuch=0=0-0-aj-ech	kuhch=0=H-0-0-ech
Patient	kihm=s=aj-n-aj-en	in-kihm=s=0-0-aj-ech	<b>kihm=0=0-0-0-ech</b>

<sup>7</sup> Derivation is marked by '=', with =0 indicating the absence of overt morphology. Inflection is marked by '-': *-aj* is an agentive suffix (i.e. anti-passive); *-n* is the actual anti-passive suffix. L and H stand for low- and high tone respectively. Derivation by tone can justly be considered a derivational operation since the middle-passive and anti-passive constructions are both formed by such processes in both Yukatek and Lakandon. High tone is also present in some possessive constructions that, if unpossessed, lack a high tone.

A *mismatch* between the inherent valence value of the root and the status marker requires overt morphological marking. When the status marking and argument value of the root match, on the other hand, there is no need for overt marking.

The forms in bold are thus *unmarked* in the sense that they lack any overt morphological derivation or inflection in their respective functions. They represent a match between the inherent semantic features of the verb stem and the status (non-) marking that it combines with.

Lucy divides Yukatek predicates (following Vendler 1957) into *activities* (agent salient), *accomplishments* (agent-patient salient), and *state changes* (patient salient). He argues that the strong formal link between these predicate types and their respective status marking warrants the proposal that argument structure is an inherent semantic feature of the roots themselves as well as to their status counterparts.

The following analysis in section 6 regarding the changes in status marking in AF constructions in Yukatek and Lakandon Maya follows directly from Lucy’s proposal. In fact, it supports Lucy’s analysis since the grammatically separate AF construction conforms identically to the semantic division that Lucy advocates for the classification of verb stems.

## 6. Argument Structure Hierarchy in AF

There is a three-way division of status marking in Yukatek that reflects agent salience by degrees<sup>8</sup>:

(17) Agent salience hierarchy in Yukatek and Lakandon.

Status	Transitive status suffixes	Argument structure hierarchy
Plain	<i>-ik</i>	(1) Agent
Dependent	<i>-Ø / -e(j)</i>	(1-2) Agent-Patient
Completive	<i>-aj</i>	(2) Patient

The table in (17) is included to illustrate the proposal that agent-patient semantics are present in status markers given their interaction with verb stems in Yukatek. The only addition lies in calling the division of status markers according to agent salience an “argument structure hierarchy”.

The proposal that follows from this hierarchy is that speakers of Yukatek and Lakandon Maya “upgrade” the status suffix one step on the hierarchy in AF constructions to a status marker that more closely reflects the focus on, or the salience of the agent.

In the case of the completive, the next status marker on the hierarchy is the dependent status. Compare (7') to the repeated (7):

<sup>8</sup> *Salience* refers to a specific grammatical feature that is relevant for the description of a lexeme or a morpheme.



$-AJ \rightarrow -E(J)/-\emptyset = 2 \rightarrow 1-2$

(7') *teen t-in-kihn-s-aj-∅*  
 1SG.IND COM-1SG.A-die-CAUS-DEP.TR-3SG.B  
 'I killed him'

(7) *mahk (X-)kihn-s-ej-∅*  
 who die-CAUS-DEP.TR-3SG.B  
 'Who killed him?'

If the verb is inflected with the dependent status, the next step is the plain status. Compare the (10') to the also repeated (10):

$-E(J) \rightarrow -IK = 1-2 \rightarrow 1$

(10') *b'ihn in-kihn-s-ej-∅*  
 FUT 1SG.A-die-CAUS-DEP.TR-3SG.B  
 'I am going to kill him'

(10) *mahk b'ihn (X-)kihn-s-ik-∅*  
 who FUT die-CAUS-PLN.TR-3SG.B  
 'Who is going to kill it/him?'

Finally, when the status is already agent salient, no additional marking or change occurs and the agent focus construction in the plain status simply stays the same. Compare (13) with (11), both repeated here:

$-IK \rightarrow -IK = 1 \rightarrow 1$

(13) *ra7ji7 k-u-kānah-t-ik-een 7uhch*  
 3SG.IND INC-3SG.A-guard-TRZ-PLN.TR-1SG.B before.EXCL  
 'He took care of me.' (HB050225\_1KYYM\_3)

(11) *a-je7 xiiraj raji7 (X-)kihn-s-ik-∅ b'ahrum*  
 DET-OST man 3SG.IND die-CAUS-PLN.TR-3SG.B jaguar  
 'This man, he kills jaguars'

## 7. Summary

The presence of inherent argument structure as a semantic feature of status markers as well as verb stems in Yukatek and Lakandon Maya gives us a possible answer to the questions, why and how the status markers change in AF constructions in Yukatek and Lakandon Maya.

Having pointed out differences between AF constructions in Yukatek and Lakandon Maya and other Mayan languages such as Tzotzil, the syntactic analysis of AF constructions was considered as partly determining the observed changes that occur in AF constructions in the former languages.

Since some of the changes are insufficiently explained by the syntactic analysis alone, a hierarchy of agent salience is proposed as a semantic way of explaining AF constructions involving ergative extraction. The AF construct in Yukatek and Lakandon Maya in turn offer support for the analysis proposed by Lucy (1994) regarding the classification of verb stems and their interaction with case markers.

It is impossible on both syntactic and semantic grounds for the completeive status marker to be present in AF constructions because of its status as a marker of independent (finite) phrases as well as from its patient-salient semantics.

The future AM-marker, *b'ihn*, groups together with the plain status, *-ik*, not because of any grammatical requirements, but for semantic reasons, which are considered in the proposed hierarchy in section 6.

The pragmatic motivations underlying the use of AF constructions in Yukatek and Lakandon, as opposed to non-focussed ones, remain to be investigated.

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# Taking What a Language Gives Us: The Reported Inclusive/Exclusive Distinction in Maya-Mam<sup>1</sup>

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## 0. Introduction

Mam is a Mayan language spoken by upwards of 700,000 people in Guatemala's Western Highlands. Data for this paper were elicited from speakers in the town of Comitancillo, San Marcos, a major town in the Central Mam area. I also cite data from Northern Mam, centered in the department of Huehuetenango, and I allude to data from Tacaneco (Western) Mam. In this paper I compare the Mam possessive paradigm as instantiated by speakers from these areas and I discuss some of the paradigm's morphological implications.

It has long been advanced that Maya-Mam possessives encode an inclusive/exclusive distinction for first person plural (England 1983; Ortiz Maldonado 2004), but that, otherwise, the possessive paradigm lines up with Spanish or English with basically first, second, and third person distinctions in both singular and plural forms. See Table 1 in (1) below, based on the obligatorily possessed stem *-xjalil*<sup>2</sup> 'people'.

(1)

Table 1: Possessive paradigm, Northern Mam; adapted from Ortiz Maldonado (2004:86)

			1P.IN	q-xjalil	'our IN people'
1S	n-xjalil-a	'my people'	1P.EX	q-xjalil-a	'our EX people'
2S	t-xjalil-a	'your people'	2P	ky-xjalil-a	'you all's people'
3S	t-xjalil	'his/her people'	3P	ky-xjalil	'their people'

<sup>1</sup>Thanks to Thomas Godfrey, David Odden, Steve Marlett, and David Weber for comments on early drafts of this paper. Of course, any oversights and errors in analysis are my own.

<sup>2</sup>Data are written in practical orthography. Assume Spanish pronunciation except that *ky* and *q* are palatal and uvular stops; *x* and *j* are retroflexed and uvular fricatives. *Tx* is a retroflexed affricate. Stops and affricates followed by ' are glottalized, and glottal stop is indicated by '. In this article, the dash is used only to separate morphemes within the possessive forms being considered.

### 1. The Inclusive/Exclusive Distinction

Many languages grammaticalize the distinction between first person plural inclusive and exclusive. For example, if I talk to my wife about *our honeymoon*, she's included in the event, whereas if I talk to you about *our honeymoon*, you are excluded. In English this is vague—grammatically if not semantically—whereas in Mam, and many other languages, particularly Austronesian and Dravidian languages, and Amerindian languages like Quechua and Mam, the difference is coded.

We can see that, aside from the stem itself, the possessive forms all have a prefix—either *n-* or *t-* for singular forms, or *q-* or *ky-* for plural forms. In addition, first and second singular and first person plural exclusive and second person plural also have an enclitic *-a*.

About these possessive forms, England, says: Nouns “are inflected for possession using a set of prefixes and *accompanying* enclitics” (1983:66, emphasis WMC).

Maldonado Andrés, et al. say, “Possessed nouns are indicated by means of a set of prefixes and enclitics which *together* refer to grammatical person and number of the possessor” (1986:xxv, emphasis and translation from Spanish, WMC).

According to Feliciano and Jiguan, these clitics are “a group of elements that *complete* the pronouns and follow the possessed nouns” (2002:30-31, emphasis and translation from Spanish, WMC).

Under each of these analyses the *-a* clitic is part of the unit of possessive morphology, that is, it is part and parcel of the affixal forms for first and second person singular, first person plural exclusive, and second person plural, and apparently inseparable from them. In other words, third person singular forms are marked with a prefix only, as are first person plural inclusive and third person plural, whereas the remaining forms are marked by a discontinuous affix comprised of both a prefix and the *-a* enclitic.

What we see portrayed, then, in (1), is a basic first, second, third person singular and plural paradigm, similar to Spanish or English, but with the addition of the inclusive/exclusive distinction in first person plural.

This analysis works in the sense that it maintains a distinction among the seven attested possessive forms by means of the interaction of the four prefixes and the presence or absence of the clitic. On the other hand, it doesn't provide for any interesting generalizations about the use or function of the enclitic *-a* nor of the prefixes themselves. This is unfortunate, since it seems that there is more at play in these data than simply seven distinct grammatical items, both in terms of the prefixes as well as the appearance, or not, of the clitic.

### 2. An Alternative Analysis

I suggest a different analysis based on data from Comitancillo, where, by my reckoning, the clitic does not merely accompany the prefixes, but its occurrences are essentially independent of them.

(2)

Table 2: Possessive paradigm in Central Mam

1S.IN	n-xjalil	‘my IN people’	1P.IN	q-xjalil	‘our IN people’
1S.EX	n-xjalil-a	‘my EX people’	1P.EX	q-xjalil-a	‘our EX people’
2S	t-xjalil-a	‘your people’	2P	ky-xjalil-a	‘you all’s people’
3S	t-xjalil	‘his/her people’	3P	ky-xjalil	‘their people’

Note that the Comitancillo data in (2) correspond exactly with the Ixtahuacán data in (1) except for the additional first person singular form at the top left of the table, a form I’m presently calling first person singular inclusive. This form nicely fills in the paradigm, much like fitting the final puzzle piece in its place.

Interestingly, the additional form *n-xjalil*, selects from the same inventory of prefixal and clitic forms as the other members of the paradigm instantiated in both (1) and (2). In other words, *n-xjalil* doesn’t simply fit the paradigm, it seems to belong there. The paradigm in (2) vis-à-vis (1) gives rise to several questions: What do the prefixes and the clitic mean? Do they simply mark person and number as England and Maldonado Andrés et al. suggest, or could they be coding something more? Are the prefixes and the clitic interdependent as claimed by proponents of the traditional analysis, or are they largely independent, as I claim they are in the Comitancillo data? And does the Comitancillo data help us understand what’s going on in the Ixtahuacán data, or perhaps even in the larger Mam area?

In Mam, when people talk about ‘my *anything*’, they normally exclude the interlocutor—my house, my book, and my brother are all mine, not yours. And if a Mam school teacher is speaking to me, and wants to say something about her indigenous students and their families, she would call them *n-xjalil-a* ‘my people—not yours’. This would be true for both Ixtahuacán and Comitancillo speakers. Indeed, this is the only first person form attested in the Ixtahuacán data in (1). However, were a school teacher in Comitancillo to address her own people at a town meeting, she could say, as in sentence (3):

- (3) Ayi’y n-xjalil, noq same, o’kx kab’e tal yol kxel nq’ma’n kye’y.  
My people, excuse me, I have just a few words to address to you.

The absence of the enclitic *-a* in the form *n-xjalil* in (3) codes that the people are included in some way in the possession—even though it’s a singular form. Whereas first person singular *n-xjalil-a* codes ‘my people, not yours’, *n-xjalil* codes ‘my people—including you’, or ‘my people, which are also your people’. In other words, Comitancillo first person singular inclusive and exclusive possessive

forms pattern just like the inclusive and exclusive marking on first person plural forms.

These first person inclusive forms are common in direct address: *N-k'wal* 'my child', said by a man addressing his son or daughter, *n-chmil* 'my husband', said by a woman addressing her husband, *w-erman* (a borrowing from Spanish *hermano* 'sibling') used to address 'my brother or my sister', usually in a religious context (initial *w-* is an allomorph of *n-* which occurs before vowel initial roots or stems). Interestingly, this first person singular inclusive form can also be extended to non-humans, or even non-sentient addressees as with *n-chej* 'my horse', *n-ja* 'my house', or *n-tx'otx*, 'my land', where in (4) I address my land in a kind of soliloquy. Compare sentences (4) and (5).

- (4) Ay, n-tx'otx', k'u'jlinxix wu'n, jun t-ky'iwb'il q-Man wi'ja,  
My beloved land (note lack of clitic *-a* in *n-tx'otx*'), you are a blessing of our Father to me.
- (5) Ajo lo n-tx'otx'-a.  
This is my land (note word final *-a*), 'my land, not yours'.

From these facts, it appears that for Comitancillo, we clearly have some kind of inclusive-exclusive distinction in 1st person singular as well as in 1st person plural.

If we ignore the clitics (for now) and just look at the prefixes in (2) above, we have a two by two grid with first person in the top half of the table and non-first person in the bottom half, and with singular forms to the left and plurals to the right. There is a two-way distinction between singular and plural and, likewise, a two-way distinction of person—first person and non-first person—not a three-way distinction.

Now consider the final *-a*, the clitic. In the first person singular and first person plural forms in (2) above, it appears that the clitic codes exclusivity, as discussed previously. The forms unmarked with the clitic appear to code inclusivity. The rub with committing to the clitic as a marker of exclusivity is what to make of the second person forms, i.e. the clitic's co-occurrence with the *t-* and *ky-* prefixes: singular *t-xjalil-a* 'your people' versus *t-xjalil* 'his or her people', as well as with the plural forms: *ky-xjalil-a* 'you all's people' versus *ky-xjalil* 'their people'. If the clitic is indeed a marker of exclusivity, who is being excluded in the non-first person forms?

So at first blush, it seems that in first person, both singular and plural, the clitic distinguishes exclusive from inclusive forms, while in the non-first person forms, it distinguishes traditional second from third person. In other words, the clitic does double duty. England (1976:260) acknowledges the notion of the disparate functions of the clitic, saying: "The enclitics on the first-person forms indicate absence of second person, while the enclitics on the remaining forms indicate presence of second person". Nevertheless, the traditional analysis wisely

rejects this split personality for the clitic. Why have what appears to be the same form doing two different things in very similar morphological contexts—one time, distinguishing inclusive from exclusive and another time distinguishing second person from third in both singular and plural? In order to avoid this, proponents of the traditional analysis atomize the entire possessive paradigm and conclude that each form is different from every other one based on the interplay of the four prefixes and the single clitic, just as if they had totally differently phonological shapes, as in English: *my, your, our, their*, etc. This is basically what Maldonado Andrés et al. claim above—that the prefixes and clitic *together* refer to grammatical person and number of the possessor. What this leaves us with are seven different unrelated forms, in (1)—or eight forms in (2). By this analysis, the prefixes and clitic are interdependent, together distinguishing person and number, nothing else.

The traditional analysis can account for the data, even the additional first person singular form in (2), but it does so by ignoring the categories that the language itself presents. Looking at those forms in (2) which include the clitic, I suggest, following Godfrey (1981), that what the clitic encodes is not exclusivity but rather the lack of solidarity between the interlocutor and the speaker. This may sound like a rose by any other name (that ‘lack of solidarity’ is just another name for exclusivity), but it nicely solves an interesting problem, the seemingly disparate functions of the same clitic in the first person and non-first person forms.

What the language gives us data-wise, then, is a two by two by two matrix of person, number, and solidarity between speaker and hearer. To discuss this matrix, I will first tease it apart, beginning with Table 3 in (6) below.

(6)

Table 3: Comitancillo Mam singular possessor inflectional marking<sup>3</sup>

	n-	t-
-Ø	Sp $\wedge$ H (1S.IN)	$\sim$ Sp $\wedge$ $\sim$ H (3S)
-a	Sp $\wedge$ $\sim$ H (1S.EX)	$\sim$ Sp $\wedge$ H (2S)

To understand the table in (6), begin at the left, which shows those forms prefixed with *n-* ‘first person singular’. The top left box has no clitic and therefore codes solidarity between singular speaker and hearer. Speaker is possessor and

<sup>3</sup>Abbreviations used in this paper are minimal: S singular, P plural, IN inclusive, EX exclusive, Sp speaker, and H hearer.



speaker and hearer are both involved in the possession, or, as formalized, both speaker and hearer, or, roughly, what I'm presently calling 'first person singular inclusive'.

The bottom left box includes both the first person singular prefix *n-* and the clitic *-a* which marks unequal involvement or lack of solidarity between speaker and hearer, or, more formally, speaker and not hearer, or, roughly, 'first person singular exclusive'.

The second column shows those forms prefixed with *t-* 'non-first person singular.' The top right box has no clitic and therefore codes solidarity between speaker and hearer: neither speaker nor hearer; in other words, 'third person singular'.

The bottom right box has both the non-first person singular prefix *t-* and the clitic *-a* which marks lack of speaker-hearer solidarity, or not speaker but hearer. This codes traditional second person singular. The plural paradigm in (7) works in exactly the same way, substituting only the plural prefixes for the singular ones in (6).

(7)

Table 4: Comitancillo Mam plural possessor inflectional marking

	q-	ky-
-Ø	Sp $\wedge$ H (1P.IN)	$\sim$ Sp $\wedge$ $\sim$ H (3P)
-a	Sp $\wedge$ $\sim$ H (1P.EX)	$\sim$ Sp $\wedge$ H (2P)

### 3. Possessives as Deictic Forms

All pronominal forms are deictic in nature, possessives included. Pronouns and other deictic forms are indicators or pointers, which are relative to and grounded in the extra-linguistic context—terms like *here* and *there*, *now* and *then*, *I* and *you*, and, for the present focus—*my* and *your*—which have no specific reference aside from the context of speech. Deictic forms take their meaning from the moment of utterance and the participation schemes involved in direct speech. Who the word *I* references, depends upon who is speaking.

The physical context of utterance requires a deictic center or origo, a center stake from which all deictic notions are calculated, historically considered to be ego- or speaker-centric. As Fillmore suggests:

I carry around with me, everywhere I go, my own private world. The spatial centre of this world is my location...the temporal centre of this world is the passing moment of my consciousness...the social centre of this world is me" (1998:40-41).

Lyons restates this even more succinctly, saying: “The canonical situation-of-utterance is egocentric” (1977:638).

#### **4. Ego-centrism and Socio-centrism**

The matrix for Mam possessive prefixes is indeed egocentric in its coding. The *n*-codes the speaker as the singular possessor, the *t*- codes other-than-speaker as the singular possessor. The prefixes give us two options for person, not three: ‘my’ or ‘not my’, a coding of quintessential egocentricity. The clitic, on the other hand, calls upon speaker solidarity with the interlocutor. Whereas the prefixes *n*- and *t*-emerge from a binary, egocentric notion of origo, the clitic depends on a socio-centric origo (Hanks 1990). It codes interlocutor solidarity with the speaker. In other words, the clitic operates independently of the prefixes in the sense that its meaning is orthogonal to the meaning of the prefixes.

This analysis give us a two by two by two matrix which codes the interaction of participants of the socio-center, most basically, a speaker and a hearer. The paradigm provides coding for singular or not, involvement or not of the speaker as possessor, and solidarity or not of the speaker and hearer. Number is orthogonal to the deictic center, but our other two categories, speaker involvement and speaker-hearer solidarity, are not. I’ve suggested that the marking of speaker involvement by means of prefixes, codes egocentrism. Either I own it or I don’t. Hearer solidarity with the speaker is marked by the presence or absence of the clitic. This codes for the socio-center of both speaker and hearer, not simply the ego-center of speaker alone. With this notion of socio-centricity and the terms socio-center and socio-centric, I follow Hanks 1990.

The strength of this analysis’ two by two by two array is that it is based on the data as they appear, not as we overlay them with a first, second, and third person paradigm from outside the language itself. The matrix gives us 2 cubed or eight possibilities—all of which are attested in the Comitancillo data, and only one of which is not attested in the Ixtahuacán data.<sup>4</sup> We’ve only looked at a single noun. There are three basic noun classes in Comitancillo Mam, all of which exhibit the same preoccupation with both the ego- and the socio-center—and all of which are subject to the two by two by two matrix. Although the paradigm is fuller in Comitancillo than in the north, the same analysis will work for both.

