

# **Syllables, Tone, and Verb Paradigms**

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# **Syllables, Tone, and Verb Paradigms**

**Studies in Chinantec Languages 4**

**William R. Merrifield and Calvin R. Rensch**

**Editors**

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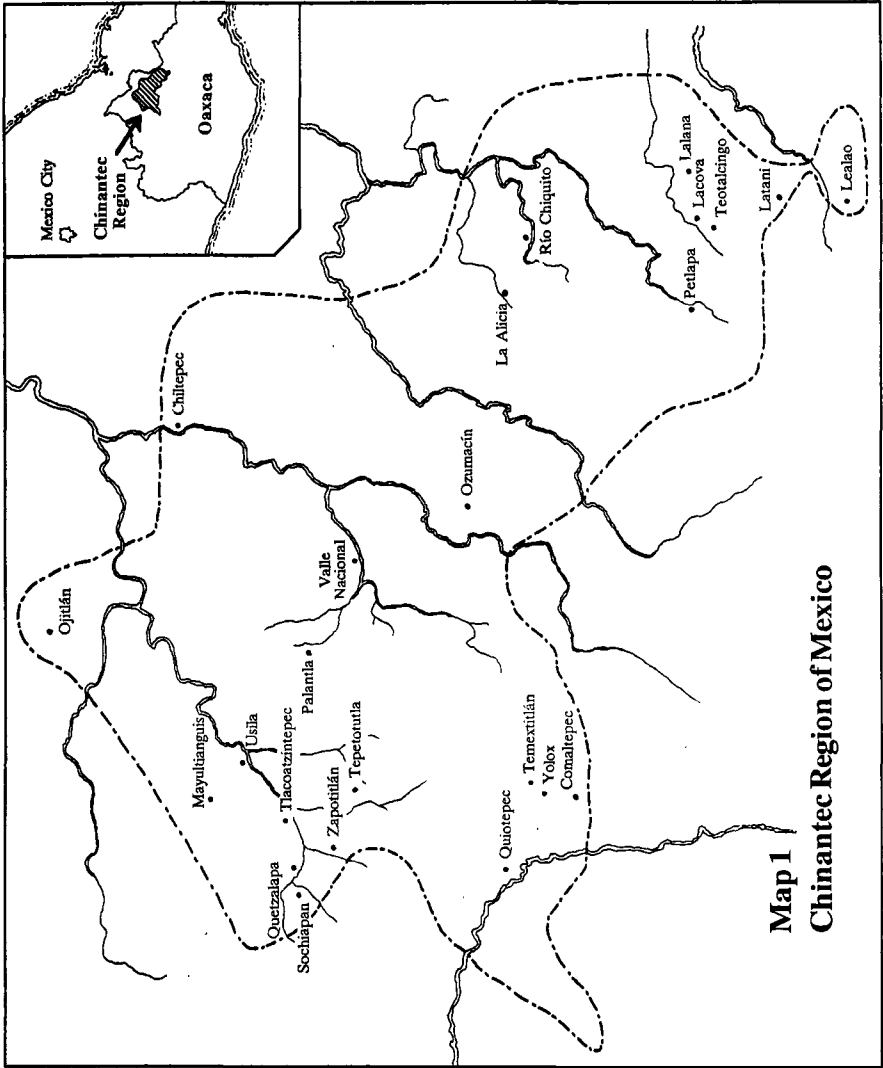
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**Map 1**  
**Chinantec Region of Mexico**

# Comaltepec Chinantec Verb Inflection

Wanda Jane Pace

This paper deals with Comaltepec Chinantec verb inflection. INFLECTION here refers to the tone, stress, and vowel length of the verb root which indicate the various verbal categories. The first section, of the paper is devoted to a general description of the tonal system of the language, along with a discussion of stress and vowel length. The second section presents the several verbal categories, including the affixation which accompanies each one. In the final section the verbs are divided into three classes, and inflectional paradigms are presented for each class.

The main purpose of the paper is to present a corpus of Comaltepec data, particularly concerning the tone and verb systems, in as clear a manner as possible without emphasizing any one theoretical orientation. It is hoped that these data may be of use to others interested in Otoman-guean languages or in tone or verb systems in general.

## 1. The tone system

**1.1. Syllable structure.** Tone, stress, and length are considered in this analysis to be constituents of the syllable. Anderson, Martínez, and Pace (this volume) [hereinafter AMP] state: "Because of the interplay of tone with stress and other elements of the syllable, it is convenient to speak of eight types of syllable—the class product of ballistic/controlled, long/short, and open/checked contrasts." These pairs of contrasting syllable characteristics are discussed in more detail below.

Concerning the ballistic/controlled contrast, AMP (4) say: "There are two kinds of word stress: ballistic and controlled. A ballistic syllable (= syllable

with ballistic stress) is characterized by a surge and rapid decay of intensity with a resultant fortis articulation of its consonantal onset and tendency to loss of voicing and breathy release toward the end. A controlled syllable displays a more constant level of intensity throughout its duration and is typically longer than a ballistic syllable.”

In addition to the two kinds of stressed syllables described above, there are also pretonic and posttonic unstressed syllables which occur with a limited number of tone patterns and syllable types. These unstressed syllables are not under consideration in this paper in that the verb root never occurs unstressed. Thus these unstressed syllables are not, in general, affected by inflection (§3.5).

The open/checked contrast refers to the absence (open) or presence (checked) of a syllable-final glottal stop. A checked syllable, whether short or long, tends to be shorter in duration than its open counterpart.

The eight possible syllable types are summarized in (1). The syllable types are symbolized across the top of the chart, and their characteristics marked below them.

(1) Comaltepec syllable types

	cv	c <sup>ˈ</sup> v	cv:	c <sup>ˈ</sup> v:	cv?	c <sup>ˈ</sup> v?	cv:?	c <sup>ˈ</sup> v:?
ballistic	-	+	-	+	-	+	-	+
long	-	-	+	+	-	-	+	+
checked	-	-	-	-	+	+	+	+

**1.2. Tone patterns.** Apart from phonetic variation of tone attributable to difference of syllable type, there are ten phonetic tone patterns. Using a perpendicular line as point of reference, relative height and direction of these patterns can be depicted as follows:<sup>1</sup>













All these phonetic patterns can be described as sequences of three tone heights—low (<sup>L</sup>), mid (<sup>M</sup>), high (<sup>H</sup>)—by the two features [hi] and [lo], as indicated in (3).

<sup>1</sup>This kind of tone picture is taken from Woo (1969).



(3) Tone patterns and their features<sup>2</sup>

										
	L	M	H	LM	LH	HLH	MH	HM	HL	HMH
hi	-	-	+	--	-+	+ - +	- +	+ -	+ -	+ - +
lo	+	-	-	+ -	+ -	- + -	- -	- -	- +	- - -

The distribution of the phonetic tone patterns on eight syllable types is presented in (4). An *x* indicates that the tone pattern on the left occurs on the syllable type named at the head of the column.

## (4) Distribution of phonetic tone pattern

	CV	CV̆	CV:	CV̆:	CV?	CV̆?	CV:?	CV̆:?
L	x	x	x	x	x	x	x	x
M	x	x	x	x	x	x	x	x
H		x		x	x	x		x
LM	x	x			x	x		
LH	x	x			x			
HLH				x				x
MH	x	x			x			
HM			x				x	
HMH				x				x
HL	x	x	x	x	x	x	x	x

Not all ten tone patterns occur on each of the eight syllable types. A HLH tone occurs only on long ballistic syllables, whereas a LH never does. Therefore, these two tones are in complementation based on syllable length. Rule (5) states that a LH rising tone is manifested as a HLH falling-rising pattern when occurring on a syllable which is both ballistic and long. (Here and elsewhere in this paper the form of the rule is meant to be a graphic presentation of the facts rather than a theoretical formula.)

$$(5) \begin{bmatrix} -hi \\ +lo \end{bmatrix} \begin{bmatrix} +hi \\ -lo \end{bmatrix} \rightarrow \begin{bmatrix} +hi \\ -lo \end{bmatrix} \begin{bmatrix} -hi \\ +lo \end{bmatrix} \begin{bmatrix} +hi \\ -lo \end{bmatrix} / \left[ \begin{array}{c} \text{---} \\ +bal \\ +long \end{array} \right]$$

MH, HM, and HMH tones all have mutually exclusive distribution. A MH tone occurs on short syllables, HM on long controlled syllables, and HMH on long ballistic syllables. MH and HMH tones have the same distribution as LH and HLH tones, respectively. Thus, HMH may be considered a variant of MH

<sup>2</sup>The low tone of some of the other Chinantec languages is a falling pattern (Merrifield, personal communication). This is the basis for not analyzing this pattern as a mid-low sequence in Comaltepec.

on the same basis as HLH is a variant of LH. The present analysis follows AMP (24) in considering HM and MH in complementation, because they “distribute well across syllable types, and line up well with corresponding syllables” which change to those patterns, despite their not comprising a “phonetically homogeneous group.”<sup>3</sup>

Rule (6) states that a rising high tone is manifested as a high falling-rising pattern when occurring on a syllable which is ballistic and long, and as a high falling pattern when occurring on a syllable which is controlled and long.

$$(6) \quad \begin{bmatrix} -hi \\ -lo \end{bmatrix} \begin{bmatrix} +hi \\ -lo \end{bmatrix} \rightarrow \left\{ \begin{array}{l} \left[ \begin{array}{l} +hi \\ -lo \end{array} \right] \left[ \begin{array}{l} -hi \\ -lo \end{array} \right] \left[ \begin{array}{l} +hi \\ -lo \end{array} \right] / \left[ \begin{array}{l} \text{---} \\ +bal \\ +long \end{array} \right] \\ \left[ \begin{array}{l} +hi \\ -lo \end{array} \right] \left[ \begin{array}{l} -hi \\ -lo \end{array} \right] / \left[ \begin{array}{l} \text{---} \\ -bal \\ +long \end{array} \right] \end{array} \right\}$$

After the application of rules (5) and (6), the ten phonetic tone patterns are reduced to seven phonemic tone patterns, whose distribution on the eight syllable types is shown in (7).

(7) Distribution of phonemic tone patterns

	CV	CV́	CV:	CV́:	CV?	CV́?	CV:?	CV́:?
L	X	X	X	X	X	X	X	X
M	X	X	X	X	X	X	X	X
H		X		X	X	X		X
LM	X	X			X	X		
LH	X	X		X	X			X
MH	X	X	X	X	X		X	X
HL	X	X	X	X	X	X	X	X

Figure (7) reveals that a low-mid tone is conspicuously missing on long syllables, as is high tone on open controlled syllables. Rule (8) states that a low-mid tone occurs only on short syllables.

$$(8) \quad \begin{bmatrix} -hi \\ +lo \end{bmatrix} \begin{bmatrix} -hi \\ -lo \end{bmatrix} \rightarrow [-long]$$

Rule (9) states that a controlled open syllable does not have high tone.

<sup>3</sup>The name mid-high is chosen for this tone, based on rule (6). This differs from AMP, who use high-mid for this tone.

$$(9) \begin{bmatrix} -\text{bal} \\ -\text{check} \end{bmatrix} \rightarrow [-\text{hi}]$$

**1.3. Basic and derived tones.** AMP point out that of the fifty-six possible combinations of tone and syllable type, only twenty-two occur on grammatically simple one-syllable nouns and verb roots. These are considered basic tone patterns. The twenty-two basic patterns are indicated in (10).

(10) Basic tone patterns

	CV	CV́	CV:	CV́:	CV?	CV́?
L	X	X	X	X	X	X
M		X	X	X		X
H		X		X	X	X
LM	X	X			X	X
LH	X	(X)		X	X	

It can be seen from the above table that two tones, mid-high and high-low, and two syllable types, *cv:?* and *cv́:?*, are not included in any basic tone patterns. Mid tone on *cv* and *cv?* syllable are also excluded from the basic patterns, because only grammatically complex verb roots have been found to occur with those patterns. The pattern with a low-high tone on a *cv́* syllable is enclosed in parentheses because it occurs only on loan words, such as *dié<sup>LH</sup>* 'god' from Spanish 'dios', *més<sup>LH</sup>* 'table' from Spanish 'mesa', or *món<sup>LH</sup>* 'Raymond' from Spanish 'Ramón'.<sup>4</sup>

The remaining tone patterns are derived. They are considered derived because they are due to either grammatical complexity in the word, or phonologically conditioned tone sandhi, or both. All long checked syllables, *cv:?* and *cv́:?*, are the result of inflection for first plural or second singular person. Syllables with mid-high or high-low tones may be the second syllable of a disyllabic word, which is composed of two meaningful units (at least historically if not synchronically). Mid-high tone on a short controlled syllable is a common pattern for functors such as deictic words (*ʔi<sup>MH</sup>* 'the, that (an)', *ʔe<sup>MH</sup>* 'the, that (inan)') and interrogative words (*hie<sup>MH</sup>* 'where?', *li<sup>MH</sup>* 'when?', *hial<sup>MH</sup>* 'how?'). Other one-syllable lexical items may have tones mid-high or high-low as a result of phonologically conditioned tone sandhi, as described below.

<sup>4</sup>One word, *lô<sup>LH</sup>* 'prickly pear cactus', does not appear to be a loan word, as the Spanish word is 'nopal'.

**1.4. Tone sandhi.** Not all aspects of tone sandhi have yet been analyzed,<sup>5</sup> but a basic description of the several effects of sandhi is given here. Comaltepec tone sandhi operates across word boundaries as well as within words. It is impeded only by pause or by a syllable having a tone pattern which does not participate in sandhi. In (11) the sandhi-inducing tone patterns (those which cause a change in the tone of the following syllable) are marked by \$.

(11) Sandhi-inducing tone patterns

	CV	CV́	CV:	CV́:	CV?	CV́?	CV:?	CV́:?
M	\$		\$					
LH	\$			\$	\$			
MH	\$		\$	\$	\$			

In general, it can be stated that controlled syllables are more likely to be sandhi-inducing than ballistic ones, nonlow tones than low ones, and tone sequences than single tones. The nine sandhi-inducing tone patterns, then, are: CV<sup>M</sup>, CV:<sup>M</sup>, CV<sup>LH</sup>, CV́:<sup>LH</sup>, CV?<sup>LH</sup>, CV<sup>MH</sup>, CV:<sup>MH</sup>, CV́:<sup>MH</sup>, CV?<sup>MH</sup>. For convenience in formalizing tone sandhi rules, a syllable with any one of these sandhi-inducing shapes is given the feature [+perturbing]. Not every tone pattern is affected by sandhi even when following one of the [+perturbing] patterns. Those affected are marked by Y in (12).

(12) Tone patterns affected by sandhi

	CV	CV́	CV:	CV́:	CV?	CV́?	CV:?	CV́:?
L	Y	Y	Y	Y	Y	Y	Y	Y
M		Y	Y	Y		Y	Y	Y
LH	Y	Y		Y	Y			Y

It can be seen that mid-high and high-low are not affected by sandhi. All basic patterns with low, mid, and low-high tones are affected. Some patterns are both sandhi-inducing and affected by sandhi. Figure (13) is a combination of figures (11) and (12). Patterns which are sandhi-inducing are marked by \$, and patterns which are affected by sandhi are marked by Y.

(13) Tone pattern participation in sandhi

	CV	CV́	CV:	CV́:	CV?	CV́?	CV:?	CV́:?
L	Y	Y	Y	Y	Y	Y	Y	Y
M	\$	Y	\$Y	Y		Y	Y	Y
LH	\$Y	Y		\$Y	\$Y			Y
MH	\$		\$	\$	\$			

<sup>5</sup>See appendix B for a discussion of other kinds of sandhi not treated here.

