The Zapotecan languages

WORKSHOP, STATE OF THE ART OF MESOAMERICAN LINGUISTICS
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Outline

1. Orientation
2. State of the art in Zapotecan language classification
3. Basics of Zapotecan syntax and morphology
4. Historical changes in Zapotec aspect morphology
5. Recent advances in Zapotecan tone (with focus on Chatino)

1. Orientation

Orientation

The Zapotecan language family belongs to the Otomanguean stock

The family is indigenous to Oaxaca, Mexico

The earliest texts are hieroglyphic texts from the Zapotec empire, dating from about 400 BC to 600 AD. These texts are only partially deciphered.

The family has two branches: Zapotec and Chatino

Number of languages?

2. State of the art of Zapotecan language classification

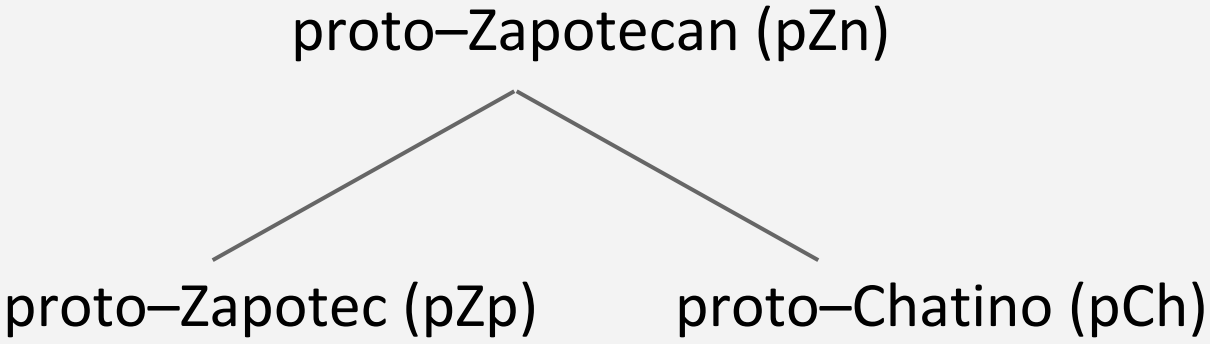
External classification (based on Kaufman 2006)

Otomanguean (OM)	Eastern OM	Mazatecan–Zapotecan	Zapotecan	Zapotec
				Chatino
			Mazatecan	
		Amuzgo–Mixtecan	Amuzgo	
			Mixtecan	
	Western OM	Tlapanec–Manguean	Tlapanec–Sutiaba	
			Chorotegan†	
		Otopamean–Chinantec	Otopamean	
			Chinantec	

Internal classification of Zapotecan

Earliest works grouping Zapotec and Chatino together: León (1902), Belmar (1902), Mechling (1912)

Only recently have shared innovations been identified that establish Zapotec and Chatino as distinct groups



Defining Zapotec

From pZn to pZp (Kaufman 2006: 122)

1. shift of prominence from root-final to penultimate syllables
2. loss of vowel nasality (*Ṿ > *V)

Contact-induced change from non-OM languages (Kaufman 2006)

These are the only two clear innovations yet identified that would define all of Zapotec as a group apart from Chatino

Loss of vowel nasality in pZp

		pZp (Kaufman 1993-2007)	pCh (Campbell 2013, to appear)
a.	‘armadillo’	**kwe=kukkwe*	**kùkwę̀?*
b.	‘village’	**keetze*	**kitzę*
c.	‘wide’	**xe* *x* = [ʃ]	**sèę̀*
d.	‘white’	**na=kattye*	**n-kàtę́*
e.	‘pot’	**kesso?*	**ketǫ?*
f.	‘tuber’	**koo*	**kòǫ̀*
g.	‘long’	**sikwi*	**tikwį*

Defining Zapotec

Develarization of pZn labio-velars (**kw*,**kkw*) in Zapotec:

Not a pZp-level change (Smith Stark 1999, 2007):

	Soltec	Western Zap.	Core Zap.
**kw* > **b*	pre-tonic sylls.	pre-tonic & tonic	all positions
**kkw* > **p*			post-tonic

Lack of other Zapotec-wide isoglosses: Soltec and Western split off relatively early

Defining Chatino

From pZn to pCh (Kaufman 1993-2007)

	pZn		pCh	
1.	**CC*	>	**C*	pZn geminates (Swadesh 1947) merged with singles
2.	**(t)t*	>	**j* [h]	
3.	**(s)s*	>	**t*	
4.	**(t)ty*	>	**t*	
5.	**(x)x*	>	**s*	

Relative chronology (Campbell 2013):
Changes (2), (3) & (5) were a chain shift, in that order

Defining Chatino

		pZp	pCh	pZn	pCh
a.	‘skin’	**kiti*	**kijį*	**t*	**j*
b.	‘squash’	**kettu*	**kyòjò*	**tt*	
c.	‘blood’	**tyene*	**tènè*	**ty*	**t*
d.	‘paper’	**kiʔttyi*	**kitì*	**tty*	
e.	‘salt’	**seteʔ*	**tejeʔ*	**s*	
f.	‘black’	**kassak*	**n-kàtá*	**ss*	
g.	‘six’	**k-xooʔkkwa*	**súkwa*	**x*	**s*
h.	‘cheek’	**xxakaʔ*	**sàkàʔ*	**xx*	

Defining Chatino

From pZn to pCh (Campbell to appear)

	pZn		pCh	
6.	*l	>	*n	/ __ $V_{\text{ˀ}}$
7.	*VV	>	*V	
8.	*ʔ	>	Ø	/ before obstruents and *l
9.	$*V_1$	>	V_2	/ __ ʔ/j V_2 (translaryngeal V harmony)

Relative chronology: (8) preceded (6)

Defining Chatino

Considering the changes:

3. **(s)s* > **t* fortition
5. **(x)x* > **s* depalatalization (*x* = [ʃ])

some might wonder, was it the reverse? Did pZp innovate and not pCh?

Defining Chatino

Sullivant (2014) looks at Belmar's (1902) data from Teojomulco, a village east of Zenzontepec:

a most divergent and otherwise unattested variety of Chatino!

<u>Shared with Chatino</u>

1. **CC > *C*
2. **(t)t > *j*
4. **(t)ty > *t*
6. **l > *n / __ V$_{\text{ꟾ}}$*

<u>Did not undergo</u>

3. **(s)s > *t*
5. **(x)x > *s*
9. translaryng. V harmony

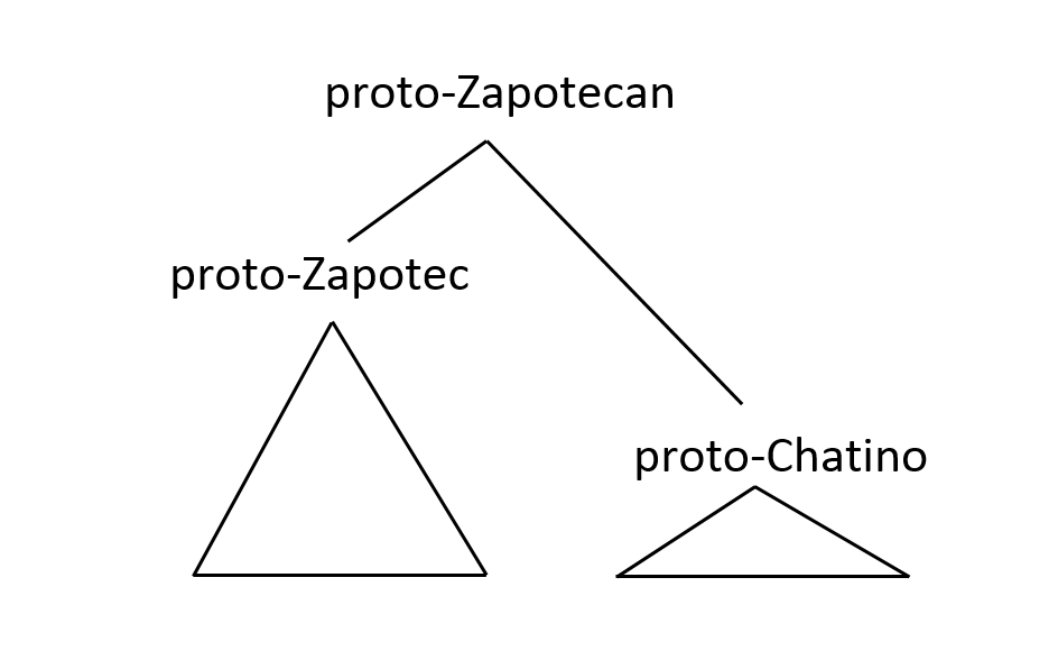
Teojomulco provides new, independent evidence that Kaufman's proposed changes (1)-(5) are accurate, and pCh (not pZp) innovated

Defining Chatino

		Juchiteco Zapotec (Pérez Báez & Kaufman)	Teojomulco† (Belmar 1902)	Zenzontepec Chatino (Campbell & Carleton to appear)
a.	‘six’	*ʃoopa*	<schucua>	*súkwa*
b.	‘breast’	*ʃidʒi*	<schiti>	**siti?* (pCh)
c.	‘salt’	*zidi*	<sée>	*teje?*
d.	‘bean’	*bi=zaa*	<sáa>	*ntáā*
e.	‘water’	*nisa*	<lidsa>	*ítā*

Internal classification of Zapotecan

Why are there so many pCh innovations while so few pZp ones?



