

Modeling Chichicapan Zapotec Morphology

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0. Introduction

This document describes how we modeled the morphology of Chichicapan Zapotec within the AMPLE morphological parser paradigm (Weber *et al* 1988). It is organized into five sections. The sound system is given in section 1. Section 2 briefly describes the complexities of the verbal system and how they were modeled. Section 3 deals with nominal forms, section 4 with modifiers, and section 5 touches on numbers. Conclusions are given in Section 6; an appendix lists all abbreviations used.

1. Sound system

In order to capture a number of generalizations, we chose to map the practical orthography to an internal, more technical, orthography in many instances. In this section we list the sound system of this internal representation.

There are six vowels in Chichicapan, as shown in (1). Three binary features are used: high, back, and round.

(1) Chichicapan Vowel System

	-bk	+bk	
+hi	i	ĩ	u
-hi	e	a	o
	-rd	+rd	

Tone, stress, and glottalization are marked by single and double vowels in combination with the letter *h* and the glottal symbol (') as shown in (2). A double vowel indicates length, *'h* indicates checking, *'* indicates glottalization, and *h* indicates a lowering of tone; low rising tone first falls then rises.

(2) Chichicapan tone and stress

v	rising tone with stress
vh	low tone with stress
v'	short glottalized vowel
v'h	short checked vowel

- vv rising tone on long vowel
- vvh high falling tone on long vowel
- vv^l low tone on glottalized long vowel
- vv^h high falling tone on word final checked long vowel
- vv^h low rising tone on non-word final checked long vowel

The consonant system is given in (3). All segments have both a fortis and a lenis version. All fortis versions are long, all lenis are short. Since fortification is a process involving a prefix and the initial (lenis) consonant of a root, we indicate fortis consonants by prefixing a length marker (the colon :); e.g. :p is a fortis labial stop.¹ Spanish loan words may also contain the consonants *f*, *v*, and *r*.

(3) Chichicapan Consonant System

	labial	dental	alveo- palatal	velar	labio- velar
stops	p	t	ty	k	kw
affricates			č		
fricatives		s	š ²		
nasals	m	n	ñ		
laterals		l			
glides	w		y		

2. The verb

The verb will be described in two subsections. The first deals with key morphotactic considerations and the second addresses the complexities of verbal allomorphy.

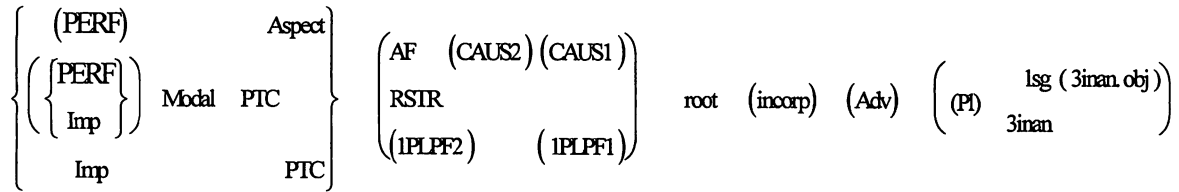
2.1. Verbal morphotactics

The verbal complex in Chichicapan Zapotec consists of the components as delineated in the chart given in (4) below. Each column among the prefixes represents an affix position or orderclass. Fundamentally, the only required affix is aspect. All modal prefixes are combinations of an aspect and a motion verb and the imperative also can count as meeting the aspectual requirement. The perfective does not co-occur with the imperative. There is, however, a significant group of existential verbs which are exceptional in that they do not require any form of aspect, as shown in (5r) below.

¹ Note that this is a non-standard notation for length. Usually length is indicated by a colon *after* the consonant.

² The š is also retroflexed.

(4) Chichicapan Verbal Structure



Causatives occur with the actor focus prefix (AF). Both causatives can occur in the same word with CAUS2 preceding CAUS1. The restorative prefix (RSTR) follows aspect and does not co-occur with any causative. 1PLPF1 and 1PLPF2 are plural prefixes which can occur following aspect. When they occur, 1PLPF1 precedes a vowel and 1PLPF2 precedes a consonant. The two can occur in the same word with 1PLPF2 preceding 1PLPF1.

Nouns, prepositions, adverbs, adjectives, and modifiers may be incorporated after the verb root. Some adverbials only occur as verbal suffixes. The plural object marker and two bound pronominal clitics are the other verbal suffixes.

The examples in (5) demonstrate the range and ordering of the verbal structure as indicated in (4).