Figure (13) shows that four tones (low, mid, low-high, and mid-high) are in some way involved in sandhi, and three (high, low-mid, and high-low) are not. Of the four which are involved, mid and low-high tones are both sandhi-inducing, and low tone is only affected by sandhi. The four patterns which are both sandhi-inducing and affected by sandhi are:  $cv^M$ ,  $cv^{LH}$ ,  $c\acute{v}:LH$ , and  $cv?LH$ .

The effects of sandhi differ depending on the tone pattern of the affected syllable. Table (14) indicates the tones to which affected tones change as a result of sandhi.

(14) Effects of sandhi

	CV	C $\acute{V}$	CV:	C $\acute{V}$ :	CV?	C $\acute{V}$ ?	CV:?	C $\acute{V}$ :?
L	HL	HL	HL	HL	HL	HL	HL	HL
M		H	MH	H		H	MH	H
LH	MH	MH		MH	MH			MH

All patterns with low tone are changed to high-low tone, and all with low-high tone to mid-high. Those on a controlled syllable with mid tone are changed to mid-high, and those on a ballistic syllable with mid tone are changed to high. Thus, it can be seen that high-low and mid-high tones are the result of tone sandhi—high-low is derived from low, and mid-high from low-high or mid. Rules and examples follow.

Rule (15) states that an underlying low tone is realized as high-low tone following any sandhi-inducing syllable pattern.

$$(15) \quad L \rightarrow HL / [+perturbing]$$

Examples of the six basic syllable patterns with low tone are given in the first column of (16). In the second column the sample words occur after a word with the sandhi-inducing syllable  $cv^M$ ; in the third column they occur after a word with the sandhi-inducing pattern  $cv^{LH}$ ; in the fourth column they occur after a word with the sandhi-inducing pattern  $cv^{MH}$ . In each case the [+perturbing] syllable causes the low tone of the following word to change to high-low.

(16)	basic forms:	<i>mi::<sup>M</sup></i>	'I ask for'	<i>kua<sup>LH</sup></i>	'give!'	<i>si<sup>MH</sup></i>	'is it?'	
	<i>hi<sup>L</sup></i>	'book'	<i>mi::<sup>M</sup></i>	<i>hi<sup>HL</sup></i>	<i>kua<sup>LH</sup></i>	<i>hi<sup>HL</sup></i>	<i>si<sup>MH</sup></i>	<i>hi<sup>HL</sup></i>
	<i>to:<sup>L</sup></i>	'banana'	<i>mi::<sup>M</sup></i>	<i>to:<sup>HL</sup></i>	<i>kua<sup>LH</sup></i>	<i>to:<sup>HL</sup></i>	<i>si<sup>MH</sup></i>	<i>to:<sup>HL</sup></i>
	<i>ŋi<sup>L</sup></i>	'chayote'	<i>mi::<sup>M</sup></i>	<i>ŋi<sup>HL</sup></i>	<i>kua<sup>LH</sup></i>	<i>ŋi<sup>HL</sup></i>	<i>si<sup>MH</sup></i>	<i>ŋi<sup>HL</sup></i>
	<i>ʔú:<sup>L</sup></i>	'chile'	<i>mi::<sup>M</sup></i>	<i>ʔú:<sup>HL</sup></i>	<i>kua<sup>LH</sup></i>	<i>ʔú:<sup>HL</sup></i>	<i>si<sup>MH</sup></i>	<i>ʔú:<sup>HL</sup></i>
	<i>hi<sup>ʔL</sup></i>	'orange'	<i>mi::<sup>M</sup></i>	<i>hi<sup>ʔHL</sup></i>	<i>kua<sup>LH</sup></i>	<i>hi<sup>ʔHL</sup></i>	<i>si<sup>MH</sup></i>	<i>hi<sup>ʔHL</sup></i>
	<i>mó<sup>ʔL</sup></i>	'squash'	<i>mi::<sup>M</sup></i>	<i>mó<sup>ʔHL</sup></i>	<i>kua<sup>LH</sup></i>	<i>mó<sup>ʔHL</sup></i>	<i>si<sup>MH</sup></i>	<i>mó<sup>ʔHL</sup></i>

Rule (17) states that an underlying low-high tone is realized as mid-high tone following any sandhi-inducing syllable pattern.

(17) LH → MH / [+perturbing] \_\_\_\_\_

Examples of the four basic syllable patterns with low-high tone are given in the first column of (18). The second through fourth columns show the change of tone pattern when the words follow a sandhi-inducing syllable.

(18)	basic form	<i>mi::<sup>M</sup></i>	'I ask for'	<i>kua<sup>LH</sup></i>	'give!'	<i>si<sup>MH</sup></i>	'is it?'	
	<i>ŋi<sup>LH</sup></i>	'salt'	<i>mi::<sup>M</sup></i>	<i>ŋi<sup>MH</sup></i>	<i>kua<sup>LH</sup></i>	<i>ŋi<sup>MH</sup></i>	<i>si<sup>MH</sup></i>	<i>ŋi<sup>MH</sup></i>
	<i>ló<sup>LH</sup></i>	'cactus'	<i>mi::<sup>M</sup></i>	<i>ló<sup>MH</sup></i>	<i>kua<sup>LH</sup></i>	<i>ló<sup>MH</sup></i>	<i>si<sup>MH</sup></i>	<i>ló<sup>MH</sup></i>
	<i>kú:<sup>LH</sup></i>	'stone'	<i>mi::<sup>M</sup></i>	<i>kú:<sup>MH</sup></i>	<i>kua<sup>LH</sup></i>	<i>kú:<sup>MH</sup></i>	<i>si<sup>MH</sup></i>	<i>kú:<sup>MH</sup></i>
	<i>bě<sup>ʔLH</sup></i>	'ball'	<i>mi::<sup>M</sup></i>	<i>bě<sup>ʔMH</sup></i>	<i>kua<sup>LH</sup></i>	<i>bě<sup>ʔMH</sup></i>	<i>si<sup>MH</sup></i>	<i>bě<sup>ʔMH</sup></i>

Rule (19) states that an underlying ballistic mid tone is manifested as a ballistic high tone following a sandhi-inducing syllable pattern.

(19) M → H / [+perturbing] \_\_\_\_\_  
[+bal]

Examples of the three basic syllable patterns with mid tone on a ballistic syllable are given in the first column of (20). The second through fourth columns show the change of tone pattern when the words follow a sandhi-inducing syllable.

(20)	basic form	<i>mi::<sup>M</sup></i>	'I ask for'	<i>kua<sup>LH</sup></i>	'give!'	<i>si<sup>MH</sup></i>	'is it?'	
	<i>tú<sup>M</sup></i>	'two'	<i>mi::<sup>M</sup></i>	<i>tú<sup>H</sup></i>	<i>kua<sup>LH</sup></i>	<i>tú<sup>H</sup></i>	<i>si<sup>MH</sup></i>	<i>tú<sup>H</sup></i>
	<i>gé:<sup>M</sup></i>	'twenty'	<i>mi::<sup>M</sup></i>	<i>gé:<sup>H</sup></i>	<i>kua<sup>LH</sup></i>	<i>gé:<sup>H</sup></i>	<i>si<sup>MH</sup></i>	<i>gé:<sup>H</sup></i>
	<i>kiá<sup>ʔMr</sup></i>	'his'	<i>mi::<sup>M</sup></i>	<i>kiá<sup>ʔHr</sup></i>	<i>kua<sup>LH</sup></i>	<i>kiá<sup>ʔHr</sup></i>	<i>si<sup>MH</sup></i>	<i>kiá<sup>ʔHr</sup></i>

Rule 21 states that an underlying controlled mid tone is realized as a controlled mid-high tone following a sandhi-inducing syllable pattern.

$$(21) \quad M \rightarrow MH / [+ \text{perturbing}] \quad \begin{array}{l} \text{---} \\ [- \text{bal}] \end{array}$$

Examples of the one basic syllable pattern with mid tone on a controlled syllable are given in the first column of (22). The second through fourth columns show the change of tone pattern when the words follow a sandhi-inducing syllable.

(22)	basic form	<i>mi:<sup>M</sup></i>	'I ask for'	<i>kua<sup>LH</sup></i>	'give!'	<i>si:<sup>MH</sup></i>	'is it?'	
	<i>ku:<sup>M</sup></i>	'money'	<i>mi:<sup>M</sup></i>	<i>ku:<sup>MH</sup></i>	<i>kua<sup>LH</sup></i>	<i>ku:<sup>MH</sup></i>	<i>si:<sup>MH</sup></i>	<i>ku:<sup>MH</sup></i>
	<i>ziu:<sup>M</sup></i>	'jug'	<i>mi:<sup>M</sup></i>	<i>ziu:<sup>MH</sup></i>	<i>kua<sup>LH</sup></i>	<i>ziu:<sup>MH</sup></i>	<i>si:<sup>MH</sup></i>	<i>ziu:<sup>MH</sup></i>
	<i>?o:<sup>M</sup></i>	'papaya'	<i>mi:<sup>M</sup></i>	<i>?o:<sup>MH</sup></i>	<i>kua<sup>LH</sup></i>	<i>?o:<sup>MH</sup></i>	<i>si:<sup>MH</sup></i>	<i>?o:<sup>MH</sup></i>

Two observations can be made concerning the tone sandhi system. First, all sandhi-inducing syllables end at a nonlow pitch. Second, the changes induced by the sandhi always involve a raising in pitch of some portion of the tone pattern of the affected syllable. Thus it can be said that Comaltepec tone sandhi is basically a system of a higher pitch raising a following lower pitch.

## 2. The verb system

Having had an overview of the tone system, it is now possible to begin discussion of the verb system. This section presents the various verbal categories and their accompanying affixation.

Every verb root is either active or stative. Active verb stems can be derived from stative verb roots, and vice versa. An active verb occurs with aspect prefixes and may also occur with motion prefixes, whereas a stative verb does not occur with either. Both types of verb are marked for degree of transitivity and gender, and occur with personal pronouns. In addition to affixes, the verb root itself often has different inflectional forms for different verbal categories. Two additional categories involve only affixes. These are aspect-modifying categories and modals.

**2.1. Degree of transitivity.** There are three degrees of transitivity: intransitive, transitive, and ditransitive. The verb root is considered to occur with grammatical marking for one or another degree of transitivity in the form of inflectional modification.

Transitive verbs occur with objects; intransitive verbs do not.<sup>6</sup>

- (23) P            S  
*ʔme.<sup>M</sup> -n*  
 hide<sup>^AI</sup>1s 1s  
 I am hiding.
- (24) P            S O  
*ʔme.<sup>LM</sup> -R zä<sup>L</sup>*  
 hide<sup>^TA</sup>1s 1s people  
 I am hiding people.

Ditransitive verbs occur with a benefactive; transitive verbs do not.

- (25) P            S O  
*ku<sup>äL</sup> -ʔ ku.<sup>M</sup>*  
 give<sup>^TI</sup>2s money.  
 You are giving money.
- (26) P            S B O  
*ku<sup>äLM</sup> -ʔ hnä<sup>LH</sup> ku.<sup>M</sup>*  
 give<sup>^DI</sup>2s 1s money  
 You are giving me money.

**2.2. Gender.** There are two genders—animate and inanimate. Gender is bound up with, and cannot be described without reference to, transitivity.

An intransitive verb form is inanimate if it may occur with an inanimate noun as subject, and animate if it may occur with an animate noun as subject.

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<sup>6</sup>The following abbreviations are used to designate the form of the verb cited: AI, animate intransitive; II, inanimate intransitive; TA, transitive animate; TI, transitive inanimate; DA, ditransitive animate; DI, ditransitive inanimate; S, stative. Person and number of the verb form are represented by: 1, first person; 2, second person; 3, third person; s, singular; p, plural. Syntactic functions are indicated by P, predicate; S, subject; O, object; B, benefactive object.



(27) P            s  
*ʔiu<sup>LH</sup>*    *hi<sup>L</sup>*  
 inside<sup>^SII</sup> book  
 The book is inside.

(28) P            s  
*ʔiu:n<sup>M</sup>*    *zä<sup>L</sup>*  
 inside<sup>^SAI</sup> person  
 The person is inside.

A transitive or ditransitive verb is inanimate if it may occur with an inanimate noun as object, and animate if it may occur with an animate noun as object.

(29) P            s            o  
*ʔó:<sup>M</sup>*        *zä<sup>L</sup>*        *ku:<sup>M</sup>*  
 bury<sup>^TII3</sup> people money  
 People bury money.

(30) P            s            o  
*ʔá:n<sup>M</sup>*        *zä<sup>L</sup>*        *ʔlɨ:<sup>LH</sup>*  
 bury<sup>^TA3</sup> people corpse  
 People bury a corpse.

In comparing inanimate and animate forms above, it can be seen that animate gender is marked in part by the presence of a postnuclear nasal. Gender may also be marked by tone and vowel inflection, as well as by the nasal.

(31) *sä<sup>L</sup>* (SII),    *se:n<sup>L</sup>* (SAI) 'exist'  
*hé:<sup>M</sup>* (TI),      *hé:n<sup>LH</sup>* (TA) 'look at'

In a few cases, animate gender also involves the presence of a postnuclear glottal.

(32) *huá<sup>LM</sup>* (TI),    *huän<sup>ʔLH</sup>* (TA) 'fan'

Although all animate verbs have postnuclear nasal, there are also inanimate ones with nasal, indicating that although animate gender implies

the presence of postnuclear nasal, its presence does not necessarily imply animate gender.

- (33) *si:n<sup>M</sup>* (TI) 'tear, rip'  
*hlenʔ<sup>LM</sup>* (TI) 'loosen'  
*ké:n<sup>LH</sup>* (SII) 'contain'

Rensch (personal communication), in his historical study of Chinantec, posits two postnuclear nasals in proto-Chinantec, one indicating animate gender, the other nonthird person. It remains for further study to show how these two nasals function in Comaltepec Chinantec.

**2.3. Person-number.** There are seven personal pronouns which may occur as subjects of a verb in either a full or reduced form. Subjects normally follow the verb, but they may occur preceding it to signify subject in focus. If a noun or deictic word occurs as subject, no personal pronoun occurs, unless the subject is in focus position, in which case the reduced pronoun also occurs. In (34) a pronoun is the subject, in (35) a noun is the subject, and in (36) a noun is in the focus position and a reduced pronoun occurs following the verb.

- (34) P            S  
*kó:L*    *ʔír<sup>L</sup>*  
 play<sup>^</sup>TI3 3  
 He/she/they play.
- (35) P            S  
*kó:L*    *ha<sup>L</sup>lénʔ<sup>L</sup>* *hiú:n<sup>LH</sup>*  
 play<sup>^</sup>TI3 PL            child  
 The children play.
- (36) S                            P            S  
*ha<sup>L</sup>lénʔ<sup>L</sup>* *hiú:n<sup>LH</sup>* *kó:L*    -r  
 PL            child    play<sup>^</sup>TI3 3  
 It is the children who play.

When the personal pronouns are in their normal postverbal position, they undergo a special tone sandhi.<sup>7</sup> In addition to the pronouns, inflection of the verb root may also indicate person-number (§3).

The full form of the first-singular pronoun is *hnä<sup>LH</sup>*, and its reduced form is reduplication (R) of the final segment of the syllable (excluding glottal stop).