(Campbell to appear)

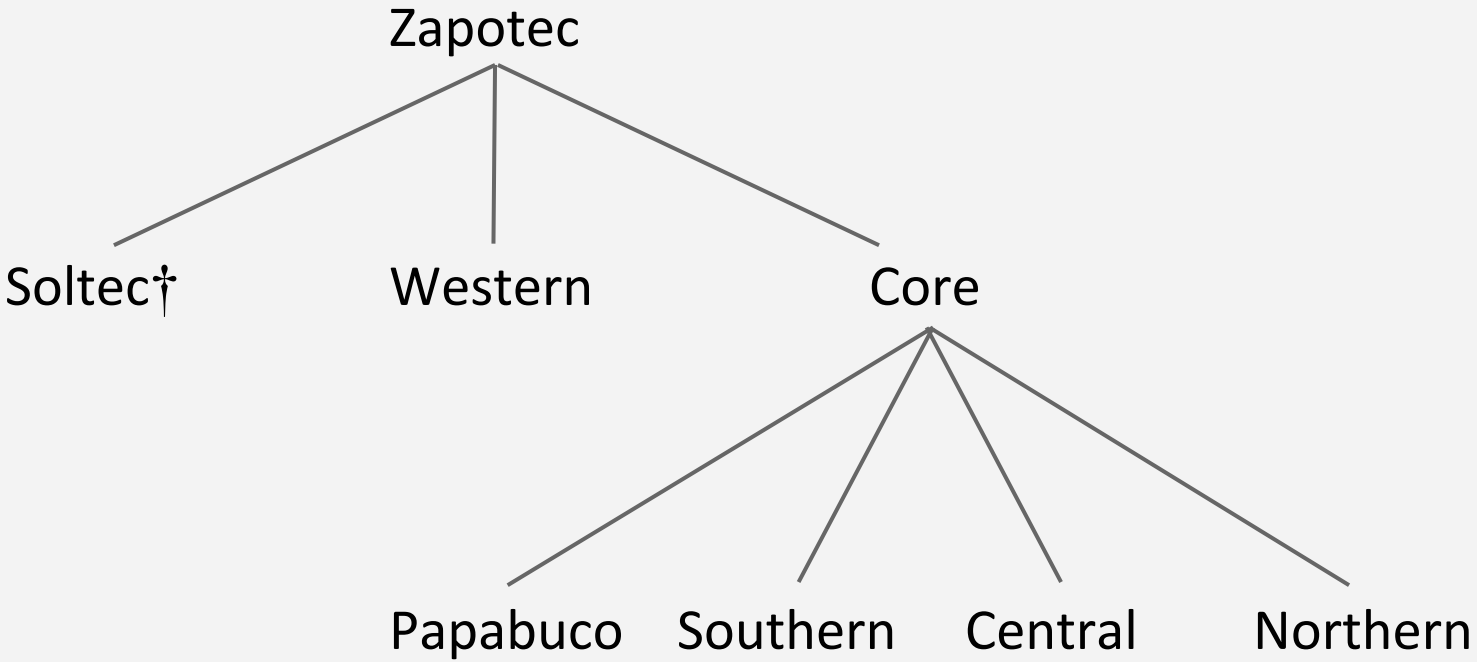
Internal Classification

Primary sources for branch-internal classifications

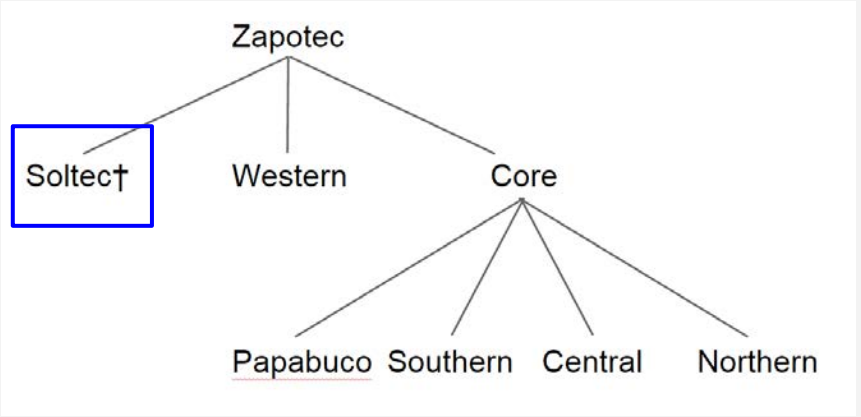
- Zapotec – Smith Stark (2007)
- Chatino – Campbell (2013)

Both are refined here with even more recent findings

Zapotec internal classification (Smith Stark 2007)



Zapotec internal classification (Smith Stark 2007)



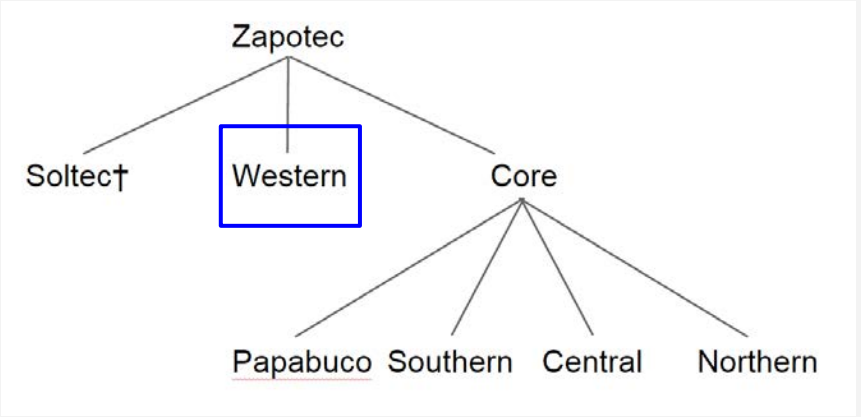
Soltec†

Now extinct, poorly attested
Sources:

Peñafiel (1886)
Berlin et al. (1988)

Not Core Zapotec because **kkw* did not develarize in any position, and **kw* did not unconditionally develarize (it only did so in pre-tonic position)

Zapotec internal classification (Smith Stark 2007)



Western Zapotec

- Los Altos
- Santa María Lachixío
- Totomachapan

Perhaps two distinct languages with some dialectal diversity

Not Core Zapotec because **kkw* did not develarize in any position, and **kw* did not unconditionally develarize (it only did so in pre-tonic **and tonic** position)

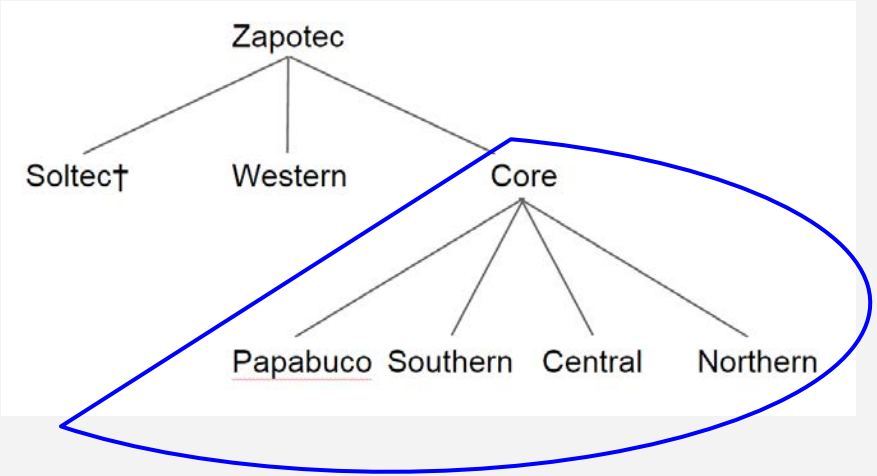
Lack of develarization in Soltec and Western Zap

		Juchiteco	Western Zap San Pedro el Alto	Soltec†	Zen Chatino
a.	‘two’	*ʧupă*	<tiucuá>	<toco>	*túkwa*
b.	‘dried corn’	*ʒubá?*	<llucua>	<yoco>	*ntzukwā?*

Zapotec internal classification (Smith Stark 2007)

Core Zapotec

- Papabuco
- Southern Zapotec
- Central Zapotec
- Northern Zapotec



Innovations that define Core Zapotec: only 2 identified!

1. **kw* > **b*
2. **kkw* > **p* in **post-tonic** position

Zapotec internal classification (Smith Stark 2007)

Summary of high-level Zapotec subgrouping so far:

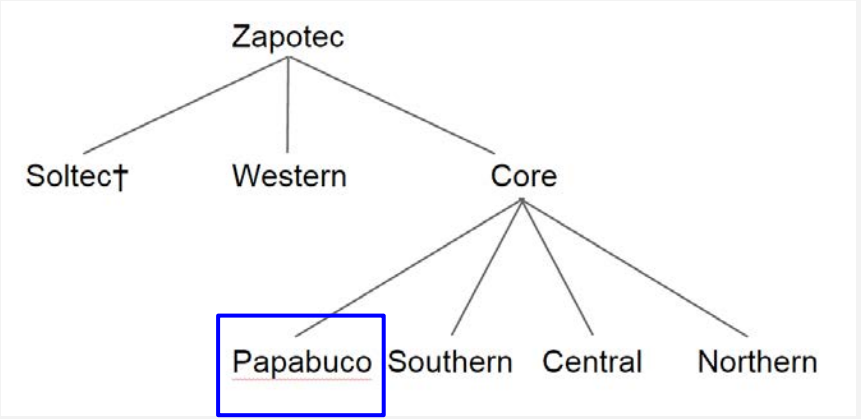
Only two innovations define Core Zapotec to the exclusion of Soltec and Western

This isn’t much!