- (5)
- | | | |
|----|--|---------------------------------|
| a. | pa-p-a-čahka
PERF-C-RSTR-tire.out | ‘already have been tired out’ |
| b. | pa-kwa-Ø-:čii-:s:to'
PERF-C.go-PTC-be.true-chest1 | ‘already believed’ |
| c. | kul-:če-k-a-: -či'-loh
Imp-P.gonbs-PTC-AF-CAUS1-touch.pierce-face | ‘(you all) go greet’ |
| d. | :če-k-a-k-ee
P.gonbs-PTC-AF-CAUS1-drink | ‘go to make (someone) drink’ |
| e. | kul-k-a-: -sihty'i
Imp-PTC-AF-CAUS1-snap | ‘(you all) knock (on the door)’ |
| f. | p-a-:sa-ñi'
C-AF-CAUS2-speak | ‘caused to speak’ |
| g. | k-u-:sa-: -kwa:či-čii
P-AF-CAUS2-CAUS1-place1-peaceful2 | ‘will cause to be peaceful’ |
| h. | k-a-ku'-:ča'yi
P-RSTR-insert-formed | ‘will store up’ |
| i. | pi-t-ï'h:n
C-1PLPF1-do | ‘(we) did’ |
| j. | p-a:či-:ka'h
C-1PLPF2-throw | ‘(we) threw / climbed’ |
| k. | p-a:či-t-ï'h:n
C-1PLPF2-1PLPF1-do | ‘(we) did’ |

l.	p-a-luu'yi-loh-:tī'h-in C-RSTR-show-face-completely4-3inan	'it completely appeared'
m.	p-a-:kah-kīya' C-RSTR-climb-above1	'climbed up'
n.	kwa-∅-sah-tyu-:tī' C.go-PTC-walk-more1-completely4	'continued completely'
o.	k-u-:tī'či-loh-tya'-ñ-in P-AF-CAUS1-pass1-face-PI-1sg-3inan.obj	'I will endure them'
p.	ty-napīa'-tya'-n H-rule-PI-1sg	'I rule them'
q.	k-u':n-:ka-hn P-do-certainly-1sg	'I certainly will do'
r.	ča'ka-'hn join.EX-1sg	'I join'

2.2. Verbal Allomorphy

Verbal root allomorphy in Chichicapan Zapotec is a product of several overlaying factors. These can result in a seemingly complex array of allomorphs for a given root. The key factors are listed below with examples.

- An initial lenis consonant can become fortis when it immediately follows the fortifying allomorph of Potential, participle, or first causative.

(6)	a.	ty-či'hyi H- <i>seek.mislead</i>	'seeks/misleads'
	b.	: -či'hyi P- <i>seek.mislead</i>	'will seek/mislead'
	c.	:če-: -či'hyi P.gonbs-PTC- <i>seek.mislead</i>	'will go to seek/mislead'
	d.	p-a-: -či'hyi C-AF-CAUS1- <i>seek.mislead</i>	'caused to seek/mislead'

- The features of the initial nucleus of the root may be modified by any of the following:
 - the Potential aspect prefix;

(7)	a.	ty-tyih:ta H- <i>play</i>	'plays'
	b.	: -tyi:ta P- <i>play</i>	'will play'

- (8) a. ty-too' 'is sold'
H-sell
b. :-too 'will be sold'
P-sell

— the first person singular suffix;

- (9) a. ty-pah:či 'puts in place'
H-place1
b. ty-pa':či-hn 'I put in place'
H-place1-1sg
(10) a. ty-tī'či 'passes through'
H-pass1
b. ty-tī'či-hn 'I pass through'
H-pass1-1sg

— the root being the non-final member of a compound.

- (11) a. ty-pah:či 'put in place'
H-place1
b. ty-pa:či-:š:čih 'create' (lit., place their day)
H-place1-POS.day
(12) a. ty-ah:ka 'be able'
H-be.done
b. ty-a:ka-nee 'help'
H-be.done-with1

- The root may have a unique form when it occurs in a participial construction.

- (13) a. ty-ahw 'eats'
H-eat
b. kwa-:-tahw 'went to eat'
C.go-PTC-eat
(14) a. ty-ah:la 'fit'
H-fit
b. se'-y-a:la 'forthcoming'
Pr.come.nbs-PTC-fit

- The root may have a suppletive form for first person plural.