- (37) *kó:<sup>L</sup> hnä<sup>LH</sup> kó:<sup>L</sup><sub>R</sub> 'I play.'*  
*kan<sup>ʔLH</sup> hnä<sup>LH</sup> kan<sup>ʔLH</sup><sub>R</sub> 'I mix.'*

There are two personal pronouns for first person plural: *hnä<sup>ʔH</sup>* for exclusive reference (excluding the one spoken to), and *hnä:<sup>LHRʔ</sup>* for inclusive reference (including the one spoken to). There are also two reduced forms of the first plural pronoun: *-na<sup>ʔ</sup>* and *-R<sup>ʔ</sup>*. They occur without any observed exclusive-inclusive distinction.

- (38) *ko:<sup>M</sup> hnä<sup>ʔH</sup> (excl), ko:<sup>M</sup>na<sup>ʔ</sup> 'We play.'*  
*ko:<sup>M</sup> hnä:<sup>LHRʔ</sup> (incl), ko:<sup>M</sup>R<sup>ʔ</sup> 'We play.'*

The *-na<sup>ʔ</sup>* form is perhaps a relic of an earlier version of the pronoun, in that some other Chinantec languages have the vowel *a* where Comaltepec has *ä* in the pronouns. Thus, *a* → *ä* may be a Comaltepec innovation which did not affect the reduced form.

The full form of the second singular pronoun is *?niu<sup>L</sup>*, and the reduced form is a glottal stop.

- (39) *ko:<sup>L</sup> ?niu<sup>L</sup>, ko:<sup>ʔL</sup> 'You play.'*

There are two full forms of the second plural pronoun, *?niu<sup>ʔL</sup>* and *ná<sup>ʔL</sup>*, and no reduced form. *ná<sup>ʔL</sup>* can occur only following the verb, whereas *?niu<sup>ʔL</sup>* may occur elsewhere as well.

- (40) *ko:<sup>L</sup> ?niu<sup>ʔL</sup> 'You (pl) play.'*  
*ko:<sup>L</sup> ná<sup>ʔL</sup> 'You (pl) play.'*

Like *-na<sup>ʔ</sup>* of first plural, *ná<sup>ʔL</sup>* may be a relic of an earlier version of the pronoun before Comaltepec vowels underwent the *a* → *ä* shift, since some other Chinantec languages have the vowel *a* in the second plural pronoun also.

<sup>7</sup>This is referred to as type two sandhi in AMP and is described fully in that paper (13).

There is only one third person pronoun. Its full form is *ʔír<sup>L</sup>*, and its reduced form is *-r*.

- (41) *kó:<sup>L</sup> ʔír<sup>L</sup>*,      *kó:<sup>L</sup>r*      ‘He/she/they play.’

Number is not marked in third person, although a few verbs have suppletive forms for singular and plural subject.

- (42) *zé<sup>L</sup>M<sub>r</sub>* (AI)      ‘s/he goes’      *zi<sup>L</sup>lí:n<sup>M<sub>r</sub></sup>* (AI)      ‘They go.’  
*ka<sup>L</sup>tó<sup>ʔL</sup>* (II)      ‘it fell’      *ka<sup>L</sup>hiú<sup>ʔL</sup>* (II)      ‘They fell.’

There is an animal pronoun, *ʔi<sup>L</sup>rí<sup>ʔ</sup>*, which only occurs following the verb. Its reduced form is *-rĩ<sup>ʔ</sup>*.

- (43) *kó:<sup>L</sup> ʔi<sup>L</sup>rĩ<sup>ʔ</sup>*,      *kó:<sup>L</sup>rĩ<sup>ʔ</sup>*      ‘It (animal) plays.’

Other Chinantec languages do not have this pronoun. It may be a relic of an older form of a third-person pronoun, perhaps the object pronoun, since that pronoun is *-rĩ*. (It is also the only object pronoun in the language.) The older pronoun would have included both animals and people in its reference, as in other Chinantec languages. According to such a view, a newer third-person form came into use, with an associated narrowing of reference of the older form to animals, perhaps under the influence of Zapotec, a neighboring Otomanguean language which has the animal-human distinction. Rensch (personal communication) has, in fact, suggested that the animal-human distinction in Comaltepec is due to borrowing of this grammatical feature from Zapotec, since Comaltepec has had a long history of contact with that language.

**2.4. Aspect.** Three major aspects occur with active verbs; two minor ones have been observed with only a few verbs. The major aspects are: PROGRESSIVE (P), INTENTIVE (I), and COMPLETIVE (C). All three are marked by inflection of the verb root. In addition, there are prefixes for IMPERFECT (IMPF) and PAST (PST)—*ni<sup>L</sup>-* and *ka<sup>L</sup>-*, respectively.

- (44) *hmó:<sup>L</sup>R*    *ta<sup>L</sup>H*  
do<sup>^</sup>TIPIS    work  
I am working.

- (45) *ni<sup>L</sup>-hmé<sup>H</sup><sub>R</sub> ta<sup>LH</sup> zi<sup>L</sup>ʔó<sup>L</sup>*  
 IMPF-DO<sup>^</sup>TIII<sub>s</sub> work tomorrow  
 I will work tomorrow.
- (46) *ka<sup>L</sup>-hmé<sup>M</sup><sub>R</sub> ta<sup>LM</sup> gé<sup>M</sup>*  
 PST-DO<sup>^</sup>TIC<sub>1s</sub> work yesterday  
 I worked yesterday.

The two minor aspects are HABITUAL and HODIERNAL PAST. Habitual action is not formally distinguished from progressive action, the progressive form of the verb stem serving both senses, depending upon context, as illustrated in (47) and (48).

- (47) *ʔɲiú<sup>ʔ</sup><sub>r</sub> hɲiu<sup>L</sup>gi<sup>LH</sup><sub>r</sub>*  
 tie<sup>^</sup>TIP<sub>3</sub> head<sup>^</sup>hair<sup>^</sup><sub>3</sub>  
 She is tying (back) her hair.
- (48) *ʔɲiú<sup>ʔ</sup><sub>r</sub> hɲiu<sup>L</sup>gi<sup>LH</sup><sub>r</sub> la<sup>L</sup>kɔ:<sup>L</sup> hmí:<sup>LH</sup>*  
 tie<sup>^</sup>TIP<sub>3</sub> head<sup>^</sup>hair<sup>^</sup><sub>3</sub> each day  
 She ties (back) her hair every day.

The prefix *la<sup>L</sup>-* (hodiernal past) contrasts with *ka<sup>L</sup>-* (past), both occurring with completive forms of the verb stem, as in (49) and (50).

- (49) *ka<sup>L</sup>-ɲó<sup>LM</sup><sub>r</sub> gé<sup>M</sup>*  
 PST-GO<sup>^</sup>AIC<sub>3s</sub> yesterday  
 He left yesterday.
- (50) *la<sup>L</sup>-ɲó<sup>LM</sup><sub>r</sub> mi<sup>L</sup>kɯ<sup>ʔ</sup><sub>r</sub><sup>LM</sup>*  
 HOD-GO<sup>^</sup>AIC<sub>3s</sub> recently  
 He left just a bit ago (earlier today).

**2.5. Directional verbs.** Motion of the subject of a nonmotion verb may be indicated by prefixation of a reduced form of a motion verb onto the main (nonmotion) verb. These prefixes are referred to as directional prefixes, since they indicate the direction of motion of the subject in relation to the location of the speaker.

The directional prefixes are derived from *gé<sup>M</sup>* ‘go’ and *ɲí<sup>M</sup>* ‘come’. The first sentence of each of the following pairs contains a motion verb, and the second a corresponding directional prefix on a nonmotion verb stem.

- (51) *niːLHR niLkuɨʔH*  
 go<sup>^</sup>AIII<sub>s</sub> Oaxaca  
 I am going to Oaxaca.<sup>8</sup>
- (52) *niL-tʃʔH ʔiLM*  
 go<sup>^</sup>I<sub>1s</sub>-apply<sup>^</sup>TI<sub>1s</sub> color  
 I am going to go paint.
- (53) *ze<sup>H</sup>naʔ niLkuɨʔH*  
 go<sup>^</sup>AIII<sub>p</sub> Oaxaca  
 We are going to Oaxaca.
- (54) *ziL-tʃʔHnaʔ ʔiLM*  
 go<sup>^</sup>I<sub>1p</sub>-apply<sup>^</sup>TI<sub>1p</sub> color  
 We are going to go paint.
- (55) *guo<sup>H</sup> niLkuɨʔH*  
 go<sup>^</sup>AII<sub>2s</sub> Oaxaca  
 You are going to Oaxaca.
- (56) *gui<sup>H</sup>-tʃʔL ʔiLM*  
 go<sup>^</sup>I<sub>2</sub>-apply<sup>^</sup>TI<sub>2s</sub> color  
 You are going to go paint.
- (57) *ze<sup>M</sup>r niLkuɨʔH*  
 go<sup>^</sup>AIII<sub>s</sub> Oaxaca  
 He is going to Oaxaca.
- (58) *ziL-tʃʔLr ʔiLM*  
 go<sup>^</sup>I<sub>3</sub>-apply<sup>^</sup>TI<sub>3</sub> color  
 He is going to go paint.
- (59) *ga<sup>LM</sup>R hui<sup>LM</sup> kiːMʔ*  
 come<sup>^</sup>AIII<sub>s</sub> road of<sup>^</sup>2<sub>s</sub>  
 I am coming to your house.

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<sup>8</sup>With directional verbs aspect prefixes may be deleted. Intentive inflection is used with both progressive and intentive meaning. [But see Westley and Merrifield (this volume) where motion verbs are presented as MOMENTARY, disallowing a progressive interpretation. Ed.]

- (60)  $ga^L-t\acute{a}^?HR$                        $?i^LM$   
 come<sup>1s-apply</sup><sup>TI1s</sup> color  
 I am coming to paint.
- (61)  $há^LMna?$      $hui^LM$      $kí^M?$   
 come<sup>AII1p</sup> road    of<sup>2s</sup>  
 We are coming to your house.
- (62)  $ha^L-t\acute{e}^?Hna?$                        $?i^LM$   
 come<sup>I1p-apply</sup><sup>TI1p</sup> color  
 We are coming to paint.
- (63)  $\eta i^?LM$                $hui^LM$      $ké^MR$   
 come<sup>AII2s</sup> road    of<sup>1s</sup>  
 You are coming to my house.
- (64)  $\eta i^L-t\acute{e}^?L$                        $?i^LM$   
 come<sup>I2-apply</sup><sup>TI2s</sup> color  
 You are coming to paint.
- (65)  $há^LMr$                $hui^LM$      $ké^MR$   
 come<sup>AII3s</sup> road    of<sup>1s</sup>  
 He is coming to my house.
- (66)  $ha^L-t\acute{e}^?Lr$                        $?i^LM$   
 come<sup>I3-apply</sup><sup>TI3</sup> color  
 He is coming to paint.

Intentive aspect is illustrated above; completive is illustrated below. The past-tense prefix, if present, occurs preceding the directional prefix. (Forms in parentheses are optional.)

- (67)  $\eta\acute{o}^MR$                        $ni^Lkuj^?H$   
 COMP-go<sup>AIC1s</sup> Oaxaca  
 I went to Oaxaca.
- (68)  $(ka)-\eta\acute{o}^L-t\acute{a}^?R$                        $?i^LM$   
 (PST)-go<sup>I1s-apply</sup><sup>TI1s</sup> color  
 I went to paint.

- (69)  $\eta\acute{o}^M na?$   $ni^L ku_i^?H$   
 go<sup>^</sup>AIC1p Oaxaca  
 We went to Oaxaca.
- (70)  $(ka^L)-\eta o^L t\acute{e}^?H na?$   $?i^{LM}$   
 (PST)-go<sup>^</sup>c1-apply<sup>^</sup>T11p color  
 We went to paint.
- (71)  $g\acute{e}^:M?$   $ni^L ku_i^?H$   
 go<sup>^</sup>AIC2s Oaxaca  
 You went to Oaxaca.
- (72)  $(ka^L)-g i^L t\acute{e}^?L$   $?i^{LM}$   
 (PST)-go<sup>^</sup>c2-apply<sup>^</sup>T12s color  
 You went to paint.
- (73)  $\eta\acute{o}^M r$   $ni^L ku_i^?H$   
 go<sup>^</sup>AIC3s Oaxaca  
 He went to Oaxaca.
- (74)  $(ka^L)-\eta o^L t\acute{e}^?r$   $?i^{LM}$   
 (PST)-go<sup>^</sup>c3-apply<sup>^</sup>T13s color  
 He went to paint.

The full motion verb may also occur preceding the main verb with the directional prefix. With noncompletive forms, this construction gives a progressive rather than habitual meaning.

- (75)  $ni^:L H_R$   $ni^L-t\acute{a}^?H_R$   $?i^{LM}$   
 go<sup>^</sup>A111s go<sup>^</sup>T11s-apply<sup>^</sup>T11s color  
 I am on my way to paint.
- (76)  $\eta\acute{o}^M R$   $\eta o^M t\acute{a}^?H_R$   $?i^{LM}$   
 go<sup>^</sup>AIC1s go<sup>^</sup>C1s-apply<sup>^</sup>T11s color  
 I went to paint.

**2.6. Aspect modification.** A stative or completive verb may occur with a perfect prefix, preceding the completive prefix if present. In a positive sentence the perfect prefix is  $ni^H-$ ; in a negative sentence it is  $mi^L-$ . In the latter case the past-tense prefix is omitted.



- (77) *ni<sup>H</sup>-ka<sup>L</sup>-ŋó<sup>M</sup><sub>R</sub> guáʔ<sup>M</sup> ʔmí:<sup>M</sup>*  
 PRF-PST-go<sup>^</sup>AIC1s church earlier  
 I have already gone to church today.
- (78) *ha<sup>L</sup>-mí<sup>L</sup>-ŋó<sup>M</sup><sub>R</sub> guáʔ<sup>M</sup> sí<sup>ʔL</sup> la<sup>L</sup>*  
 NEG-PRF-go<sup>^</sup>AIC1s church moon this  
 I have not gone to church this month.

A completive verb may also occur with the imperfect prefix *ni<sup>L</sup>-* preceding it as an EVIDENTIAL, to reduce the degree of responsibility the speaker accepts regarding the truth of the assertion.

- (79) *ni<sup>L</sup>-ka<sup>L</sup>-lí<sup>ʔL</sup><sub>r</sub> guí:<sup>LH</sup>*  
 MPF-PST-obtain<sup>^</sup>TAC3 squirrel  
 He evidently has obtained (killed) a squirrel.

**2.7. Derivation.** Active verb stems are derived by prefixing *lí<sup>L</sup>-* (active) to certain stative verb roots. A derived active stem has intensive and completive forms. In (80), the verb is stative; in (81) and (82), derived active.

- (80) *kuí:<sup>Lr</sup>*  
 acquainted<sup>^</sup>T1S3  
 He is acquainted.
- (81) *ni<sup>L</sup>-lí<sup>L</sup>-kuí:<sup>Lr</sup>*  
 IMPF-ACT-acquainted<sup>^</sup>T1S3  
 He will become acquainted.
- (82) *ka<sup>L</sup>-lí<sup>L</sup>-kuí:<sup>Lr</sup>*  
 PST-ACT-acquainted<sup>^</sup>T1C3  
 He became acquainted.