Core Zapotec internal classification

Papabuco

- Elotepec
- Zaniza
- Texmelucan



Defining innovations:

Smith Stark (2007):

1. 1SG independent pronou*n yą*

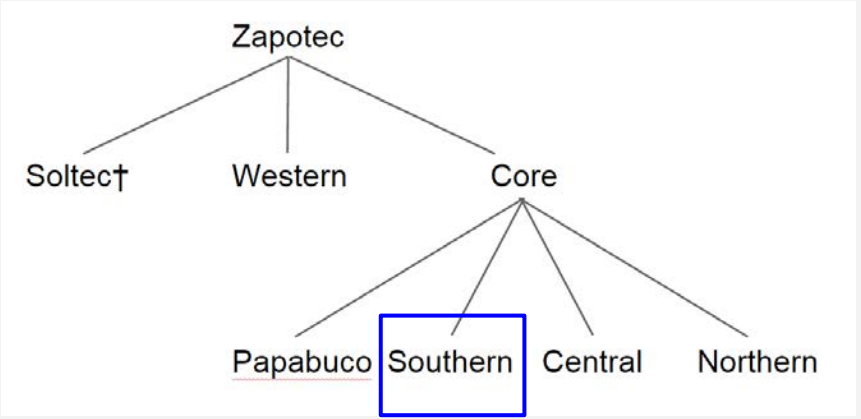
Kaufman (1987-1989)

2. **p* > [m]
3. **tty* > [ky]

Core Zapotec internal classification

Southern Zapotec (Smith Stark 2007)

- Extended Coatecan
- Miahuatecan
- Cisyautepecan
- Tlacolulita



Defining innovations recognized for Southern Zap.: Ø

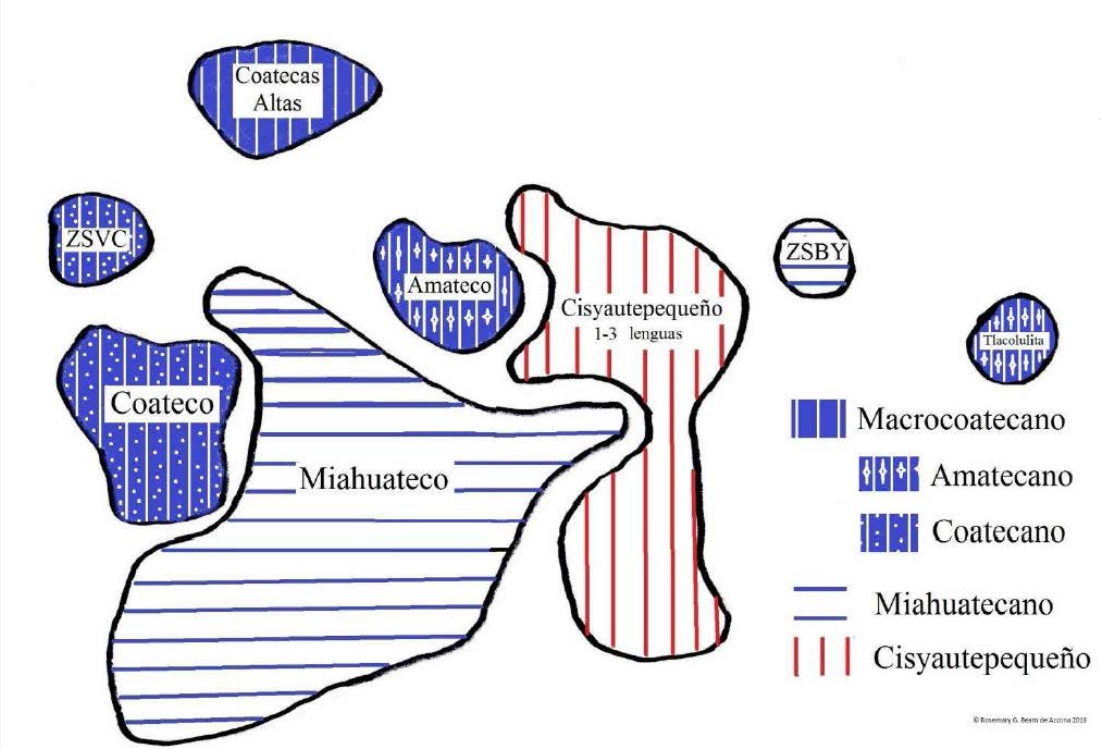
Southern Zapotec is a problematic group, and various linguists have suggested that this part of the classification needs to be re-examined

Southern Zapotec

Beam de Azcona (2014) refines Southern internal classification:

3 groupings:

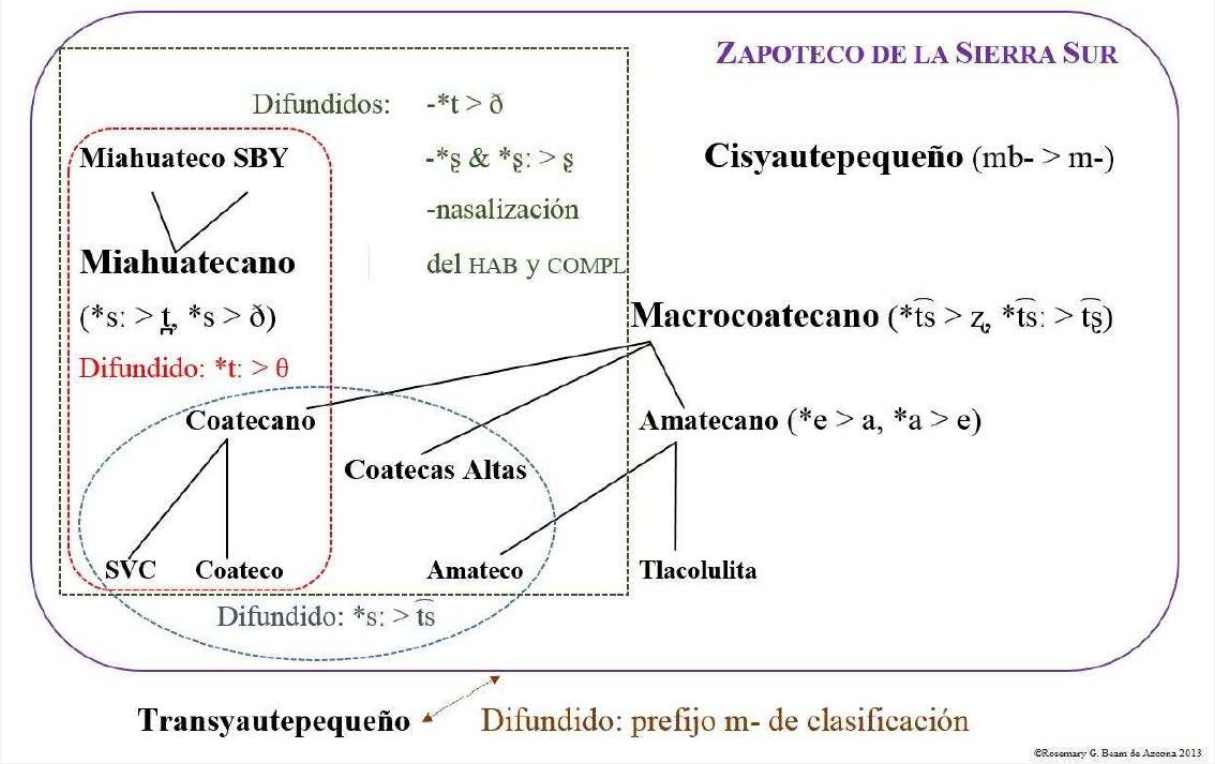
- Macrocoatecan
  - Amatecan
  - Coatecan
  - Tlacolulita
- Miahuatecan
- Cisyautepecan



Southern Zapotec (Beam de Azcona 2014)