- (15) a. k-ahpi lu'h 'you will say'
P-say 2sgclitic
- b. kī-tī':tyī nu'h 'we will say'
P-say.1pl 1pl
- (16) a. k-a:ku lu'h 'you will dress (yourself)'
P-dressed 2sgclitic
- b. kī-čyaa:ku nu'h 'we will dress (ourselves)'
P-dressed.1pl 1pl

- The root will have a unique form when it is preceded by the Completive aspect under certain morphological conditions.

- (17) a. ty-pīhči 'call'
H-call
- b. ku-tīhči 'called'
C-call
- (18) a. ty-ahw 'eat'
H-eat
- b. ku-tahw 'ate'
C-eat

In addition, there are other distributional restrictions:³

- The Potential and Completive aspects have particular allomorphs with certain sets of verbs.

- (19) a. :-ka:pa 'will slap'
P-slap
- b. č-yaaša 'will dare'
P-dare
- c. k-a:ka 'will be done'
P-be.done
- d. kī-piin 'will be grieved'
P-be.grieved
- (20) a. pi-:ka'n 'went about'
C-go.about
- b. p-ačikaa' 'stared'
C-stare
- c. ku-pihtyī 'dried out'
C-dry.out

³ Ideally the last two restrictions would be semantically driven, but it is not clear what the conditions would be.

- d. k-u:či:š:kī' 'burst'
C-burst
- e. kw-ah 'went away'
C-gonbs

- The first causative occurs with some verbs, but not others.

- (21) a. ty-ka':tyī 'buries'
H-bury
- b. ty-u:-ka':tyī 'causes to bury'
H-AF-CAUS1-bury
- (22) a. ty-ča'ka 'joins'
H-join
- b. ty-u:-ča'ka 'causes to join'
H-AF-CAUS1-join
- (23) a. ty-pih:ši 'measures'
H-measure
- b. *ty-u:-pih:ši 'causes to measure'
H-AF-CAUS1-measure
- (24) a. ty-kah:pa 'slaps'
H-slap
- b. *ty-u:-kah:pa 'causes to slap'
H-AF-CAUS1-slap

- The actor focus morpheme may stand alone with some verbs, but not others.

- (25) a. ty:-ka'h 'throws'
H-throw
- b. ty-u:-ka'h 'throws'
H-AF-throw
- (26) a. ty-tī'hi 'gives'
H-give
- b. ty-u-tī'hi 'gives'
H-AF-give
- (27) a. ty-pah:či 'places'
H-place1
- b. *ty-u-pah:či 'places'
H-AF-place1
- (28) a. ty-aa:n 'worships'
H-know.worship

- b. *ty-u-aa:n ‘worships’
H-AF-know.worship

These factors combine to produce quite a range of allomorphy for some verbs (others are quite simple). To model this distribution within the AMPLE paradigm, we employ several strategies. First, we use an internal orthographic representation of the fortis-lenis distinction. We view the distinction as being fundamentally a matter of length: lenis consonants are short, fortis are long.

The second main strategy is to divide the verbs into five major classes. There is no semantically or phonologically based criterion for the classes. The classes are based primarily on the initial segment of the verb root (in its base or underlying form). The table in (29) shows several other distributional properties which can be delineated via this classification system.

(29) Chichicapan Verb Class Characteristics

Class	Initial Segment	Aspect	Takes CAUS1	Suppletive 1PL	Actor Focus Alone
I	lenis consonant	Fortifying P	sometimes	never	sometimes
II	lenis consonant	normal	always	never	never
III	lenis consonant	pi- C	always	never	never
IV	consonant	normal	never	never	sometimes
V	vowel	normal	sometimes	sometimes	never

The first three classes begin with a lenis consonant. The first always takes the fortifying form of the Potential. That is, these verbs take the fortifying (colon :) allomorph of the Potential aspect. The third class is characterized by taking the pi- allomorph of the Completive⁴. The second class has no special aspect allomorphy. Class V is vowel initial and Class IV is a kind of catch-all class for consonant initial verbs that do not fall into Classes I through III.

In addition, Classes II and III always take the first causative morpheme while Class IV never does. Some verbs in Classes I and V may take the first causative. Only verbs in Class V have suppletive first plural forms. Finally, some Class I verbs and some Class IV verbs are able to take the actor focus morpheme alone (i.e. without also requiring a causative or modal morpheme).