Hanks, in opposition to Fillmore and Lyons, claims that egocentricity is not the right way to ground the deictic field, that the deictic center isn’t egocentric—a bubble around the speaker, a center from which all deictic notions find their place. Rather, for Hanks, the deictic center is socio-centric—a bubble around a speaker and his or her interlocutor(s). And these interlocutors and all significant others get situated inside or outside of the bubble by means of the very act of speaking. Our

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<sup>4</sup>Actually, the ‘missing form’, *n-xjalil*, is indeed attested in Ixtahuacán, but it does not belong to the same paradigm as the other forms in (1). Rather it is used for contrastive emphasis (England, 1983:143), and only to code lack of solidarity. In this contrastive emphasis structure, lack of the clitic, then, does not code speaker-hearer solidarity. Rather, the entire construction codes contrastive (lack of solidarity) emphasis. See citation for discussion.

Mam data adduce additional evidence to Hanks' claim since solidarity between members of the socio-center—minimally a speaker and a hearer, is the unmarked case in the use or not of the clitic. Lack of solidarity is the marked form among members of the socio-center.

Yet even for Hanks, socio-centricity can be overruled. The socio-center of speaker-and-interlocutor as *origo* can itself become a contested space and conversation can degenerate into a ping-pong match of egocentric moves between speaker and interlocutor.

It appears that our Mam data actually encode both aspects of this sense of centeredness—ego-centrism and socio-centrism. As we've seen, the prefixes are speaker-centric. Certainly they assume a socio-center with an interlocutor, as per Hanks, since the notion of *I* means nothing unless there is a *non-I* against which *I* exists. This is the figure-ground relationship implied within Hanks' view of the deictic center. Nevertheless, the actual coding of possession is strictly speaker oriented. Something is either mine or not mine, ours or not ours.

The clitic, however, codes solidarity between speaker and hearer. Its presence or absence does not merely assume an interlocutor, it crucially codes for her or him. This strengthens the evidence for Hanks' notion of the deictic center being not just a single individual speaker, but a twosome (or more) of culturally competent actors. Mam then recognizes and codes both the notion of an ego-center and a socio-center.

The importance of these possessive forms is that they are actually the Mam instantiation of Mayan Set A ergative markers that code not only possessives, but also the agent of transitive verbs and, in relative clauses, both the agent and the object of transitives as in (8), as well as the subject of intransitives.

- (8) T-aj-a tu'n t-kub' ky-b'inchin jun ti'.  
You want them to do something.

With *t-aj-a* 'you want', we have both the *t-* prefix and the clitic. As with the possessives, the *t-* codes non-first person singular, while the *-a* clitic marks lack of solidarity between interlocutor and speaker. This means 'you'. The *t-* prefix of *t-kub'* cross-references the non-first person singular object. Lack of the clitic codes solidarity between speaker and hearer, or traditional third person, 'something'. And the *ky-* prefix of *ky-b'inchin* marks plural non-first person. With no clitic, it codes solidarity with first person—both speaker(s) and interlocutors are not involved, leaving traditional 'third person plural'.

Not only are the set A markers used far beyond just possession, as I mentioned in the previous paragraph, but the same clitic also functions with Set B absolutive markers as well, where it again codes lack of solidarity with speaker (as it does with Set A markers) while in a morphotactic context where Set A prefixes are not found at all. This is further evidence of the independence of the clitic from the Set A prefixes.

### **5. Mam Possessives in a Wider Context**

England (1976:259-260) suggests that the Mam enclitic derives from a second person honorific marker still extant in Aguacatec, a Mamean language. In short, the precursor of Aguacatec third person prefixal forms *t-* and *ky-* plus the enclitic *-u'* became polite second person forms. Mam has lost this honorific sense, while maintaining the clitic for second person forms.

Since Mamean languages are the only Mayan languages to use these clitics in conjunction with other affixes to code person, England suggests that the cliticized forms are innovative. It is unclear whether the clitics on first person forms developed from these honorifics or separately. Nor is it clear what the second person clitics may have meant in their “post-honorific” stages. It was perhaps at this point that this post-honorific clitic was reanalyzed as an indicator of lack of solidarity between speaker and hearer.

Godfrey (1981:9) points out that for Tacanec (Western) Mam, the clitics are all different in each of their four occurrences. Nevertheless, they are each realized as either a vowel or vowel plus glottal stop, and they are used in a way corresponding exactly to the same paradigm as the Ixtahuacán data in (1).

England surmises (p.c.) that the fact that the Tacanec clitics are all different supports the notion that the clitics don't presently—and therefore did not historically—mean the same thing (as I claim they do now for the Comitancillo data). Of course, if we assume that these clitics derived from the same Aguacatec honorific clitic, *-u'*, we don't know how nor why the Tacanec clitics differentiated into four distinct forms. If the single clitic is the historical base, and if it was sufficient, together with the possessive prefixes to distinguish all persons, why did it differentiate further into four clitics? In response, Godfrey (p.c.) claims that the Tacanec clitics are different from each other because they agree with four different person/number markers. But they do more than just repeat information. They also specify lack of solidarity between speaker and hearer. He suggests that in other Mam variants, the clitics have collapsed to a single form because the repetition of information was unnecessary, having been handled by our two by two matrix.

It is also possible that the unusual semantics of a first person singular inclusive form makes such a form likely to be dropped, due to its being overwhelmed by the far more common ‘my, not your’ forms. Under this analysis, the Comitancillo version of the paradigm is conservative, with the first person singular solidarity forms having been part of the grammars of other Mam dialects, but subsequently lost due to lack of use.

In any event, how the system has come to be what it is is irrelevant to present day speakers who in their daily speech habits care not about diachrony, but synchrony. I believe that the data presented here most clearly support the meanings for both the prefixes and the presence or absence of the present-day clitic, as I've described in this paper.

## 6. Ethnosyntax

What do we make of all this? It seems that the language is giving us what I've been calling the two by two by two matrix, which lays out for us, in binary fashion, the three categories I've outlined in this paper: speaker involvement in possession, or not; number (singular or plural), and solidarity between the speaker and hearer, or not. These categories have not so much been applied to the data as they have emerged from it, based on the notion that what looks similar morphologically should be assumed to be similar unless we can show that the forms are indeed divergent. The *t*- prefix marks the same thing on all forms—non-first person, not two things, second and third person. In the same way, the presence or absence of the clitic marks the same thing—interlocutor solidarity (or lack thereof) with the speaker—not two things: exclusivity and person.

Mam speakers must deal with both ego-centricity and socio-centricity, phenomena which impose a way of thinking upon speakers of the language. This is reminiscent of Slobin's idea of "thinking for speaking" (1996), where a language's obligatory categories (like tense, number, and person in English or Spanish—but not evidentiality or duality—for example, which don't exist in these languages as grammatical categories) must be taken into account before one can speak at all. Mam speakers not only identify participants in conversation, coding self and non-self, singular and plural. They also code solidarity with the hearer, as the hearer is distinguished as participating equally or not with the speaker in the matter at hand.

I have suggested elsewhere (Collins 2005) the importance of a sense of center—or balance about such a center—to speakers of Mam in the conception and practice of daily life, particularly in terms of health and illness etiology; the constructed world of patios and plazas; and religion and cosmology. It may well be that this very notion of centeredness as a cultural theme, or what Gossen (1986:5) calls a "symbol cluster" is the cultural analogue of a grammatical theme, where the sense of a grammatical center grounds deictic notions such as pronominal reference, Mam's complex and ubiquitous directional verbs and auxiliaries, and other origo-dependent grammatical features. These types of recurrent grammatical features are what Hale calls a "lexico-semantic...motif which functions as an integral component in a grammar" (1986:234). Sapir described such interrelated grammatical features as "the genius of the language" (1920:120).

Enfield suggests in his book, *Ethnosyntax* (2002), that language and culture are not only connected, but "interconstitutive, through overlap and interplay between people's cultural practices and preoccupations and the grammatical structures they habitually employ" (2002:3-4). To that end, he further suggests that "it is well worth exploring the idea that a language's morphosyntactic resources are related to the cultural knowledge, attitudes, and practices of its speakers" (2002:24), or, as Duranti claims, language "both presupposes and brings about ways of being in the world (1997:1). Language, then, both reflects the culture of its speakers while at the same time standing as the most pervasive and effective mechanism in the acculturation of a society's members.

## 7. Conclusion

To do the exploration that Enfield envisions, and that Sapir describes, we need to look at a language on its own terms and by means of its own terms, not by means of categories and paradigms comfortable to us and which fit the data of the languages we know. In a field where we are rightly intrigued with what is similar about the languages of the world, we must also remember that each language stands alone in contrast to all others by means of its own genius.

We may yet find it easiest to continue to refer to the different Mam possessive forms as first, second, and third person, inclusive and exclusive, singular and plural. Perhaps this is inevitable as we try to understand Mam in terms of what we know about other languages. But if we look at Mam in its own terms, we see different nuances—and a different genius—from that of English and Spanish.

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## The Phonetic Realization of Pitch Accent in Huave\*

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### 0. Introduction

Huave<sup>1</sup> is a language isolate spoken in four villages on the coast of Oaxaca, Mexico: San Mateo, San Francisco, San Dionisio, and Santa María. This paper examines the pitch accent system in the San Mateo dialect, the only dialect which has preserved lexical tone. In this paper, “pitch accent” is used broadly to refer to the interaction of lexical tone and phrasal accent (see Hyman (2007) for other uses of the term). On the surface, the syllable with pitch accent in San Mateo Huave bears either a high (H) or falling (HL) tone. The functional load of this distinction is low, and there are only a few minimal pairs differentiated solely by tone. However, the system is of typological interest, since the standard phonological analysis (Noyer (1991), see Yip (2002:220-221) for a concise summary) treats L as both the default tone and the only tone marked in underlying representations. Furthermore, there is widespread tone spreading in the language that gives rise to phrasal tonal plateaus (see Pike and Warkentin 1961, Pak 2007); the current study focuses only on lexical tone and words in isolation, and thus cannot address the phenomenon of tone spreading.

Prior phonological analyses of pitch accent in Huave have been based on the impressionistic transcriptions of Pike and Warkentin (1961), but have not had access to detailed phonetic data. This paper fills a descriptive need, in that it provides empirical facts about tone and vowel duration that can inform the phonological analysis. The paper is structured as follows: Section 1 gives a description of the tonal system. Section 2 presents the results of a perception study that was conducted to confirm the robustness of the distinction between the two tones. Section 3 presents the details of a production study of 722 tokens (349 lexical types) representing a wide range of segmental environments. Finally,

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\* The fieldwork for this paper was conducted over a three week period in July 2006 with Rolf Noyer and Marjorie Pak, who also provided helpful discussion of the data. Thanks also to the many kind and welcoming villagers of San Mateo del Mar, Oaxaca.

<sup>1</sup> The language is usually referred to by its speakers as *ombeayiiüts*, ‘our language’. I will use the term Huave, since it is common in the literature.

Sections 4 - 7 present the results of the production study, and discuss how they relate to the standard analysis of Huave pitch accent.

**1. Tone and Metrical Structure**

The metrical structure of Huave is straightforward: all final syllables are closed and bear pitch accent whereas all other syllables are unaccented and receive L. Thus, the contrast between H and HL is only found on final syllables. (1) illustrates these properties with examples from the corpus.

(1) Examples of H and HL

# syllables	tone	word	Sp. gloss	Eng. gloss
1	H	<i>chép</i> <sup>2</sup>	‘muela’	‘tooth’
	HL	<i>chêeb</i>	‘tiburón’	‘shark’
2	H	<i>kàlúy</i>	‘norte’	‘north’
	HL	<i>kàmbâj</i>	‘pueblo’	‘village’
3	H	<i>nìpìlán</i>	‘gente’	‘people’
	HL	<i>nèndeàjndeâj</i>	‘basura’	‘trash’
4	HL	<i>nàpàjàteâm</i> <sup>3</sup>	‘quaje’	‘a type of large tree’

The functional load of the tonal contrast between H and HL is quite low. (2) lists the only three minimal pairs that were present in the speech of my informant.

(2) Minimal pairs differentiated only by tone

<i>chîl</i>	‘aguja’	‘needle’
<i>chíl</i>	‘mojarra negra’	‘type of fish’
<i>kâw</i>	‘luna’	‘moon’
<i>káw</i>	‘guacamayo’	‘type of bird’
<i>kàwâk</i>	‘sur’	‘south’
<i>kàwák</i>	‘chicozapote’	‘type of tree’

Two other pairs that Kreger and Stairs (1981) reported to be minimal pairs showed no contrast for my informant. In each of these two cases, the form that formerly had HL currently has H (see Section 7 for further details about changes in underlying lexical tone). These pairs of homophones are *nít* (listed as HL in K&S) ‘name’ vs. *nít* ‘day’ and *nchéy* (listed as HL in K&S) ‘type of lizard’ vs. *nchéy* ‘grandmother’.

<sup>2</sup> All Huave words are written in the standard orthography, as in Kreger and Stairs (1981), with the addition of tone indicators: ` for L, ´ for H, and ^ for HL, and <k> for /k/ (instead of <c>). IPA equivalents of standard Huave symbols include: <x> = [S], <ch> = [tS], <j> = [h], <r> = [R], <rr> = [r], and <ü> = [i]; secondary palatalization is marked by writing a following vowel, usually <e>.

<sup>3</sup> *nàpàjàteâm* is listed as tri-syllabic *nàpàjeteâm* in Kreger and Stairs (1981) (see Kim 2007 for more information on the alternation between [Vh] and [VhV]).

### 1.1. Phonological Analysis

Noyer (1991) provides an elegant phonological analysis for the interaction between tone and metrical structure. According to this analysis, L is marked underlyingly on syllables that surface as HL, H is inserted on the accented syllable, and L is inserted by default on other syllables. This analysis thus posits L as the marked tone (the only tone that is prelinked in the UR) as well as the default tone. As Yip (2002:220) notes, this is an unusual situation from a cross-linguistic perspective (this issue will be discussed further in Section 6.3). (4) shows sample derivations for the minimal pair *kàwâk* ‘south’ and *kàwák* ‘chicozapote’:

(4)	L 	
UR:	kawak ‘south’	kawak ‘chicozapote’
	H* L \ /	H* 
H insertion:	kawak ‘south’	kawak ‘chicozapote’
	L H* L   \ /	L H* 
L insertion:	kawak ‘south’	kawak ‘chicozapote’

### 1.2. Exceptions

A small number of words are exceptional in that they allow final open syllables. In these cases, the accent falls on the penult, and the final syllable receives L. These cases are limited to certain pronouns, such as *xíkè* ‘I’ and *ìkórà* ‘we’, and borrowed words, such as *nínè* ‘baby’ and *bèjúgò* ‘vine’.

Noyer’s analysis (1991:280) treats final syllables as extrametrical, and thus unable to receive accent, e.g., *ìkó<rà* ‘we’. Another possible analysis would posit that metrical feet in Huave are moraic trochees (Hayes 1995) formed from right to left, e.g. *ì.(kó.rà)* ‘we’, *kà.(mbâj)* ‘village’. The only such word that Suarez includes in his list is *nínè* ‘baby’; it was excluded from the corpus analysis.

## 2. Perception study

One hindrance to the study of Huave tone is the fact that intuitions from native speaker informants about the tone of individual words are often inaccurate and inconsistent. Thus, direct elicitation of a word’s lexical tone is impossible. Before conducting a large scale analysis of production data it was necessary to demonstrate that Huave speakers actually do produce a robust contrast between words with H and words with HL. In other words, we wanted to make sure that the unreliable judgments were simply the result of unfamiliarity with this metalinguistic task as opposed to an indicator of a breakdown in the phonemic

status of tone. The possibility of a loss of tonal contrast must be taken seriously, since all three other dialects of Huave besides San Mateo lost lexical tone in the course of development from Proto-Huave (Suarez 1975).

### 2.1. Methodology

The methodology used in the perception study was a commutation test. This test, originally designed to test speakers' perception of near mergers (Labov 1996), provides clear experimental evidence about whether two tokens are perceived as being the same or different by a naïve speaker, and thus avoids the pitfalls of unreliable intuitions.

For this study, two informants (A, a 40-year-old male and Z, a 14-year-old female) produced 7 tokens each of *kàwâk* 'south' and *kàwák* 'chicozapote'. Two (hand-drawn) pictures representing the two concepts were presented to the informants in random order, and they were instructed to produce the word in the picture. Then, these 14 tokens were recorded and played back to the informant, starting from a random token in the middle. The informant was asked to point at the picture they thought corresponded to the token they heard.

### 2.2. Results

This commutation test had two potential outcomes: 1) The informant correctly identifies all of the HL tokens as 'south' and all of the H tokens as 'chicozapote'. This would indicate a robust contrast in production and perception. 2) The informant misidentifies one or more tokens. This result would indicate a potential merger of H and HL, and would require a more nuanced production study to determine the phonemic status of tone in the language.

For the current study, both of the informants performed the commutation test with their own voice; in addition, Z did the test while listening to the recording of A's voice. Both subjects attained 100% identification accuracy on all tests ( $\chi^2 = 14, p \leq 0.001$ ), as shown in (6).

(6) Correctly identified tokens in minimal pair commutation test

	<i>kàwâk</i> 'south'	<i>kàwák</i> 'chicozapote'	% correct
Subject A (A's voice)	7 / 7	7 / 7	100%
Subject Z (A's voice)	7 / 7	7 / 7	100%
Subject Z (Z's voice)	7 / 7	7 / 7	100%

Thus, the perception study shows a clear and robust difference between HL in *kàwâk* 'south' and H in *kàwák* 'chicozapote', and demonstrates the validity of using production data to compare the two tones. It is safe to conclude that the unreliable intuitions about tonal contrasts are simply due to a lack of experience with this task, and that most speakers could learn to label words as H or HL with some practice.

### 3. Production Study

#### 3.1. Corpus

Suarez (1975) was used for the selection of lexical types for the corpus. This work represents the only attempt that has been made to date at a reconstruction of Proto-Huave. It includes 1000 lexical items, mostly high frequency types. Furthermore, tonal information is included for about half of the reconstructed roots (in each case, this was simply based on the information from the San Mateo informant), and can thus provide a comparison with the current study.

The corpus for the production study was limited to the nouns in Suarez (1975), a total of 349 types. Of these, 165 have information on lexical tone, whereas 184 do not. Informant A (a 40-year-old man) was presented with a list of these nouns in isolation next to their Spanish glosses, and was asked to produce each word twice. The final corpus used for analysis contains 722 tokens (a few words were read multiple times, a few additional words offered as better translations by the informant were included in the corpus, and two tokens were excluded due to acoustic interference). The recording was done outdoors over 2 one-hour sessions with a sampling rate of 22,050 Hz and 16-bit quantization.

For analysis of the corpus, each word was provided with a tone label (H or HL) and a vowel length label (long or short) based on the properties of the accented syllable. The tone label was determined by auditory analysis and visual examination of the pitch contour. The distribution by tone shows that words with HL (57%, N=200) slightly outnumber words with H (43%, N=149).

The vowel length label was determined by the standard orthographic representation of the accented syllable (long vowels are written with two letters, e.g. *chêeb* ‘shark’ and *nàwîig* ‘paper’).<sup>4</sup> The corpus distribution by vowel length shows that words with a short V (88%, N=307) greatly outnumber those with a long V (12%, N=42).

Finally, almost all of the words in the corpus are mono- or disyllabic. (7) shows the distribution by syllable count and tone.

(7) Distribution of word types in corpus by syllable count and tone

# syllables	σ		σσ		σσσ		σσσσ	
N words	218		123		7		1	
tone	H	L	H	L	H	L	H	L
N words	102	116	45	78	2	5		1

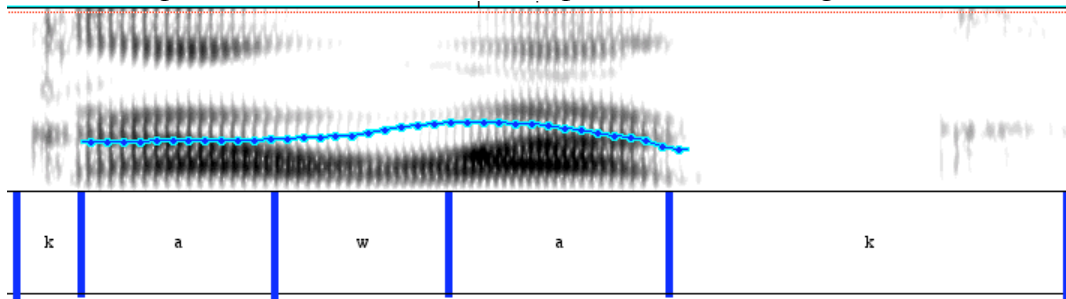
Although the counts for all of these distributions (by tone, vowel length, and number of syllables) are based on a limited sample, they are as balanced as possible, since they represent the only attempt to date at estimating the distributions for the language as a whole.

<sup>4</sup> The five vowels of Huave ([a], [e], [i], [o], and [i]) all contrast for length. Noyer (2006:4) analyzes the surface long vowels as sequences of underlying [Vh].