No innovations yet identified delimit "Southern Zapotec" as a genetic grouping

Much contact, especially between Macrocoatecan and Miahuatecan



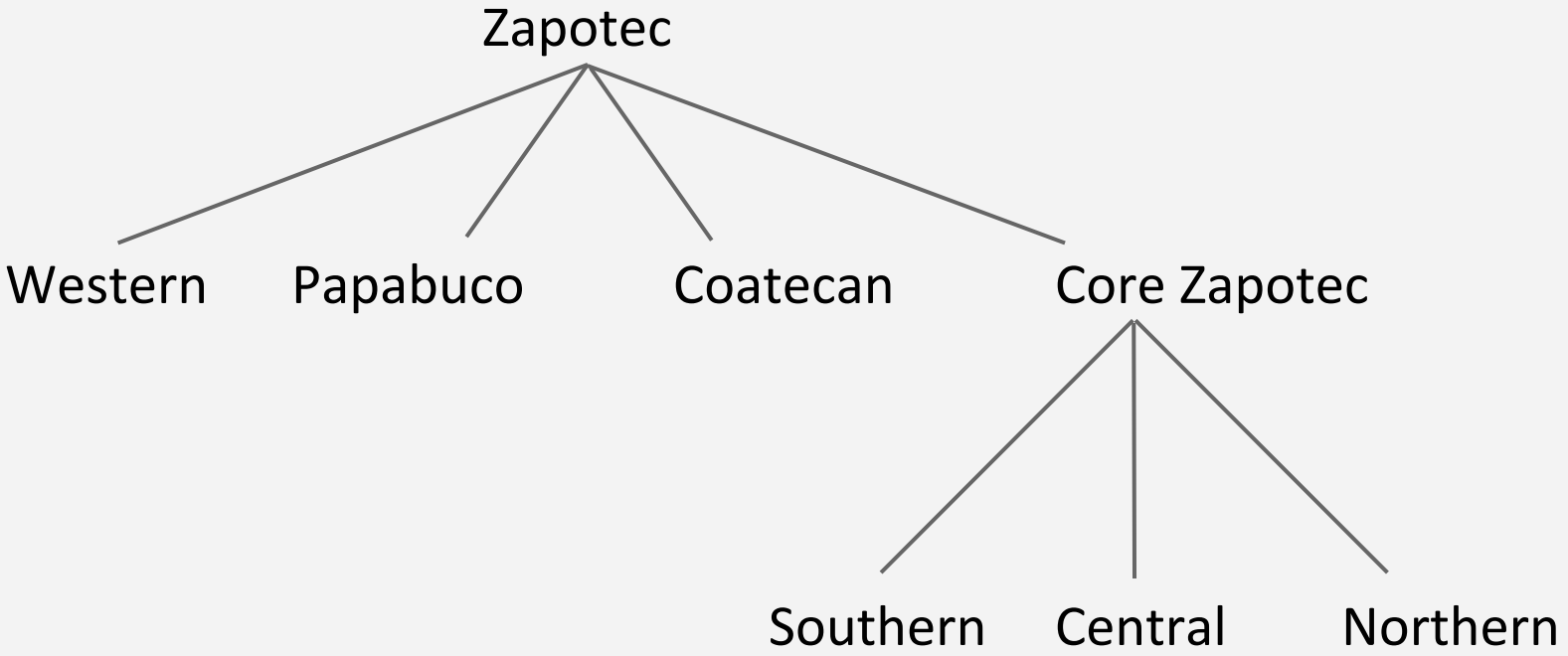
Zapotec internal classification

Operstein (2012) discusses a conditioned split that pZp **tty* and **ty* underwent in all varieties of Core Zapotec except Papabuco and the Coatecan languages.

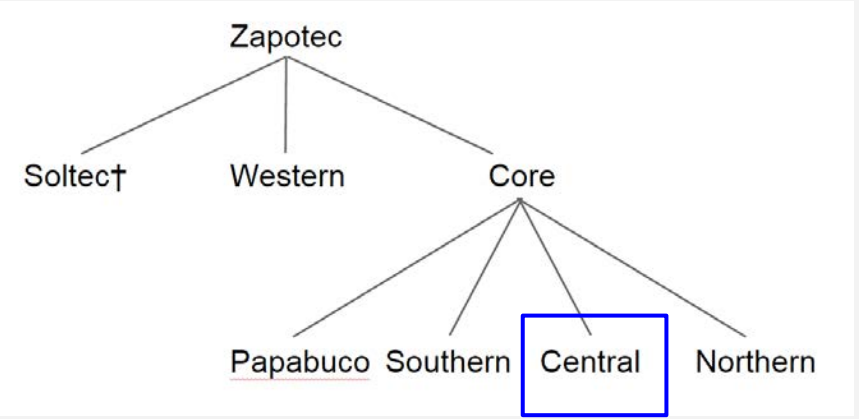
Based on this, she argues that Coatecan is in fact not “Southern Zapotec”, and the other “Southern” varietes form a lower-level subgroup with Central and Northern Zapotec.

It’s only one isogloss -- caution!

Zapotec internal classification (Operstein 2012)



Core Zapotec internal classification



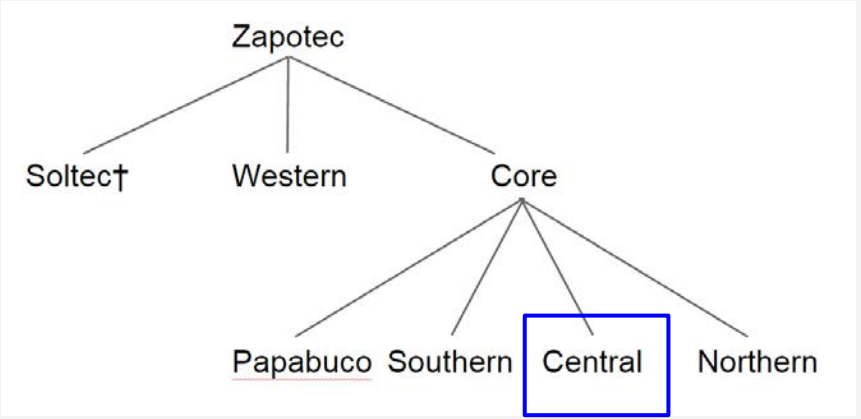
Central Zapotec (Smith Stark 2007)

- Mazaltepec
- Tejalapan
- Northcentral Zimatlán
- Western Ejutla
- Antequera (de Córdova 1578)
- Western Valley
- Mitla
- Quiatoni
- Albarradas
- Transyautepecan

Defining phonological innovations recognized for Central Zap.: Ø

Core Zapotec internal classification

Broadwell (In press) argues that a Progressive Aspect prefix *ka-* is an innovation that defines Central Zapotec as a subgroup

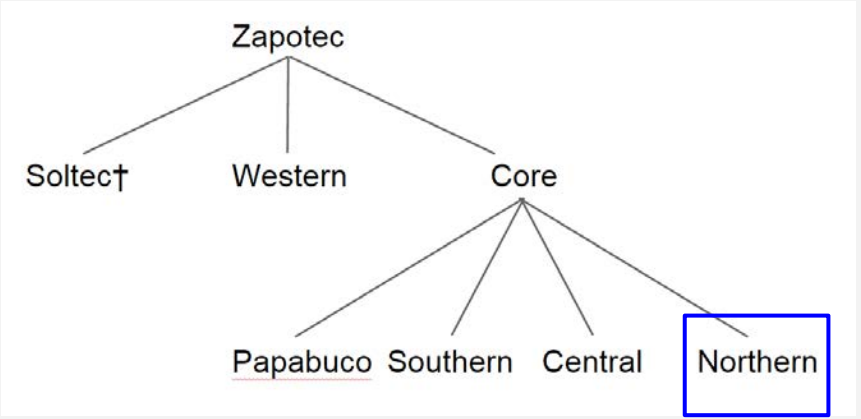


However, forms in other Otomanguean languages need to be ruled out as cognates

Core Zapotec internal classification

Northern Zapotec (Smith Stark 2007)

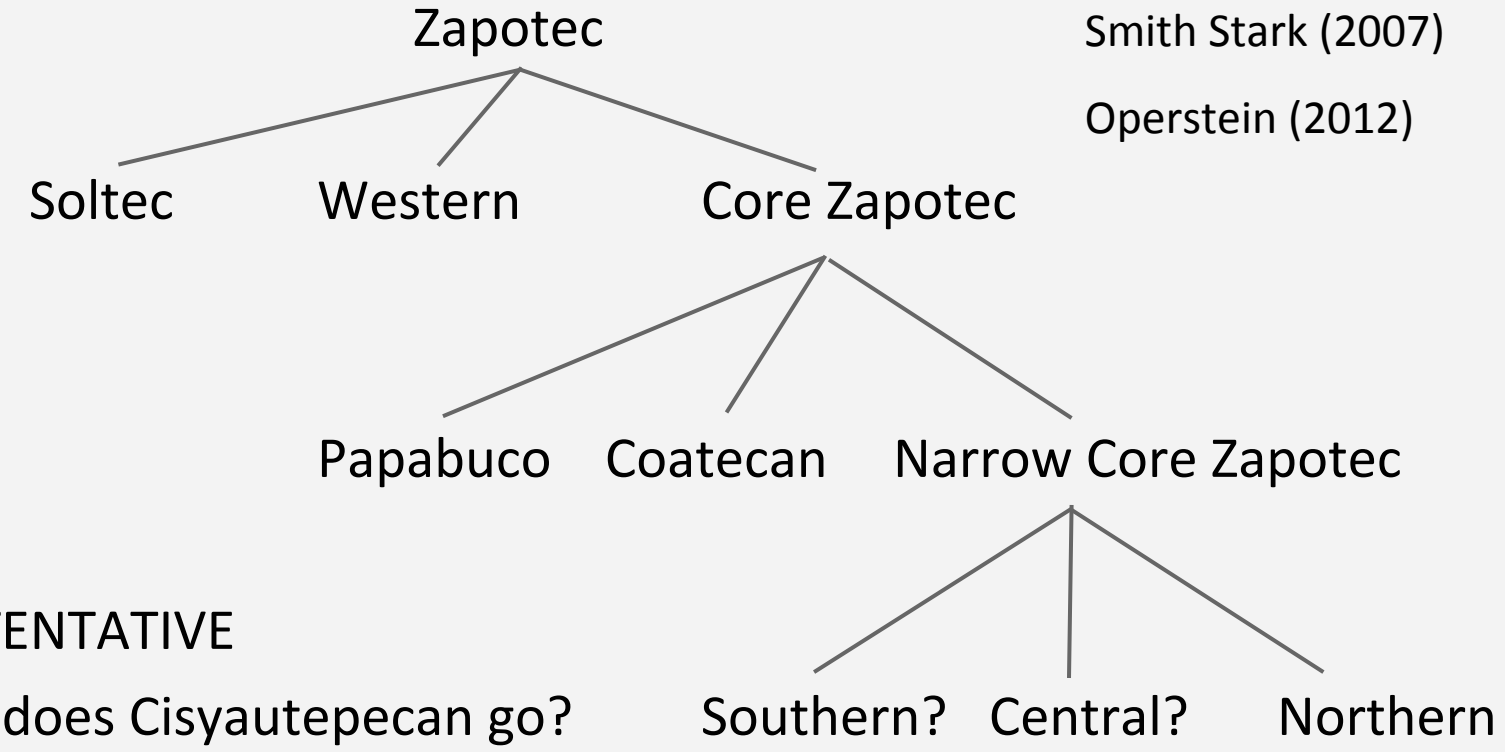
- Sierra Juárez
- Cajono
- Rincón (*nexitzo*)
- Choapan (*vijano*)



Defining innovation recognized for Northern Zap.: only 1!