The special allomorphy with Completive occurs in two instances. The first is with Class I verbs which are underlyingly k- or kw- initial. These forms unpredictably begin with either l, ty, or t when immediately preceded by the Completive.⁵ The underlying k- or kw- form usually occurs with fortification, so normally it surfaces with CAUS1 or the fortifying allomorph of the Potential or participle.

⁴ There is a group of 12 exceptional class I verbs which take the pi- allomorph of the Completive in the first plural. These are handled by entering a separate root which is restricted to use with the first plural and has the morpheme property class III.

⁵ One could also posit that these verbs underlyingly begin with either the l, ty, or t. The challenge is then to explain the alternations that arise with all other aspects and prefixes coupled with why these particular verbs undergo these changes while others that also begin with these segments do not.

- (30) a. ty-pah:či 'place'
H-place1
- b. :-kwa:či 'will place'
P-place1
- c. ku-lah:či 'placed'
C-place1
- (31) a. ty-pīh 'puts in place'
H-place2
- b. :-kwih 'will put in place'
P-place2
- c. ku-tyih 'put in place'
C-place2
- (32) a. ty-pīhči 'calls'
H-call
- b. :-kwiči 'will call'
P-call
- c. ku-fīhči 'called'
C-call

The second instance of special allomorphy with the Completive aspect occurs with Class V verbs. Roots with an initial “a” become “u” initial in the Completive, while “u” initial roots become “ī” initial.

- (33) a. ty-aa'n 'plows'
H-plow2
- b. k-uu'n 'plowed'
C-plow2
- (34) a. ty-uu'yi 'cooks'
H-cook
- b. p-īī'yi 'cooked'
C-cook

To model these classes, we employ five morpheme properties, one for each class: **classI**, **classII**, **classIII**, **classIV**, and **classV**. Those verbs in classes I and V which can take the first causative are specially labeled via the morpheme property **takes_CAUS1** as shown in the following examples. Notice that the relevant information from the root dictionary is included⁶.

⁶ \r basic form of root
 \a allomorph
 \mp morpheme property
 \c category
 \g gloss

- (35) a. ty-pweesa ‘awaits’
 H-await
- b. ty-u-:-kwe'sa ‘causes to await’
 H-AF-CAUS1-await
- c. \r pweesa
 \la kwe'sa /: _ +/ CAUS1 _
 \la pweesa
 \mp classI
 \mp takes_CAUS1
 \c V2
 \g await
- (36) a. ty-aa'ta ‘is acquired’
 H-acquire
- b. ty-u-k-aa'ta ‘causes to acquire’
 H-AF-CAUS1-acquire
- c. \r aa'ta
 \la aa'ta
 \mp classV
 \mp takes_CAUS1
 \c V2
 \g acquire

Similarly, the morpheme property **takes_AF_alone** is used to mark those verbs in classes I and IV which can take the actor focus prefix without a concomitant causative or modal⁷.

- (37) a. ty-suh ‘stands up’
 H-standup1
- b. ty-u-suh ‘stands up’
 H-AF-standup1
- c. \r suh
 \la suh
 \mp classI
 \mp takes_AF_alone
 \c V2
 \g standup1
- (38) a. ty-ti'hi ‘gives’
 H-give
- b. ty-u-ti'hi ‘gives’
 H-AF-give

⁷ There is a group of 20 exceptional verbs which can take the causative without the actor focus morpheme. These are handled with a morpheme class and a morpheme co-occurrence rule.

- c. \r ti'hi
- \la ti'hi
- \mp classIV
- \mp takes_AF_alone
- \lc V2
- \lg give

These properties plus a set of successor and final tests ensure the correct distribution of allomorphy. This, however, does not account for all of the allomorphy. Some verbs have a unique allomorph in a participial construction. Two properties are used to tag these special forms. The morpheme property **has_PTC_allo** is used to indicate that the particular verb has a special allomorph in a participial construction. The allomorph itself is tagged via the allomorph property **ptc** as in (40) and (41).