Other active verb stems are derived by prefixing *hmi<sup>L</sup>-* (causative) to certain stative verb roots. In this case, the derived active stem is causative in meaning and has forms for all three aspects. In (83), the verb is stative; in (84)–(86), derived active.

- (83) *í:<sup>nLr</sup>*  
 able<sup>^</sup>T1S3  
 He is able.

- (84) *hmi<sup>L</sup>-tí:n<sup>L</sup>r*  
 CAUS-able<sup>^</sup>TIP3  
 He is learning.
- (85) *ni<sup>L</sup>-hmi<sup>L</sup>-tí:n<sup>L</sup>r*  
 IMPF-CAUS-able<sup>^</sup>TII3  
 He will learn.
- (86) *ka<sup>L</sup>-hmi<sup>L</sup>-tí:n<sup>L</sup>r*  
 PST-CAUS-able<sup>^</sup>TIC3  
 He learned.

Stative verb stems are derived by prefixing *si<sup>L</sup>-* (stative) to certain active verb roots. The first verb of each pair below is active, and the second derived stative.

- (87) *ka<sup>L</sup>-?le?L*  
 PST-break<sup>^</sup>IIC3  
 It broke.
- (88) *si<sup>L</sup>-?le?LM*  
 STA-break-II3  
 It is broken.
- (89) *ka<sup>L</sup>-kún?Lr guo:<sup>L</sup>r*  
 PST-join<sup>^</sup>TIC3 hand<sup>^</sup>3  
 S/he/they married.
- (90) *si<sup>L</sup>-kún?Lr guo:<sup>L</sup>r*  
 STA-join<sup>^</sup>TIS3 hand<sup>^</sup>3  
 S/he/they is/are married.

**2.8. Modal adverbs.** There are seven modal adverbs. They occur following the verb, in which case the personal pronoun is suffixed to the modal rather than to the verb, and they undergo the same kind of sandhi as pronouns. Only a reduced pronoun may occur with a modal. Modal adverbs occur with verbs in any aspect, except for the adverb *du<sup>M</sup>* (volitive), which occurs only with intentive aspect.

- (91) *ní:ˀLH tʰíˀMR*  
 goˀAIII1s REPETITIVEˀ1s  
 I am going again.
- (92) *ní:ˀLH tʰáˀMR*  
 goˀAIII1s MOMENTARYˀ1s  
 I am going for a little while.
- (93) *ní:ˀLH gíˀMR*  
 goˀAIII1s AUGMENTATIVEˀ1s  
 I am going farther.
- (94) *ní:ˀLH bíˀMR*  
 goˀAIII1s CONTINUATIVEˀ1s  
 I am still going on.
- (95) *ní:ˀLH hiiuˀMR*  
 goˀAIII1s DIMINUTIVEˀ1s  
 I am going a little ways.
- (96) *ní:ˀLH baˀMR*  
 goˀAIII1s AFFIRMATIVEˀ1s  
 Yes, I am going.
- (97) *ní:ˀLH duˀMR*  
 goˀAIII1s VOLITIVEˀ1s  
 I intend to go.

Three modals also occur in other contexts. *tʰíˀM* (REPETITIVE) is the numeral ‘two’. *tʰáˀM* (MOMENTARY) is found in *kaˀL-tʰáˀL* ‘a little while’. *hiiuˀM* (DIMINUTIVE) is an adjective meaning ‘small’, as in *?maˀL hiiuˀLH* ‘small tree, bush’.

A limited set of two-modal combinations occur, but collocational restrictions are outside the scope of this study.

- (98) *kuä:nˀL gíˀMhiiuˀM*  
 tallˀIIS2 tallˀAUGˀDIMˀ2s  
 You are a little taller.

**2.9. Summary.** Aspect, motion, aspect modification, and derivation are marked by prefixes. Pronouns follow the verb, as do modal adverbs.

Transitivity, gender, person-number, and aspect are further indicated by inflection of the verb root.

The order of the affixes for the various categories is illustrated by the following verb.

- (99) *nĩ<sup>H</sup>-ka<sup>L</sup>-ŋo<sup>L</sup>-hmĩ<sup>L</sup>-?mẽ<sup>M</sup>      tĩ<sup>M</sup>r*  
 PRF-PST-go<sup>^</sup>C3-CAUS-sharp<sup>^</sup>TI3 REPETITIVE<sup>^</sup>3  
 He has gone to sharpen it again.

### 3. Verb inflectional paradigms

In this section three classes of verbs are presented along with their inflectional paradigms. The paradigm discussed here is the inflectional material (tone, stress, and length) occurring with a verb root of a particular degree of transitivity and gender to mark the verb for aspect and person-number. Only the three major aspects (progressive, intensive, and completive) are included. Motion is not included. Four person-number categories are normally distinguished by verb inflection: first singular, first plural, second, and third, number being distinguished by inflection only in first person.

A typical verb paradigm is presented in (100), with tense-aspect prefixes and reduced pronominal forms set off by hyphens.

- |       |     |  |                           |
|-------|-----|--|---------------------------|
| (100) | P1s | <i>kó:<sup>L</sup>-R</i>                 | 'I am playing'            |
|       | I1s | <i>nĩ<sup>L</sup>-kó:<sup>LH</sup>-R</i> | 'I will play'             |
|       | C1s | <i>ka<sup>L</sup>-kó<sup>M</sup>-R</i>   | 'I played'                |
|       | P1p | <i>ko:<sup>M</sup>-R?</i>                | 'we are playing'          |
|       | I1p | <i>nĩ<sup>L</sup>-kó<sup>H</sup>-R?</i>  | 'we will play'            |
|       | C1p | <i>ka<sup>L</sup>-kó<sup>H</sup>-R?</i>  | 'we played'               |
|       | P2s | <i>ko:<sup>L</sup>-?</i>                 | 'you (sg) are playing'    |
|       | I2s | <i>nĩ<sup>L</sup>-kó:<sup>H</sup>-?</i>  | 'you (sg) will play'      |
|       | C2s | <i>ka<sup>L</sup>-ko:<sup>M</sup>-?</i>  | 'you (sg) played'         |
|       | P3  | <i>kó:<sup>L</sup>-r</i>                 | 'he/she/they are playing' |
|       | I3  | <i>nĩ<sup>L</sup>-kó<sup>M</sup>-r</i>   | 'he/she/they will play'   |
|       | C3  | <i>ka<sup>L</sup>-kó:<sup>L</sup>-r</i>  | 'he/she/they played'      |

The inflectional portion of the verb in (100) may be separated from the segmental material and represented in a matrix with columns representing

person-number and rows representing aspect, as in (101). Verb root tone is indicated by a tone symbol, followed by ballistic stress (´), and vowel length (:), when relevant.

(101)	play (TI)	1s	1p	2	3
	P	L:´	M:	L:	L:´
	1	LH:´	H:´	H:´	M´
	C	M´	H´	M:	L:´

Second-person completive form of verbs exhibit the most diversity among verb forms. This form is, therefore, chosen as the citation form for active verbs, and need not be indicated in the matrix.<sup>9</sup>

Some verbs have a different subparadigm for third person, which is indicated by a second citation form in the lexicon.<sup>10</sup> If this second form has low ballistic, low-mid ballistic, or mid ballistic long inflection, that inflection occurs for all third-person aspects. This is illustrated in (102) by the verb ‘take away’, which requires two citation forms.

(102)	$h\acute{e}p^{LM}$ , $h\acute{e}p^L$	‘take away’
	$h\acute{e}p^{Lr}$	‘he is taking away’
	$ni^L h\acute{e}p^{Lr}$	‘he will take away’
	$ka^L h\acute{e}p^{Lr}$	‘he took away’

If the second citation form has any inflection other than low ballistic, low-mid ballistic, or mid ballistic long, that inflection occurs for progressive and completive, but potential is mid ballistic inflection.

(103)	$?m\acute{i}n^{pL}$ , $?m\acute{i}n^{pLM}$	‘pinch’
	$?m\acute{i}n^{pLMr}$	‘he is pinching’
	$ni^L ?m\acute{i}n^{pMr}$	‘he will pinch’
	$ka^L ?m\acute{i}n^{pLMr}$	‘he pinched’

All verbs fall into one of three classes. In the remainder of the section, paradigm matrices for each verb class are presented, followed by a discussion of alternate forms and some observations on the data.

**3.1. Class A verbs.** In Class A verbs, first vs. nonfirst persons are distinguished in progressive aspect. Third person may also be distinguished.

<sup>9</sup>This was suggested by William Merrifield.

<sup>10</sup>See appendix A for a complete listing of the verbs by paradigm number.

The three aspects have different inflectional patterns. Only verbs whose root is not checked by glottal have inflectional forms like those represented by the following two paradigms.

- |       |    |    |    |    |    |    |      |    |     |     |
|-------|----|----|----|----|----|----|------|----|-----|-----|
| (104) | P1 | M  | M  | L  | LM | P2 | L:´  | M: | L:  | L:´ |
|       |    | MH | H´ | H´ | M´ |    | LH:´ | H´ | H:´ | M´  |
|       |    | M´ | H´ |    | LM |    | M´   | H´ |     | L:´ |

Some verbs have alternate forms for completeive, differing from those given in the paradigm. This is especially true of third person, which may have a low tone on a ballistic syllable for completeive in P1. This is indicated in the lexicon by [c<sup>L</sup>] following the citation form.

- (105) *tá<sup>H</sup>* [c<sup>L</sup>] ‘prune’  
*ka<sup>L</sup>tá<sup>L</sup>r* ‘he pruned’

Other verbs of both paradigms have a mid tone on a ballistic syllable for third completeive. This is indicated by [c<sup>M</sup>] following the citation form in the lexicon.

- (106) *kíê<sup>L</sup>, kâ<sup>L</sup>* [c<sup>M</sup>] ‘charge’  
*ka<sup>L</sup>kâ<sup>M</sup>r* ‘he charged’

Some verbs have palatalized forms for certain aspects and persons. Second completeive is the form most often palatalized. The nonprogressive forms of first plural or third persons are sometimes palatalized also. The details of this feature of the verb system await further study.<sup>11</sup> A verb which undergoes palatalization is indicated in the lexicon by [ɣ] following the citation form.

- (107) *hâ<sup>H</sup>* [ɣ] ‘stay’  
*ka<sup>L</sup>hê<sup>ɣH</sup>* ‘you stayed’  
*ni<sup>L</sup>hê<sup>ɣM</sup>r* ‘he will stay’  
*ka<sup>L</sup>hê<sup>ɣLM</sup>r* ‘he stayed’

Most verbs whose inflection is like P1 and P2 are π verbs (37 out of 41). All forms in P1 are short; P2 has both short and long forms. For progressive aspect, first plural always is a mid tone, and second person a low tone. For

<sup>11</sup>See Rupp and Merrifield (this volume) for a description of palatalization of verb forms in Lealao Chinantec, and Mugele (1976) for an analysis of vowel shifts in Lalana Chinantec.

intentive nonthird person tone is high, whereas third person tone is nonhigh. For completive, first singular is mid tone on a short ballistic syllable; first plural is the same as intentive; third is the same as progressive.

The following two paradigms are for Class A verbs whose root is checked by glottal. The arrow pointing to the right (§) in first-person progressive indicates a sandhi-inducing syllable.

(108)	P3	M\$´	M\$´	L´	L´	P4	M\$´	M\$´	LM	LM
		H´	H´	H	L´		H´	H´	H	M´
		M´	H´		L´		M´	H´		LM

In some verbs, the completive aspect form, as well as the progressive aspect form, for first singular is sandhi-inducing. This sandhi-inducing form probably originated historically from a phonological form which normally participates in tone sandhi by changing the tone of the following syllable, but over time it has changed to its present nonsandhi-inducing phonological shape. The sandhi-inducing quality, however, has remained, leading to an example of what Bloomfield (1933:374) describes as an irregular alternation resulting from phonetic change having removed the conditioning factors for the alternation.

In the lexicon the sandhi-inducing completive is indicated by [1s§] following the citation form.

(109)	<i>béʔL</i> [1s§]	‘roll up’
	<i>kaLbéʔM\$R</i>	‘I rolled up’

First plural of TA verbs may have an alternate form for completive—a low-to-high rising glide rather than the high tone given in the paradigm. For *kunʔLM*, *kúnʔLM* ‘bite, eat’, speakers of the language have pointed out that this form is used when animal is the object, and the form with high tone when a person is the object. It is unclear whether historically other verbs may have had forms based on such a distinction.

The alternate form is marked in the lexicon by [1p<sup>LH</sup>] following the citation form. (In this particular case it is enclosed in parenthesis, since both forms are possible.)

(110)	<i>kunʔLM</i> , <i>kúnʔLM</i> [(1p <sup>LH</sup> )]	‘bite, eat’
	<i>kaLkunʔLHnaʔ</i>	‘we bit, ate (an animal)’
	<i>kaLkúnʔHnaʔ</i>	‘we bit, ate (a person)’

Just as among verbs whose inflection is like P<sub>1</sub> and P<sub>2</sub>, some of those whose inflection is like P<sub>3</sub> and P<sub>4</sub> may have alternate third-person completive forms rather than those indicated in the paradigm. A few have a low tone, as in (111).

- (111) *gen*<sup>P<sub>LH</sub></sup>, *gen*<sup>P<sub>LM</sub></sup> [C<sup>L</sup>] ‘swing’  
*ka*<sup>L</sup>*gén*<sup>P<sub>Lr</sub></sup> ‘he swung’

Other verbs have a mid tone for third completive, as in (112).

- (112) *lo*<sup>P<sub>L</sub></sup>, *la*<sup>P<sub>LM</sub></sup> [C<sup>M</sup>, Y] ‘bathe’  
*ka*<sup>L</sup>*lá*<sup>P<sub>Mr</sub></sup> ‘he bathed’

Although the majority of the verbs represented by P<sub>3</sub> and P<sub>4</sub> are  $\pi$  verbs (49 out of 69), 15 are TA verbs, whereas P<sub>1</sub> and P<sub>2</sub> represent no TA verbs. The remaining 5 verbs are AI. TA verbs whose inflection is like P<sub>3</sub> usually have a third-person subparadigm with a low-rising tone.

- (113) *huën*<sup>P<sub>LH</sub></sup>, *huën*<sup>P<sub>LM</sub></sup> [1P<sup>LH</sup>, Y] ‘speak to’  
*huén*<sup>P<sub>LMr</sub></sup> ‘he is speaking to’  
*ni*<sup>L</sup>*huén*<sup>P<sub>LMr</sub></sup> ‘he will speak to’  
*ka*<sup>L</sup>*huén*<sup>P<sub>LMr</sub></sup> ‘he spoke to’

For progressive aspect, first persons are a sandhi-inducing mid tone, and nonfirst persons are a low or low-rising tone. As in P<sub>1</sub> and P<sub>2</sub>, intentive is a high tone for nonthird persons, but a nonhigh tone for third person. Completive also has the same characteristics as in P<sub>1</sub> and P<sub>2</sub>: mid tone on a short ballistic syllable for first singular, the same as intentive for first plural, and the same as progressive for third.

**3.2. Class B verbs.** In Class B verbs, only third person is distinguished in noncompletive aspects. Like Class A verbs, the three aspects have different inflectional patterns. Following are the three major paradigms for Class B verbs. None of the Class B verbs are checked by glottal.