1. Innovation of 1SG pronoun **na(ʔ)+daʔ*

Zapotec internal classification



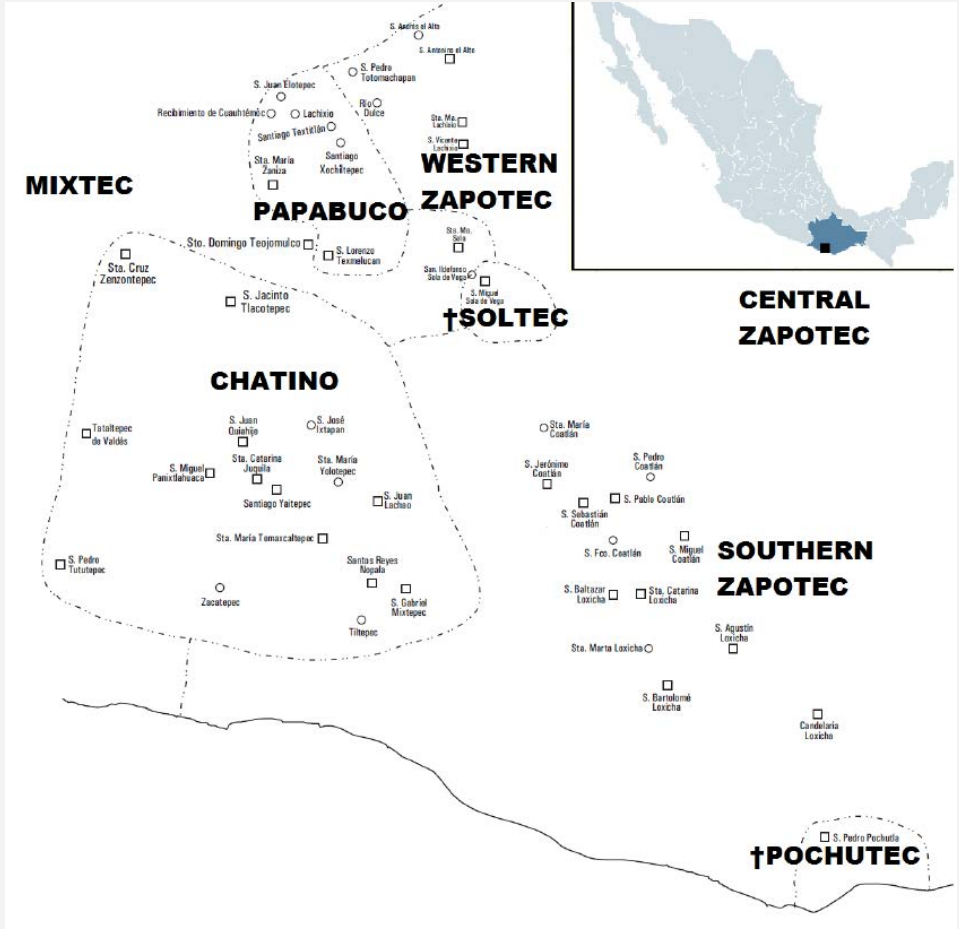
Smith Stark (2007)

Operstein (2012)

VERY TENTATIVE

where does Cisyautepecan go?

Zapotec internal classification



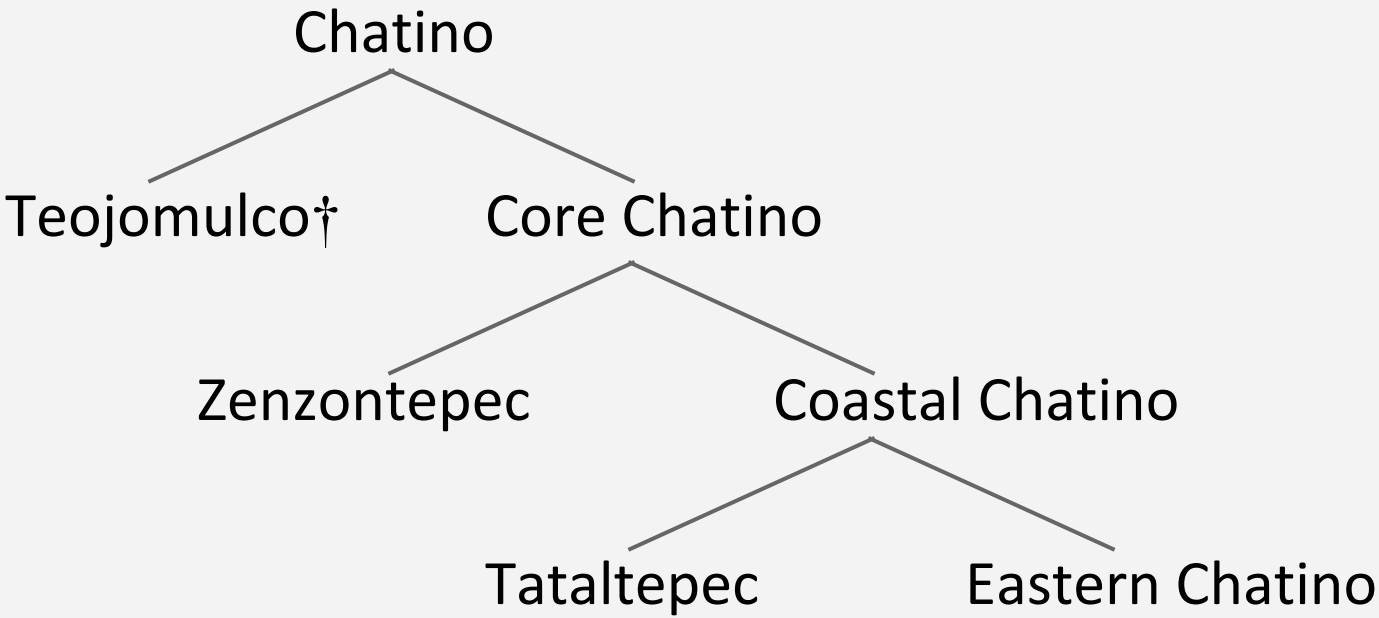
(Sullivant 2014; Smith Stark 2007)

Chatino internal classification

The nodes are better established using shared innovations

also has undergone very recent revision

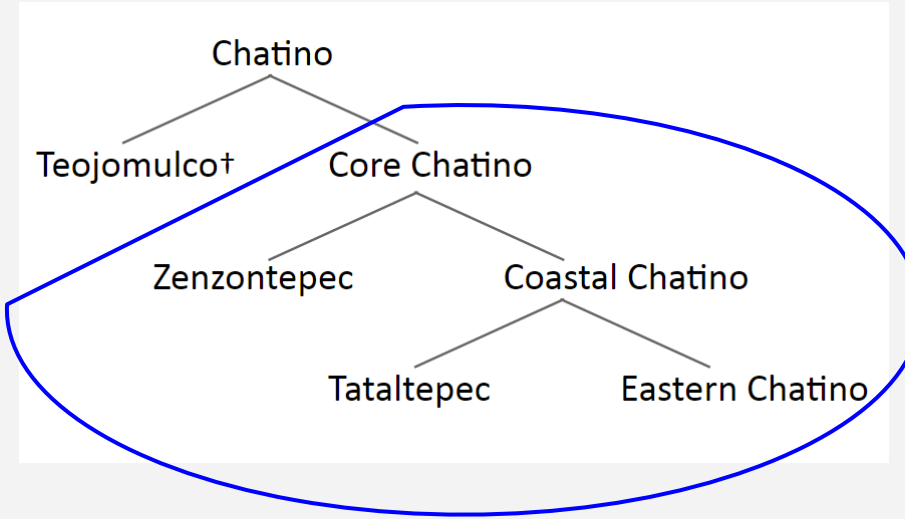
Chatino internal classification (Campbell 2013; Sullivant 2014)



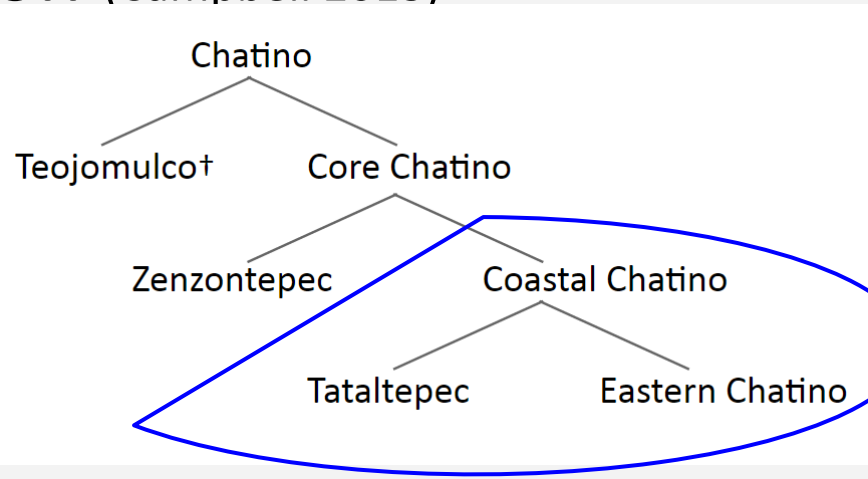
Chatino internal classification (Campbell 2013; Sullivant 2014)