- (39) a. ty-suu 'stands'
 H-stand3
- b. :če-:-suu 'will stand (before others as judge)' or 'move out of the way'
 P.gonbs-PTC-stand3
- c. \r suu
- \la suu
- \mp classI
- \lc V2
- \lg stand3
- (40) a. ty-ahw 'eats'
 H-eat
- b. kwa-:-tahw 'went to eat'
 C.go-PTC-eat
- c. \r ahw
- \la tahw ptc / :_ +/ PTC _
- \la ahw
- \mp classV
- \mp has_PTC_allo
- \lc V2
- \lg eat
- (41) a. ty-ahpi 'says'
 H-say
- b. kwa-k-ih:tyi 'went to say'
 C.go-PTC-say
- c. \r ahpi
- \la ih:tyi ptc
- \la ahpi
- \mp has_PTC_allo
- \mp classV
- \lc V2
- \lg say

The first singular suffix also can create changes in the initial nucleus of the verb. These are tagged in a similar fashion to the participial forms. The verb is tagged via the morpheme property **has_1sg_allo**. The allomorphy here is a little more complicated than with the participial construction. Sometimes a particular allomorph only surfaces with the first singular. These are labeled with the allomorph property **1sg_only** as in (43). Other times, a unique allomorph may surface either with or without the first singular. This latter kind is labeled with the allomorph property **1sg** as in (44). Using this scheme allows us to tag only those forms which are unique. If a particular verb does not have special allomorphy with the first singular, no tagging is required as in (42).

- (42) a. ty-čì'hn 'pleads'
 H-plead
- b. ty-čì'hn-a'hn 'I plead'
 H-plead-1sg
- c. \r čì'hn
 \la čì'hn
 \mp classI
 \c V2
 \g plead
- (43) a. ty-pah:či 'puts in place'
 H-place1
- b. ty-pa':či-hn 'I put in place'
 H-place1-1sg
- c. \r kwah:či
 \la pa':či 1sg_only
 \mp classI
 \mp has_1sg_allo
 \c V2
 \g place1
- (44) a. ty-tī'či 'passes through'
 H-pass1
- b. ty-tī'či-hn 'I pass through'
 H-pass1-1sg
- c. \r tī'či
 \la tī'či 1sg
 \la tī'či
 \mp classI
 \mp has_1sg_allo
 \c V2
 \g pass1

In addition, some verbs take a glottalized form of the first singular morpheme (-a'hn). Until a better way to predict the occurrence of this allomorph is found, we have chosen to mark such roots with the morpheme property **takes_glottal_1sg** as in (46). Unfortunately, some verbs which normally

take the glottalized form of the first singular have an allomorph which does not. These exceptional allomorphs are marked with the allomorph property **no_glottal_1sg** as in (47).

- (45) a. ty-:klaa'tyĩ 'desires'
H-desire
- b. ty-:klaa'tyĩ-hn 'I desire'
H-desire-1sg
- c. \r :klaa'tyĩ
\a :klaa'tyĩ
\mp classIV
\c V2
\g desire
- (46) a. ty-ah:ka 'is done / able'
H-be.done
- b. ty-ah:ka-'hn 'I am able'
H-be.done-1sg
- c. \r ah:ka
\a ah:ka
\mp classV
\mp takes_glottal_1sg
\c V2
\g be.done
- (47) a. č-ya:ka 'will heal'
P-heal
- b. k-u-:s-ya':ka-hn 'I will heal'
P-AF-CAUS2-heal-1sg
- c. s-ya:ka-'hn 'I will definitely be healed'
D-heal-1sg
- d. \r ya:ka
\a ya':ka 1sg_only no_glottal_1sg
\a ya:ka 1sg
\mp classV
\mp takes_glottal_1sg
\c V2
\g heal

Class V verbs which underlyingly begin with either “a” or “u” may have a suppletive form for first person plural. These need to be entered as a separate entry and labeled with two morpheme properties: **classV** and **1st_plural** as in (49) and (50).

- (48) a. ty-ah:ka lu'h 'you are able'
H-be.done 2sgclitic
- b. ty-ah:ka nu'h 'we are able'
H-be.done 1pl

- c. \r ah:ka
 \a ah:ka
 \mp classV
 \c V2
 \g be.done
- (49) a. k-a:ku lu'h 'you will dress (yourself)'
 P-dressed 2sgclitic
- b. kī-čya:ku nu'h 'we will dress (ourselves)'
 P-dressed.1pl 1pl
- c. \r a:ku
 \a ah:ku
 \mp classV
 \c V2
 \g dressed
- d. \r a:ku
 \a čya:ku
 \mp classV
 \mp 1st_plural
 \c V2
 \g dressed.1pl
- (50) a. p-i':la 'sang'
 C-sing
- b. pi-či':la nu'h '(we) sang'
 C-sing.1pl 1pl
- c. \r u':la
 \a i':la / p _ +/ C _
 \a u':la +/ C ~_
 \mp classV
 \c V2
 \g sing
- d. \r či':la
 \a či':la
 \mp classV
 \mp 1st_plural
 \c V2
 \g sing.1pl

A few verbs will take a null participle in a modal construction even when phonologically one would expect an overt participle. Such verbs must be marked with the morpheme property **takes_NULL_PTC** as in (52) and (53).