- (114) P5 L´ L´ L´ L´ P6 M:´ M:´ M:´ M:´  
H´ H´ H´ L´ H´ H´ H´ M:´  
L´ H´ L´ M:´ M:´ M:´  
P7 LM´ LM´ LM´ LM´  
LH´ LH´ LH´ M´  
M´ LH:´ LM´



Verbs whose inflection is like P7 and whose citation form has low-high ballistic long inflection (which is also the second completive form) usually have low-high ballistic long inflection for completive first singular also, rather than mid ballistic as given in the paradigm. This is indicated in the lexicon by [1s<sup>LH</sup>] following the citation form.

- (115) *sé:<sup>LH</sup>* [1s<sup>LH</sup>] ‘leave’  
*ka<sup>L</sup>sé:<sup>LHR</sup>* ‘I left’

Some verbs of P6 and P7 have a high tone for the completive of first plural rather than the tones given in the paradigms. This is indicated in the lexicon by [1p<sup>H</sup>] after the citation form.

- (116) *hé:<sup>M</sup>* [1p<sup>H</sup>] ‘breathe through mouth’  
*ka<sup>L</sup>hé:<sup>Hna?</sup>* ‘we breathed through the mouth’

Alternate third person completive forms with low or mid tone appear in some Class B, as well as Class A, verbs. For example,

- (117) *tó<sup>LM</sup>* [c<sup>L</sup> ʔ] ‘write’  
*ka<sup>L</sup>tó:<sup>Lr</sup>* ‘he wrote’

- (118) *ʔín<sup>LM</sup>* [c<sup>M</sup> ʔ] ‘shoot’  
*ka<sup>L</sup>ʔín<sup>Mr</sup>* ‘he shot’

All of the forms of P5, P6, and P7 are ballistic, except for a few citation forms. Most verbs whose inflection is like P5 and P6 are T1 verbs (20 out of 27). About one-half of the verbs of P7 are T<sub>A</sub> (23 out of 45): 20 of the remaining 22 are T1. Most of the T<sub>A</sub> verbs have a third-person subparadigm with different forms than those of nonthird persons. For example, the verb in (119) has inflection like P7 except for third person.

- (119) *ʔán<sup>LM</sup>*, *ʔá:n<sup>M</sup>* ‘bury’  
*ʔá:n<sup>Mr</sup>* ‘he is burying’  
*ni<sup>L</sup>ʔá:n<sup>Mr</sup>* ‘he will bury’  
*ka<sup>L</sup>ʔá:n<sup>Mr</sup>* ‘he buried’

For progressive aspect, P5 has low tone on short syllables for all persons, P6 has mid tone on long syllables, and P7 has rising low tone. For intensive, nonthird persons are high tone (like Class A verbs) in P5 and P6, but low-to-high rising tone in P7. Some completive aspect forms are like those

for Class A verbs: the mid tone for first singular in P7, the high tone for first plural in P5 and P6, and the same tone as for progressive for third persons in all three paradigms. In third person all forms are the same in P5 and P6, but intentive is mid ballistic inflection in P7.

**3.3. Class C verbs.** In Class C verbs, third person is distinguished from nonthird. Aspect has different inflectional patterns in third person only. The following two paradigms represent Class C verbs whose root is not checked by glottal.

(120)	P8	M:	M:	M:	L:´		P9	LH:´	LH:´	LH:´	LM´
		M:	M:	M:	M´			LH:´	LH:´	LH:´	M´
		M:	M:		L:´			LH:´	LH:´		LM´

There are very few alternate forms among verbs whose inflection is like that of P8 and P9. A few, however, have a mid tone for third person completive, such as (121).

(121)	$\tilde{r}i:n^{LH}$ ,	$\tilde{r}i:n^L$	[c <sup>M</sup> ]	‘jump, fly’
	$ka^L\tilde{r}i:n^{Mr}$			‘he jumped, flew’

Most verbs whose inflection is like P8 are T1 verbs (14 out of 18). Those of P9 are fairly evenly distributed between A1 (6 verbs), T1 (5 verbs), and TA (5 verbs). Nearly all verbs of both P8 and P9 have postnuclear nasal. All forms are the same except third person, which is always different from nonthird.

The following two paradigms are for Class C verbs whose root is checked by glottal.

(122)	P10	LH	LH	LH	LM		P11	LM´	LM´	LM´	LM´
		LH	LH	LH	M			LM´	LM´	LM´	LM´
		LH	LH	LH	LM			LM´	LM´	LM´	LM´

Alternate completive forms do not occur in verbs whose inflection is like P10 and P11. Some verbs of P10, however, have a ballistic syllable for third person intentive. This is indicated by [i3´] following the citation form in the lexicon.

(123)	$r\ddot{u}r^{LH}$	[i3´]	‘wash’
	$ni^Lr\ddot{u}r^{Mr}$		‘he will wash’

Over half of the verbs whose inflection is like P10 are T1 verb (29 out of 47). 13 are TA, and the remainder are A1 and D1. 4 of the 5 verbs of P11 are A1. All forms of the paradigms are the same, except third person of P10, which is always different than nonthird. About one-third of the verbs of P10 have a third-person subparadigm with low ballistic inflection rather than low-mid as shown in the paradigm.

- (124) *hinʔ<sup>LH</sup>*, *hinʔ<sup>L</sup>* ‘rinse’  
*hinʔ<sup>Lr</sup>* ‘he is rinsing’  
*ni<sup>L</sup>hinʔ<sup>Lr</sup>* ‘he will rinse’  
*ka<sup>L</sup>hinʔ<sup>Lr</sup>* ‘he rinsed’

**3.4. Verbs with minor paradigms.** Principally A1, stative A1, and II verbs have inflectional forms like those represented by minor paradigms. Their citation form is taken from nonfirst completive, since the most diversity of form is found there. First-person completives are always predictable. Thus, completive aspect need not be included in the paradigm.

The following two paradigms are for Class A verbs. Verbs whose inflection is like P12 have roots which are not checked by glottal. Those whose inflection is like P13 have roots which are checked. The completive for first person is always a mid tone, like that of the progressive.

- (125) P12 M: M: L: L:                      P13 M´ M´ L´ L´  
           L´ L´ L´ L´                              M´ M´ L´ L´

Stative A1 verbs have no aspectual inflection, but their form is the same as that of a progressive-aspect subparadigm. The verb in (126), for example, has inflection like that represented by P13.

- (126) *ʔgóʔ<sup>L</sup>* ‘fear’  
*ʔgóʔ<sup>M\$R</sup>* ‘I fear’  
*ʔgóʔ<sup>M\$Rʔ</sup>* ‘we fear’  
*ʔgóʔ<sup>L</sup>* ‘you fear’  
*ʔgóʔ<sup>rL</sup>* ‘he fears’

II verbs have no distinct person-number forms, but their paradigm is the same as a third-person subparadigm. The verb in (127) has inflection like that represented by P12.

- (127) *kó:M* 'burn'  
*ko:L* 'it is burning'  
*ni<sup>L</sup>kó<sup>L</sup>* 'it will burn'  
*ka<sup>L</sup>kó:M* 'it burned'

Like other Class A verbs, those whose inflection is like P<sub>12</sub> and P<sub>13</sub> have mid tone for first persons. The mid tone of P<sub>13</sub> is sandhi-inducing, just as in other Class A verbs whose root is checked by glottal. In contrast to verbs of major paradigms, P<sub>12</sub> has a low tone for intensive. There is no different inflectional form for potential of P<sub>13</sub>.

The following two paradigms are for Class B verbs. Length is not indicated in the paradigms, as the length of the citation form indicates the length of all forms in the paradigm. For example, *lí<sup>L</sup>* [γ] 'end, able' has all short forms, whereas *ʔí<sup>L</sup>* 'resemble' has all long forms.

The citation form also indicates whether the verb is checked by glottal or not. *huín<sup>M</sup>* 'lazy', for example, has all checked forms, but *ʔné<sup>M</sup>* 'need' has all open forms. All completive forms are the same as the citation form.

- (128) P<sub>14</sub> L' L' L' L'                      P<sub>15</sub> M' M' M' M'  
           L' L' L' L'                              M' M' M' M'

In these paradigms the inflectional forms are the same for all persons and for both progressive and intensive aspect. Completive forms are the same as the rest of the paradigm in P<sub>15</sub>. This is true of P<sub>14</sub> also, except for two II verbs, *gén<sup>M</sup>* 'completed' and *ʔí<sup>M</sup>* 'enter', which have mid-ballistic rather than low-ballistic inflection for completive.

Class C verbs with minor paradigms have the same form for all persons and aspects. Therefore one need only know their citation form from the lexicon to know the whole paradigm. Examples are: *niʔ<sup>LH</sup>* (II) 'open out', *ʔiu:n<sup>M</sup>* (AIS) 'inside', and *ʔi:n<sup>LH</sup>* (TIS) 'want'.

**3.5. Disyllabic verbs.** Disyllabic verbs have derived stems (§2.7). They may also have derived tones which do not occur on verb roots (§1.3). They do not have different inflectional forms to indicate aspect. Therefore, only one row is given in the paradigm. Person, however, is distinguished. The citation form is taken from second person, which has the most diversity of forms. Thus, second person need not be given in the paradigm.

P<sub>16</sub> is for Class A verbs. The inflection for first singular, first plural, and third persons are given.

(129) P16 M M — L´

The citation form indicates the length of all forms, except for third person, which is always short. All nonthird forms of *hmi<sup>H</sup>kɪu<sup>HL</sup>* ‘toast, dry’, for example, are long.

The citation form also indicates whether the forms are checked by glottal or not. For example, all forms of *hmi<sup>H</sup>?ɛ̃<sup>HL</sup>* ‘defend’, are checked. When the verb is checked, the mid tone of first singular is sandhi-inducing, as in *hmi<sup>H</sup>?ɛ̃<sup>MSR</sup>* ‘I defend’. In one verb, *hmi<sup>L</sup>ui<sup>HL</sup>* ‘smooth, plane’, it is also sandhi-inducing in first plural: *hmi<sup>L</sup>ui<sup>Mna</sup>?* ‘we smooth, plane’. This is indicated in the lexicon by [1pʂ] following the citation form.

Regarding the first (pretonic) syllable of disyllabic verbs, if it has a low tone on the citation form, as in *hmi<sup>L</sup>ui<sup>HL</sup>* [1pʂ] ‘smooth, plane’, it has low tone throughout the paradigm. If it has high tone on the citation form, as in *hmi<sup>H</sup>?ɛ̃<sup>HL</sup>* ‘defend’, the first-person forms have the high tone but nonfirst persons have a low tone.

(130) *hmi<sup>H</sup>?ɛ̃<sup>MSR</sup>* ‘I defend’  
*hmi<sup>H</sup>?ɛ̃<sup>Mna</sup>?* ‘we defend’  
*hmi<sup>L</sup>?ɛ̃<sup>HL</sup>* ‘you defend’  
*hmi<sup>L</sup>?ɛ̃<sup>rL</sup>* ‘he defends’

Class B disyllabic verbs may have a different third-person subparadigm. All other forms of the paradigm, however, are the same as the citation form. A second citation form is given when third-person differs from nonthird. Therefore, one need only know the citation forms from the lexicon to know the entire paradigm. Examples are: *hmi<sup>L</sup>?i<sup>H</sup>* ‘count’, *hmi<sup>L</sup>gó<sup>HL</sup>*, *hmi<sup>L</sup>gó<sup>L</sup>* ‘deceive’, *hmi<sup>L</sup>?mê<sup>H</sup>*, *hmi<sup>L</sup>?mê<sup>M</sup>* ‘sharpen’, *hmi<sup>L</sup>kɔ<sup>MH</sup>*, *hmi<sup>L</sup>kɔ<sup>LH</sup>* ‘help’.

An interesting observation is that the nonthird and third person tones of disyllabic verbs are often two tones which are related in the sandhi system—the nonthird tone being the changed pattern of the third-person tone (cf. 14). For example, high-low is the changed tone of low, as in *hmi<sup>L</sup>gó<sup>HL</sup>*, *hmi<sup>L</sup>gó<sup>L</sup>* ‘deceive’; high ballistic is the changed tone of mid ballistic, as in *hmi<sup>L</sup>?mê<sup>H</sup>*, *hmi<sup>L</sup>?mê<sup>M</sup>* ‘sharpen’; mid-high is the changed tone of low-high, as in *hmi<sup>L</sup>kɔ<sup>MH</sup>*, *hmi<sup>L</sup>kɔ<sup>LH</sup>* ‘help’.

Class C disyllabic verbs have the same form for all aspects and persons. Examples are: *hmi<sup>L</sup>?a:n<sup>M</sup>* ‘hungry’, *hmi<sup>L</sup>?in<sup>LM</sup>* ‘rest’, and *hmi<sup>L</sup>guän<sup>H</sup>* ‘bless’.

**3.6. Suppletive Verbs.** A few common verbs have suppletive forms for each person. Their paradigms are given in full.<sup>12</sup>

(131)	P17 go (AI)	1s	1p	2	3
	P	<i>ní:<sup>L</sup></i>	<i>zé<sup>LM</sup></i>	<i>guó<sup>LM</sup></i>	<i>zé<sup>LM</sup></i>
	I	<i>ní:<sup>LH</sup></i>	<i>zé<sup>H</sup></i>	<i>guó<sup>H</sup></i>	<i>zé<sup>M</sup></i>
	C	<i>ηó<sup>M</sup></i>	<i>ηó<sup>M</sup></i>	<i>gé:<sup>M</sup></i>	<i>ηó<sup>M</sup></i>
(132)	P18 go home (AI)	1s	1p	2	3
	H	<i>nín<sup>PM\$</sup></i>	<i>zá<sup>PM\$</sup></i>	<i>guïn<sup>PLM</sup></i>	<i>zen<sup>PLM</sup></i>
	P	<i>ηán<sup>PM\$</sup></i>	<i>ηó<sup>PM\$</sup></i>	<i>guën<sup>PLM</sup></i>	<i>ηán<sup>PL</sup></i>
	I	<i>nín<sup>PH</sup></i>	<i>zá<sup>PH</sup></i>	<i>guïn<sup>PH</sup></i>	<i>zén<sup>PM</sup></i>
	C	<i>ηán<sup>PM</sup></i>	<i>ηo<sup>PM</sup></i>	<i>gén<sup>PL</sup></i>	<i>ηán<sup>PM</sup></i>
(133)	P19 come (AI)	1s	1p	2	3
	P	<i>gá<sup>MH</sup></i>	<i>há<sup>MH</sup></i>	<i>ηi<sup>L</sup></i>	<i>há<sup>L</sup></i>
	I	<i>gá<sup>LM</sup></i>	<i>há<sup>LM</sup></i>	<i>ηi<sup>LM</sup></i>	<i>há<sup>LM</sup></i>
	C	<i>gá<sup>M</sup></i>	<i>há<sup>M</sup></i>	<i>ηi<sup>M</sup></i>	<i>há<sup>M</sup></i>
(134)	P20 come back (AI)	1s	1p	2	3
	H	<i>gán<sup>PM\$</sup></i>	<i>hó<sup>PM\$</sup></i>	<i>ηin<sup>PL</sup></i>	<i>han<sup>PL</sup></i>
	P	<i>gán<sup>PLM</sup></i>	<i>hó<sup>M\$</sup></i>	<i>ηin<sup>PL</sup></i>	<i>han<sup>PLM</sup></i>
	I	<i>gán<sup>PLM</sup></i>	<i>hó<sup>PM\$</sup></i>	<i>ηin<sup>PLM</sup></i>	<i>han<sup>PLM</sup></i>
	C	<i>gan<sup>PM</sup></i>	<i>ho<sup>PM</sup></i>	<i>ηin<sup>PM</sup></i>	<i>han<sup>PM</sup></i>
(135)	P21 eat (TI)	1s	1p	2	3
	P	<i>gë<sup>PM\$</sup></i>	<i>ké:<sup>LH</sup></i>	<i>ké<sup>PL</sup></i>	<i>gë<sup>PLM</sup></i>
	I	<i>dë<sup>PLH</sup></i>	<i>ké:<sup>L</sup></i>	<i>kë<sup>PH</sup></i>	<i>dë<sup>PM</sup></i>
	C	<i>gë<sup>PM\$</sup></i>	<i>ké:<sup>LH</sup></i>	<i>ké<sup>PL</sup></i>	<i>gë<sup>PL</sup></i>
(136)	P22 drink (TI)	1s	1p	2	3
	P	<i>gú<sup>PM\$</sup></i>	<i>né<sup>PM</sup></i>	<i>ʔú<sup>PL</sup></i>	<i>ʔí<sup>PL</sup></i>
	I	<i>du<sup>PLH</sup></i>	<i>né<sup>PH</sup></i>	<i>ʔu<sup>PH</sup></i>	<i>ʔí<sup>PL</sup></i>
	C	<i>gú<sup>PM</sup></i>	<i>né<sup>PM</sup></i>	<i>ʔí<sup>PL</sup></i>	<i>ʔí<sup>PM</sup></i>

<sup>12</sup>A few of these verbs have the minor aspect HABITUAL (H) mentioned in §2.4.