### 3.2. Processing of Sound Files

The 722 recorded tokens were each segmented manually by phoneme and syllable. F0 values at regular time intervals were extracted automatically for each token using the autocorrelation algorithm in Praat 4.4.03 (pitch floor = 70 Hz, pitch ceiling = 300 Hz). Pitch-halving and pitch-doubling errors were corrected by hand. (8) shows a sample diagram of the pitch contour and phoneme segmentation for one of the tokens in the corpus. Each dot on the pitch contour represents a time point at which an F0 measurement was taken.

(8) Sample token (*kawâk* ‘south’) with pitch contour and segmentation



From this range of extracted F0 values, the following measurements were taken for the accented vowel in each token:  $F0_{max}$ ,  $F0_{min}$  (maximum and minimum F0 values),  $t_{max}$ ,  $t_{min}$  (time values at  $F0_{max}$  and  $F0_{min}$ ), onset F0 (F0 value at the first time unit in the segment), offset F0 (F0 value at the last time unit in the segment), F0 range (max F0 – min F0), F0 slope ( $(F0_{max} - F0_{min}) / (t_{max} - t_{min})$ ), and vowel duration.

### 4. Pitch Range

The mean pitch ranges for the entire corpus are presented in (9), and boxplots for each group are shown in (10). Tokens with HL are further divided by vowel length, thus creating three groups (H tokens with a long V do not occur; see Section 6.3.1). Overall, syllables with H rise slightly, with an average range of 25 Hz. Syllables with HL fall, with an average of 35 Hz more for long vowels than short vowels.

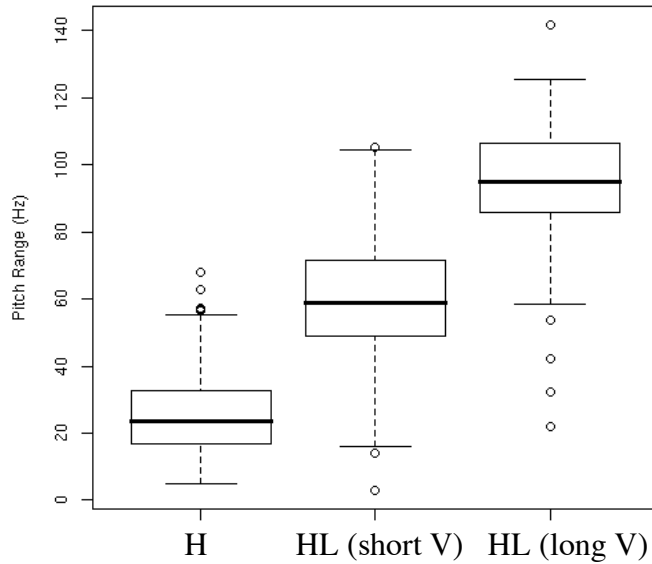
(9) Mean pitch range values for H, short HL, and long HL

	Characterization	Pitch range	N
H	slight rise	25 Hz	280
HL (short V)	fall	60 Hz	346
HL (long V)	steeper fall	95 Hz	84
			710 <sup>5</sup>

<sup>5</sup>12 H tokens were excluded from this analysis because their F0 slope was negative.

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(10) Pitch range boxplots for H, HL on short V, and HL on long V



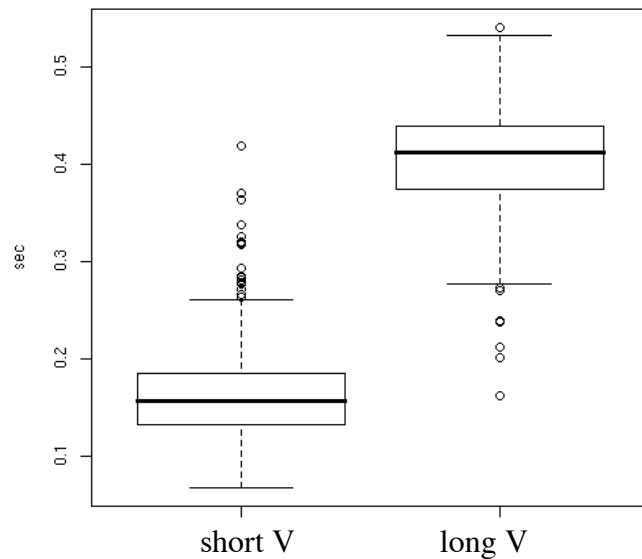
**5. Duration**

The difference in duration between long and short vowels is quite large. (11) shows that the difference between the average duration for the two groups is 239 ms, and (12) presents boxplots for the two distributions.

(11) Mean duration of all long and short tokens in the corpus

	Mean	Min	Max
short V (N=636)	0.163 s	0.067 s	0.418 s
long V (N=86)	0.402 s	0.161 s	0.540 s

(12) Boxplots for duration of short and long V



**6. Relationship between Duration and Tone**

**6.1. All Long Vowels have Falling Tone**

As mentioned in Section 3.1, the vowel length label for the words in the corpus was determined by referring to the standard orthography. Of the 42 types in the corpus that were classified as having a long V in this manner, all but one have falling tone (see Noyer (1991:287) for a synchronic phonological explanation for this distributional anomaly). However, both tokens of the single exception, *één* ‘penis’, have vowel durations of 212 and 201 ms, making them outliers for the long V distribution and placing them within the short V distribution in (12). Thus, it seems likely that in this one case, the standard orthography is not a faithful representation of phonological vowel length, and the word would more accurately be written as *én*.

**6.2. Duration of Short Vowels: H vs. HL**

The impressionistic transcriptions provided by Pike and Warkentin (1961) actually give the impression of a three-way contrast in vowel length, as in *òšínġ* ‘nose’ vs. *àpûš* ‘dress’ vs. *àndîġ* ‘beads’. In their terminology, “short” refers to short vowels with H, “long” refers to short vowels with HL, and “overlong” refers to actual long vowels. Noyer (1991), based on their data, asserts that each tonal unit needs its own vocalic mora, and proposes a vowel-lengthening rule (“Unlinked H-Support”) that would insert a vocalic mora for syllables that are marked with L and receive H\* when they bear pitch accent. Thus, HL words with a short V, like *kàwâk* ‘sur’, would have the structure in (13):

(13)            L    H\* L  
                   |    | |  
                   k a w a a k ‘south’

However, the empirical evidence from the production study shows very little difference in duration between short vowels with H and short vowels with HL, calling into question an analysis that treats the two groups as phonologically distinct.

(14) Mean duration of long and short tokens by tone

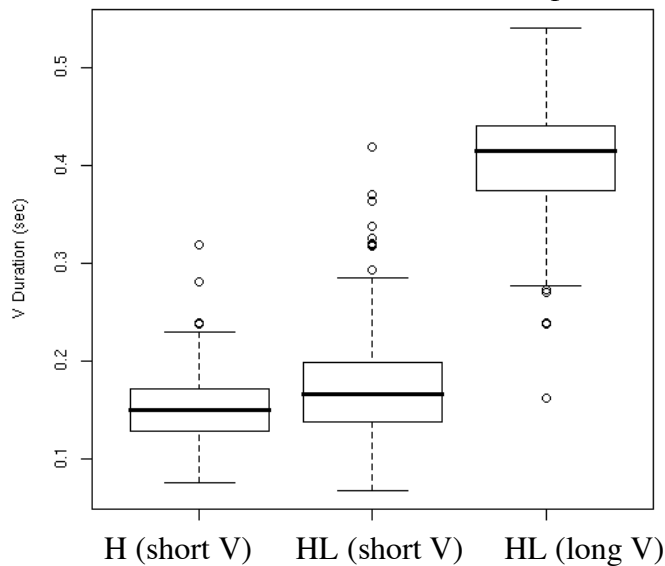
	Mean	Min	Max
short V with H tone (N=290)	0.151	0.076	0.318
short V with HL tone (N=346)	0.174	0.067	0.418
long V (N=86)	0.402	0.161	0.540

(14) shows that the difference between the mean duration values for short vowels with H and those with HL is only 23 ms. While this difference between the group means is statistically significant ( $t = -7.43, p < 0.001$ ), (15) shows that the distributions for the two groups of short vowels overlap almost completely. If



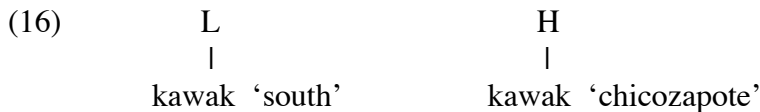
these three groups actually represented a three-way distinction in length, the group representing short vowels with HL should be intermediate between the other two. Moreover, a difference of 23 ms is not large enough to represent another vocalic mora. More likely, this slight lengthening of short vowels with falling tone is simply a by-product of having two disparate tonal targets on a single vocalic mora. If this analysis is correct, then, actual long vowels are only bimoraic, not trimoraic as suggested by Pike and Warkentin (1961) and Noyer (1991).

(15) Distribution for short V with HL compared to short V with H and long V



### 6.3. Theoretical Implications

If the phonological analysis of Huave tone presented in Section 1.1 is correct, then it leads to the crosslinguistically rare situation in which L is both the only lexically marked tone and the default tone. In fact, Yip (2002:220) states that Huave would be the only language to have this property. To avoid this analysis, it would be necessary to also posit H as marked in the UR, as in (16). Thus, *kàwák* ‘chicozapote’ would receive a prelinked H as opposed to being underspecified for tone (as in (4)).



The main reason that this analysis has not been considered is the supposed difference in duration between short vowels with H and HL (Yip 2002:221). I.e., if H were also marked underlyingly as in (16), then the phrasal accent H would combine with the lexically marked H on a word like *kàwák* ‘chicozapote’ to

produce the sequence HH. By Noyer's (1991) analysis, the unlinked H would cause the insertion of another X-slot, as in (13) for *kàwâk* 'south', causing the vowels in both *kàwâk* and *kâwâk* to have the same, longer duration. However, since Pike and Warkentin's (1961) characterization of short vowels with H and HL seemed like empirical evidence for a difference in duration between the two, this analysis was deemed untenable.

However, it is clear from the results presented in Section 6.2, that there is no difference in length between the two types of vowels, and that too much weight has been given to Pike and Warkentin's transcriptions in formulating the analysis of Huave tone. The forms in (16) with both L and H marked in the UR should thus be considered as a possible alternative to Noyer's (1991) analysis. Such an analysis would make Huave's system of lexical tone less strange from a typological perspective, but is not as parsimonious as Noyer's (1991) analysis, since it requires underlying specification of a feature that is predictable.

### 7. Discrepancies with Suarez (1975)

Since the production study was based on the list of nouns in Suarez (1975), it is possible to directly compare the evidence for lexical tone for the 165 roots for which Suarez reconstructed a tone.<sup>6</sup> Of these 165 roots, 35 (21%) were produced by my informant with the tone opposite to the one provided by Suarez. These tonal values were confirmed by production data from a second informant. All of the forms that exhibit a discrepancy with Suarez (1975) are listed in (17) and (18).

(17) Words with HL in Suarez, but H in the current study

<i>(mi)kwal</i> 'son'	<i>kaw</i> 'type of bird'	<i>kiej</i> 'blood'
<i>biümb</i> 'fire'	<i>lop</i> 'hunger'	<i>nchey</i> 'lizard'
<i>kants</i> 'chile'	<i>ndeats</i> 'hair'	<i>onij</i> 'meat'
<i>sats</i> 'thorn'	<i>tsak</i> 'thigh'	<i>tüch</i> 'type of tree'

(18) Words with H in Suarez but HL in the current study

<i>chaw</i> 'atole'	<i>imb</i> 'coal'	<i>ind</i> 'flute'
<i>iüm(b)</i> 'house'	<i>ix</i> 'iguana'	<i>jaw</i> 'chin'
<i>jot</i> 'whetting stone'	<i>kaw</i> 'moon'	<i>kos</i> 'knee'
<i>manchiük</i> 'iron; prison'	<i>mbaj</i> 'flower'	<i>mbat</i> 'louse'
<i>naab</i> 'drum'	<i>ndek</i> 'ocean'	<i>ndeoog</i> 'termite'
<i>oliük</i> 'tooth'	<i>omb</i> 'egg'	<i>otieng</i> 'belly'
<i>owix</i> 'hand'	<i>poj</i> 'turtle'	<i>rants</i> 'strainer'
<i>teong</i> 'toad'	<i>war</i> 'rat'	<i>xor</i> 'pot'
<i>yong</i> 'itch'		

<sup>6</sup> Suarez' method of tonal reconstruction in all cases was to simply posit the tone in San Mateo for the proto-language. If he had no unambiguous evidence for the lexical tone of the word in San Mateo, he omitted it from the reconstruction.

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There is no apparent pattern based on segmental composition, syllable count, semantic category, etc. among the two groups that switch from Suarez' study to the current one. Furthermore, the amount that switch in each direction (26% HL > H, 75% H > HL) roughly reflects the overall distribution of H and HL in the corpus as a whole (43% H, 57% HL). Thus, it is possible that many of these discrepancies reflect errors in Suarez' perception; without acoustic data to corroborate his impressions, it is impossible to know for sure. However dialect variation and tonal change cannot be ruled out, and it is hoped that future studies will be able to address this question more adequately.

### **8. Conclusions**

This paper presents the first ever instrumental study of pitch accent in Huave, and thus provides a baseline for future research by providing reliable measurements for the pitch range of H vs. HL and duration of short vowels (with H and HL) vs. long vowels. The results have demonstrated a clear distinction in perception and production between H and HL in San Mateo Huave, and it is thus safe to conclude that the phonological status of tone in this dialect shows no signs of being lost as it was in the other three dialects of Huave. The results of the interaction between tone and vowel length suggest that an analysis treating all short vowels (with both H and HL) as monomoraic and long vowels as bimoraic fits the production data better. Furthermore, this result allows for the possibility of an analysis in which both L and H are marked, avoiding the typological rarity of a system in which L is the only underlyingly marked tone as well as the default tone. Future studies will be able to expand on the results from the current study by including words from more lexical categories as well as words in phrasal groups (to exhibit tone spreading).

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# Phonemic Versus Phonetic Correlates of Vowel Length in Chuxnabán Mixe

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## 0. Introduction

This paper tests for a possible three-way phonemic vowel length distinction in Chuxnabán Mixe and examines the phonetic correlates of vowel length, in addition to describing this previously undocumented variety of Mixe.

Chuxnabán Mixe is a Mixe-Zoque language spoken by about nine hundred people in one village in Oaxaca. The Mixe territory is located in the north-eastern part of the Mexican state of Oaxaca. It is composed of two hundred and ninety communities divided into nineteen municipalities (Torres Cisneros 1997). Each community speaks a different variety of Mixe, some of which are mutually unintelligible. In many cases it has yet to be determined whether a particular variety represents a distinct language or dialect, as the documentation of Mixe languages is limited. The Ethnologue lists ten different languages divided into three larger branches: Eastern Mixe with six languages and Veracruz Mixe and Western Mixe with two languages each (Gordon 2005). Chuxnabán Mixe has been identified by its speakers as Midland Mixe, and is assumed to correspond to Quetzaltepec Mixe in the Ethnologue entry. At present, there are only a few published grammars and dictionaries of the Mixe languages (De la Grasserie 1898; Hoogshagen 1997; Ruiz de Bravo Ahuja 1980; Schoenhals 1982; Van Haitsma 1976).

The Mixe languages vary greatly in their vowel systems (Suslak 2003). For instance, while Totontepec Mixe has nine phonemic vowels (Schoenhals 1982), only six are reported for Coatlán Mixe (Hoogshagen 1959, 1997). All Mixe languages show a phonemic vowel length distinction and a phonemic phonation contrast between plain, aspirated, and glottalized vowels. The scarce documentation of these languages has led to a very limited number of studies concerned with these unique and typologically interesting vowel systems.

While a distinction between short and long vowels is very common among the world's languages, a three-way phonemic vowel length contrast is typologically rare (Ladefoged and Maddieson 1996). Such a contrast has been reported for Coatlán Mixe and San José El Paraíso Mixe (Hoogshagen 1959; Van Haitsma

1976). The closely related Chuxnabán Mixe potentially represents an additional example for this uncommon phenomenon. While Hoogshagen (1959) reports for Coatlán Mixe that the three-way length contrast does not depend on syllable structure, vowel quality, preceding or following consonants, or intonation, no systematic phonetic measurements have been taken. In order to explore a possible three-way contrast in Chuxnabán Mixe, vowel duration is measured for a set of elicited nouns, and potential phonetic correlates are examined. In the first part of this paper phonological contrasts in Chuxnabán Mixe are treated. The second part describes the methodology and results of the vowel length study.

### 1. Phoneme Inventory and Phonation Contrasts

Chuxnabán Mixe has at least seven phonemic vowel qualities. It remains unclear whether schwa is a phoneme or merely an allophone of either the mid front vowel /e/ or the central high vowel /i/. Schwa appears in some verbal suffixes and word-finally, but no minimal pair has been identified so far. Another vowel of unclear status is the central rounded [ə]. It occurs in the data from two speakers in *yö'öpy* 'to walk' and in two other verbs. Comments from other speakers suggest that this may be the result of dialect borrowing. The vowel phonemes are summarized in (1). Corresponding symbols in the newly established orthography,<sup>1</sup> if different, are included to the right in brackets. Phonemic contrasts are illustrated in (2).

#### (1) Vowel Phonemes

i	ĩ (ĩ)	u
e		o
æ (ä)	a	

#### (2) Minimal Pairs

i ~ ĩ	<i>tsip</i>	'war'	<i>tsip</i>	'plant name'	
a ~ u	<i>kam</i>	'field'	<i>kum</i>	'sweet fruit'	
ä ~ u	<i>tsäk</i>	'dull'	<i>tsuk</i>	'mouse'	
o ~ u ~ ĩ	<i>joon</i>	'bird'	<i>juun</i>	'hard'	<i>jüün</i> 'fire'

In addition to distinguishing short and long vowels, the complex vowel system shows a phonemic contrast between modal, breathy or aspirated, and glottalized or creaky vowels. A possible three-way vowel length distinction is examined in this study. Overall, the following types of syllable nuclei are found: V, VV, Vh, VVh, V<sup>?</sup>, and V<sup>?</sup>V.<sup>2</sup> These contrasts are illustrated in (3).

<sup>1</sup> A practical orthography has been established in collaboration with the speakers, based on local literacy efforts (INEA 1994 and 1997), descriptions of other Mixe varieties, and Spanish.

<sup>2</sup> Evidence for a phonemic distinction between Vh and VVh still needs to be found.

*Vowel Length in Chuxnabán Mixe*

(3) Minimal Pairs and Near Minimal Pairs

o ~ oo	<i>mox</i>	‘stomach’	<i>moox</i>	‘knot’
a ~ aa	<i>kam</i>	‘field’	<i>kaan</i>	‘salt’
e ~ ee	<i>kepy</i>	‘tree’	<i>keepy</i>	‘bream’
a/aa ~ aah	<i>taak</i>	‘mother’	<i>taajk</i>	‘police’
	<i>pak</i>	‘pigeon’	<i>paajk</i>	‘bone’
i/īi ~ iih	<i>mǖit</i>	‘they went’	<i>mǖijk</i>	‘year’
	<i>mik</i>	‘strong’	<i>xǖijk</i>	‘bean’
a ~ aʔ	<i>täp</i>	‘you have’	<i>käʔp</i>	‘scorpion’
u ~ uʔ	<i>tsuk</i>	‘mouse’	<i>juʔk</i>	‘owl’
ī ~ īʔ	<i>mik</i>	‘strong’	<i>miʔt</i>	‘mother-in-law, father-in-law’
ii ~ iʔi	<i>kiix</i>	‘woman’	<i>piʔix</i>	‘tail’
uu ~ uʔu	<i>puuy</i>	‘seat’	<i>puʔuy</i>	‘table’
ī ~ īʔi	<i>tsip</i>	‘plant name’	<i>tsiʔip</i>	‘plant when getting cut’
uʔ ~ uʔu	<i>puʔts</i>	‘yellow’	<i>puʔuts</i>	‘infection’
aaj ~ aʔa	<i>paajk</i>	‘bone’	<i>paʔak</i>	‘sweet’

While non-modal phonation in the form of breathiness occurs only in the last portion of the vowel, glottalization or creakiness can be found in the last, the middle, or the first portion of a vowel. These timing differences are related to differences in function. The first two involve a phonemic contrast between plain, glottalized, and interrupted vowels. The third occurs in vowel-initial words where a glottal stop is inserted at the beginning to function as onset. Syllable onsets are obligatory in Chuxnabán Mixe, the same as in other Mixe languages (Crawford 1963, Schoenhals 1982, Van Haitsma 1976). A detailed phonetic description of the phonation contrasts can be found in Jany (2004).

The consonant system of Chuxnabán Mixe is fairly simple. There are fifteen consonantal phonemes, although the rhotic and lateral occur only in loans. The consonants are summarized in (4). Corresponding symbols in the newly established orthography,<sup>3</sup> if different, are included to the right in brackets.