- (51) a. ty-suh 'stands'
 H-standup1
- b. tye'-:-suh 'springs up'
 H.come-PTC-standup1

- c. \r suh
 \a suh
 \mp classI
 \c V2
 \g standup1
- (52) a. ty-pweesa ‘awaits’
 H-await
- b. tyii-Ø-pweesa ‘grouped awaiting’
 Pr.grp-PTC-await
- c. \r pweesa
 \a pweesa ptc
 \mp classI
 \mp takes_NULL_PTC
 \c V2
 \g await
- (53) a. ty-tahla ‘multiplies’
 H-multiply2
- b. se-Ø-tahla ‘going multiplying’
 Pr.gonbs-PTC-multiply2
- c. \r tahla
 \a tahla 1sg
 \mp classII
 \mp takes_NULL_PTC
 \c V2
 \g multiply2

The final source of allomorphy is that the initial nucleus of a root will reduce (in stress and/or glottalization) if the root is not the final root in the word. Such allomorphs are labeled **unstressed** as in (54) and (55).

- (54) a. ty-pah:či ‘put in place’
 H-place1
- b. ty-pa:či-:š:čih ‘create’ (lit., place their day)
 H-place1-POS.day
- c. \r kwah:či
 \a pa:či ptc unstressed
 \a pah:či / : ~ _
 \mp classI
 \c V2
 \g place1
- (55) a. ty-ah:ka ‘be able’
 H-be.done
- b. ty-a:ka-nee ‘help’
 H-be.done-with1

- c. \r ah:ka
 \a a:ka unstressed
 \a ah:ka
 \mp classV
 \c V2
 \g be.done

These special markings are summarized in the charts in (56) – (58). Chart (56) is repeated from (29) above for easy reference.

(56) Chichicapan Verb Class Characteristics

Class	Initial Segment	Aspect	Takes CAUS1	Suppletive 1PL	Actor Focus Alone
I	lenis consonant	Fortifying P	sometimes	never	sometimes
II	lenis consonant	normal	always	never	never
III	lenis consonant	pi- C	always	never	never
IV	consonant	normal	never	never	sometimes
V	vowel	normal	sometimes	sometimes	never

Chart (57) delineates the taggings which depend on the particular verb classes.

(57) Chichicapan Class-Dependent Special Property Marking

Class	Takes CAUS1	Suppletive 1PL	Actor Focus
I	\mp takes_CAUS1		\mp takes_AF_alone
II			
III			
IV			
V	\mp takes_CAUS1	\mp 1st_plural	\mp takes_AF_alone

The chart in (58) gives the markings which are independent of class.⁸ The morpheme property **no_compound** prevents a particular root from ever being a member of a compound.

⁸ While the first singular markings, of course, do not apply to the first plural suppletive forms, the participle and compound may apply.

(58) Chichicapan Class-Independent Special Property Marking

	First Singular	Participle	Compound
morpheme property	\mp has_1sg_allo	\mp has_PTC_allo	\mp no_compound
	\mp takes_glottal_1sg	\mp takes_NULL_PTC	
allomorph property	1sg_only or 1sg	ptc	unstressed
	no_glott_1sg		

This method of modeling the verbal allomorphy provides a consistent and structured way to deal with the potentially complex allomorphy that can surface.

3. Nominal Morphology

The noun in Chichicapan Zapotec is considerably simpler than the verb. The morphotactics can be delineated as in the chart of (59).

(59) Chichicapan Nominal Structure

$$(\text{Pos}) \left\{ \begin{array}{l} (\text{Nom}) \text{ Noun root} \\ \text{Nom Verbal Structure} \end{array} \right\} (\text{Nominal Compound}) (\text{Dim}) (\text{incorp}) \left(\begin{array}{l} (\text{PI}) \text{ 1sg (3inan)} \\ \text{3inan} \end{array} \right)$$

Nouns compound with nouns, adjectives, prepositions, and modifiers.