Among suppletive verbs, completive aspect is most often mid tone. For ‘come’ verbs, potential is usually rising low tone; for others, it often is high tone for nonthird persons and nonhigh for third person, just as for other verbs. ‘Go home’ and ‘come back’ have habitual as well as progressive aspects. Bloomfield (1933:330, 338) points out the tendency of common words to be more conservative, and thus reflect older forms of the language. These suppletive verbs, then, may be important in understanding characteristics of the other verbs in the language.

## Appendix A

### List of verbs, P1–P16

- (137) P1 A1: *hâ<sup>H</sup>* [Y] ‘stay, wait’, *ŋî<sup>H</sup>* ‘walk’.

TI: *ʔé<sup>H</sup>* ‘show, teach’, *ʔé<sup>H</sup>* ‘sing’, *gî<sup>H</sup>* ‘take out, off’, *giâ<sup>H</sup>* ‘place (pl)’, *hî<sup>H</sup>* [C3<sup>L</sup> Y] ‘burn’, *ʔî<sup>L</sup>* [C3<sup>L</sup>] ‘read’, *kiɛ<sup>L</sup>*, *kâ<sup>L</sup>* [C3<sup>M</sup>] ‘charge’, *kî<sup>H</sup>* ‘dream’, *kû<sup>H</sup>* ‘pick’, *kué<sup>H</sup>* ‘give’, *mî<sup>H</sup>* ‘ask for’, *ʔmâ<sup>H</sup>* ‘save, guard’, *ʔmî<sup>H</sup>* ‘sew’, *nâ<sup>H</sup>*, *nâ<sup>LM</sup>* [Y] ‘open’, *hni<sup>H</sup>*, *hni<sup>LM</sup>* [Y] ‘close’, *hŋâ<sup>H</sup>* ‘sow’, *hŋiú<sup>H</sup>* ‘drag’, *sî<sup>H</sup>* ‘clean’, *tâ<sup>H</sup>* [C3<sup>L</sup>] ‘prune’, *tiú<sup>H</sup>* ‘cut, saw’, *guâ<sup>L</sup>* [C3<sup>L</sup> Y] ‘grind on grinding stone’.

- (138) P2 A1: *kujî<sup>M</sup>* ‘run’, *ʔo<sup>M</sup>* ‘shout’.

TI: *ʔë<sup>M</sup>* ‘kick’, *gî<sup>M</sup>* ‘tear’, *hî<sup>M</sup>* [C3<sup>M</sup> Y] ‘plow’, *hó<sup>LH</sup>* [Y] ‘break in two’, *ke<sup>L</sup>*, *ke<sup>L</sup>* ‘place’, *kiú<sup>M</sup>* ‘hit with fist’, *hmo<sup>M</sup>* [Y] ‘make, do’, *ʔnú<sup>LH</sup>* ‘sell’, *ʔnó<sup>M</sup>* [C3<sup>M</sup> Y] ‘obtain’, *nú<sup>M</sup>* [C3<sup>M</sup> Y] ‘hear, listen’, *se<sup>M</sup>* ‘lift up’, *só<sup>M</sup>* [C3<sup>M</sup> Y] ‘cook’, *ti<sup>M</sup>* ‘scratch’, *tó<sup>M</sup>* [C3<sup>M</sup> Y] ‘bake’, *ú<sup>M</sup>* [C3<sup>M</sup> Y] ‘defecate’, *ú<sup>LH</sup>* [C3<sup>M</sup> Y] ‘pour out’.

- (139) P3 A1: *gen<sup>LH</sup>*, *gen<sup>LM</sup>* [C3<sup>L</sup>] ‘swing’, *hú<sup>L</sup>* ‘cough’ *lo<sup>L</sup>*, *la<sup>LM</sup>* [C3<sup>M</sup> Y] ‘bathe’, *ʔmí<sup>L</sup>* ‘blink, wink’.

TI: *bé<sup>L</sup>* [C1s\$] ‘roll up’, *bó<sup>L</sup>* [C1s\$] ‘pluck, shake’ *ge<sup>LH</sup>* ‘scatter’, *gen<sup>LH</sup>* ‘swing’, *guo<sup>LH</sup>* [Y] ‘pour’, *ʔgi<sup>LH</sup>* ‘smoke’, *hë<sup>LM</sup>* ‘shake’, *hî<sup>LM</sup>* ‘rummage through’, *hî<sup>L</sup>* [C1s\$] ‘put into’, *hî<sup>LM</sup>* [C1s\$ Y] ‘smell’, *hue<sup>LH</sup>* [Y] ‘say’, *ʔî<sup>L</sup>* [Y] ‘sting, inject’, *kiu<sup>LH</sup>* ‘cut’, *kî<sup>LM</sup>*, *kî<sup>LM</sup>* [C3<sup>M</sup> Y] ‘put on’, *kó<sup>L</sup>* [C1s\$] ‘thin down’, *ko<sup>LH</sup>*, *ko<sup>LM</sup>* [C1s\$] ‘play with’, *ʔle<sup>LH</sup>* ‘push’, *ʔlen<sup>LH</sup>* ‘push together’, *ʔlí<sup>L</sup>* [C1s\$] ‘knock loose’, *ʔliu<sup>LH</sup>* ‘lick’, *hli<sup>L</sup>* [C1s\$] ‘dissolve’, *ʔmé<sup>L</sup>* [C1s\$] ‘press’, *ʔmín<sup>L</sup>*, *ʔmín<sup>LM</sup>* ‘pinch’, *ʔnión<sup>LM</sup>*, *nión<sup>LM</sup>* ‘wrap around’, *ʔnó<sup>LM</sup>*, *ʔnó<sup>LM</sup>* [C3<sup>M</sup> Y] ‘look for’, *ʔŋiú<sup>L</sup>* ‘tie’, *hŋi<sup>L</sup>* [C1s\$]

‘unwrap’, *sě̂ʔL*, *sě̂ʔLM* [C3<sup>M</sup> ʔ] ‘pull up’, *síʔL* [C1s] ‘stand’, *tánʔLM* [ʔ] ‘connect, braid’, *tánʔLM*, *tánʔLM* [ʔ] ‘fasten’, *teʔLH* ‘drop’, *tɔʔL* [ʔ] ‘apply’, *toʔLM* *taʔLM* [C3<sup>M</sup> ʔ] ‘put into’, *zíʔL* ‘singe’.

TA: *cunʔLM*, *cunʔLM* ‘kiss’, *huě̂nʔLM* [ʔ] ‘scare’, *huě̂nʔLH*, *huě̂nʔLM* [C1p<sup>LH</sup> ʔ] ‘speak to’, *kě̂nʔLM*, *kě̂nʔLM* [C1p<sup>LH</sup> ʔ] ‘beat’, *kunʔLM*, *kúnʔLM* [(C1p<sup>LH</sup>)] ‘bite, eat’, *hmánʔLM*, *sénʔLM* ‘hold’, *ʔnánʔLM*, *ʔnánʔLM* [C1p<sup>LH</sup>, C3<sup>M</sup> ʔ] ‘look for’, *ʔɲionʔLM*, *ʔɲiónʔLM* [C3<sup>M</sup>] ‘tie up’, *hɲanʔLM*, *hɲanʔLM*, ‘kill’, *sínʔL* [C1s] ‘stand’, *tánʔLM*, *tánʔLM* [C1p<sup>LH</sup>, C3<sup>M</sup> ʔ] ‘put into’.

(140) P4 AI: *hɲaʔLM* ‘kill’.

TI: *ciuʔLM* ‘kiss’, *guiʔLM* ‘touch, squeeze’, *hɛʔLM*, *hɛʔL* ‘take away’, *hiuʔLM*, *hiúʔL* ‘drop (PL)’, *iúʔLM* ‘suck’, *ʔiaʔLM* ‘weed’, *ʔienʔLM*, *ʔiénʔL* ‘spray, wave’, *ʔiʔLM* [C3<sup>M</sup> ʔ] ‘hang, float’, *kĩʔLM* [C3<sup>L</sup> ʔ] ‘wrap’, *kĩʔLM*, *kĩʔL* ‘knock over’, *hɛnʔLM*, *hɛnʔL* ‘loosen’, *ʔuenʔLM*, *ʔuénʔL* ‘harvest (corn)’.

TA: *guinʔLM* ‘touch’, *ʔinʔLM* [C3<sup>L</sup> ʔ] ‘hang; inject’, *ʔlenʔLH* [C1s] ‘push’, *tě̂nʔLH* [ʔ] ‘drop’.

(141) P5 AI: *bá̂LM* ‘roll over’, *kuiLM* ‘sneeze’, *níL*, ‘sit, dwell’.

TI: *ʔáLM* ‘wade across’, *báL* ‘hit’, *bíLM* ‘throw’, *ʔéLM* ‘shell (corn)’, *ʔě̂LM* ‘hollow out’, *giúLM* ‘knead’, *huáLM* ‘fan’, *ʔiáLM* ‘pierce’, *ʔliLM* ‘shake off’, *niúLM* ‘grind in grind bowl’, *ɲiúLM* ‘vomit’, *siúLM* ‘strip’, *síLM* ‘eat with tortilla’, *táLM* ‘dunk’, *iúLM* ‘abandon’.

(142) P6 AI: *hé:M* [C1p<sup>H</sup>] ‘breathe through mouth’, *ɲí:M* [C1p<sup>H</sup>] ‘smile, laugh’.

TI: *ʔé:M* [C1p<sup>H</sup>] ‘stain’, *hiú:M* [C1p<sup>H</sup>] ‘blow’, *hli:M* ‘cover’ *hnú:M* ‘rub against’, *sú:M* [C1p<sup>H</sup>] ‘fry’.

TA: *bě̂nLM* ‘hit’, *hínLM* ‘scold’.

(143) P7 AI: *kí:LH* [C1p<sup>H</sup>] ‘whistle between teeth’, *ʔɲí:LH* ‘blow nose, spit’.

TI: *bénLM*, *bé:nM* ‘roll up’, *ʔé:LH* [C1s<sup>LH</sup>] ‘check over’, *ʔénLM*, *ʔé:nM* ‘pick’, *hiéLM*, *hié:M* [C1p<sup>H</sup>] ‘lower’, *hiénLM*, *hié:nM* ‘undo’, *hié:LH* [C1s<sup>LH</sup>] ‘chew’, *ié:LH* [C1s<sup>LH</sup>] ‘wring’, *ʔíLM*, *ʔí:L* ‘dig’, *ʔinLM*, *ʔi:nM* ‘pardon’, *mí:LH* [C1s<sup>LH</sup>] ‘ask for back’, *nó:LH* [C1s<sup>LH</sup> ʔ] ‘gnaw’, *hní:LH* [C1s<sup>LH</sup>] ‘transport’, *ní:LH* [C1s<sup>LH</sup>] ‘sieve’, *ʔóLM*, *ʔó:M* ‘bury’, *sé:LH* [C1s<sup>LH</sup>] ‘leave’, *sí:LH* [C1s<sup>LH</sup>] ‘pare’, *siú:LH* [C1s<sup>LH</sup>] ‘fry’, *tɔLM* [C3<sup>L</sup> ʔ] ‘write’, *tɔLM* [C1p<sup>H</sup>, C3<sup>L</sup> ʔ] ‘stick’, *ʔúnLM*, *ʔú:nL* [C1p<sup>H</sup>] ‘tap’.



TA: *ʔán<sup>LM</sup>*, *ʔá:n<sup>M</sup>* ‘bury’, *ʔén<sup>LM</sup>*, *ʔé:n<sup>L</sup>* ‘point out, criticize’, *ʔén<sup>LM</sup>*, *ʔé:n<sup>M</sup>* ‘pick’, *hián<sup>LM</sup>*, *hiá:n<sup>M</sup>* ‘lower’, *ʔjín<sup>LM</sup>* [c3<sup>M</sup> ʏ] ‘shoot’, *kiá:n<sup>L</sup>*, *kiá:n<sup>L</sup>* ‘lay down’, *kuë:n<sup>M</sup>*, *kuë:n<sup>L</sup>* ‘give’, *lén<sup>LM</sup>* [c3<sup>M</sup> ʏ] ‘buy’, *mán<sup>LM</sup>*, *nún<sup>M</sup>* [C1p ʏ] ‘see’, *ʔme:n<sup>M</sup>*, *ʔmé:n<sup>L</sup>* [C1p<sup>H</sup> ʏ] ‘hide’, *mí:n<sup>M</sup>*, *mí:n<sup>L</sup>* ‘ask for’, *hmá:n<sup>M</sup>*, *hmá:n<sup>L</sup>* [C1p<sup>H</sup> ʏ] ‘make’, *ʔní:n<sup>LH</sup>*, *ʔní:n<sup>L</sup>* [C1p<sup>H</sup>] ‘accuse’, *hná:n<sup>LH</sup>* [ʏ] ‘slap’, *hnió:n<sup>M</sup>*, *hnió:n<sup>L</sup>* ‘drag’, *hnñ<sup>LH</sup>*, *hnñ:n<sup>M</sup>* [C1s ʏ] ‘enclose’, *sá:n<sup>LH</sup>* [C1s<sup>LH</sup> ʏ] ‘leave’, *sa:n<sup>M</sup>*, *sá:n<sup>L</sup>* [ʏ] ‘baptize’, *sa:n<sup>M</sup>*, *sá:n<sup>L</sup>* [c3<sup>L</sup> ʏ] ‘cook’, *sa:n<sup>M</sup>*, *sá:n<sup>L</sup>* [C1p<sup>H</sup> ʏ] ‘lift up’, *tán<sup>LM</sup>* [c3<sup>L</sup> ʏ] ‘carry on shoulders’, *tén<sup>LM</sup>*, *té:n<sup>L</sup>* ‘spy on’, *tiún<sup>LM</sup>*, *tiú:n<sup>M</sup>* ‘abandon’.

- (144) P8 A1: *ʔme:n<sup>M</sup>* ‘hide’, *ʔi:n<sup>M</sup>* [c3<sup>M</sup>] ‘answer back’.