Core Chatino innovations

1. **(s)s > *t*
2. **(x)x > *s*
3. $*V_1 > V_2 / \_\_ \text{ʔ/j } V_2$



Chatino internal classification (Campbell 2013)



Coastal Chatino innovations

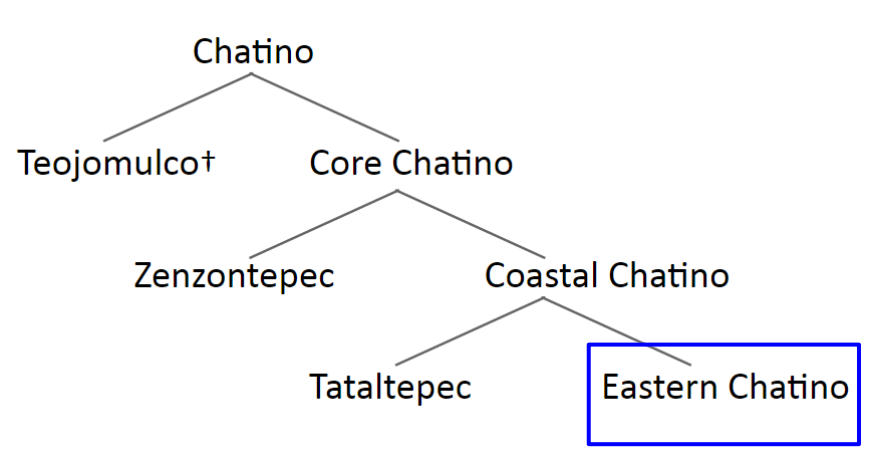
1. **tz, *s > *ch, *x / *i __*
2. **-ajaʔ* 'lie down' > 'sleep'
3. **-kùnáʔ* 'get thrown out' > 'get lost'
4. **n-* accretion on 'spider' & 'goosefoot'
5. **-u-t-anó* 'leave (tr.)' shift to *xi-* causative derivation
6. **loo* 'face' > **ta-loo* (compound)

Chatino internal classification (Campbell 2013)

Coastal Chatino **tz, *s > *ch, *x / *i __*

		Zenzontepec	Tataltepec	Zacatepec	pCh
a.	‘thorn’	*kitze?*	*k**ch**e?*	*ki**ch**è?˝*	**´kitze?*
b.	‘sharp’	*titza*	***ch**a*	*ti**ch**a*	**titza*
c.	‘raccoon’	*kwisee?*	*kw**x**eè?*	*kwi**x**ēē?*	**kwi-sèè?*
d.	‘lies down’	*nti-sukwā*	*˝n**x**kwà*	*ndi-**x**ukwà`*	**´nti-sukwà*

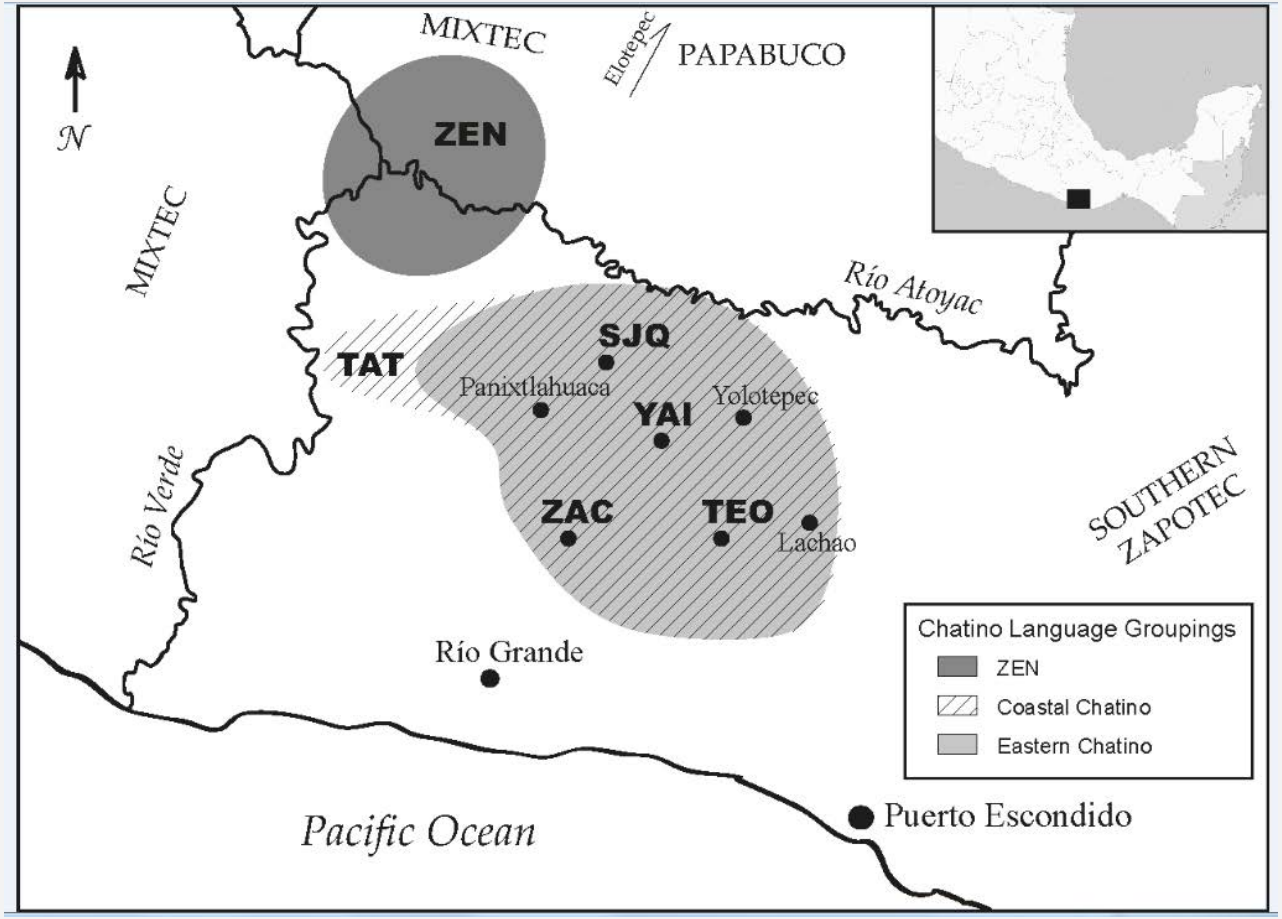
Chatino internal classification (Campbell 2013)



Eastern Chatino innovations

1. **e* > **i* / __ (C)CV#
2. Metathesis in word for ‘water’
3. **lùtí* ‘vine’ > ‘rope’
4. **n-* accretion on ‘hierba santa’ (*Piper sp.*)

Chatino internal classification (Campbell 2013)



3. Basics of Zapotecan syntax and morphology

Basic syntactic properties

- Zapotecan languages are typically
  - VSO, head-initial languages (San Dionisio Ocotepec (SDOZ))

    Ù-tyù'g Juààny yààg cùn gííbyààg

    perf-cut Juan wood with axe

    'Juan cut the wood with an axe.' (SDOZ)
  - With preverbal position for topical, focal, and interrogative elements

    Túú ù-tyù'g Juààny yààg cùn gííbyààg?

    who perf-cut Juan wood with axe

    'Who cut the wood with an axe?' (SDOZ)
  - Word order is typically fairly rigid, probably associated with the lack of agreement morphology.

Inflectional morphology

- Zapotecan lgs typically show a small set of inflectional categories for verbs:
  - Aspect
  - (Repetition/Direction)
- Pronouns are typically enclitics on verbs
- A typical verb template might be:

ASPECT-(repetition/direction)-ROOT(=applicative)(=subject clitic)(=object clitic)

Ù-tyùg=bì=ny 'He cut it' (SDOZ)

perf-cut=3:hum=3:inan

ASP-ROOT(=subj)(=obj)

Aspectual morphology

- Typical example

  Chì ù-dzíiny=rèby

  when perf-arrive=3:pl
  'When they arrived' (SDOZ)
- The number of distinct aspects varies widely

4. Historical changes in Zapotec aspect morphology

Conservative and innovative aspect systems

Zoogocho (N. Zap) -- a conservative system

- ch- Imperfective (habitual & progressive) (< pZp **tyi=*)
- b- ~ gw- ~ g- Perfective (< pZp **kwe=*, **ko=*)
- gw- ~ g- ~ y- $+^{H}$ Potential (< pZp **ki=*, **k=*)
- [gw- ~ g- ~ y-] Dubitative (with some verbs)
- n- stative (< pZp **na=*)

Only the Dubitative appears to be innovative relative to Proto-Zapotec.