Except for the rhotic, the lateral, and the two glides, all consonants can be palatalized.<sup>4</sup> Palatalization in Chuxnabán Mixe, as in other Mixe languages (Hoogshagen 1997; Schoenhals 1982; Van Haitsma 1976), is a suprasegmental phoneme affecting not only the palatalized consonant, but adjacent vowels as

<sup>3</sup> A practical orthography has been established in collaboration with the speaker, based on local literacy efforts (INEA 1994 and 1997), descriptions of other Mixe varieties, and Spanish.

<sup>4</sup> Palatalization is represented in the orthography by a palatal glide /y/ following the palatalized consonant.



well. This is manifested by an onglide and an offglide, if the palatalized consonant occurs word-medially. The glottal stop has only been identified as a phoneme when it forms part of a syllable nucleus, hence in V<sup>?</sup> and V<sup>?</sup>V. The glottal fricative /h/ functions as a phoneme in onset and coda position, as well as being a part of the nucleus, with different phonetic realizations in each prosodic position.

(4) Consonants

	Bilabial	Alveolar	Postalveolar	Palatal	Velar	Glottal
Plosives	p	t			k	ʔ (‘)
Nasals	m	n				
Fricatives		s	ʃ (x)			h (j)
Affricates		ts	tʃ (ch)			
Rhotic		r				
Lateral		l				
Glides	w			y		

Allophonic variations similar to those found in other Mesoamerican languages (Campbell et al. 1986) have also been observed. Obstruents, i.e. plosives, fricatives, and affricates, are voiced following a nasal in word-medial position and in intervocalic position, but are always voiceless in word-final position. Nasals are devoiced after voiceless obstruents word-finally.

**2. Vowel Length Study**

**2.1 Background**

Coatlán Mixe and San José El Paraíso Mixe have been described as having a three-way phonemic vowel length distinction (Hoogshagen 1959; Van Haitsma 1976), which is typologically rare. Such a phonemic distinction also occurs in Yavapai (Tomas and Shaterian 1990) and Estonian (Lehiste 1970). Hoogshagen (1959) reports that the three-way length contrast in Coatlán Mixe does not depend on syllable structure, vowel quality, surrounding consonants, or intonation. Thomas and Shaterian (1990) conclude that in Yavapai vowel length is not predictable from other phenomena present in the language, such as pitch factors or syntactic category. In Estonian, however, the third degree of vowel length is dependent on syllable structure and word patterning (Lehiste 1970).

In general, vowel duration can be influenced by many factors, such as vowel position and the number of syllables in a word, vowel quality, and the following consonant, among others. Hoogshagen (1959) examined such possible effects on vowel length for Coatlán Mixe but found no influencing factors. Nevertheless, according to Hoogshagen (1997) the three-way contrast is hard to hear for speakers, and is, therefore, not represented in the orthography. A phonemic distinction between short and long vowels has been attested for all Mixe varieties, and is included in their orthographies.

## *Vowel Length in Chuxnabán Mixe*

This study examines Hoogshagen's findings for a different variety of Mixe. While Hoogshagen's conclusions are not based on systematic phonetic measurements, the present study tests for a possible three-way phonemic length distinction in Chuxnabán Mixe by taking detailed measurements and considering all possible influencing factors, such as syllable structure and phonetic environment. In addition, potential phonetic correlates of vowel length are examined.

### **2.2 Methodology**

For the purpose of this study first the minimal triplets cited in Hoogshagen (1959) for Coatlán Mixe were elicited in Chuxnabán Mixe, and the vowel lengths were measured. Second, a list of monosyllabic nouns containing all possible syllable nuclei and codas and combinations thereof was assembled, a total of a hundred and ninety-five words. Each target word was recorded three times in a carrier phrase from two female speakers. Vowel duration (including creakiness and breathiness) was then measured for each token.

Vowel duration cross-linguistically is often influenced by the vowel position and the number of syllables in a word, the vowel quality, and the following consonant. For example, low vowels tend to be longer than high vowels, and voiced codas may trigger vowel lengthening. To avoid such confounding factors, syllable structure and coda types were kept constant in the comparisons: 1) only monosyllabic words were recorded, 2) length ratios were examined rather than duration across vowel qualities, and 3) codas were considered for voicing and palatalization. While low vowels may be longer than other vowels, length ratios for all vowel qualities were expected to remain equal. Since voiced codas may trigger vowel lengthening and palatalization affects surrounding vowels in Mixe, only data sets with codas in the same group were compared. Furthermore, differences in phonation were considered. Phonation contrasts have been associated with various phonetic properties, such as differences in periodicity, intensity, spectral tilt, fundamental frequency, formant frequencies, duration, and airflow (Gordon and Ladefoged 2001). In this study durational effects of non-modal phonation were examined across all vowel qualities and compared. Non-modal vowels generally correlate with increased duration when compared to their modal counterparts (Gordon 1998). This was tested for Chuxnabán Mixe.

### **2.3 Results**

Only two of the triplets reported for Coatlán Mixe (Hoogshagen 1959) have yielded comparable results in Chuxnabán Mixe. They are summarized in (5). It is apparent that the Chuxnabán Mixe triplets do not show a three-way length distinction. While there is a clear difference between short and long vowels, in accord with short and extra-long vowels in Coatlán, the words with long vowels in Coatlán *poox* 'spider' and *peet* 'broom' correspond to words with complex codas in Chuxnabán, *poxm* and *pätñ* respectively, having the shortest vowels of the three, i.e. with a duration of 0.202 and 0.132 seconds accordingly. Overall, the

elicitation of possible triplets has not provided any proof for a three-way length contrast in Chuxnabán Mixe.

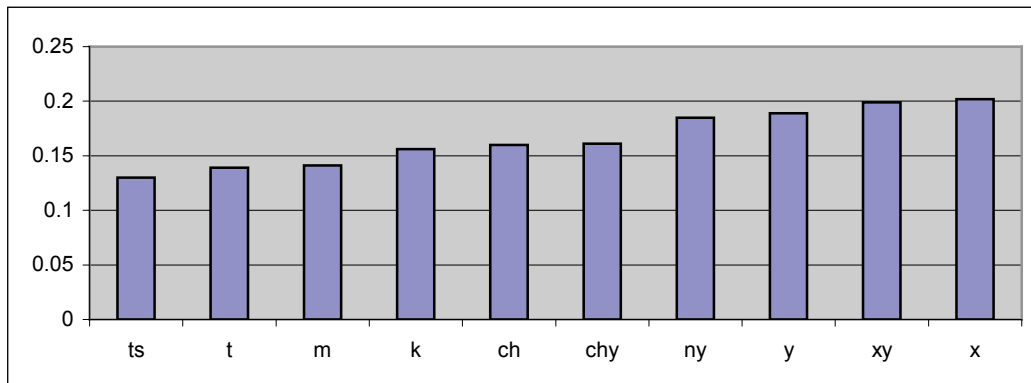
(5) Minimal triplets from Coatlán Mixe in Chuxnabán Mixe

	V		VV		VVV	
Coatlán	<i>pox</i>	‘guava’	<i>poox</i>	‘spider’	<i>pooux</i>	‘knot’
Chuxnabán	<i>pox</i> .239 s	‘guava’	<i>poxm</i> .202 s	‘spider’	<i>moox</i> .365 s	‘knot’
Coatlán	<i>pet</i>	‘climb’	<i>peet</i>	‘broom’	<i>peeet</i>	‘Peter’
Chuxnabán	<i>pät</i> .139 s	‘climb’	<i>pätñ</i> .132 s	‘broom’	<i>päät</i> .281 s	‘Peter’

Even though no triplets with a phonemic three-way length contrast were identified, the duration measurements of the elicited wordlist gave some insights into vowel length. Contrary to expectations coda voicing and palatalization did not have a major effect on vowel length. Rather, having a postalveolar fricative /x/ as coda resulted in clearly longer vowels. This is illustrated in (6) and (7) for the short modal vowel /a/. In (6) and (7) the voiced codas, i.e. the nasals, do not correlate with greater duration of the vowel. Palatalized codas, such as /chy/ and /xy/ in (6), do not consistently correlate with greater vowel duration when compared to corresponding non-palatalized codas. Similar results were found for other vowel qualities and types of syllable nuclei.

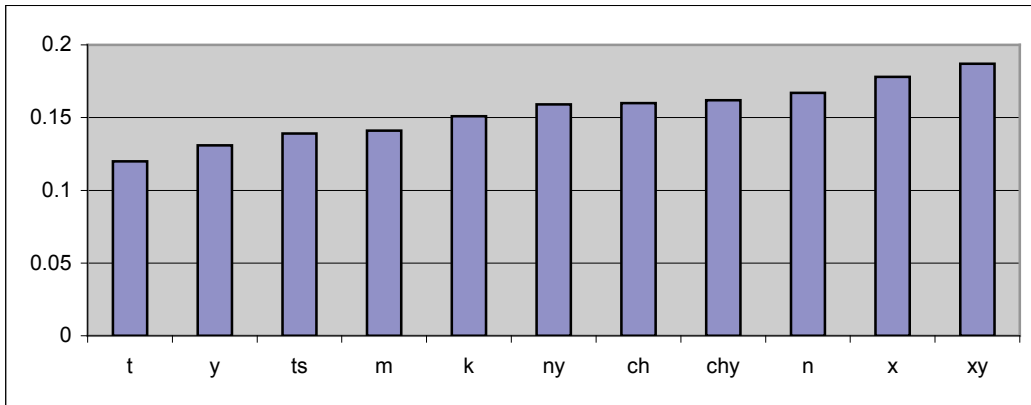
Words lacking an onset had significantly longer vowels. This is shown in (8) where the V in CVk is clearly shorter than the V in Vk. The same pattern occurs with CVky and Vky in (8). It has to be noted that onsetless syllables are not permitted in Mixe. In these situations an initial glottal stop is inserted. Phonetically, this glottal stop is realized as creakiness during the first portion of the vowel. This lengthening effect in ‘onsetless’ syllables can be explained by the fact that non-modal phonation generally correlates with greater vowel duration.

(6) Speaker 1: Vowel length for short modal /a/ by coda

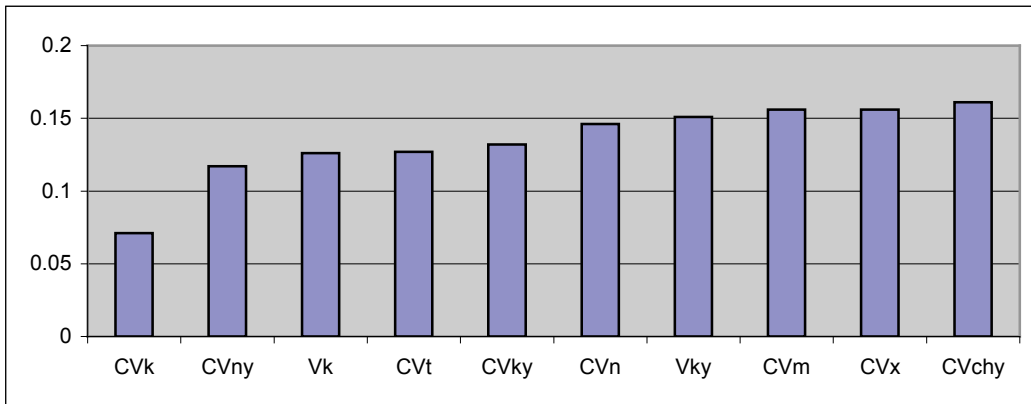


*Vowel Length in Chuxnabán Mixe*

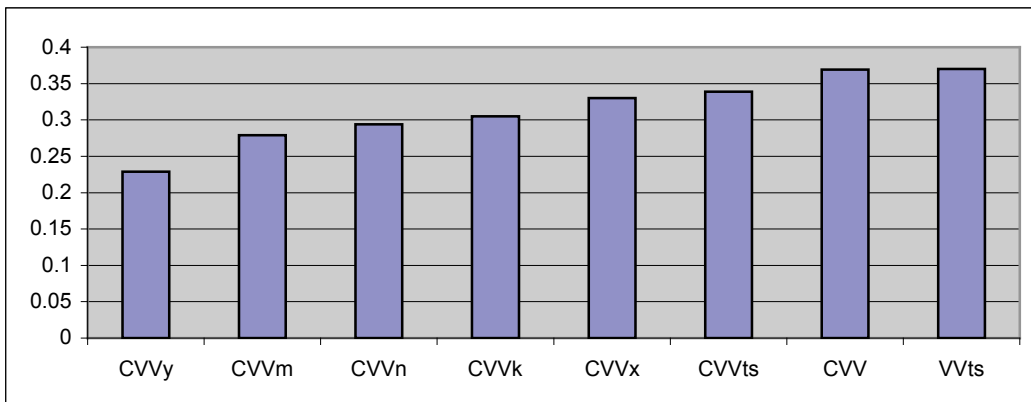
(7) Speaker 2: Vowel length for short modal /a/ by coda



(8) Speaker 2: Vowel length for short modal /u/ by coda and prosodic structure



(9) Speaker 1: Vowel length for long modal /aa/ by coda and prosodic structure

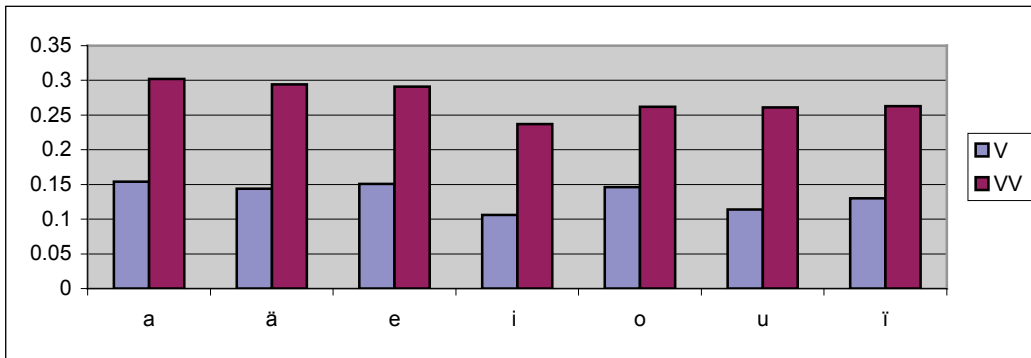


Onsetless vowels are also longer in other types of syllable nuclei. This is shown for the long modal vowel /aa/ in (9). In addition, vowels in open syllables tend to be longer than vowels in closed syllables, as illustrated in (9) where CVV and

VVs show the greatest durations. Long vowels show greater variation in length according to coda type and syllable type than short vowels. This can be seen when comparing (6), (7), and (9), i.e. results for short and long /a/. It is unlikely that this variation stems from a phonological three-way contrast in length, as results for other long vowels show more consistency.

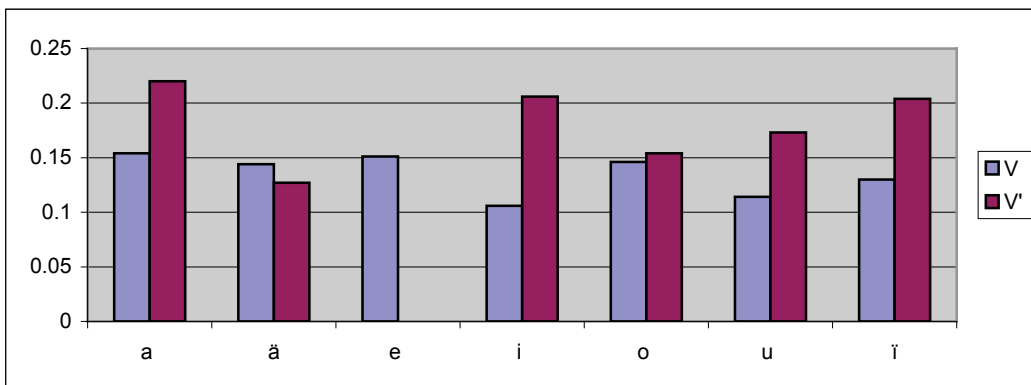
In addition to the influencing factors presented so far: coda /x/ and syllables lacking onsets or codas, vowel length in words with glides as onsets or codas also shows variation, given that it is difficult to determine the exact boundaries for the measurements. Excluding these confounding factors length ratios for short versus long vowels remain constant across vowel qualities. This is shown in (10).

(10) Vowel length for short versus long vowels



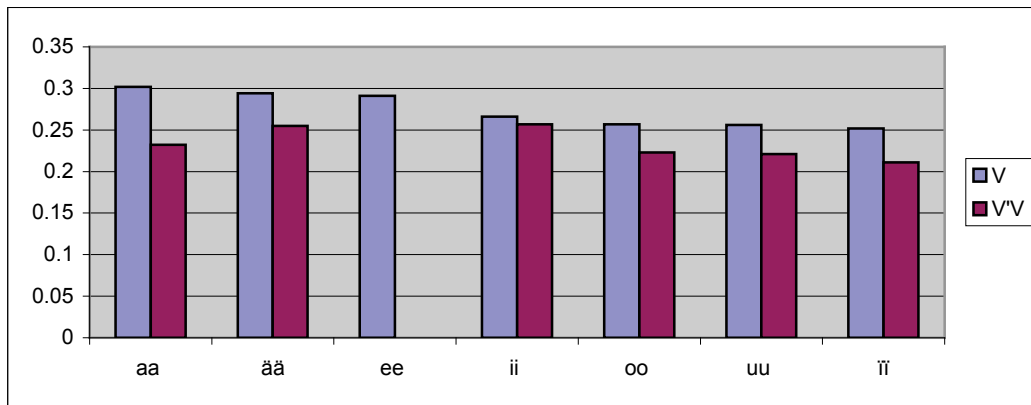
The duration effects of non-modal phonation have also been examined in this study. In general, it is expected that glottalized and breathy vowels are longer than their modal counterparts. However, the results indicate that non-modal phonation does not always correlate with increased duration as in other languages (Gordon and Ladefoged 2001). Glottalized vowels, i.e. vowels in  $V^?$  syllable types, are longer than their short modal counterparts, but interrupted vowels, i.e. vowels in  $V^?V$  syllable types, are shorter than their long modal counterparts. This is shown in (11) and (12).

(11) Vowel length for short modal versus short glottalized vowels:  $V < V^?$

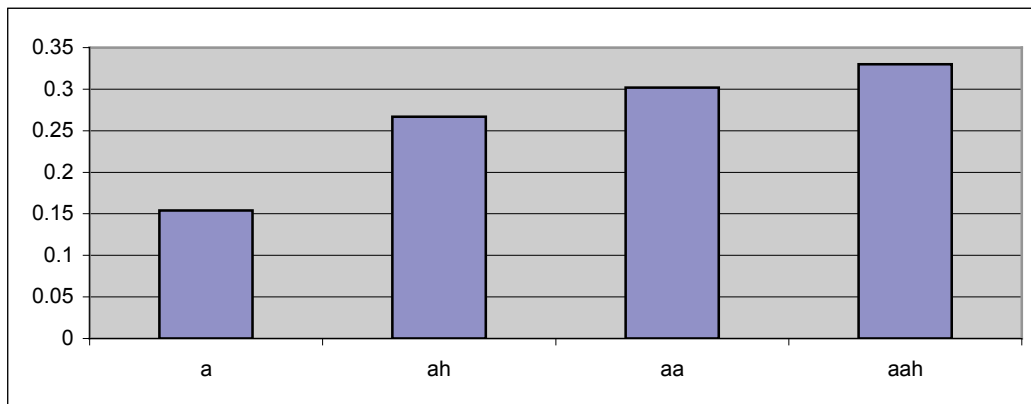


*Vowel Length in Chuxnabán Mixe*

(12) Vowel length for long modal versus interrupted vowels:  $VV > V^?V$



(13) Vowel length for modal versus aspirated vowels:  $VVh > VV > Vh > V$



The results for the aspirated vowels show that breathy vowels are longer than their modal counterparts, hence confirming Gordon and Ladefoged's (2001) observations. The length difference between  $V$  and  $Vh$  is significantly greater than between  $VV$  and  $VVh$ . This is illustrated in (13) for the vowel /a/. While there is a clear distinction between short and long aspirated vowels, no minimal pairs have been identified so far.

To sum up, a three-way phonemic length contrast has not been found for Chuxnabán Mixe. Vowel lengthening is triggered by either the insertion of a glottal stop in 'onsetless' syllables, lack of coda, or by having a coda /x/, rather than by palatalization or voiced codas. The modal long vowels show some variation even after determined influencing factors have been excluded. The duration results for modal versus non-modal phonation can be summarized as follows: (1) Short modal vowels are always shorter than long modal vowels and any corresponding non-modal vowels, i.e. short glottalized, interrupted, and aspirated counterparts. (2) In general, modal vowels are shorter than their non-modal counterparts, except for the interrupted vowels. (3) Interrupted vowels are longer than short modal vowels, but shorter than long modal vowels.