The following examples demonstrate the range and ordering of the nominal structure as indicated in chart (59) above⁹:

- (60)
- | | | |
|----|--|-------------------|
| a. | <u>:š:-kel-kutyi':ši</u>
Pos-Nom-business1 | '(its) business' |
| b. | <u>šii'n-ča':pa-'hn</u>
child2-girl-1sg | 'my daughter' |
| c. | <u>:š:-pato'-yi'hn</u>
Pos-baby-Dim | 'my little baby' |
| d. | <u>nes-yuh-yi'hn</u>
way-earth-Dim | 'little path' |
| e. | <u>čya'-yi'hn-tya'</u>
flower-Dim-PI | 'little flowers' |
| f. | <u>kel-ty-napīa'-yi'hn-tya'</u>
Nom-H-rule-Dim-PI | 'little kingdoms' |

⁹ The nominal form in focus is underlined in h. Note that Zapotec has VSO word order.

- g. :š:-pī':n-tya'-n 'my people'
Pos-person-Pl-1sg
- h. p-a-ni'hi :š:-paa'-ñ-in na'h 'my father gave it to me'
C-AF-give Pos-father-1sg-3inan.obj 1sgfree
- i. :š:-kel-ty-pah:či-čii-:s:to '(its) peacefulness'
Pos-Nom-H-place1-peaceful2-chest1

Unexpectedly, the nominalizer can appear on noun roots. Adding the nominalizer changes the meaning of the noun to the doing of that thing or the work of that person.

- (61) a. piča'ha 'witch'
witch
- b. kel-piča'ha 'witchcraft'
Nom-witch
- (62) a. kutyi':ši 'business'
business1
- b. kel-kutyi':ši 'doing business'
Nom-business1

As with verbs, nominal roots may have distinct allomorphs with the first singular pronoun. These are labeled as **1sg_only** and **has_1sg_allo** as in (64) and (65).

- (63) a. ča':pa 'girl'
girl
- b. ča':pa-'hn 'my girl'
girl-1sg
- c. \r ča':pa
 \ a ča':pa
 \ c N
 \ g girl
- (64) a. šihpi 'kneecap'
kneecap
- b. šipi-hn 'my kneecap'
kneecap-1sg
- c. \r šihpi
 \ a šipi 1sg_only
 \ a šihpi
 \ mp has_1sg_allo
 \ c N
 \ g kneecap
- (65) a. čyahka 'ear'
ear

- b. čyaka-hn 'my ear'
ear-1sg
- c. \r čyahka
\a čyaka 1sg_only
\a čyahka
\mp has_1sg_allo
\c N
\g ear

Some nouns take a glottalized form of the first singular as in (67) and (68). They need to be labeled **takes_glottal_1sg**.

- (66) a. pisaa'n 'sibling'
op.sx.sibling
- b. pisaa'n-ahn 'my sibling'
op.sx.sibling-1sg
- c. \r pisaa'n
\a pisaa'n
\c N
\g op.sx.sibling
- (67) a. :če'hla 'wife'
spouse
- b. :če'hla-'hn 'my wife'
spouse-1sg
- c. \r :če'hla
\a :če'hla
\mp takes_glottal_1sg
\c N
\g spouse
- (68) a. šahn 'frustration'
frustration
- b. šahn-a'hn 'my frustration'
frustration-1sg
- c. \r šahn
\a šahn
\mp takes_glottal_1sg
\c N
\g frustration

When it occurs as the first member of a compound, a noun can have an unstressed allomorph which must be labeled **unstressed** as in (70) and (71).

- (69) a. pa:ku'ka 'altar'
altar
- b. pa:ku'ka-čyah 'rock altar'
altar-rock
- c. \r pa:ku'ka
\a pa:ku'ka
\c N
\g altar
- (70) a. tu'h 'rope'
rope
- b. tu'-kusi'w 'lightning'
rope-thunder
- c. \r tu'h
\a tu' unstressed
\a tu'h
\c N
\g rope
- (71) a. naan 'lady'
lady
- b. nan:-swehktya 'mother-in-law'
lady-mother.in.law
- c. \r naan
\a nan unstressed
\a naan
\c N
\g lady

4. Modifiers

Modifiers are adjectives or adverbs. In some cases a root will act as both.

Modifiers have special allomorphy with the first singular pronoun and need to be labeled with **1sg_only** and **has_1sg_allo** as in (73).