Valley Zapotec aspect

A typical aspect system for a Valley Zapotec system is seen in San Dionisio Ocotepec (SDOZ):

Aspect	**Realization**	**Uses**
Habitual	r-	customary/habitual acts
Progressive	ka-	ongoing act
Potential	gi- ~gu- ~ *fortition* $+^{H}$	event not yet begun; control complement
Definite Future	zi- ~ s-	event not begun, but emphasized

Valley Zapotec aspect, continued

Aspect	Realization	Uses
Perfective (*or* Completive)	(g)u- ~ bi-	completed telic past
Unrealized	ni- ~ ny-	complement of negation; counterfactuals
Stative	na-	stative events

Evolution of aspect markers

- How did modern Zapotec languages innovate aspects?
- One example is the innovation of the progressive
- Colonial Zapotec texts and documentation of current languages are both important in this example.

Verbs of position

- Some verbs of position appear with no aspect prefix.
- SDO Zap *káá* 'be located high'

Lè'éby	cáá	tòby	bèldgìtòò	xnííà	lòò=by.
3:sg	be:high	one	birthmark	red	face=3:sg

'He has a red birthmark on his face.'

Colonial Valley Zapotec aspect

- 16th century Zapotec texts show a transitional stage in the innovation of the progressive aspect.
- The conservative /ri- ~ r-u-/ (<pZap **tyi*) has both habitual and progressive uses.

  (/ri/ is often spelled <ti>)
- The innovative /ka-/ progressive is used infrequently, often alternating with the conservative /ri- ~ r-u-/

Progressive uses of CVZ ri-

Anna *ti-ñaba=ya lato*...

now impf-ask=1sg 2pl

'Now I ask you...' (Feria 1567:26)

Habitual uses of CVZ ri-

Tua cani n-aca cobicha to-zani=ni

in this stat-be sun impf:caus-illuminate=3

chi...

day

'In this, the sun illuminates the day...' (Feria 1567:10v)

Development of a new progressive

CVZ shows variable use of a /ka-/ aspect marker in place of /ri-/ in progressive contexts.

Most common contexts for /ka-/:

- 1st person verbs of speech
- addressee subjects

Early progressive examples

Co-na-chahui=to	*ticha*	*ca-nni=a.*
perf-hear-well=2pl	word	prog-say=1sg

'Hear well the words I am saying' (Feria 1567:88)

Nevertheless, the progressive is not obligatory in CVZ. This contrasts with modern Valley Zapotec

/ka-/ as shared innovation

- All the modern Valley Zapotec languages in the Central Branch show the /ka-/ progressive.
- This innovation helps define the Central branch of the family.
- The early colonial dates for the progressive and the modern dispersion of the languages argue for a date CA 1000 years BCE.

Aspectual innovations in other branches

- Other Zapotec lgs have also innovated progressives, but from different sources
  - no- as progressive in San Juan Mixtepec (prob. <PZap no 'be (in), exist'
  - z- as progressive in Santa Maria Quiegolani (prob. < PZap ze 'go')

Desiderata in historical Zapotecan

- Understanding the history of these languages requires
  - Careful documentation of many more Zapotecan languages
  - Reconstruction, identification of innovations and subgroupings.
  - Study of the Colonial documents, when available.
  - Special attention not just to the phonological realization of the morphology, but its shifting semantics.

5. Recent advances in Zapotecan tone, with focus on Chatino

Tone in Zapotecan

- All Zapotecan languages are tonal
  - Unfortunately, materials on Zapotec languages vary widely in the quality of their tonal description and analysis.
  - Many Northern Zapotec languages, such as Sierra Juárez (Nellis and Nellis 1983, Bickmore and Broadwell 1998, Tejada 2010) show a system of three level tones (L, M, H) plus two contours. Potential aspect and 1st person singular both involve floating high tones.
  - A typical system for a Central Zapotec language has two level tones plus contours, but there are complex interactions between tone, stress and phonation type, e.g. San Lucas Quiaviní (Chávez Peón 2010).
- The most important recent descriptive and analytic advances in tone have been in the Chatino languages.

Chatino tone: Importance

- We report recent, comprehensive efforts by teams of linguists to describe, analyze, and reconstruct tone throughout Chatino
- The work is a step toward tonal reconstruction in Zapotecan, where—unlike Chatino—tone is related to laryngeal features
- This whole-family approach is a first within Otomanguean (and maybe beyond)
- Chatino shows
  - internal tonal diversity (but also a core profile)
  - typological extremes (including extreme versions of phenomena once linked only to Asia or Africa)
  - tonal shift, tonal loss, but not much tonogenesis

Chatino tone: Prior work

- Existence of tone was long noted (e.g., by Boas 1913:79-80)
- Governmental teaching programs rely on work of linguists who ignored tone (López Castañeda et al. 1990)
- SIL linguists, especially Kitty and Leslie Pride, attempted serious tonal description beginning in the 1960s, but the results have not been replicable within or across varieties (Pride 1963, Pride & Pride 2004)

Chatino tone: New work

- Jeff Rasch (Rice U., PDMLA) and a UT Austin group (Emiliana Cruz, Hilaria Cruz, Woodbury) developed independent analyses of two Eastern Chatino varieties that were verified mutually when cognate groupings emerged between the analyses
- Considerable typological diversity emerged as etymologically-calibrated tonal descriptions were developed for most of the rest of the Chatino languages by Austin group members (including Justin McIntosh, Stéphanie Villard, Ryan Sullivant, and Campbell)

Chatino tone: Coverage (SIL)

- Zenzontepec
- *Coastal Chatino*
  - Tataltepec
  - *Eastern Chatino*
    - Santiago Yaitepec
    - San Miguel Panixtlahuaca
    - San Juan Quiahije
    - San Marcos Zacatepec
    - Santa Lucía Teotepec
    - Santos Reyes Nopala
    - Santa María Tiltepec
    - Santiago Cuixtla
    - Santa María Temaxcaltepec
    - San Juan Lachao
    - Santa María Yolotepec
    - Santa María Amialtepec
    - San Francisco Ixpantepec
    - San Jose Ixtapan
    - Santa Cruz Tepenixtlahuaca

Contrasts transcribed

Chatino tone: Coverage (Current)

- Zenzontepec
- *Coastal Chatino*
  - Tataltepec
  - *Eastern Chatino*
    - Santiago Yaitepec
    - San Miguel Panixtlahuaca
    - San Juan Quiahije
    - San Marcos Zacatepec
    - Santa Lucía Teotepec
    - Santos Reyes Nopala
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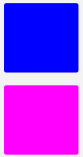


Tones, sandhi, tonal inflection analyzed

Only surface contrasts analyzed

Tone: Yaitepec Eastern Chatino

(Rasch 2002; Rasch & Suárez Martínez, forthcoming)

- Monosyllabic words, one tone per word
  - Like Chinese but with *way* more contrasting tones!
- Level and contour tones (4=Highest, 1=Lowest)
  - Level: 1, 2, 3
  - Rising: 21, 32, 43
  - Falling: 12, 23, 14, 24

[Pitch tracks shown on the next page]

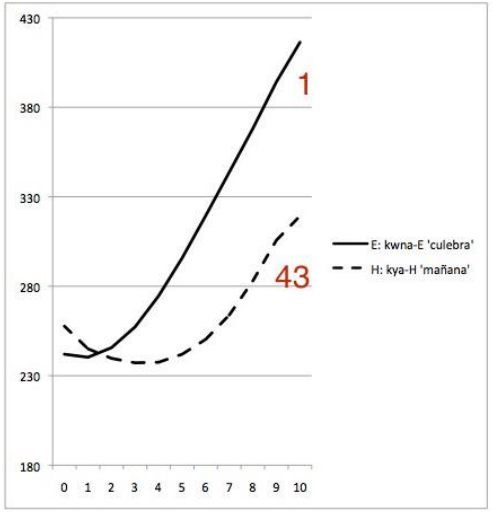
- Examples:
  - *xʔẹ*^{2} ‘scorpion’, *ti*^{32} ‘rope’, *jʔwa*^{24} ‘banana’
- Minor sandhi: 3 → 2 / ω^{3} ω— (ω = word)
  - *lo*^{3} ‘on’ + *yu*^{3} ‘ground’ → *lo*^{3} *yu*^{2} ‘on the ground’
  - Cf. Chinese third (low) tone dissimilation

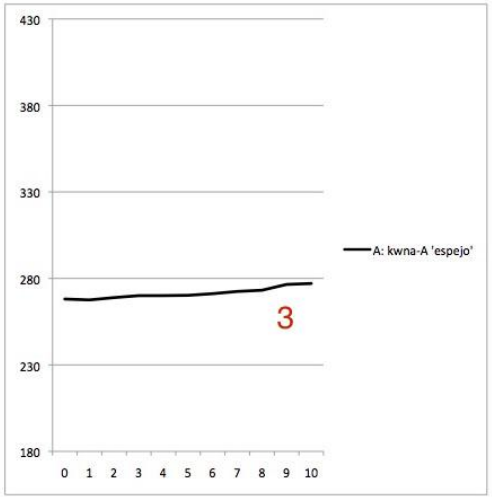
LOS TONOS DEL CHATINO ORIENTAL DE

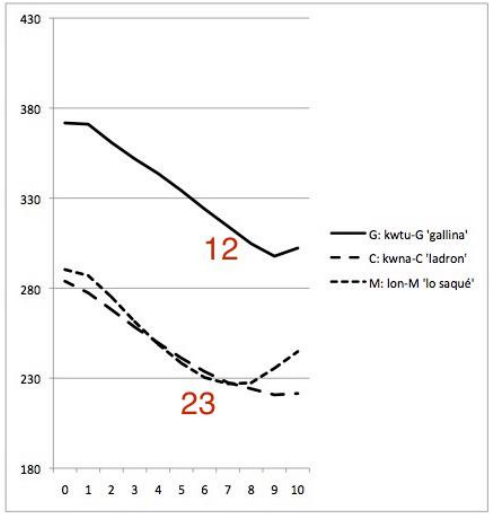
SANTIAGO YAITEPEC

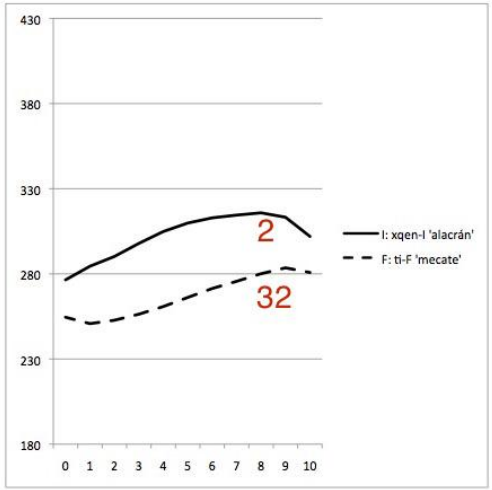
Averaged, time normalized
pitch tracks of monosyllabic words