### 3. Conclusions

I have shown that vowel length, i.e. short versus long vowels, and phonation contrasts are phonemic in Chuxnabán Mixe, the same as in other Mixe varieties. As a result, the following syllable nuclei have been identified: V, VV, Vh, VVh, V<sup>?</sup>, and V<sup>?</sup>V. No evidence has been found for a three-way phonemic vowel length contrast. However, the duration measurements have revealed certain influencing factors, such as syllable structure and coda type, that can trigger vowel lengthening. Furthermore, the study of potential effects of non-modal phonation on vowel length has shown that in general non-modal vowels are longer than their modal counterparts with one exception: interrupted vowels are shorter than corresponding long modal vowels.

By describing and examining Chuxnabán Mixe vowels, this work intends to lay the ground for future phonetic analyses of the complex and typologically interesting vowel systems found in this and other Mixe languages. Further investigations may include: (1) Measurements in polysyllabic words to examine the effects of position in word, stress, and intonation on vowel length, (2) Data collection from more speakers to include statistic evaluation of results, (3) Length measurements for Coatlán Mixe triplets to confirm Hoogshagen's (1959) results, and (4) Collection an analysis of data from other Mixe varieties.

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# Directional Markers in Q'anjob'al: Their Syntax and Meaning<sup>1</sup>

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## 0. Introduction

Directionals (DIR) are grammaticized intransitive motion verbs that form serial verbs with a structure [[V1+V2]+argument]] (V1=main verb, V2=DIRs). I refer to it as 'directional construction' (DIRC). Some examples are shown in (1).

- (1) a. Max- $\emptyset$  b'ey-**aj** naq unin<sup>2</sup>.  
COM-A3S walk-DIR CL child  
'The child started walking'.
- b. Max- $\emptyset$  s-k'ux-**kan-aj-teq** no chej an ak'un.  
COM-A3S E3S-eat-DIR-DIR-DIR CL horse CL grass  
'The horse ate [upwards] the grass here [in relation to something else]'.
- c. Max- $\emptyset$  b'ey-**aj-teq** naq unin.  
COM-A3S walk-DIR-DIR CL child  
'The child walked from down there to here'.

Some preliminary observations on DIRCs follow. Directionals trace the trajectory or movement of an entity as in *aj* 'up' and *teq* 'toward X' in (1b-c). They also have aspectual meanings like the inceptive meaning of *aj* (1a). The DIR *kan* 'stay' in (1b) has an adverbial meaning. Furthermore, a clause may have up to three directionals (1b). Finally, *teq* in (1c) overrides the inceptive meaning of *aj* in (1a) but it does not affect the meaning of *kan* in (1b).

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<sup>1</sup> Earlier drafts of this paper benefited from discussions and comments from Carlota Smith, Nora England, Rajesh Bhatt, John Haviland, and Roberto Zavala. All errors are my own responsibility.

<sup>2</sup> The abbreviations used are: 1=1<sup>st</sup> person, 2=2<sup>nd</sup> person, 3=3<sup>rd</sup> person, A=absolutive, ADV=adverb, AF=agent focus, AP=antipassive, COM=completive, DEM=demonstrative, DER=derivation, DIR=directional, E=ergative, EXCL=exclusive, FOC=focus, INC=incompletive, IND=indefinite, INF=infinitival, IRR=irrealis, IV=intransitive, NEG=negation, P=plural person, PL=pluralizer, PAS=passive, POS=positional, REFL=reflexive, SUF=suffix, TNS=intensifier, TV=transitive.

The goals of this paper are (i) to describe briefly the morphosyntax and syntax of DIRCs in Q'anjob'al, (ii) to propose a classification of directionals based on their combination and meaning, and (iii) to show that their meanings are partially predictable from the syntax and verb meaning.

The grammaticization of motion verbs into directionals, their inventory, and part of their grammatical features are well documented in Maya (England 1976a, 1976b, Haviland 1991, 1993, Zavala 1993, 1994, and Aissen 1994). This paper builds on this work. In section 2, I propose that DIRCs form complex predicates headed by the main verb (V1) and directionals. The main verb controls the transitivity of the construction and directionals depend on one of its argument or interact with its argument structure. Section 3 proposes a classification of DIRs based on distributional properties and meaning. DIRs are classified into three groups: set I (*kan* 'stay') has an adverbial meaning, set II (*aj* 'up', *ay* 'down', *ok* 'enter', *el* 'out', and *ek* 'pass') has aspectual/trajectory meanings, and set III (*teq* 'toward X', *toj* 'away from X') has deictic meanings. These sets follow the fixed ordering: [V1+I +II+III]. This is presented in section three. Section 4 shows that set II and III directionals interact with the event and argument structure of V1 but set I does not. Furthermore, set III overrides the aspectual meaning of set II. Thus, in the combination II+III, the meaning is always spatial. Section 5 concludes the paper. In general, the meanings of DIRs correlate with their syntax and are partially predictable from aspectual and syntactic structure.

## 1. Background on Q'anjob'al

Q'anjob'al is a Mayan language spoken in the northwest of Guatemala in the towns of *Santa Cruz Barillas*, *Santa Eulalia*, *San Pedro Soloma*, and *San Juan Ixcay*. This study is based on the Q'anjob'al spoken in Santa Eulalia and the data is taken from Mateo (2004b), unless otherwise stated.

Q'anjob'al is an ergative and head marking language without case marking on noun phrases. It has split ergativity conditioned by the absence of preverbal tense/aspect markers (i.e. nonfinite clauses) (Mateo 2004a). It follows a fixed VSO word order. The verbs regarded as directionals are grammaticized motion verbs that also function as main verbs. In their directional form, they appear on any predicate (i.e. verbal and nonverbal predicates) and on relational noun phrases (i.e. prepositional phrases). I concentrate on directionals on verbal predicates.

## 2. Defining the Properties of DIRCs in Q'anjob'al

DIRs form a closed system. The full list is: *ek/ik/k* 'pass by', *kan* 'stay/remain', *ay/ey* 'down', *aj* 'up', *ok/uk* 'in', *el/il* 'out', *pax* 'return', *teq* 'toward X', and *toj* 'away from X'. The motion verb counterparts are: *ek* 'to cross', *kan* 'to stay/remain', *ay* 'to go down', *aj* 'to go up', *ok* 'to enter', *el* 'to go out/exit', *pax* 'to return', *?teq* 'to come (here)', and *toj* 'to go (future)', respectively.

As mentioned in the introduction a directional construction may have up to four verbs, V1 plus three DIRs (3). Based on the list of DIRs and example (2), DIRCs form an asymmetric type of serial verb (Aikhenvald 2006:3).

*Directional in Q'anjob'al (Maya): their Syntax and Meaning*

- (2) Max-ach y-awtej-kan el-teq heb'.  
 COM-A2S E3S-call-DIR DIR-DIR they  
 'They called you, you came out and stayed there [while they left]'.

The verbs in DIRCs do not exhibit embedding or coordination<sup>3</sup>. The DIRC in (2) contrasts with (3) in this respect; (3a) shows a subordinated aspectless complement clause and (3b) a coordinated construction through *kax* 'then/and'.

- (3) a. Max-∅ y-ojtaq-ne-j [∅ s-pich-on s-b'a]  
 COM-A3S E3S-know-DER-TV A3S E3S-dress-ON E3S-REFL  
 'S/he learned to dress herself/himself'.
- b. [Asan max-∅ s-txon ix an] kax [max-∅ el ix].  
 only COM-A3S E3S-sell CL CL then COM-A3S go CL  
 'As soon as she sold it (plant), she went away'.

In a DIRC, there is only one inflectional domain. The arguments are marked only once on the main verb (i.e. inflecting the DIR is ungrammatical). Note also that argument marking follows a normal ergative-absolutive pattern.

- (4) Max-ach w-il-ek'-teq. /\*Max-ach w-il (max)-ach ek'-teq.  
 COM-A2S E1S-see-DIR-DIR COM-A2S E1S-see COM-A2S DIR-DIR  
 'I saw you from the other side toward here'.

The number of arguments in any DIRC is defined by the valence of the main verb. In this sense, intransitive verbs form intransitive directional constructions (5a), transitive verbs form transitive directional constructions (5b), etc. Note also that the arguments follow the VSO word order found with single headed clauses.

- (5) a. Max-∅ toj-kan ix ix (y-ul-a').  
 COM-A3S go-DIR CL woman E3S-inside-water  
 'The woman fell into the river and stayed there [never taken out]'.
- b. Max-∅ s-man-el-teq xal jun amb'al tu.  
 COM-A3S E3S-buy-DIR-DIR CL IND medicine DEM  
 'The old woman bought that medicine'.  
 Lit: 'The old woman bought that medicine; it came out (here)'.

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<sup>3</sup> DIRCs are like simple clauses regarding argument fronting, topicalization, classifiers (see Craig 1986, Zavala 2000, for details on classifiers). They are also like single headed clauses regarding intonation. If a DIR is at final intonational boundary, it takes *-oq* (e.g. *Maxach skol-el-oq* 'S/he defended you'), except *teq/toq*. *-oq* marks infinitival status. Thus, the DIR has an infinitival form.

All verbs in a DIRC form a single predicate nucleus in that they behave like a single unit (6). Specifically, person clitics (6a) and incorporated nouns (6b) follow the last DIR (c.f. inflection & word order above).

- (6) a. Max-on xiw-kan-el hon. /\*xiw hon kan-el/\*xiw kan hon el.  
 COM-A1P afraid-DIR-DIR EXCL  
 'We (except you) became afraid and remained afraid'.  
 b. Max-∅ kol-wi el anima naq unin. /\*kol-wi anima el ...  
 COM-A3S help-AP DIR people CL child.  
 'The child defended people'.

Suffixes marking voice alternations and fronting appear on the main verb (6) and (7). Modals and negation scope over all the verbs (8).

- (7) Max-∅ maq'-lay el-teq. /\*-el-teq-lay  
 COM-A3S hit-PAS DIR-DIR  
 'It was taken out [by hitting it]'.  
 (8) a. Low-an kan-oq!/\*low-kan-an b. Maj-∅ i-lay aj-teq ix.  
 eat-IMP DIR-SUF NEG-A3S take-PAS DIR-DIR CL  
 'Stay eating!/\*eat! and stay'. 'She was not taken out'.

In summary, a DIRC is like a single clause regarding word order, number of arguments, inflection, particle placement, incorporation, etc. Furthermore, all verbs function as a single predicate but the DIRC seems to be controlled by V1.

### 3. Classification of Directionals

Directional chains follow a fixed ordering. The possible combinations group them into three types (9). Below I use DIR1, DIR2, and DIR3 interchangeably with Set I, Set II, and Set III. I also use adverbial directional, aspectual directional, and deictic directional; instead of set I, II, and III when discussing their meanings.

- (9) Directional Types & Combinatorial Restrictions  
 a. Set I: *kan* 'remain'  
 b. Set II: *ek* 'pass by', *ay* 'down', *aj* 'up', *el* 'out', and *ok* 'in', *pax* 'return'  
 c. Set III: *toq* 'toward there' and *teq* 'toward here'

All the possible linear combinations of DIRs in (9) are attested (10). Furthermore, all possible reverse combinations are ungrammatical (e.g. set II+I+III: \**ek'-kan-teq*, set II+III+I: \**ek'-teq-kan*, Set II+I: \**ay-kan*, set III+I: \**teq-kan*, and set III+II: \**teq-el*). Another restriction on DIRs is that two DIRs from the same set in the same construction are ungrammatical as in \**Max koman-el-ay-oq* 'we bought -EL-AY something' and \**Max koman-teq-toq* ('we bought -TEQ-TOQ some-

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thing'). These restrictions show that each set has a particular function and only one member does that function. In other words, there is one syntactic position for each set-function. Thus, two DIRs from the same set are ungrammatical. Below I show how these restrictions correlate with their meaning and syntax.

- (10)a. Max- $\emptyset$  aw-j-i kan ek'-teq naq unin. [I+II+III]  
 COM-A3S shout-DER-IV DIR DIR-DIR CL child  
 'The child called (somebody) toward here [in relation to something else]'.  
 b. Max- $\emptyset$  lajwi kan-ay jun ilya tu'. [I+II]  
 COM-A3S end DIR-DIR IND illness DEM  
 'That illness ended (down) [in relation to something else]'.  
 c. Max- $\emptyset$  y-al kan-teq naq. [I+III]  
 COM-A3S E3S-say DIR-DIR CL  
 'He told it toward here [in relation to something else]'.  
 d. Max- $\emptyset$  s-jaq-el-teq heb'. [II+III]  
 COM-A3S E3S-open-DIR-DIR PL  
 'They opened it out [to here]'.

The next sections show that DIR1 has an adverbial meaning, DIR2 has a trajectory or aspectual meaning, and DIR3 a deictic meaning. A DIRC follows the fixed template in (11). The evidence for this template comes from their meanings, function, and syntax. It is relevant to note that Craig (1992) discusses a different ordering in Popti' and Haviland (1991:28) shows another ordering in Tzotzil, based on orientation, which does not apply to Q'anjob'al.

- (11) DIRC template: [v1+adv-DIR1+asp/trajectory-DIR2+deictic-DIR3]

### 3.1. Syntactic Dependency and Contribution of DIRs

The DIRs from set II and III generally depend on a syntactic argument. Furthermore, they may contribute to the argument structure of the DIRC. The following examples show that a direct object must be syntactically visible for DIR2s. DIR2s are ungrammatical with the absolutive antipassive (12c) because this antipassive removes the theme argument from the syntactic structure.

- (12)a. Max- $\emptyset$  man-lay el jun no kaxhlan. [man-lay-kan/teq]  
 COM-A3S buy-PAS DIR IND CL chicken  
 'A chicken was bought'.  
 b. Max- $\emptyset$  man-wi el kaxhlan naq Lwin. [man-wi kan/toq kaxhlan]  
 COM-A3S buy-AP DIR chicken CL Lwin  
 'Lwin bought chickens'.

- c. \*Max-on man-waj el (y-in no kaxhlan). \*[man-waj-kan/teq]  
 COM-A1P buy-AP DIR E3S-at CL chicken  
 'We bought (at the chicken)'.

The ungrammaticality of (12c) is not due to a restriction on semantic roles or to the distinction between aspectual and nonaspectual meanings (13). Specifically, a DIR is grammatical with an intransitive verb taking a theme or agent argument (13a-b). Furthermore, (13b) has an aspectual meaning and (13c) a trajectory one and both are grammatical. Therefore, it is a syntactic constraint referring specifically to the syntactic presence of a direct object.

- (13)a. Max-∅ q'aj-ok jun s-q'ab' te te'. [theme argument]  
 COM-A3S break-DIR IND E3S-hand CL tree  
 'A branch of the tree broke [on itself]'.
- b. Max-∅ mulnaj aj heb' konob'. [agent argument]  
 COM-A3S work DIR PL people  
 'The people started working'.
- c. Max-∅ ko-lo-aj xe ak'un y-uj wajil. [aspectual meaning]  
 COM-A3S E1P-eat-DIR root plant E3S-by starvation  
 'We started eating plant roots because of starvation'.

Another feature of DIR2 and DIR3 is their contribution to grammatical functions and semantic roles. Due to space constraints, I illustrate these changes with one case from each directional set. The clearest case from DIR2 is shown by the directional *ok* 'enter' with verbs taking a goal/target argument (14). *Ok* affects the grammatical and thematic relations of the arguments. In (14a) *no no'* is the direct object and the goal but in (14b) it becomes an adjunct and a new direct object/theme is introduced. This structural change could be summarized as: [V+S+O/GOAL] » [V-ok+S+O/THEME+ adjunct/GOAL].

- (14)a. Max-∅ s-q'oq naq Xhwan no no'.  
 COM-A3S E3S-throw CL Xhwan CL animal  
 'Xhwan threw (something) at the animal'.
- b. Max-∅ s-q'oq-ok naq Xhwan ch'en ch'en y-in no no'.  
 COM-A3S E3S-throw-DIR CL Xhwan CL rock E3S-at CL animal  
 'Xhwan threw the rock at the animal'.

Regarding DIR3 *teq/toq*, they introduce a change in semantic roles (15). Again, in (14a) the direct object *no no'* 'the animal' is the goal but in (15a) *no no'* changes to a theme and continues to be the direct object. (15b) shows that this change does not arise with the adverbial DIR *kan* (15b).

- (15)a. Max- $\emptyset$  s-q'oq-teq naq Xhwan no no'.  
 COM-A3S E3S-throw-DIR CL Xwhan CL animal  
 'Xhwan threw the animal to here'.  
 \*'Xhwan threw something to the animal here'.
- b. Max- $\emptyset$  s-q'oq-kan naq Xhwan no no'.  
 COM-A3S E3S-throw-DIR CL Xwhan CL animal  
 'Xhwan threw (something) at the animal [before something else]'.

In summary, DIR2s require the syntactic realization of a direct object. Furthermore, DIR2 and DIR3 contribute to the thematic and grammatical relations in the clause. However, DIR1 does not drive these changes.

### 3.2. Lexical Restrictions on DIRs

Several lexical restrictions apply to directionals from Set II and III but not to set I. I only show a case of clash in reference point. The achievement motion verbs *ek'* 'to pass', *kan* 'to stay/remain', *jay* 'to come here', and *apn* 'to arrive there' specify a reference point and specify movement prior to reaching the reference point (see section 4 for the classification of events). Others verbs like *ek'* or *ul* may specify movement after their reference point<sup>4</sup>. In principle, DIRs could apply to this prior/posterior movement. However, this is ungrammatical (16a). Arguably, DIR2 and DIR3 are ungrammatical because the preliminary stages of these events are not available for modification. (16b) shows that this restriction does not apply to the directional *kan*. (17) illustrates that all directionals are grammatical with verbs like *b'ey* 'to walk', *txakw* 'to move on four legs', *jutx* 'to carry away', etc. These verbs do not specify a lexical reference point or direction.

- (16)a. \*Max- $\emptyset$  apni-aj/ek'/teq naq unin.  
 COM-A3S arrive.there-DIR/DIR/DIR CL child  
 'The child arrived there coming up /passing there/here'.
- b. Max- $\emptyset$  kan-kan naq unin.  
 COM-A3S stay-DIR CL child.  
 'The child stayed there [in relation to another event]'.

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<sup>4</sup> The verbs *ul* 'to come and go back' and *b'et* 'to go and come back' specify movement before and after their reference point. The only DIRs compatible with these verbs are *kan* (DIR1) (e.g. *ul/b'et-kan* 'to come/go and return in relation to...') and *ek'* (DIR2) (e.g. *ul/b'et-ek'* 'to come/go and return passing'). *Ek'* means 'going by a point', which is compatible with *b'et* and *ul*. Other combinations are ungrammatical (e.g. \**ul aj/ay/ok/el/teq* 'come and return -AJ/AY/EL/TEQ).



- (17)a. Max- $\emptyset$  txak-wi kan-oq.  
 COM-A3S move.4.legs-DER DIR-SUF  
 ‘She/he stayed walking on four legs’.
- b. Max txakwi ajoq.  
 ‘She/he started walking on four legs (e.g. baby)’.
- c. Max txakwiteq.  
 ‘She/he walked on four legs toward here’.

#### 4. The Meanings and Interaction of Directionals

I follow the tradition of classifying events into activities, accomplishments, and achievements (Vendler 1957, Dowty, 1979, Smith 1991, 1999). Following Smith (1991) I also assume a 'semelfactive' type. I illustrate how the distributional patterns of DIRs correlate with their meanings. Specifically, DIR1 has an adverbial meaning, DIR2 an aspectual/trajectory one, and DIR3 a deictic meaning.

Regarding the meaning of set I, *kan* ‘to stay’ usually appears with two events [event-*kan*, (event)]. It roughly means “the event-*kan* happens in Y location in relation to X”; where X is another event. When *kan* appears in single clauses, another event is inferred (18b). In general, *kan* establishes a spatiotemporal relationship between two events (18b-c).

- (18)a. Max- $\emptyset$  s-man ix Lolen jun te na.  
 COM-A3S E3S-buy CL Lolen INDCL house  
 ‘Lolen bought a house’.
- b. Max- $\emptyset$  s-man-kan ix Lolen jun te na.  
 ‘Mikin bought a house (somewhere) [before she died]’.  
 ‘Mikin bought a house (somewhere) [and she left or somebody else left]’.
- c. Y-et max- $\emptyset$  toj ix Lolen yokti', max- $\emptyset$  kaj-kan ix te na.  
 E3S-when COM-A3S go CL Lolen west COM-A3S live-DIR CL CL house  
 ‘Lolen lived in the house before she went to the U.S.’.

The directionals in set II have aspectual and/or trajectory meanings. I use *aj* to show the two meanings (See Mateo 2004b for details of each DIR). (19) shows its **inceptive** meaning and (20) illustrates its trajectory/movement meaning. The events in (19) have only one endpoint available (the initial endpoint in activities, a stage in achievements and semelfactives). Then, the inceptive meaning is obtained when *aj* modifies this endpoint or stage. In other cases, the meaning is trajectory or movement as illustrated by the achievement situation in (20).