- (72) a. :čih:pa 'tightly'
tightly
- b. ku-ñi' :čih:pa-'hn 'I spoke firmly' or 'I vowed'
C-speak tightly-1sg
- c. \r :čih:pa
\a :čih:pa
\c Adv
\g tightly

- (73) a. kah:ka 'likewise'
likewise
- b. :š-:kween:ta ka':ka-hn 'my own account'
Pos-account likewise-1sg
- c. \r kah:ka
\a ka':ka 1sg_only
\a kah:ka
\mp has_1sg_allo
\c Mod
\g likewise

Some modifiers take the glottalized form (-'hn) of the first singular and so need the `takes_glottal_1sg` morpheme property as in (75) and (76).

- (74) a. tyu 'more'
more1
- b. k-u-:ka'h tyu-hn 'I will write more'
P-AF-throw more1-1sg
- c. \r tyu
\a tyu
\c Mod
\g more1
- (75) a. čaapa 'bad'
bad
- b. šikaapa čaapa-'hn 'my bad thought'
mind bad-1sg
- c. \r čaapa
\a čaapa
\mp takes_glottal_1sg
\c Mod
\g bad
- (76) a. čye':pa 'blind'
blind
- b. p-ya'han čye':pa-'hn 'I (was) blinded'
C-remain blind-1sg
- c. \r čye':pa
\a čye':pa
\mp takes_glottal_1sg
\c Mod
\g blind

5. Numbers

Numbers can take one of the aspects Potential, Habitual, or Completive in order to become the modifier of the head of a noun phrase. The Potential aspect has a future tense orientation, Habitual a present tense orientation, and Completive past tense orientation.¹⁰

- (77) a. ya :čin p-yoh:na čih :ka-k-a-č'i'hyi tya' pa
 now when1 C-three day Pr.Mdl-PTC-AF-seeK.mislead plural 3humhon
 'now when they had been seeking him for three days'
- b. nin ty-yoh:na ku-ñi' Je:suh:s loh tya' (:š-:piin Ñih)
 Rel.Cl H-three C-speak Jesus face plural Pos-person 3deity
 'the third time Jesus said to his disciples'
- c. :pety :čin č-yoh:na čih k-uh:či-'hn
 but when1 P-three day C-die-1sg
 'but on the third day after I die'

The morpheme glossed as whole gives a collective sense, making a distinction between a partitive and collective reading.

- (78) a. :či':či kw-a-piika tya' k-a-tyoo:pa pi'i:n tya'
 then1 C-gonbs-get.near plural P-whole-two person plural
 'then both people went closer'
- b. :pety ayi :tyu šii'n pi'h:tyi tyoo:pa pa ku-yuu'
 but negpref1 who child2 man's.bro two 3humhon C-enter
 'but his second brother didn't have any children'

6. Conclusion

We have tested this morphology description on a corpus of 8089 unique words using the AMPLE program. All 8089 words analyze. The Chichicapan root dictionary contains 453 verb roots. Of these 81 are class I, 25 class II, 74 class III, 130 class IV and 95 class V. The remaining 48 are existential verbs which are not marked with class. In addition there are 293 nouns and 189 modifiers.

Reference

Weber, David J., H. Andrew Black, and Stephen R. McConnel. 1988. AMPLE: A Tool for Exploring Morphology. Occasional Publications in Academic Computing 12. Dallas: SIL.

¹⁰ In (b), the relative clause has an empty head.

Appendix: Abbreviations Used

1PLPF1	first 1st person plural prefix
1PLPF2	second 1st person plural prefix
1pl	1st person plural
1sg	1st person singular
2sgclitic	2nd person singular clitic
3deity	3rd person deity pronoun
3humhon	3rd person human, honorific pronoun
3inan	3rd person inanimate pronoun
3inan.obj	3rd person inanimate object pronoun
AF	actor focus
C	completive aspect
C.go	“going to base” motion auxiliary with completive aspect
CAUS1	first causative
CAUS2	second causative
D	definite future aspect
Dim	diminutive
gonbs	going to non-base
H	habitual aspect
H.come	“coming to base” motion auxiliary with habitual aspect
Imp	imperative
NEG	negative
Nom	nominalizer
P	potential aspect
P.gonbs	“going to non-base” motion auxiliary with potential aspect
PERF	perfective
PTC	participle
Pl	plural
Pos	possessive
Pr.Mdl	progressive modal
Pr.come.nbs	“coming to non-base” motion auxiliary with progressive aspect
Pr.gonbs	“going to non-base” motion auxiliary with progressive aspect
Pr.grp	progressive grouped (the actors are viewed as a group)
RSTR	restorative
Rel.Cl	relative clause marker