TI: *hjn<sup>M</sup>* ‘rotate’, *hui:n<sup>M</sup>* ‘break’, *ia:n<sup>M</sup>* ‘turn’, *iu:n<sup>M</sup>* ‘turn off, out’, *la:n<sup>M</sup>* [ʏ] ‘leave alone’, *hli:n<sup>M</sup>* ‘shell’, *na:n<sup>M</sup>*, *na:n<sup>L</sup>* ‘begin’, *ʔi:n<sup>M</sup>* ‘answer’, *ʔo:n<sup>M</sup>* ‘own’, *ra:n<sup>M</sup>* ‘raise’, *sa:n<sup>M</sup>* ‘prune’, *si:n<sup>M</sup>* ‘tear, rip’, *ti:n<sup>M</sup>* ‘light’, *ʔu:n<sup>M</sup>* ‘light’.

TA: *hə:n<sup>M</sup>* [ʏ] ‘wait for’, *ʔi:n<sup>M</sup>* ‘wake up’.

- (145) P9 A1: *hí:n<sup>LH</sup>*, *hí:n<sup>L</sup>* [ʏ] ‘argue’, *hú:n<sup>LH</sup>* ‘lie’, *ʔí:n<sup>LH</sup>*, *ʔí:n<sup>L</sup>* [c3<sup>M</sup>] ‘jump, fly’, *ʔjín<sup>LH</sup>* ‘pass’, *sín<sup>LH</sup>*, *sín<sup>L</sup>* [c3<sup>M</sup> ʏ] ‘discuss’, *úñ<sup>LH</sup>* [ʏ] ‘fight’.

TI: *ʔé:n<sup>LH</sup>* ‘pull’, *hiá:n<sup>LH</sup>*, *hiá:n<sup>M</sup>* ‘comb’, *hié:n<sup>LH</sup>*, *hié:n<sup>M</sup>* ‘undo’, *kiá:n<sup>LH</sup>*, *kiá:n<sup>M</sup>* ‘sweep’, *ʔlé:n<sup>LH</sup>* ‘harm’.

TA: *ʔé:n<sup>LH</sup>*, *ʔé:n<sup>M</sup>* ‘splatter on’, *ʔé:n<sup>LH</sup>* ‘pull’, *hé:n<sup>LH</sup>*, *hé:n<sup>M</sup>* ‘look at’, *hiú:n<sup>LH</sup>*, *hiú:n<sup>M</sup>* ‘blow on’, *kí:n<sup>LH</sup>*, *kí:n<sup>M</sup>* ‘dream about’.

- (146) P10 A1: *hun<sup>ʔLH</sup>* ‘squat down’, *kín<sup>ʔLH</sup>* [c<sup>M</sup>] ‘return’, *hmín<sup>ʔLH</sup>* ‘urinate’.

TI: *ʔan<sup>ʔLH</sup>*, *ʔán<sup>ʔL</sup>* ‘transplant’, *bin<sup>ʔLH</sup>*, *bín<sup>ʔL</sup>* ‘beat up’, *ʔë<sup>ʔLH</sup>* [13] ‘step on’, *gi<sup>ʔLH</sup>* ‘choose’, *hə<sup>ʔLH</sup>*, *hə<sup>ʔL</sup>* ‘hand over’, *hij<sup>ʔLH</sup>* ‘light, offer, turn’, *hin<sup>ʔLH</sup>*, *hín<sup>ʔL</sup>* ‘rinse’, *hu<sup>ʔLH</sup>* ‘fold over’, *ʔian<sup>ʔLH</sup>* ‘wrap around’, *ʔin<sup>ʔLH</sup>*, *ʔín<sup>ʔL</sup>* ‘accept, receive’, *iu<sup>ʔLH</sup>* [13] ‘turn off’, *kan<sup>ʔLH</sup>*, *kán<sup>ʔL</sup>* ‘mix together’, *kin<sup>ʔLH</sup>*, *kin<sup>ʔL</sup>* ‘hook’, *ki<sup>ʔLH</sup>* ‘return’, *kun<sup>ʔLH</sup>*, *kún<sup>ʔL</sup>* ‘connect’, *kuo<sup>ʔLH</sup>* ‘step over’, *hli<sup>ʔLH</sup>* [ʏ] ‘split’, *ni<sup>ʔLH</sup>* ‘stretch out’, *ʔni<sup>ʔLH</sup>* ‘resell’, *hna<sup>ʔLH</sup>* [ʏ] ‘pound’, *ran<sup>ʔLH</sup>*, *rán<sup>ʔL</sup>* ‘tear loose’, *ru<sup>ʔLH</sup>* [13] ‘wash’, *si<sup>ʔLH</sup>* [ʏ] ‘untie’, *tə<sup>ʔLH</sup>* [ʏ] ‘mend’, *ʔuë<sup>ʔLH</sup>* [13] ‘take out (pl)’, *ʔuën<sup>ʔLH</sup>* ‘husk’, *ʔuín<sup>ʔLH</sup>* ‘harvest’, *ziu<sup>ʔLH</sup>* ‘close up’, *ziun<sup>ʔLH</sup>*, *ziún<sup>ʔL</sup>* ‘gather up’.

TA: *ʔan<sup>ʔLH</sup>*, *ʔán<sup>ʔL</sup>* ‘shout to’, *en<sup>ʔLH</sup>*, *én<sup>ʔLM</sup>* ‘feed’, *giun<sup>ʔLH</sup>*, *giún<sup>ʔL</sup>* ‘massage’, *hin<sup>ʔLH</sup>*, *hín<sup>ʔL</sup>* ‘rinse’, *hjn<sup>ʔLH</sup>*, *hjn<sup>ʔL</sup>* ‘rotate’, *huän<sup>ʔLH</sup>*, *huán<sup>ʔL</sup>* ‘fan’, *hui<sup>ʔLH</sup>*, *hui<sup>ʔL</sup>* ‘whistle to’, *iun<sup>ʔLH</sup>*, *iún<sup>ʔL</sup>*

- 'suck on', *kuin*<sup>PLH</sup>, *kuín*<sup>PL</sup> 'make run', *lan*<sup>PLH</sup>, *lán*<sup>PL</sup> [Y] 'bathe', *hman*<sup>PLH</sup>, *hmán*<sup>PL</sup> [Y] 'mistreat', *ñi*<sup>PLH</sup> [Y] 'answer', *sin*<sup>PLH</sup> [Y] 'untie'.
- DI: *mī*<sup>PLH</sup> [I3] 'ask for', *hmo*<sup>PLH</sup> [Y] 'tell'.
- (147) P11 AI: *hī*<sup>PLM</sup> 'resurrect', *huín*<sup>PLM</sup> 'tire', *ñián*<sup>PLM</sup> 'be late in the morning', *nión*<sup>PLM</sup> 'be late in the evening'.
- TA: *hín*<sup>PLM</sup> 'meet'.
- (148) P12 II: *ʔa:n*<sup>L</sup> 'rotten', *ho:l* [Y] 'break in two', *iɛ:l* 'swell', *kó:M* 'burn', *tu:l* [Y] 'run over'.
- AI: *ʔga:n*<sup>L</sup> 'scold, bark', *ia:n*<sup>L</sup> 'swell', *kuán*<sup>M</sup> 'grow', *lá:n*<sup>M</sup> [Y] 'escape', *hnén*<sup>M</sup> 'be seen'.
- TI: *ʔie:n*<sup>L</sup> 'break out with', *sá:n*<sup>M</sup> 'be baptized with'.
- (149) P13 II: *hiú*<sup>PL</sup> 'fall (PL)', *ʔién*<sup>PL</sup> 'pierce', *kuí*<sup>PL</sup> [Y] 'wound', *rón*<sup>PL</sup> 'bear weight', *sén*<sup>PL</sup> 'adhere', *tín*<sup>PL</sup> 'cease', *tó*<sup>PL</sup> [Y] 'fall'.
- SAI: *ʔgóp*<sup>L</sup> 'afraid of', *hí*<sup>PL</sup> 'alive', *mín*<sup>PL</sup> 'ticklish', *sin*<sup>PL</sup> 'standing'.
- STI: *hmé*<sup>PL</sup> 'enjoy taste of'.
- STA: *ʔgé*<sup>PL</sup> 'afraid of'.
- AI: *hín*<sup>PL</sup> 'hiccough', *ʔló*<sup>PL</sup> 'burp', *ʔuóp*<sup>L</sup> 'weaken'.
- TI: *hgóp*<sup>L</sup> 'choke on', *lí*<sup>PL</sup> [Y] 'able', *ñín*<sup>PL</sup> 'understand', *róp*<sup>M</sup> [Y] 'bear weight of'.
- (150) P14 II: *giá*<sup>L</sup> 'used up; drip', *gén*<sup>M</sup> 'completed', *ʔi*<sup>M</sup> 'enter', *lí*<sup>L</sup> [Y] 'end, able', *tá*<sup>L</sup> 'drop', *ʔuó*<sup>L</sup> 'soften'.
- SAI: *huí:n*<sup>L</sup> 'mischievous', *ʔí*<sup>L</sup> 'resemble'.
- STI: *kuí*<sup>L</sup> 'acquainted with'.
- STA: *kuí:n*<sup>L</sup> 'acquainted with'.
- TI: *ñí:n*<sup>L</sup> [Y] 'be given'.
- (151) P15 II: *ʔié*<sup>M</sup> 'late in the morning', *ró*<sup>M</sup> [Y] 'raise up', *ʔuén*<sup>PM</sup> 'prepared (corn)', *zé*<sup>M</sup> 'go'.
- SAI: *bí:n*<sup>M</sup> 'strong', *gí:n*<sup>M</sup> 'angry', *huín*<sup>PM</sup> 'lazy', *rá:n*<sup>M</sup> 'sweet-talking', *té:n*<sup>M</sup> 'endure'.
- STI: *ʔné*<sup>M</sup> 'need'.

AI: *ʔlá:n<sup>M</sup>* [ɣ] ‘get well’, *rá:n<sup>M</sup>* ‘get up’, *zá:n<sup>M</sup>* ‘grow old’.

- (152) P16 TI: *hmi<sup>H</sup>ʔë<sup>L</sup>* ‘defend’, *hmi<sup>H</sup>kiy.<sup>HL</sup>* ‘toast, dry’, *hmi<sup>H</sup>ʔle<sup>L</sup>* ‘damage’, *hmi<sup>L</sup>ui<sup>ʔHL</sup>* [iɸs] ‘smooth, plane’.

## Appendix B

### Additional kinds of perturbation

Several kinds of perturbation have been observed which do not fit in the main system of tone sandhi described above. One kind affects the syllable type rather than the tone pattern. It is caused by certain ballistic syllables and affects an open controlled syllable with low tone, causing it to become ballistic. For example, *hmi:<sup>L</sup>* ‘water’, but *zi:<sup>LM</sup> hmi:<sup>L</sup>* ‘in the water’. Also, *zä<sup>L</sup>* ‘people’, but *kiá<sup>ʔM</sup> zä<sup>L</sup>* ‘belonging to the people’.

Evidently the effects of sandhi are different on unstressed syllables than on stressed syllables. Rule (15) (§1.4) states that low tone changes to low-high. However, the tone of the imperfect prefix *ni<sup>L-</sup>*, when preceded *mi<sup>LH-</sup>* ‘when’ or *li<sup>LH-</sup>* ‘where’, is changed to high rather than low high: *ni<sup>L</sup>guó<sup>ʔH</sup>* ‘you will go’, but *mi<sup>LH-</sup>ni<sup>H</sup>guó<sup>ʔH</sup>* ‘when you will go’ and *li<sup>LH-</sup>ni<sup>H</sup>guó<sup>ʔH</sup>* ‘where you will go’. Strangely, the past-tense prefix *ka<sup>L-</sup>* has not been observed to participate in this kind of sandhi, although it has the same tone as the imperfect prefix *ni<sup>L-</sup>*.

Interrogative intonation causes tone sandhi on the first syllable of the sentence. The first syllable is often the question marker *si<sup>MH</sup>*, but the marker may be dropped, in which case the same tone (<sup>MH</sup>) occurs on the first syllable of the sentence, if it has the shape cv. For example, *si<sup>MH</sup> sä<sup>HL</sup> hmi:<sup>L</sup>* or *sä<sup>MH</sup> hmi:<sup>HL</sup>* ‘is there any water?’.

Another conditioning environment for the tone sandhi described in the body of this paper is a verb root with the first singular person marker attached (§2.3). For example, *ŋi<sup>LH</sup>* ‘salt’, but *ka<sup>L</sup>lá<sup>M<sub>R</sub></sup> ŋi<sup>MH</sup>* ‘I bought salt’. Or *ʔlé:<sup>M</sup>* ‘soldier’, but *ʔgén<sup>ʔM<sub>R</sub></sup> ʔlé:<sup>H</sup>* ‘I am afraid of the soldier’.

## Appendix C

### Residue

A total of 107 verbs have paradigms which are deviant from any presented in this study. Some have forms of two different paradigms; some have forms which differ in stress or length; some have no progressive aspect; some simply have one or more unexpected forms.

Twenty verbs have forms of two different paradigms. *kə<sup>L</sup>* [C3<sup>M</sup>] ‘take, carry off (T1)’ has nonthird progressive like P1, and nonprogressive and third person like P5. It also has the same form for first-singular progressive as for potential. *sin<sup>PM</sup>* ‘stand (A1)’ has progressive and first-plural forms like P3, and nonprogressive for all but first plural like P15. *tē<sup>L</sup>* [Y] ‘call (A1)’ has nonthird progressive like P6, and nonprogressive and third person like P5. *ká:n<sup>L</sup>* [C3<sup>M</sup> Y] ‘carry off (TA)’ has noncompletive and third person like P6, and nonthird completive like P7. *ri:<sup>M</sup>* ‘embrace (T1)’ has nonthird progressive like P7, and nonprogressive and third person like P2. *kí<sup>H</sup>* [Y] ‘pay (T1)’ and *lá<sup>LM</sup>* [C3<sup>M</sup> Y] ‘buy (T1)’ have progressive and third person like P7, and nonthird, nonprogressive like P5. *hě:n<sup>L</sup>* [C1P<sup>LH</sup> Y] ‘have at one’s side (TA)’ has progressive and third person like P8, and nonthird, nonprogressive like P6. *zē<sup>PL</sup>* ‘find’ has noncompletive like P11 and completive like P13. *mó:<sup>M</sup>* [C3<sup>M</sup>] ‘care for (T1, TA)’ has first persons like P2, second person like P6, and third person like P5; the homophonous verb *mó:<sup>M</sup>* [C3<sup>M</sup>] ‘see (T1)’ also has a suppletive form, *ne<sup>MH</sup>*, for first plural.

Two related verbs, *sí:n<sup>L</sup>* [C1P<sup>H</sup>] ‘send (away) (T1)’ and *sí:n<sup>L</sup>* ‘send (away) (TA)’, are like P6 for nonthird, nonprogressive forms. They have long ballistic syllables with low tone for progressive and third person, which are possibly relics of an extinct paradigm for Class B verbs with that inflection. Third potential is the expected short ballistic syllable with mid tone. Three other verbs have remains of the same extinct paradigm: *zi:n<sup>M</sup>* ‘prop up (T1)’ is like P8 but has ballistic, low-tone forms for first singular and second progressive; *zé:n<sup>LH</sup>* ‘dance (A1)’ is like P9, but has low ballistic forms for third person and progressive; *tá:n<sup>LH</sup>* [Y] ‘be (someplace) (A1)’ is also like P9 except for low ballistic forms for third person and progressive for all persons but first plural.