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- (19)a. Max- $\emptyset$  ko-txon-aj ixim ixim. [activity] (*without aj*)  
 COM-A3S E1P-sell-DIR CL corn  
 'We started selling the corn'.
- b. Max- $\emptyset$  q'aj-aj s-q'ab' te te'. [achievement]  
 COM-A3S break-DIR E3S-hand CL tree  
 'The tree branches started breaking'.
- c. Max- $\emptyset$  at'ixhli aj naq unin. [semelfactive]  
 COM-A3S sneeze DIR CL child  
 'The child started sneezing'.
- (20) Max- $\emptyset$  ha-b'is-aj jun koxhtal mansan. [accomplishment]  
 COM-A3S E2S-count-DIR one sack apple  
 'You counted [upwards] a sack of apples (i.e. from the floor)'.  
 \*'You started counting a sack of apples'.

The generalization above accounts for most of the data but it is not without exceptions. Other factors may affect the meaning. Examples like ??*kotxon-aj* 'start selling/sell upwards' (trajectory/movement), *alji aj* 'to reproduce/start being born' (shift in meaning), ?*echb'anej aj* 'to start waiting' (?not repeatable), etc. are marginal or do not fit the patterns above.

The directionals from set III have deictic meanings. *Teq* 'toward X' and *toq* 'away from X' add a spatial/temporal bound and/or a path (Talmy 1985, Krifka 1999) to the construction. The speaker is the point of origin in *toq* and it is the final point in *teq*. I use *teq* to illustrate their meanings<sup>5</sup>.

*Teq* adds a **spatial bound** and **path** to unbound events of change of location (e.g. *iq* 'carry', *achinwi* 'swim', etc.). This makes the event telic. In (21a) the event without *teq* is an activity and *teq* shifts it into accomplishment. However, *teq* has a directional meaning with verbs without change of location (21b).

- (21)a. Max- $\emptyset$  b'ey-teq naq unin.  
 COM-A3S walk-DIR CL child  
 'The child walked [from there] to here'.

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<sup>5</sup> For simplicity *teq* is glossed 'toward here', and *toq* 'toward there'. *Toq* and *teq* do not always have opposite directions. *Toq* in *Max poj-toq* 'It broke into pieces' is not opposite to *teq* in *Max poj-teq* 'It came broken'. Here *teq* indicates a COMING event. This appears when no change of location, mover, and direction is available (e.g. *Max kam-teq no* 'It died and came here').

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- b. Max-ø s-taynej-teq naq Mekel ixim awal.  
 COM-A3S E3S-take.care.of-DIR CL Mekel CL corn.plant  
 'Mekel took care of the corn plant toward here'.

In closing this section I illustrate the interaction among DIRs. As shown above *kan* has an adverbial meaning and function. It is independent of argument and event structures. It does not interact with other directionals either (22).

- (22)a. Max-ø kam-kan ay jun-tzan an ak'un tu'. set I+II  
 COM-A3S die-DIR DIR IND-PL CL plant DEM  
 'Those plants died there completely [in relation to another event]'.

- b. Max-ø s-man-kan-teq naq unin jun an keney. set I+III  
 COM-A3S E3S-buy-DIR-DIR CL child IND CL banana  
 'The child bought a banana [in relation to...] and it came here'.

DIR2 and DIR3, however, interact with each other. When both sets have trajectory meanings, they are compatible (23). However, when DIR2 has a trajectory meaning, DIR3 overrides it and the spatiotemporal meaning of DIR3 prevails (24).

- (23)a. Max-ø ko-chot-b'aj aj tx'otx' xhaltin. set II  
 COM-A3S E1P-seat-DER DIR CL frying.pan  
 'We set the frying pan UPWARD'.

- b. Max-ø ko-chot-b'aj-teq tx'otx' xhaltin. set III  
 COM-A3S E1P-seat-DER-DIR CL frying.pan  
 'We set the frying pan down TOWARD the speaker'.

- c. Max-ø ko-chot-b'aj aj-teq tx'otx' xhaltin. set II +III  
 COM-A3S E1P-seat-DER DIR-DIR CL frying.pan  
 'We put the frying pan DOWN oriented TO the speaker [higher location]'.

- (24)a. Max-ø b'ey-aj naq unin. [inceptive meaning]  
 COM-A3S walk-DIR CL child  
 'The child started walking'.

- b. Max-ø b'ey-teq naq unin. [spatial bound]  
 COM-A3S walk-DIR CL child  
 'The child walked [from there] to here'.

- c. Max b'eyajteq naq unin. [trajectory/movement]  
 'The child walked from DOWN there TO here'.  
 \*'The child started walking from down there to here'.

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In summary, DIR3 overrides the aspectual meaning of DIR2 but DIR1 is independent of other DIRs. Each DIR set differs in scope (25a). In the surface syntax, however, the most embedded DIR has the least interaction with the verbal complex (25b). In this sense, DIR1 operates at a clausal level.

- (25)a. Scope of DIRs: [DIR1 + [[V1 + DIR2] + DIR3]]  
b. Surface Syntax template: [V1+DIR1 + DIR2 +DIR3]

### **5. Conclusions and further research**

In this paper, I have shown the following syntactic properties and meaning of directional constructions in Q'anjob'al. First, DIRCs form one clause with a complex predicate head partially controlled by V1. However contrary to what is usually assumed for Mayan languages, in Q'anjob'al directionals interact with the argument structure of V1. Second, there are three classes of directionals: an adverbial type (*kan* 'stay'), a trajectory/movement or aspectual type (*aj, ay, ok, el, ek'*; 'up, down, enter, out, pass'), and a deictic type (*teq, toq*; 'toward X, away from X'). The first type establishes a spatiotemporal relationship between two events. The second type contributes aspectual information to the clause, which is partially true for the third type. Furthermore, the deictic type overrides the aspectual meaning of the second type. Third, a DIRC has a fixed template [V1 + adv-DIR + trajectory/aspectual-DIR + deictic DIR], which does not reflect the immediate meaning.

In general, the meanings of directionals correlate with their syntactic behavior and are partially predictable from aspectual and syntactic information, and the interaction among them. However, further, analysis is needed for the individual directionals, which should focus on the event structure of the main verb.

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## A Definite Mystery

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Zapotec languages indicate tense, aspect, and modality with “aspect” prefixes on verbs. The most widely used of these prefixes mark Habitual, Perfective (or Completive), and Irrealis (or Potential), but a number of languages have additional, sometimes less well understood, aspect forms. In this paper I consider two similar Zapotec aspect markers, one indicating a definite future, the other (used only on motion verbs) with a quite different meaning. Are they one morpheme or two? It's a definite mystery—but my conclusion, based on both internal and comparative evidence, is that they are separate.<sup>1</sup>

### 1. Introduction

Tlacolula Valley Zapotec (TVZ; Ethnologue code ZAB) has been described as having seven aspects (Munro and Lopez, et al., 1999), illustrated in (1) for the verbs ‘runs’ and ‘puts on (a shirt)’.

(1) Habitual:	<b>rz</b> h:ùu'nny ‘runs’	<b>ra</b> 'ahcw ‘puts on (a shirt)’
Perfective:	<b>bz</b> h:ùu'nny ‘ran’	<b>gwu</b> 'aht ‘put on (a shirt)’
Progressive:	<b>ca</b> zh:ùu'nny ‘is running’	<b>caya</b> 'ahcw ‘is putting on (a shirt)’
Neutral:	—	<b>naa</b> 'cw ‘is wearing (a shirt)’
Irrealis:	<b>yz</b> h:ùu'nny ‘will run’	<b>ga</b> 'acw ‘will put on (a shirt)’
Subjunctive:	<b>nz</b> h:ùu'nny ‘(if...) had run’	<b>nya</b> 'ahcw ‘(if...) had put on (a shirt)’
Definite:	<b>x</b> :ùu'nny ‘will surely run’	<b>za</b> 'ahcw ‘will surely put on (a shirt)’

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<sup>1</sup> The TVZ examples discussed here reflect the dialect of San Lucas Quiavini (often called SLQZ): some were provided by my collaborator Felipe H. Lopez, who has graciously discussed all the issues I raise here; others come from a collection of texts about the immigration experience (Lopez and Munro, eds., in preparation). Great thanks also to Christopher Adam, Rosemary Beam de Azcona, Cheryl Black, John Foreman, Felicia Lee, Rosa María Rojas Torres, and Aaron Sonnenschein, who provided helpful data and discussion, as well as to Michael Galant, Brook Lillehaugen, Bernard Comrie, Alexandra Aikhenvald, and other members of the BLS audience and the UCLA American Indian Seminar for their helpful comments.

The examples show both that the shape of many (boldfaced) aspect prefixes varies from verb to verb (conditioned both phonologically and lexically), and also that some aspects don't occur for all verbs.

The Definite proper, indicated by *z-* before vowels and *s-* (sometimes assimilated, as with 'will surely run' in (1)) before consonants, is a 'modal aspect' (Lee 1999, 2006), used to specify futures that the speaker is certain will occur, as in (2) and (3). (All *z-* verbs are boldfaced in this paper, with their translations underlined. TVZ is a VSO language; subjects are indicated by nouns or names or by clitic pronouns.)

- (2) **Z-ehéh** Jwaany Ba'ahc. 'Juan will surely go to Tlacolula.'<sup>2</sup>  
 def-go Juan Tlacolula
- (3) **S-tòò'oh** Gye'eihlly ca'rr. 'Mike will surely buy the car.'  
 def-buy Mike car

Such examples contrast with Irrealis sentences like those in (4)-(5); the Irrealis (which has many other modal uses) is a much more common way to show futures, but speakers describe these as less certain.

- (4) Ch-iiá Jwaany Ba'ahc. 'Juan will go to Tlacolula.'  
 irr-go Juan Tlacolula
- (5) Y-tòò'oh Gye'eihlly ca'rr. 'Mike will buy the car.'  
 irr-buy Mike car

Another *z-* prefix occurs only with a small set of motion verbs (in TVZ, these are *rihah* 'goes', *riè'd* 'comes', and *rihah* 'goes home'<sup>3</sup> (paradigmatically distinct from 'goes')) in examples like (6). For now, I will gloss this second *z-* prefix as 'z2', and will use that term to refer to such verbs for most of this paper.

- (6) **Z-èè** Jwaany Ba'ahc. 'Juan was going to Tlacolula.'  
 z2-go Juan Tlacolula

Out of context, sentences like (6) typically have progressive translations; they strongly suggest a reference to going or coming only one way, without completing the trip. This progressive sense seems to fill an important gap in the aspectual paradigm shown in (1), since the three verbs of motion that can be used in with

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<sup>2</sup> TVZ data is presented in the academic orthography of Munro and Lopez et al. (1999). Abbreviations used include an : animal, anap : anaphoric, and : andative, cop : copula, dct : deictic, def : definite, dst : distal, emph : emphatic, form : formal, hab : habitual, inf : informal, irr : irrealis, neut : neutral, opp.sex.sib : opposite sex sibling, perf : perfective, pl : plural, pron : pronoun base, prf : perfective, prg : progressive, prx : proximate, pt : point (second position negative), rsp : respectful, sbj : subjunctive, z2 : 'non-future definite'; person and number are shown with 1, 2, 3, s, p. Clitic boundaries are shown with =.

<sup>3</sup> This verb can also express directed motion into other enclosed areas.



the z2 prefix cannot be used with the Progressive *ca-* prefix.

The *z-* prefixes in both (6) and (2) (as well as the *s-* in (3)) have been called “Definite” (Lee 1999, 2006; Munro and Lopez, et al., 1999): Munro and Lopez et al. (1999) and Lee (1999, 2006) call the z2 form in (6) the “non-future Definite”,<sup>4</sup> assuming it to reflect a separate but related use of the modal aspect prefix in (2). (I will refer to Definite proper forms like those in (2)-(3) as “future Definites” below to distinguish them from z2 forms.)

In contrast, in Munro (2006) I asserted that there are two forms involved (with the z2 form in (6) analyzed as non-modal); Munro, Lillehaugen, and Lopez (in preparation), a textbook currently being used in first-year Zapotec classes native speaker Felipe H. Lopez is teaching at UCSD, call z2 the “z-progressive”, following the Lopez's intuitions about sentences like (6), in contrast with the Definite in (2)-(3).

Only motion verbs exhibit both future Definite and z2 forms; all other verbs only have the future Definite. However, in most Zapotec languages forms of ‘go’ and ‘come’ can be incorporated at the front of a verb stem, following the aspect prefix, forming “andative” and “venitive” verb forms, which can also appear with both types of *z-* prefixes. All other derivatives of ‘go’ and ‘come’, such as ‘bring’/‘take’ verbs, also have both forms. (I won't discuss these derived forms in this paper.)

## **2. Lee's Analysis**

Lee (2006) writes that the Definite “can express either emphatic future readings [as in (2)] or incomplete events in the immediate past [as in (6)]” (201); “while past events expressed with Perfective verbs are understood as being fully completed at UT [utterance time], those expressed with Definite verbs are interpreted as being initiated, but not yet fully culminated” (260). Her sophisticated analysis of the syntax of these verbs considers their behavior both as matrix verbs and when embedded under verbs of saying; she argues that both represent the same aspect, with a modal meaning of necessity, thus suggesting an insightful way to reconcile the seemingly disparate meanings of the *z-* verbs in (2)-(3) and (6).

... Definite-marked verbs (on both their future and non-future readings) describe events that haven't been completed yet, but are strongly believed by speakers to be inevitable: in the future Definite case, the event described has not begun yet, but the speaker emphatically believes it will occur; in the non-future case, the event is believed by the speaker to have been initiated, but not yet completed (and the eventual completion of the event is assumed). (p. 263)

...the future and non-future Definite are, despite their differences in temporal interpretation, manifestations of the same aspect and not merely different aspects that accidentally resemble each other. (p. 266)

## **3. The Problem**

However, z2 forms have a considerably wider range of uses than is illustrated in

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<sup>4</sup> Alas, Munro and Lopez et al. (1999) also somewhat inconsistently use the term ‘realis Definite’.

(6), especially in texts. First, Munro and Lopez et al. (1999) cite z2 forms that express punctual rather than progressive events, such as (7):

- (7) Chih b-raguè'lh=ih, z-eèe'=ëng No'rt.  
 when perf-be.next.day=3s.dst z2-go=3s.prx North  
 'When the next day came (i.e., when it was the next day),  
 he went to the United States.'

This does not seem like an incomplete event in the immediate past (as (6) might be); the speaker is describing events that occurred years ago.

(7) is taken from a 200-page collection of TVZ narratives about the immigration experience (Lopez and Munro, eds., in preparation) that provides many examples of z2 verbs, as well as some future Definites of motion verbs, such as (8), where the 'surely' sense of the Definite is contrasted with the less certain Irrealis, or (9)-(10), which are additional punctual past examples.

- (8) Lla'az=a' dàa'ru' g-ya'=a', sye'mmr z-ya'=a',  
 neut?.think some.day irr-go.home=1s always def-go.home=1s  
 pehr nyèe'c nà=a' que'ity r-ahcbii=a' uu'c  
 but even pron=1s not hab-know=1s when  
 g-ya'=a', nih g-ya'=t=a' ba'i.  
 irr-go.home=1s that irr-go.home=emph=1s well  
 'I thought that some day I would go home, I would surely go home for  
 good, but I didn't know when I would go back, go back for good.'
- (9) Pehr ra bzyaàa'n=ëng, ra bè'll=ëng, pehr  
 as.for pl opp.sex.sib=3s.prx pl sister.w.s=3s.prx as.for  
 nyèe'c=za' làa'=rih que'ity g-àann=rih càa nehehz  
 even=wow pron=3p.prx not irr-know=3p.dst where way  
 canzaa x:ta'ad=rih; z-èe=ta' bùunny=ih.  
 neut.wander poss-father=3p.prx z2-go=emph person=that  
 'As for her brothers and sisters, even they don't know where their father  
 went off to; that person just left.'
- (10) Chiru' nnah *supervisor* x:tè'n=a', 'Xi ni'ih a  
 then neut.say supervisor of=1s what for already  
 z-e'=ùu'?' nnà=ih, chiru' r-e'ipy=a' la'a=i  
 z2-go=2s.inf neut.say=3s.dst then hab-tell=1s pron=3s.dst  
 zi'cy g-uhc niih z-a'=a'.  
 thus perf-be that z2-go=1s  
 'Then my supervisor said, "Why did you go?" he said, so I told him how it  
 was that I left.'

As (9)-(10) show, z2 'go' sentences without a directional object are often translated with 'leave'.

Z2 verbs may also express other aspectual notions. For example, my collabo-

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rator Felipe Lopez feels that the Perfective and z2 verbs in (11)a-b could replace each other. Perfective *b-ie'd* in (a) could be z2 **z-i'ie'd**, and z2 **z-i'ie'd=ëng** in (b) could be Perfective *b-ie'd=ëng*:

- (11) a. — Xi iihahz b-ie'd Cho'nn re'nn nah?...  
           what year prf-come Chona here now  
           ‘What year did Chona come here, now?’  
       b. — Loh sete'nntayseiz **z-i'ie'd=ëng**.  
           in seventy.six z2-come=3s.prx  
           ‘She came in seventy-six.’

Similarly, the z2 verb in (12), in which a narrator discusses the behavior of young immigrants returning to Oaxaca, could be replaced by a Habitual verb:

- (12) Chih **z-i'ie'd=rih** laad rèe' àa'? A  
       when z2-come=3p.dst side here what.about already  
       b-chùu=rih ba'i.  
       prf-change=3p.dst well  
       ‘And when they come back here? They've really changed.’  
       (**z-i'ie'd=rih** could be Habitual *r-ie'd=rih*)

The narratives also contain z2 forms whose meaning seems clearly progressive (describing ongoing motion), much like the elicited example (6):

- (13) R-e'ipy=a' làa'=rih nehz.ahg.zahgu=ih a **z-a'=a'**.  
       hab-tell=1s pron=3p.dst way.just=that already z2-go=1s  
       ‘Tòò,’ nnah=rih, ‘tye'nn g-uuny=ùu' compa'anny' —  
       let's.go neut.say=3p.dst so.that irr-do=2s.inf company  
       zi'cy nih r-chàag=za' ra mnii'ny sa'=nii'.  
       thus rel hab-meet=wow pl kid fellow=anap  
       ‘I told them I was going that way. “Let's go,” they said, “then you can keep [us] company”— the way kids get together with each other.’

Of course, cross-linguistically progressives of motion verbs often develop into future expressions, which may explain why (14) below seems to have a somewhat less ongoing, more future reference. In fact, other z2 verbs sometimes express unaccomplished notions that are more clearly neither present nor past, as in (15), whose z2 form. Lopez feels, could be replaced by an Irrealis verb (though not by a future Definite).

- (14) A n-àann=a' chih **z-i'ie'd** Xmahnnsa'ann, chih  
 already neut-know=1s when zprog-come Easter when  
**z-i'ie'd** lohnih, chih **z-i'ie'd** Iihahz Cweeby, chih  
 z2-come fiesta when z2-come year new when  
**z-i'ie'd**, r-x:èe'll=a' mùuully loh=rìh ba'i.  
 z2-come hab-send=1s money to=3s.dst well  
 'I know when Easter is coming, when the fiesta is coming, when New  
 Year's is coming, when they're coming, so I send them money.'
- (15) B-èi'ny=a' x:ja'ab **z-yàa'll=a'**.  
 prf-do=1s thought z2-come=1s  
 'I thought of coming.' (**z-yàa'll=a'** could be Irrealis *ch-a'=a'*)

Other apparently “modal” (or as I would rather say “non-actual”, following Chung and Timberlake 1986) notions expressed by z2 verbs are seen in

- (16) Mahssuu **z-èe** fami'lly, lla'az=a', pehr que'ity=zhy=a'  
 even.if z2-go wife neut?.think=1s but not=must=1s  
 n-daà=a' làa'=rèng ch-ie=rèng. Chingaad, mejoor zèi'ny  
 subj-let=1s pron=3p.prx irr-go=3p.prx damn better work  
 g-uuny=a' y-sàa'=a' lahty ch-u'=rèng ba'i.  
 irr-do=1s irr-make=1s place irr=be.in=3p.prx well.  
 'Even if [my] wife leaves, I think, even then I wouldn't let them [my  
 children] go. Damn, I'd rather work in order to have a place for them to  
 live.'
- (17) Nii nàa te'ihby rrepo'rt nih ca-lde's=ih, nnah=rìh,  
 that cop one report rel prg-lift=3s.dst  
 neut.say=3p.dst  
 tye'nn pahr a **z-yoo'=èhnn** pahrtra's steeby.  
 because for already z2-go.home=1p back again  
 'That was a report that he was making, they said, so that we could go back  
 again.'
- (18) Chiru' dannoo=èhnn tèe'gwag xi rsoon=di' ba'i chiru'  
 then pron=1p neg what message=pt well then  
 làa'=rèb cay-u'=rèb gahlrzyàa' dannoo=èhnn càa  
 pron=3p.rsp prg-be.in=3p.rsp worry pron=1p where  
 nehz **z-oo'=èhnn** vaya cèhmm nàadi'zh zèi'ny=ih  
 way z2-go=1p well because supposed.to work=3s.dst  
**zòo'nn** vaya.  
 z2-go=1p well  
 'At that point we had [sent] no messages, so they must have been  
 worrying about us, where we had gone, because we were supposed to be  
going to work.'

Crucially, it seems, non-actual z2 verbs like these either convey the idea of

progressive ideas in the future, as in the second z2 form in (18) (and possibly also (14)), or refer to possibility rather than necessity (as in (16) and (17)).

#### 4. Comparative Data

A number of other Zapotec languages appear to have cognates of both types of TVZ *z-* forms; I will note here only data from two closely related Valley Zapotec languages,<sup>5</sup> and from one quite distantly related language.<sup>6</sup>

Adam (2003:69; glosses adapted) writes that in Santo Domingo Albarradas Zapotec (Dihidzx Bilyáhab) “The definite<sup>7</sup> is used in any tense to convey a pending action or event”, but also “Another one of the definite’s uses is to show incompleteness of an act of ‘going’ which has already begun as opposed to the perfective which shows completion of the act of ‘going’ with a ‘return’” (70). However, the same aspect prefix is also used in apparently punctual textual examples like

- (19) **Z-é=b**          zhan nejez=gin g-ijti=b.  
           def-go=an    butt    road=dct perf-die=an  
           ‘He fell down below that road and died.’ (Adam 2003:249 and p.c. 2007)

Adam (p.c.) has confirmed to me that these two “definite” forms are at least sometimes morphologically distinct, with the cognate of the future Definite form in (20)a and that of the z2 verb in (20)b:

- (20) a. future Definite **z-ej|e|=zh**      in *z-ej|e|=zh yá* ‘will he go?’  
       b. z2 **z-ée=zh**                        in *má z-ée=zh yá?*  
    ‘did he already start going?’

As in TVZ, the future Definite may be used with (virtually) any verb, while the z2 form is restricted to a small class of motion verbs.

López Cruz (1997; glosses adapted) analyzes the San Pablo Güilá Zapotec cognate of the future Definite in (21)a as the “futuro” and the cognate of the z2 verb in (21)b as an allomorph of the “progresivo”:

- (21) a. **s-yéed**    Jwâany    là'ç  
           def-come Juan       field  
           ‘Juan vendrá al campo [Juan will come to the field].’ (p. 90)

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<sup>5</sup> I cannot discuss here data from another closely related Valley language, Santa Ana del Valle Zapotec, kindly provided by Rosa María Rojas Torres, which seems in line with the Adam and López Cruz data summarized below.

<sup>6</sup> There are also apparently two distinct *z-* forms in the Colonial Valley Zapotec descriptions by Córdova (1578a, 1578b).

<sup>7</sup> Adam now refers to this form as “Alethic”, p.c. 2007.

- b. **s-yeed** Jwâany là'ç  
 z2-come Juan field  
 'Juan viene al campo [Juan comes/is coming to the field].' (p. 89)

As (21) shows, these forms are morphologically distinct. López Cruz's data also shows that “progresivo” forms of motion verbs can have a punctual sense (again often suggesting one-way motion),<sup>8</sup> as in

- (22) **s-êe** Jwâany là'ç  
 z2-go Juan field  
 'Juan se fue al campo (no ha regresado)  
 [Juan went to the field (he has not returned)].' (pp. 91-92)

Finally, Black (2004) identifies two separate cognate aspects in Quiegolani Zapotec (a much more distantly related language of the Southern branch of Zapotecan), a special *z-* prefix “used to express progressive action” with verbs of motion (2004:27), such as those in ((23)) (p.c. 2007), and an *s-* Future prefix that can be used with a wider range of verbs (2004:19), again including the motion verbs, as in ((24)) (p.c. 2007):

- (23) *z-a* (progressive, ‘go away from base’ [cf. TVZ ‘go’])  
*z-ya* (progressive, ‘go to base’ [cf. TVZ ‘go home’])  
 (24) *s-a* (Future, ‘go away from base’)  
*s-ya* (Future, ‘go to base’)

## 5. Are There Two *z-* Aspects, or One?

### 5.1.

The *z2* usage only occurs with a few verbs of motion and their derivatives, while the future Definite occurs with (almost) every verb. The comparative data, particularly from languages as distantly related as Quiegolani, supports the idea that this situation is quite archaic.

If the *z2* usage is just another manifestation of the same aspect as the future Definite, why should this very different *z2* usage occur only with a small and semantically restricted group of verbs, in so many languages? There seems to be no explanation of why the very different *z2* usage — even if related — should be restricted to a small group of motion verbs.<sup>9</sup>

### 5.2.

While the future Definite is a “modal” aspect, used to refer only to non-actual events, most *z2* uses refer to actual events in the present or past and thus do not

<sup>8</sup> López Cruz (1997:91-92) also mentions two additional forms of ‘ir’ which she suggests may be additional aspects; these look like forms of TVZ ‘goes home’.

<sup>9</sup> Bernard Comrie and Alexandra Aikhenvald reminded me during the discussion at BLS of special aspectual uses of motion verbs. So maybe this is not as unexpected as all that.

seem “modal”. While there may be a connection between non-actuality and incompleteness, many z2 usages with non-future reference do not describe incomplete events. There doesn't seem to be anything incomplete about the z2 examples like (7), (9)-(10), or the first z2 form in (18), or several others here. These don't seem to fit Lee's notion of “initiated but not fully culminated”. However, they might be amenable to a different sense of “incomplete” like that described for the Mayan language Mam by England (2007), since punctual z2 forms generally occur in texts, where they serve to advance a narrative that (when the forms are used) is not yet complete. The lack of completion, then, is metalinguistic, and does not refer to the real-world status of the referenced event.

As we've seen above, z2 forms can be also used to refer to clearly “non-actual” events, as with (15)-(17), the second z2 form in (18), and perhaps also (14). As Lee (1999, 2006) makes clear and I discuss in Munro (2006), there is not a precise overlap between “modal aspect” and modal or non-actual reference. For example, the “non-modal” Perfective aspect is used for imperatives and can also refer to non-actual events to be completed in the future, as in

- (25) Yzh:ii    chih    y-zëhny=a',    al            b-da'uhGye'eihlly.  
tomorrow when irr-arrive=1s already    perf-eat    Mike  
'When I arrive tomorrow, Mike will have already eaten.'  
(Lee 2006:13, ex. 36)

But the contrast between the future Definite and the full range of both modal and non-modal uses of the z2 forms seems striking.

### 5.3.

Almost all z2 forms are pronounced slightly differently from corresponding Definite proper forms, as shown by a comparison of (2) vs. (6), or the paradigms in Table 1 on the next page.<sup>10</sup> However, the first person forms, both singular and plural, are the same for both the future Definite and z2 in each case. As other Zapotec specialists know, first person forms tend to be irregular in a variety of ways (note that the first person stems of all three verbs are quite aberrant in these and all other aspects; those of ‘comes’, in particular, are fully suppletive).

Although it might be clearer that there were two separate aspects if all the forms were distinguished, Zapotec tolerates a high degree of homophony and near homophony (for example, many verbs that are distinguished in the Habitual are neutralized in the Perfective; conversely, ‘goes’ and ‘goes home’ are identical in the Habitual but differentiated in every other aspect). There would be no explanation for the differences shown in Table 1 if the future Definite and z2 forms were the same aspect.

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<sup>10</sup> TVZ distinguishes six third persons (proximate, distal, respectful, animal, familiar, and reverential; cf. Munro 2002). Second person formal forms and third person plural forms, which tend to be more regular, are not shown in the table, but all of them distinguish the future Definite and z2 forms.

Table 1. Future Definite and z2 Forms of Three TVZ Motion Verbs

<i>hab</i>	<i>rihah</i> 'goes'		<i>rihah</i> 'goes home'		<i>rie'd</i> 'comes'	
	<i>future Definite</i>	<i>z2</i>	<i>future Definite</i>	<i>z2</i>	<i>future Definite</i>	<i>z2</i>
<i>def</i>	zèheh	zèè	zihah	ziia	zie'd	zi'ie'd
<i>1s</i>	za'a'		zya'a'		zyàa'lla'	
<i>2sinf</i>	zèu'	ze'ùu'	ziu'	zi'ùu'	zie'dùu'	zi'ie'dùu'
<i>3sprx</i>	zèè'èng	zeèè'èng	zyèè'èng	zyeèè'èng	zie'dèng	zi'ie'dèng
<i>3sdst</i>	zèèi'	ze'èi'	zyèèi'	zi'èi'	zie'dih	zi'ie'dih
<i>3srsp</i>	zehèhb	zeeèhb	zyiehèhb	zieèhb	zie'dèhb	zi'ie'dèhb
<i>3san</i>	zehèhmm	ze'èhmm	zyiehèhmm	zye'èhmm	zie'dèhmm	zi'ie'dèhmm
<i>3sfam</i>	zehahzh:	zeeahzh:	zyiehahzh:	zieahzh:	zie'dahzh:	zi'ie'dahzh:
<i>3srev</i>	zehihny	zeihny	zyieihny	zyieihny	zie'dihny	zi'ie'dihny
<i>1p</i>	zoo'èhnn		zyoo'èhnn		zyoo'pèhnn	
<i>2pinf</i>	zehahd	zeeahd	zyieahd	zieahd	zie'dahd	zi'ie'dahd

5.4.

The z2 verb lacks certain structural peculiarities of the future Definite.

First, sentences with z2 verbs may be negated (26), while, as Lee (2006:261) notes, future Definite verbs 'are dispreferred in clausal negation constructions' :

- (26) Que'ity **z-èè=dy=èng** Jwaany ri'cy nài.  
 neg z2-go=pt=3s.prx Juan there yesterday  
 'Juan didn't go there yesterday.'
- (27) \*Que'ity z-eheh=di' Jwaany ricy zhii.  
 neg def-go=pt Juan there tomorrow  
 'Juan will definitely not go there tomorrow.'

Second, as Lee (2006:261-62) reports, the z2 form allows standard focus fronting<sup>11</sup> (28), while the future Definite does not (29):

<sup>11</sup> Instead of future Definite sentences like (29)a, my collaborator Felipe Lopez prefers topic constructions like (i) or the variant focus construction in (ii). Like a topic structure, but unlike a standard focus sentence, the variant focus construction (ii) has a noticeable pause following the initial constituent; unlike the topic structure, however, there is no resumptive element following the verb. Lopez feels that the (ii) construction is strongly contrastive.

- (i) Jwaany, **z-ehéh** Jwaany Ba'ahc. 'Juan, he will surely go to Tlacolula'  
 Juan def-go Juan Tlacolula
- (ii) Jwaany... **z-ehéh** Ba'ahc. 'JUAN...will surely go to Tlacolula'  
 Juan def-go Tlacolula



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- (28) a. Jwaany    **z-èe**    Ba'ahc.    ‘JUAN was going to Tlacolula.’  
          Juan        z2-go    Tlacolula    (cf. (6))  
      b. Ba'ahc    **z-èe**    Jwaany.    ‘Juan was going to TLACOLULA.’  
          Tlacolula z2-go    Juan
- (29) a. \*Jwaany    z-eheh Ba'ahc.    ‘JUAN will surely go to Tlacolula.’  
          Juan        def-go Tlacolula    (cf. (2))  
      b. \*Ba'ahc    z-eheh Jwaany.    ‘Juan will surely go to TLACOLULA.’  
          Tlacolula def-go Juan

Lee proposes a plausible structural explanation for these differences, but it's not clear that it requires that the two verb forms in question be the same.

### 5.5.

Thus, there seem to be good reasons to distinguish the future Definite from the z2 form, which is only used with three verbs of motion and which has a much wider range of both temporal and modal interpretations than the Definite. Certainly the semantics of the z2 form are complex, and worthy of further study: while it often overlaps with other aspects, speakers use it for particular effect, especially in narrative.

The question of what to call the z2 form remains. “Progressive” no longer seems appropriate, at least for TVZ (more comparative work is needed to discover whether languages like Quiegolani and SPGZ have a similar range of uses for their cognate forms, and thus what the use of the ancestor of all these forms might have been). A term like “Incomplete Motion” might seem appropriate for the TVZ form, but is a bit unwieldy for us to use in our textbook (Munro, Lillehaugen, and Lopez in preparation). We've decided, therefore, to call this form the Incomplete, a name that pays tribute to Lee's analysis (though we reject the notion that this form is just another use of the Definite) — but a name which can only be understood through an insight like that England proposed concerning aspect in Mam.

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## Split Coordination in Otomi

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### 1. Introduction<sup>1</sup>

In this paper, I describe a special coordinating construction in San Ildefonso Tultepec (SI) Otomi, a Mesoamerican language from the Otomanguean stock spoken in Central Mexico. An instance of this construction is given in (1):<sup>2</sup>

- (1) [nǒ = r    **Xúwa**]<sub>NP1</sub> Ø = ñúng = wí[ = r                    **Pédro**]<sub>NP2</sub>  
DEF.SG=SG John            3.PRS=have.a.meal.S=DU=SG Peter  
'John is eating with Peter'. (lit. 'John has a meal Peter'.)

Here we have two actor participants, John and Peter, which are grammatically encoded in two separate NPs in the clause. The NP encoding John is topical and is placed before the verb while the one encoding Peter occurs after the verb and is not topical. The verb agrees with a dual subject by means of the enclitic =wí, suggesting that at some underlying level these two NPs form a conjoined structure similar to the surface structure of English in example (2):

- (2) *John and Peter had a meal*

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<sup>1</sup> I want to thank the following people for helping me understand this complex phenomenon: Alejandra Capistrán; Alexandra Aikhenvald; Guilles Polian; Judith Aissen; Michael Knapp; Pamela Munro; Roberto Zavala; Thomas Smith; Valentín Peralta; Verónica Vázquez; and especially to Paulette Levy who also gave me clues about how to approach it. I am also grateful to Dan Stauffer for proof-reading the text.

<sup>2</sup> In the orthographic representation of Otomi, the deviations from the IPA are the following: ' /ʔ/; f /p<sup>h</sup>/; j /k<sup>h</sup>/; y /j/; x /ɣ/; tx /tɕ/; ñ /ɲ/; r /P/; ṛ /ɾ/; a /a/; ǎ /ǎ/; ɛ /E/; ǫ /ɔ/; u /U/. Umlaut indicates nasalization (i.e. ä /ã/; ü /ũ/, etc.). Otomi has three tones: ascending *v*; high *v*; and low (not represented). Abbreviations: = clitic; <> non-concatenative morpheme; . absence of morpheme boundary; B bound form; DAT dative; DEF definite; DEM demonstrative; DU dual; EX exclusive; F free form; IMP impersonal; IN inclusive; IND indefinite; IRR irrealis; LOC locative; M middle voice; NEG negative; NPS non-present stem; OBJ object; OBV obviative; P particle; PL plural; POSS possessive; PRG progressive; PRS present; PST past; PURP purposive; QUOT quotative; REC reciprocal; REL relative; S suffixal form; SEQ sequential; SG singular; TAM tense/aspect/mood.

Nevertheless, given that the conjuncts involved in the Otomi example in (1) appear in different positions in the clause, I call this coordinating construction the “Split Coordination Construction” (SCC), (following Bruening 2004).

The SCC is used in Otomi to express a comitative event. The semantic role of Peter in the Otomi example is similar to the one played by Peter in (3) in English:

(3) *John had a meal with Peter*

In a comitative event, two or more actors are portrayed as performing an action simultaneously, but they receive a different grammatical encoding, which reflects an asymmetry in conceptual and discourse prominence. In this asymmetry, the comitative participant is the least prominent actor, while the most prominent one is commonly topical. As in Stolz (2001), I call this prominent actor the “focal participant”, while the comitative is called the “associate participant”.

In my analysis of the Otomi structure in (1), I take the role of Peter in the second NP as a prototypical comitative for three reasons: (a) it is a less prominent actor than John; (b) by virtue of the structural split, this NP is encoded in a different fashion than the NP expressing John; and (3) the structure has semantic implicatures of simultaneity typical of comitative structures; that is, in both (1) and (3), John and Peter have a meal at the same time, in the same place, and together, whereas these implicatures are not necessarily present in (2).

Apart from expressing a typical comitative event, the SCC is also used to express asymmetrical reciprocal events, as shown in (4):

- (4) [nú = 'í = gé]<sub>NP1</sub> gá = **n-thě** = wí[ = r zü'wé]<sub>NP2</sub>  
 DEF.SG=2=2SG 2.PST=M-meet=DU=SG worm/devil  
 ‘You came across the devil’. (lit. ‘You met with the devil’.) (Moneda: 120)

SCCs of the type illustrated in (1) and (4) occur cross-linguistically. A similar construction is found in Passamaquoddy (Bruening 2004), shown in (5a). It is also found in verb coded coordination constructions when one of the conjuncts is placed in a preverbal topical position, for example in (6a) in Hausa:

- (5) Passamaquoddy (Algonquian), (Bruening 2004:2)
- |               |    |  |
|---------------|----|--|
| Split Coord.  | a. | [Piyel] ali-wiciyew-t-uwok [Mali-wol]              |
|               |    | Piyel around-go.with-REC-3PL Mary-OBV              |
|               |    | ‘Piyel and Mary are going around with each other.’ |
| Normal Coord. | b. | [Piyel naka Mali] ali-wiciyew-t-uwok               |
|               |    | Piyel and Mary around-go.with-REC-3PL              |
|               |    | ‘Piyel and Mary are going around with each other.’ |

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- (6) Hausa (Afro-Asiatic, Chadic), (Abdoulaye 2004)
- Split Coord. a. [**Feemì**] [**sun** tàfi] Ìkko [**dà Bálki**]  
 Femi 3PL.PFV go Lagos with Balki  
 ‘Femi went to Lagos with Balki’. (p.188)
- Normal Coord. b. [Feemì **dà** ùba-n-shì] **sun** tàfi Ìkko  
 Femi with father-of-3SG.M 3PL.PFV go Lagos  
 ‘Femi and his father went to Lagos’. (p.183)

An important difference arises, however, when one compares these constructions in more depth. Both Passamaquoddy and Hausa have alternative normal coordination structures which result with a plural NP without changing the plural morphology on the verb. This is shown in (5b) and (6b), respectively. Otomi is different in this respect. In Otomi, the comitative NP is an argument of the verb which is always encoded in a split. This is shown in (7) which is an example with an obligatory elliptical reading that evinces that the construction in (1) has an obligatory split. Little *pro* stands here for a covert comitative NP whose reference is recoverable from context:

- (7) [nǒ=r Mária ’ně=r Tóño] mí=ñó=**wí** *pro*  
 DEF.SG=SG Mary and=SG Tony 3.IMP=talk=DU  
 a) ‘Mary and Tony were talking with him’.  
 b) \*‘Mary and Tony were talking to each other’.

If the reading in (7b) is wanted, the construction in (8), which is not an instance of the SCC, must be used. Notice the absence of dual morphology on the verb:

- (8) [nǒ=r Mária ’ně=r Tóño] mí=ñó  
 DEF.SG=SG Mary and=SG Tony 3.IMP=talk  
 ‘Mary and Tony were talking to each other’.

Otomi is a null-subject or pro-drop language. Topical subjects are most commonly not overtly expressed. As a consequence of this, the focal participants in most textual instances of the construction are elided NP subjects, as in (9a), which shows two instances of the construction. In contrast, the comitative NP functions as an antitopic; that is, it often bears new information, and because of this it is commonly overtly stated, as in (9a), were we have two explicit NPs. But once it is established in discourse, it may not be mentioned, as shown in (9b):

- (9) a. ntónse *pro* bi=n-thě=**wí** [**’na=r jǒ’í**]  
 then 3.PST=M-meet=DU IND.SG=SG person  
 Ø *pro* mí=<ñ>’ó=**wí**[=**r** **t’intxú**]  
 REL 3.IMP=<NPS.M>walk=DU(3POSS)=SG daughter  
 ‘He then came across a man who was walking along with his daughter’

(Hormigas: 2669)

- b.  $ba = ju^h k - \emptyset - i$                        $sta$     $ká = r$                        $nñóní = r$     $déhé$   
 3.PST.SEQ=get.sb.out-3OBJ-F   up.to   LOC(3POSS)=SG   edge=SG   water  
 'ně    $yá$    *pro*    $bi = nñó = wí = 'ya = 'na$    *pro*  
 and P                      3.PST=talk=DU=P=QUOT  
 i. 'He got him out up to the edge of the water, and he talked to him'.  
 ii. \*'He got him out up to the edge of the water, and they talked'.  
 (T&B: 185-86)

As a direct consequence of this grammatical property, the SCC is often instantiated in natural discourse by the verbal predicate only, as in (9b). This makes it rather difficult to identify at first glance because the verb gives the false impression that it is a predicate with a dual NP subject, much in the fashion of the normal coordinating constructions in (5b) and (6b) in Passamaquoddy and Hausa. Under this false impression, (9b) would translate as (ii) when it really doesn't.