Ditransitive verbs are like P4, but some of them have first singular forms like P6: *ʔe<sup>PLH</sup>* [C1P<sup>LH</sup>] ‘show, teach (D1)’ has first singular *ʔé:<sup>M</sup>*; *huí<sup>PLH</sup>*, *huí<sup>PL</sup>* [C1P<sup>LH</sup> C3<sup>M</sup>] ‘tell (D1)’ has first singular *huí:<sup>M</sup>*; *kuě<sup>PLH</sup>* ‘give (D1)’ has first singular *kuě:<sup>M</sup>*. Also *tē<sup>PLM</sup>*, *tē<sup>PL</sup>* [C3<sup>M</sup> Y] ‘call (TA)’ has first singular *té:<sup>M</sup>*.

*kuën<sup>PLH</sup>* [C1<sub>P</sub><sup>LH</sup>] ‘give (DA)’ has *kué:n<sup>M</sup>* for first singular progressive and completive and first plural progressive.

Nine verbs have forms which differ from the expected form in stress or length. *kĩ<sup>PLH</sup>*, *kĩ<sup>PLM</sup>* [Y] ‘cry (AI)’, *ku<sup>PLM</sup>* ‘bite, eat (TI)’, and *ni<sup>PL</sup>* [C1<sub>S</sub>] ‘swallow (TI)’ are like P<sub>3</sub> except the second- and third-person nonintensive forms are controlled. *uí:<sup>M</sup>*, *so:<sup>L</sup>* [C3<sup>M</sup>] ‘ascend (TI)’ is like P<sub>6</sub> except for third person, which is a long controlled syllable with low tone. Third intensive is short and ballistic with low tone. The same inflection for third person is present for *sá:<sup>L</sup>*, *ke:<sup>L</sup>* ‘lie down (AI)’ which has other forms like P<sub>5</sub>. It also has the suppletive form *tá<sup>PH</sup>* for first plural. *ʔia<sup>L</sup>* ‘boil, raise up (II)’ and *sá<sup>L</sup>* ‘exist (II)’ are like P<sub>12</sub>, but are short syllables. *tén<sup>PL</sup>* [Y] ‘fall (AI)’ is like P<sub>13</sub> except for controlled syllables for second and third progressive. *ʔle<sup>PL</sup>* ‘break (II)’ and *ro<sup>PL</sup>* ‘heal (II)’ are also like P<sub>13</sub> except for controlled progressive forms.

Some verbs have no progressive aspect, but rather a timeless form (stative or habitual), plus intensive and completive aspects. Such verbs may be equivalent to Fillmore’s (1969:112) momentary verbs in English. Two citation forms are given for these verbs—the first is habitual (H) and the second is for intensive and completive (I/C). Person is not marked.

- (153) SAI: *sí<sup>L</sup>uí:<sup>HL</sup>* (H), *sí<sup>L</sup>uí:<sup>L</sup>* (I/C) ‘wounded’.  
 AI: *kín<sup>PLM</sup>* (H), *kín<sup>PM</sup>* (I/C) ‘fall over’, *hlé:n<sup>L</sup>* (I), *hlén<sup>M</sup>* (I/C) ‘shake’, *hnan<sup>PLM</sup>* (H), *hnan<sup>PM</sup>* (I/C) ‘bump’, *siun<sup>PLM</sup>* (H), *siun<sup>PM</sup>* (I/C) ‘have diarrhea’, *só:n<sup>L</sup>* (H), *són<sup>M</sup>* (I/C) ‘slip, slide’.  
 TI: *hmo<sup>PLM</sup>* (H), *hmo<sup>PLH</sup>* (I/C) [Y] ‘arrange, repair’, *zi<sup>PLM</sup>* (H), *zi<sup>PM</sup>* (I/C) ‘finish’, *zí:n<sup>LH</sup>* (H), *sí<sup>L</sup>huí:n<sup>M</sup>* (I/C) ‘grow (hair)’.

Similar to these are verbs which are stative, but whose derived completive aspect has a different tone. The stative forms are like P<sub>12</sub>. The potential is the same as the stative, and the completive is a short, ballistic syllable with low tone. Two citation forms are given—the first for stative (s) and the second for completive (c).

- (154) AI: *ʔi:n<sup>L</sup>* (s), *ʔin<sup>L</sup>* (c) ‘weigh’, *kiq:n<sup>L</sup>* (s), *kiq:n<sup>L</sup>* (c) ‘emaciated’, *kuä:n<sup>L</sup>* (s), *kuän<sup>L</sup>* (c) ‘tall’, *ʔle:n<sup>L</sup>* (s), *ʔlén<sup>L</sup>* (c) ‘damp’, *lí<sup>L</sup>ú:n<sup>L</sup>* (s), *lí<sup>L</sup>ú:n<sup>L</sup>* (c) ‘accustomed’, *se:n<sup>L</sup>* (s), *sén<sup>L</sup>* (c) ‘exist’, *si:<sup>L</sup>* (s), *si<sup>L</sup>* (c) ‘named’, *sí:n<sup>L</sup>* (s), *sín<sup>L</sup>* (c) ‘shy’.  
 TI: *ʔi:n<sup>L</sup>* (s), *ʔin<sup>L</sup>* (c) ‘commit robbery’, *ú:n<sup>L</sup>* (s), *ú:n<sup>L</sup>* (c) ‘able’.

Another 55 verbs have one or more unexpected forms. One half of these are quite similar to other paradigms and are presented according to the

paradigm from which they deviate. The deviant forms follow the citation form. The person and aspect of the deviant form are indicated in parentheses.

- (155) P1 *kə<sup>L</sup>* [C3<sup>M</sup> Y] ‘carry (T1)’, *lé<sup>LM</sup>* (P1p), *kié<sup>L</sup>* (13).
- (156) P4 *mǐn<sup>PLM</sup>* ‘pinch (TA)’, *mǐn<sup>PL</sup>* (P3), *mǐn<sup>PLM</sup>* (C3).
- (157) P6 *ʔɲiú:<sup>M</sup>* ‘intertwine (T1)’, *ɲiú<sup>LH</sup>* (11p), *ɲiú<sup>M</sup>* or *ɲiú<sup>H</sup>* (C1p).  
*ʔó:<sup>M</sup>* ‘moan (A1)’, *ʔó:<sup>M</sup>* (11p).
- (158) P7 *ʔe:n<sup>M</sup>*, *ʔé:n<sup>L</sup>* ‘show (TA)’, *ʔé:n<sup>M</sup>* (P1s), *ʔén<sup>H</sup>* (11s). *guǐn<sup>LM</sup>*,  
*hgá:n<sup>L</sup>* [C3<sup>M</sup>] ‘descend (A1)’, *guǐn<sup>M</sup>* (C1p), *hiá:n<sup>L</sup>* (13). *hě:n<sup>L</sup>*, *hě:n<sup>M</sup>*  
 [Y] ‘burn (TA)’, *hě:n<sup>L</sup>* (P3). *ʔǐn<sup>LM</sup>* [Y] ‘shoot’, *ʔǐ:n<sup>M</sup>* (C3). *kiq:n<sup>MH</sup>*,  
*kiq:n<sup>L</sup>* ‘hit with fist (TA)’, *kiq:n<sup>L</sup>* (P1s), *kiq:n<sup>LH</sup>* (C1s), *kiq:n<sup>M</sup>* (C1p).  
*kó:<sup>L</sup>*, *kó:<sup>L</sup>* [C1p<sup>H</sup>, C3<sup>M</sup> Y] ‘take home (T1)’, *kó:<sup>L</sup>* (13). *ní:<sup>LH</sup>* ‘stretch  
 (T1)’, *ní:<sup>LM</sup>* (12). *hnó:<sup>LH</sup>* [Y] ‘pat out (tortillas), slap (T1)’, *hnó<sup>H</sup>* (12).  
*tán<sup>LM</sup>*, *tá:n<sup>L</sup>* [Y] ‘roast (TA)’, *tá:n<sup>M</sup>* (C3). *ʔún<sup>LM</sup>*, *ʔí:n<sup>L</sup>* [C3<sup>M</sup>] ‘enter  
 (A1)’, *ʔún<sup>M</sup>* (C1p), *ʔí:n<sup>L</sup>* (13).
- (159) P8 *tě:<sup>M</sup>* [C3<sup>M</sup> Y] ‘take along (TA)’, *tě:<sup>L</sup>* (13).
- (160) P9 *hlǐ:n<sup>LH</sup>* ‘cover up (A1)’, *hlǐ:n<sup>L</sup>* (P3).
- (161) P10 *ʔén<sup>PLH</sup>* ‘step on (TA)’, *ʔén<sup>PL</sup>* (P3, 1). *hun<sup>PLH</sup>* ‘bend over  
 (A1)’, *hún<sup>PL</sup>* (13, C).
- (162) P11 *guǎn<sup>?</sup>* ‘arrive home (A1)’, *guǎn<sup>PM</sup>* (C).
- (163) P12 *guǐ:n<sup>L</sup>* ‘sleep (A1)’, *guǐ:n<sup>L</sup>* (P1p), *kian<sup>PM</sup>* (C). *kǐ:n<sup>L</sup>* ‘lag behind  
 (A1)’, *kǐ:n<sup>M</sup>* (11p). *hnén<sup>M</sup>* ‘look at oneself (A1)’, *hně:n<sup>M</sup>* (P). *só:n<sup>M</sup>* [Y]  
 ‘desire (T1)’, *siq:n<sup>L</sup>* (C2).
- (164) P13 *si<sup>L</sup>kuǐn<sup>PL</sup>* [Y] ‘wounded’, *si<sup>L</sup>kuǐn<sup>PM</sup>* (1p), *si<sup>L</sup>kuǐn<sup>PHL</sup>*  
 (P2, P3). *té<sup>PM</sup>* [Y] ‘endure (T1)’, *té<sup>H</sup>* (11s), *té<sup>PM</sup>* (1p). *gé<sup>PM</sup>* ‘finish up’,  
*ze<sup>PL</sup>* (P3).
- (165) P15 *zí:n<sup>M</sup>* ‘be (in a high place) (A1s)’, *zí:n<sup>LH</sup>* (1p).
- (166) P16 *hmi<sup>H</sup>ʔí:n<sup>LH</sup>* ‘divert attention (TA)’, *hmi<sup>L</sup>ʔí:n<sup>LH</sup>* (3). Minor  
 paradigm, Class C verb: *ɲan<sup>PLH</sup>* ‘be born’, *ɲan<sup>PLM</sup>* (C1s).

- (167) Momentary verbs:  $\beta\acute{in}^{\mathcal{P}LM}$ ,  $\beta\acute{in}^{\mathcal{P}M}$  ‘hang (AI)’,  $\beta\acute{in}^{\mathcal{P}L}$  (s1p).  $\beta\acute{in}^{\mathcal{P}LM}$ ,  $\beta\acute{in}^{\mathcal{P}M}$  ‘float (AI)’,  $\beta\acute{in}^{\mathcal{P}LH}$  (s1p).  $kion^{\mathcal{P}LM}$ ,  $kion^{\mathcal{P}M}$  ‘trip (AI)’,  $kion^{\mathcal{P}LM}$  (11p, C1p).

The remaining 32 verbs have inflectional forms which are fairly dissimilar to any major paradigm.

$\beta\acute{i}:n^H$  ‘be of service (AI)’ has the same form for all persons. Similarly,  $ui:n^H$  ‘bring into being (II)’ has the same form for all aspects.

$si:n^L$  ‘tear (II)’ and  $zi^Lhi:n^L$  ‘rotate (II)’ have the same form for all aspects, as does  $gu\ddot{a}^L$  ‘come, arrive (II)’ and its plural counterpart,  $gue^Lli^L$ .

$gu\acute{e}n^M$  ‘arrive (AI)’ and  $h\acute{o}n^M$  ‘die (AI)’ have mid ballistic long inflection in progressive and intensive. The active stem of  $t\acute{i}:n^M$  ‘endure (SAI)’ has mid ballistic inflection in completive.

$\beta\acute{i}:n^M$  ‘sweat, bleed (TI)’ has low ballistic long inflection in progressive and mid ballistic in potential.  $li:n^M$  ‘be (profession, health) (AI)’ has low-mid ballistic inflection in progressive, and mid ballistic long with a palatalized vowel in intensive.

$si^Lgi^H$  ‘put on to cook (TI)’ has inflection for first singular, high ballistic inflection for first plural (and second), and low ballistic inflection for third.

The full paradigm is given for the remaining verbs, since their large number of deviant forms make them difficult to relate to any of the major paradigms.

(168)	P23	$l\acute{a}^{LH}$ [Y] ‘buy back (TI)’	1s	1p	2	3	
			P	H´	H´	H´	LM´
			I	H´	H´	H´	M´
			C	L´	H´	LH´	M´

(169)	P24	$ki\acute{e}^L$ ‘carry (TI)’	1s	1p	2	3	
			P	MH	H´	H´	LM
			I	MH	H´	H´	M´
			C	$k\acute{o}^L$	L	L	LM

(170)	P25	$h\acute{e}:n^L$ [Y] ‘take along (TA)’	1s	1p	2	3	
			P	M:	LM´	L:´	L:
			I	H´	H´	H´	M´
			C	M:´	H´	L:´	L:´

$\eta\acute{i}^H$  ‘know (SAI)’:  $\eta\acute{i}^{MH}$ ,  $ne^{MH}$ ,  $\eta\acute{i}^H$ ,  $\eta\acute{i}^{LM}$ .

$r\acute{a}:n^L$  ‘lying down (SAI)’:  $r\acute{a}:n^M$ ,  $t\acute{e}^{\mathcal{P}M}/t\acute{a}^{\mathcal{P}M}$ ,  $r\acute{a}:n^L$ ,  $r\acute{a}:n^L$ .

The forms of the following 11 verbs are given in the order: progressive, intentive, completive.

(171)	<i>há<sup>M</sup></i>	<i>há<sup>LM</sup></i>	<i>há<sup>M</sup></i>	'come'
	<i>ʔí:n<sup>L</sup></i>	<i>ʔín<sup>H</sup></i>	<i>ʔí:n<sup>H</sup></i>	'bounce, fly'
	<i>ké.<sup>M</sup></i>	<i>ké.<sup>M</sup></i>	<i>kó<sup>H</sup></i>	'cook'
	<i>kuán<sup>H</sup></i>	<i>kuán<sup>L</sup></i>	<i>kuán<sup>H</sup></i>	'grow'
	<i>ŋí:n<sup>LH</sup></i>	<i>ŋí:n<sup>L</sup></i>	<i>ŋí:n<sup>LH</sup></i>	'allow'
	<i>só<sup>L</sup></i>	<i>só<sup>L</sup></i>	<i>hgó.<sup>M</sup></i>	'ascend'
	<i>zé:n<sup>L</sup></i>	<i>zén<sup>H</sup></i>	<i>zé:n<sup>M</sup></i>	'spin'

## References

- Anderson, Judi Lynn, Isaac H. Martínez, and Wanda Pace. 1989. Comaltepec Chinantec tone. This volume.
- Bloomfield, Leonard. 1933. *Language*. New York: Holt.
- Fillmore, Charles J. 1969. Types of lexical information. In Ferenc Kiefer (ed.), *Studies in syntax and semantics*, 109–37. Dordrecht: D. Reidel Publishing Company.
- Woo, Nancy. 1969. *Prosody and phonology*. Ph.D. dissertation, Massachusetts Institute of Technology.