In this paper, I propose that the SCC in Otomi emerged as a specialized comitative construction when the number morphology involved in it underwent a heavy restructuring in other realms of the grammar, more particularly, as dual morphology became a nearly extinct inflectional category outside the construction.

## 2. Plural and Dual in San Ildefonso Otomi

Subject agreement in SI Otomi is encoded in the verb by means of complex paradigms of verbal proclitics which also encode tense/aspect/mood (TAM). A few such paradigms are shown in (10):

(10)	1 <sup>st</sup> p.	2 <sup>nd</sup> p.	3 <sup>rd</sup> p.
Present (~ Habitual)	$dí =$	$gí =$	$\emptyset =$
Imperfect	$n-dí =$	$n-gí =$	$mí =$
Past (~ Completive)	$dá =$	$gá =$	$bi =$
Irrealis (~ Future)	$ga =$	$gi =$	$da =$

Example (11a) below illustrates the use of the past tense proclitics  $dá$  and  $bi$ , encoding 1<sup>st</sup> and 3<sup>rd</sup> person subject, respectively. When only the proclitics in (10) are used, the grammatical number of the subject is interpreted as singular by default. If cross-reference of a non-singular subject is needed, number enclitics must be used as, for example, in (7):

- (11) a.  $yá$     $nú$     $dá = 'óhō,$     $yá$     $'in-dá = pōd-i$     $té$     $bi = jǎ$   
 P   when 1.PST=sleep.F   P   NEG-1.PST=know.F-F   what 3.PST=happen  
 'When I went to sleep, I didn't know what happened'.  
 (Temblor: 753-54)

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- b. níxi **gí** = tsǎ-Ø = **hú**  
 nor 2.PRS=sentir-3OBJ=PL  
 ‘Nor you (PL) realize it’. (Dinero del Abuelo)

All number enclitics, including plural and dual number, are given in (12). I present here default allomorphs only. Shaded areas indicate absence of marking:

(12)	1 <sup>st</sup> p.	2 <sup>nd</sup> p.	3 <sup>rd</sup> p.	SUB	OBJ	Verbs		Pronouns	Possessor
						tr.	in.		
Pl.	= <b>hú</b>	= <b>hú</b>		✓	✓	✓	✓	✓	✓
Excl.	= <b>he</b>								
Dual	= <b>wí</b>	= <b>wí</b>		✓		✓			
Excl.	= <b>'be</b>								

The distribution of the number enclitics in (12) may be compared with the one these enclitics have in the SCC, which is shown in (13):

(13)	1 <sup>st</sup> p.	2 <sup>nd</sup> p.	3 <sup>rd</sup> p.	SUB	OBJ	Verbs	
						tr.	in.
Pl.	= <b>hú</b>	= <b>hú</b>	= <b>hú</b>	✓			✓
Excl.	= <b>he</b>						
Dual	= <b>wí</b>	= <b>wí</b>	= <b>wí</b>	✓			✓
Excl.	= <b>'be</b>						

The first relevant difference between the functional distribution in (12) and (13) is that outside the SCC, number enclitics cannot be used for a 3<sup>rd</sup> person subject, as indicated by the ungrammaticality of (14):

- (14) \*ma = **da** = k'öng-Ø = **wí** / = **hú**  
 PRG=3.IRR=go.and.see.S-3OBJ=DU /=PL  
 Intended meaning: ‘They will go and see it’.

With a 3<sup>rd</sup> person, the interpretation of a singular or a plural subject is context-bounded, as shown in (15):

- (15) ma = **da** = k'ön-Ø-i  
 PRG=3.IRR=go.and.see-3OBJ-F  
 ‘He/she/they will go and see it’.

In contrast, inside the SCC, the marking of a non-singular 3<sup>rd</sup> person is not only possible, but obligatory:



- (16) a. *pro* **ba** = ñ-'ó = **wí/\*Ø** [nó = r 'béhñó]  
 3.PST.SEQ=M-walk=DU DEF.SG.3POSS=SG woman  
 'He accompanied his wife'. (lit. 'He walked along with his wife'.)  
 (Celoso: 45)
- b. *pro* **da** = ñ'ěñ = **hú/\*Ø** [yá ñ'òhú]  
 3.IRR=play.S=PL PL.3POSS friends  
 'He plays with his friends'. (Estela & Ana.: 324)

As may be seen in (12), plural is a very productive inflectional category while dual is highly restricted: (a) dual cannot express the dual of an object; (b) it is not used with intransitive verbs; and (c) it is not found outside the realm of verbal morphology with pronouns or possessors.

Outside the SCC, plural is the default exponence of non-singular number. In other words, it indicates plural reference proper ("more than two"), as in (17a), as well as dual reference proper ("two"), as in (17b):

- (17) a. *pá* **ga** = <m> **á** = **hé** = 'ně  
 PURP 1.IRR=<NPS>go.PL=1PL.EX=too  
 Plural reference: 'So that we (ants) may also go'. (Hormigas: 2792)
- b. <m> **á** = 'mú, *ma* **ga** = tsi-thé = **hé**  
 <NPS>go.1/2PL=let's PRG 1.IRR=ingest-water.B=1PL.EX  
 Dual reference: 'Let's go to have a drink'. (Moneda: 10)  
 (lit. 'let's go, so that we (you and I) will have a drink'.)

This picture inverts itself when we look inside the SCC, where dual is default and plural is restricted. For instance, plural can be used when the comitative NP refers to a multiplicity of individuals: not two, three or four, but many. In this sense, plural is an exponence of plural of abundance within the construction, as in (18), where the comitative NP refers to a football team:

- (18) *pro* **da** = 'ñěñ = **hú/ = \*gwí** [yá ñ'òhú]  
 3.IRR=play.S=PL/=DU PL.3POSS friends  
 'He plays with his friends'. (Estela & Ana.: 324)

In other cases inside the SCC, dual is used regardless of the number of participants involved. Example (19) illustrates this point:

- (19) [**nú** = **ya** **bötsí**]<sub>i</sub> **bi** = <m> **á** **ba** = tsi = [r móle]<sub>j</sub>  
 DEF=PL child 3.PST=<NPS>go 3.PST.SEQ=reach.B(3POSS)=SG granny  
*pá* **pro**<sub>i</sub> **bi** = <m> 'ú = **hwí** *pro*<sub>j</sub>  
 PURP 3.PST=<NPS.M>live.S=DU  
 'The (two) children went out to find their grandmother to live with her'.

(Viejecita: 3-5)

In (19) the sum of the two children plus their grandmother equals three, but dual is still used. A similar case is shown in (20), where the comitative NP expresses a few individuals, not many; otherwise plural would be used as in (18). All this suggests that dual number on the verb expresses an asymmetric duality of two sets, rather than a duality of two entities:

- (20) kó yá pro Ø = m-pö = hwí [nú = ya mástro]  
 because P 3.PRS=M-know.S=DU DEF=PL master.builder  
 ‘Because he gets along with the master builders’. (J Miranda 2: 143)

### 3. Other characteristics of the SCC

In the previous section, I have shown a number of morphological features of the construction. The construction has other characteristics, for example, the verbs used in it. Transitive verbs are not allowed in the construction, as seen by the impossibility of (21):

- (21) \*dá = tām-Ø = ’é [nō ma ’indó]  
 1.PST=buy.S-3OBJ=1DU.EX DEF.SG 1POS S brother.of.woman  
 Intended reading: ‘I bought it with my brother’.

Table 1 in the Appendix represents a non-exhaustive list of the intransitive verbs used in the construction. The verbs in this table are organized according to whether they are morphologically basic or derived. At the top of the table, there are motion and activity verbs. Most of the verbs in the table are reciprocal verbs, and they have middle morphology. Such middle verbs may in turn be basic (deponent) or derived from other transitive verbs (see Palancar 2004 for more details). At the bottom of the table, I have included a number of intransitive verbs, derived from transitive verbs, which denote activities.

All the verbs in Table 1 are perceived as semantically agentive verbs. No inactive verb can occur in the construction, as shown, for example, in (22):

- (22) a. \*bi = < d > áng = wí[ = r Pédro]  
 3.PST=<NPS>fall.from.hight=DU=SG Peter  
 Intended reading: ‘He fell with Pedro (from a cliff)’  
 b. \*bi = < d > ú = wí[ = ma ’indó]  
 3.PST=<NPS>fall.from.hight=DU=1POSS brother.of.woman  
 Intended reading: ‘He died together with my brother’.

The impossibility of using inactive verbs in the SCC suggests that the frame only allows verbs that semantically denote actions which can be performed by actors,

so that other co-actors can be involved. In other words, the construction is relegated to the expression of prototypical instances of comitative events.

Interestingly, the SCC in Passamaquoddy is likewise restricted to intransitive verbs, but in this language both agentive and non-agentive verbs are used. Compare (5a) with the use of the stative verb *apolahsatpih* ‘be bald’ in (23):

- (23) [Susehp] **apolahsatpih**-ik [Piyel-ol]  
 Susehp be.bald-3PL Piyel-OBV  
 ‘Susehp and Piyel are bald’.

The fact that (23) is a well-formed structure reveals another important difference between Passamaquoddy and Otomi. The SCC in Passamaquoddy is a coordination structure which plays around the topicality of one of the conjuncts. In other words, it is not a dedicated comitative structure like the one in Otomi.

Otomi can encode a comitative participant by means of an oblique phrase with the preposition *kó*, a borrowing from Spanish *con* ‘with’. Borrowing this alternative encoding proved convenient with verbs that weren’t allowed in the native structure, such as transitive verbs and non-agentive intransitive verbs:

- (24) a. dá = tǎ-Ø-i [kó nõ ma ’indó]  
 1.PST=buy-3OBJ-F with DEF.SG 1POSS brother.of.woman  
 ‘I bought it with my brother’.
- b. nú mí = <z>õhõ [kó nõ = r xíta Mǎmpu]  
 DEF 3.IMP=<NPS>arrive.here.F with DEF.SG=SG man Scraggy  
 ‘He arrived with the man named Scraggy’. (Largirucho)

Although they commonly prefer the SCC, with the verbs in Table 1 speakers may also use the oblique encoding in (24) as an alternative expression of the comitative participant. An example is given in (25) of both encodings:<sup>3</sup>

- (25) a. bi = n-tǔhn-a = nú řébéldé [kó nú = ya kǎřánsísta]  
 3.PST=M-fight-B=DEF(.PL) rebel with DEF=PL Carranza’s.follower  
 ‘The rebels fought with Carranza’s followers’. (Revolución 2)
- b. nú řébéldé bi = n-túm-kwí [nú = ya kǎřánsísta]  
 DEF(.PL) rebel 3.PST=M-fight.S=DU DEF=PL Carranza’s.follower  
 ‘The rebels fought with Carranza’s followers’.<sup>4</sup>

<sup>3</sup> I ignore whether there is a semantic contrast between these examples.

<sup>4</sup> Dual is used in (25b) because the two armies are conceptualized as two wholes, rather than constituted of a multiplicity of individuals.

### 3.1 The two NPs in the SCC

Topical subjects in SI Otomi precede the verb. Non-topical subjects of intransitive verbs may follow the verb as VS as in (25a). This word order possibility contrasts with the one found in the SCC. When the topical NP is overtly expressed, it must always precede the verb, suggesting that the construction has an obligatory topical subject slot that must be filled. With this in mind, compare example (25b) with the ungrammaticality of (26):

- (26) \*bi = n-túm-kwí [nú řébéIde] nú = ya káransísta  
 3.PST=M-fight.S=DU DEF(.PL) rebel DEF=PL Carranza's.follower  
 Intended reading: 'The rebels fought with Carranza's followers'.

In the neutral word order, the comitative NP in the SCC is placed after the verb. SI Otomi being an SVO language, this NP behaves like a regular complement in this respect. For instance, adjuncts cannot occur between the verb and its complements, as shown in (27a) and supported by the impossibility of (27b), where the adjunct *M'óndá* occurs between the verb and the complement NP:

- (27) a. há'bú gi = pě = wí [ma nǒnǒ] M'óndá  
 where 2.IRR=go.DU=DU 1POSS mother México  
 'Where you go with my mother to Mexico'. (Estela & Ana.: 407)
- b. \*há'bú gi = pě = wí M'óndá [ma nǒnǒ]  
 where 2.IRR=go.DU=DU México 1POSS mother  
 Intended reading: 'Where you go to Mexico with my mother'.

The comitative NP is, nonetheless, a fully independent constituent, which can be questioned, as in (28a) or relativized, as in (28b):

- (28) a. [tó] gi = 'bú = hwí t?  
 who 2.IRR=live.S=DU  
 'With whom would you live t?'. (Conversa Estela: 3)
- b. ánke Ø = 'bú-i [tó ga = <m>ě = 'bé t  
 although 3.PRS=be-F who 1.IRR=<NPS>go.DU=1DU.EX  
 [gó da = mǒñ = 'á]]  
 REL.CLEFT(3) 3.IRR=talk.S=3SG  
 'Although there's somebody I'd go with t who may talk in my favor'.  
 (Estela & Ana.: 495)

### 4. The emergence of the SCC

In the previous sections we have seen a number of important characteristics of the SCC construction: (a) it has an obligatory split; (b) the topical position of the NP encoding the focal participant is obligatory; and (c) the number morphology in the

construction has a particular distribution. These characteristics serve to define this coordination construction in Otomi as a specialized structure dedicated to the expression of a comitative event.

In this section, I advance a possible account for the way this construction may have emerged in SI Otomi. All Otomi languages have a construction similar to the one in SI Otomi, e.g. it may be seen in Sierra Otomi (Voigtlander and Echegoyen 1985); in Santiago Mexquititlán Otomi (Hekking 1995); etc. Nevertheless, as the construction has not been properly identified yet, it remains to be seen to what extent the similarities apply. Old Otomi had a flexible VOS word order. This may be seen, for instance, in some elicited examples in Cárceres (1580/1907) and in textual examples from the *Huichapan Codex* of the XVI<sup>th</sup> century (Ecker 2001). This VOS order is still present in conservative dialects like Sierra Otomi (Voigtlander and Echegoyen 1985), but S may fluctuate in a topical preverbal position. From a normal coordinating structure like the one schematized in (28a) with a normal VS word order, the language developed a coordinating construction with a split, sketched in (28b). This happened by virtue of placing the one NP in the conjoined structure that was more topical in a preverbal position:

- (28) a. Normal Coordination V=DU [NP<sub>1</sub> (and) NP<sub>2</sub>] > b. Split Coordination [NP<sub>1</sub>]<sub>TOP</sub> V=DU [NP<sub>2</sub>]

At this stage, the emergent structure in (28b) may have been similar to the one found in Passamaquoddy, as described in Bruening (2004). In other words, it was a coordinating structure that played around the topicality of one of the conjuncts. This emergent construction served well as a conveyer of the semantics of a comitative event because it profiled one actor and placed the other co-actor in the background. As such, it later became frozen as a dedicated comitative structure in SI Otomi when both the split and the topical preverbal position of the focal participant became obligatory.

The SCC emerged as a structural island in the grammar of SI Otomi as dual morphology became less productive elsewhere in the system. Dual is a very productive inflectional category in other Otomi languages, especially in the ones spoken in The State of Mexico. For example, in Toluca Otomi (Lastra 1989, 1992), dual has the same functional productivity as plural in SI Otomi. In this respect, Toluca Otomi should be seen as a conservative language preserving the number morphology of historical Otomi. This original number system, extracted and adapted from Cárceres (1580/1907), is given in (29):

(29)	1 <sup>st</sup> p.	2 <sup>nd</sup> p.	3 <sup>rd</sup> p.	SUB	OBJ	Verbs		Pronouns	Possessor
						tr.	in.		
Pl.	= hũ	= hũ	= hũ	✓	✓	✓	✓	✓	✓
Excl.	= he								
Dual	= wí	= wí	= wí	✓	✓	✓	✓	✓	✓
Excl.	= 'be								

## *Split Coordination in Otomi*

In SI Otomi, as in other dialects such as Sierra Otomi (Voigtlander and Echevoyen 1985) and Mezquital Otomi (Hess 1968) the marking of number was lost in the 3<sup>rd</sup> person, as was seen in (12). However, SI Otomi inherited the morphology involved in the original split coordination in (28b) and kept it intact, as was seen in (13), while number morphology underwent restructuring in other realms. When used in the frame, the markers involved, confined to the space of the construction, kept what was probably their original meaning in Otomi: dual marking expressing a duality of two sets regardless of the individuals involved, and plural marking expressing a plurality of abundance. Outside the space of the construction, number morphology was further reanalyzed as an exponent of grammatical number *per se*. Most crucially, the use of dual number became almost extinct in the grammar outside the frame, being mainly confined to transitive verbs and thus allowing plural morphology to become the default exponent of non-singular number in SI Otomi; a process which also occurred in Mezquital Otomi. The opposite process occurred in the isolated dialect of Ixtenco Otomi (Lastra 1997), where the old dual morphology was reanalyzed as default exponent of non-singular number.

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**Appendix**

<b>Table 1 Verbs in the SCC</b>	Intr. Verb	Tr. Verb
<b>BASIC</b>		
<b>Unmarked:</b>		
<i>pě=DU</i> ‘go with sb.’	<i>pá</i> ‘go’	
<i>’ě=DU</i> ‘come with sb.’	<i>’éhě</i> ‘come’	
<i>ñúng=DU</i> ‘have a meal with sb.’	<i>ñúni</i> ‘have a meal’	
<i>’bú=DU</i> ‘live with sb.’	<i>’búi</i> ‘live’	
<i>ñó=DU</i> ‘talk with sb.’	<i>ñó</i> ‘talk’	
<b>Middle:</b>		
<i>ñ-’ó=DU</i> ‘go with sb./accompany sb.’	<i>’yó</i> ‘walk, go about’	
<b>Reciprocal:</b>		
<i>n-kú=DU</i> ‘chase sb.’		
<i>n-té=DU</i> ‘get close to sb./harass sb.’		
<i>n-thě=DU</i> ‘meet with sb.’	<i>n-thě</i> ‘meet’	
<i>n-tsq=DU</i> ‘fight with sb./be busy with sth.’	<i>n-tsq<sup>2</sup></i> ‘fight’	
<i>n-túm=DU</i> ‘quarrel with sb.’	<i>n-túhni</i> ‘quarrel’	
<i>n-tsot=DU</i> ‘lean against sb./sth.’	<i>n-tsot<sup>3</sup></i> ‘lean against e.o.’	
<i>ñ-hoga-mui=DU</i> ‘reconcile with sb.’	<i>ñ-hoga-mui</i> ‘reconcile’	
<i>n-thex-jí=DU</i> ‘friendly get along with sb.’	<i>n-thex-jí</i> ‘like e.o.’	
<b>DERIVED</b>		
<b>Reciprocal:</b>		
<i>ñ-hú=DU</i> ‘hug with sb.’	<i>ñ-húfi</i> ‘hug e.o.’	<i>húfi</i> ‘hug’
<i>n-tóts=DU</i> ‘bump/trip with sb./sth.’	<i>n-tóts’e</i> ‘bump against e.o.’	<i>tóts’e</i> ‘stop’
<i>n-thôt=DU</i> ‘marry with sb.’	<i>n-thôti</i> ‘marry’	<i>thôti</i> ‘answer’
<i>m-fǎx=DU</i> ‘help (with) sb.’	<i>m-fǎts’i</i> ‘help e.o.’	<i>fǎts’i</i> ‘help’
<i>ñ-hé=DU</i> ‘separate from sb.’	<i>ñ-hége</i> ‘separate’	<i>hége</i> ‘split’
<i>n-zéngwa=DU</i> ‘greet with sb.’	<i>n-zéngwa</i> ‘greet’	<i>zéngwa</i> ‘greet’
<i>m-pont=DU</i> ‘get across with sb.’	<i>m-pont’i</i> ‘get across e.o.’	<i>pont’i</i> ‘cross’
<i>m-pǒ=DU</i> ‘get along with sb.’		<i>pǒdi</i> ‘know’
<i>n-tsix=DU</i> ‘get along with sb.’		<i>tsits’i</i> ‘lead’
<i>mǎ=DU</i> ‘appreciate sb.’		<i>mǎdi</i> ‘love’
<b>Activities:</b>		
<i>m-pe=DU</i> ‘work together with/for sb.’	<i>m-pefi</i> ‘work’	<i>pefi</i> ‘work at sth.’
<i>n-tam=DU</i> ‘shop together with sb.’ (in the same stalls)	<i>n-tǎi</i> ‘shop in the market’	<i>tǎi</i> ‘buy’
<i>m-pǎ=DU</i> ‘sell together with sb.’ (to the same customer)	<i>m-pǎ</i> ‘go selling’	<i>pǎ</i> ‘sell’
<i>n-zi=DU</i> ‘have a drink with sb.’		<i>tsi</i> ‘ingest’

Abbreviations in Table 1: *e.o* ‘each other’; *sb.* ‘somebody’; *sth.* ‘something’