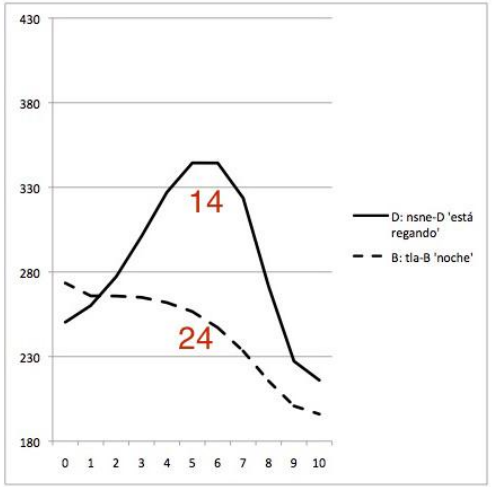
Rasch analysis where
4=Highest…1=Lowest











Tone: Zenzontepec Chatino

(Campbell 2014)

- Polysyllabic words (1, 2, or 3 moras)
- Tones link to moras but moras can be toneless
- Level tones only: H, M (an unusual inventory)
- Most (but not all) logically possible tone patterns result:
  - Monomoric words (3 patterns): H, M, Ø (written *á, ā, a*)
  - Dimoraic words (7 patterns): Ø-Ø, Ø-M, Ø-H, H-Ø, H-M, M-H, M-M
  - Trimoraic words (9 patterns, derivative of the dimoraic patterns)
- Examples: *jn^{y}a* 'griddle' (toneless), *jn^{y}á* 'work', *k^{w}énā* 'snake', *lāwíī* 'clean'
- Spreading of H tone pitch into following toneless moras
  - *chojo nk^{w}ila* 'chilacayote squash' vs. túkwa *chojo nk^{w}ilya 'two c. squashes'*

Tone: Zenzontepec Chatino

(Campbell 2014)

- Also has Downstep: H, M → M, L /H__
- Typologically, highly reminiscent of African ‘register tone’
  - Level tones only (albeit a ‘funny’ inventory: H, M)
  - Toneless moras
  - Classic high tone spreading and downstep as described for African languages in autosegmental literature (e.g., Leben 1973)
- Question: How could Zenzontepec’s register tone and Yaitepec’s “super-Chinese” tone possibly be cognate?

Tone: Zacatepec Eastern Chatino

(H. Cruz & Woodbury 2006; Villard 2008, 2015; Villard & Woodbury 2012)

- Polysyllabic words (1, 2, or 3 moras) [Like ZEN]
- Tones link to moras but moras can be toneless [Like ZEN]
- Level and contour tones [Much larger inventory than ZEN]
  - Level: S(uperhigh), H, M, L
  - Rising: LH
- Words host one of only a few possible tonal sequences (despite the large inventory)
  - Toneless sequence: Ø e.g., *kyaja* 'tortilla'
  - Single-tone sequences: M, LH e.g., *lutǐ* 'rope' (*ǎ* accent marks LH)
  - Two-tone sequences: L-M, L-S, M-M, M-H e.g., *k^{w}īnáˀ* 'snake' (ā=M, á=H)
  - Three-tone sequences: M-H-M, M-M-L e.g., *xūnēˀè* 'scorpion' (à=L)

Tone: Zacatepec Eastern Chatino

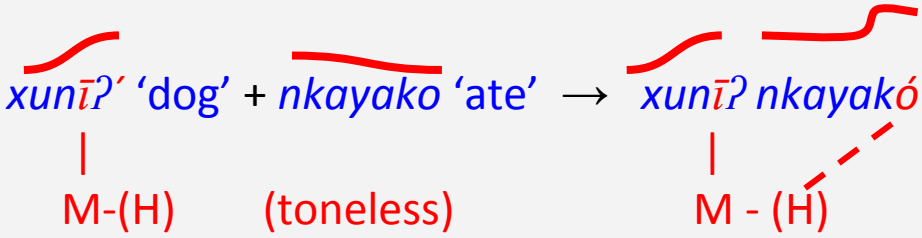
(H. Cruz & Woodbury 2006; Villard 2008, 2015; Villard & Woodbury 2012)

- The sequence is hosted by the whole word; but the *tones* of the sequence link to *available* moras, right-to-left
  - Compare Tiv (McCawley 1970), Mende (Leben 1973) where word-hosted tonal sequences link to available moras, but left-to-right
- E.g., the sequence M-H links as follows when hosted by:
  - Monomoraic words: *nk^{w}á* ‘you were’
  - Dimoraic words: *k^{w}īná* ‘snake’
  - Trimoraic words: *nkajīn^{y}á˛* ‘ordered’
- Non tone-linked moras are toneless
- H and S tones spread into subsequent toneless moras [Like ZEN]

Tone: Zacatepec Eastern Chatino

(H. Cruz & Woodbury 2006; Villard 2008, 2015; Villard & Woodbury 2012)

- Further sequences include a final ‘floating tone’ (L), (H), or (S)
  - Linking-floating sequences: L-(L), L-(S), M-(H) e.g., *xunīʔˊ* ‘dog’
  - Linking-linking-floating sequence: L-M-(S) e.g., *tàsā˝* ‘cup’
  - Linking-linking-linking-floating sequences: M-S-L-(L), M-S-M-(H)
- The floating tone is unexpressed phrase-finally, but it links to the last adjacent toneless mora of a *following* word:



Tone: Zacatepec Eastern Chatino

(H. Cruz & Woodbury 2006; Villard 2008, 2015; Villard & Woodbury 2012)

- An amplified version of ZEN's 'African register tone' profile
  - Polysyllabic words [Like ZEN]
  - Four level tones plus one contour tone [cf. ZEN: 2 level tones only]
  - Toneless moras [Like ZEN]
  - Floating tones [Not in ZEN: apparently lost there]
  - Classic high tone spreading into toneless moras [Like ZEN]
    - But no downstep or dissimilation ("tonal faithfulness") [Unlike ZEN]
  - 15 tonal sequences (6 with, 9 without floating tone), hosted by the word but linking to available moras, like Tiv, Mende [cf. ZEN: arbitrary tonal sequences only weakly emergent]
- Question: With so many tones, why so few sequences?
  - Shouldn't there be 5 single-tone sequences, 25 2-tone sequences, etc.??

Tone: San Juan Quiahije Eastern Chatino

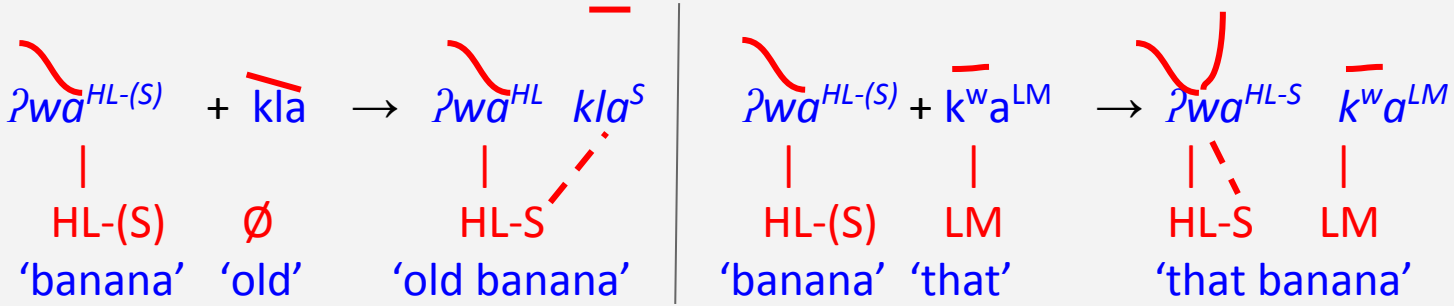
(E. Cruz & Woodbury 2006; Cruz 2011; Cruz & Woodbury 2014)

- Monosyllabic words [Like YAI]
- Tones link to syllable/words but syllable/words can be toneless
- Level and contour tones [Comparable to YAI]
  - Level: S(uperhigh), H, M, L
  - Rising: MS, MH, LH, LM
  - Falling: HL, ML
- Words host one of 14 possible tonal sequences [Like ZAC but sequences shorter]
  - Zero-tone sequence: Ø e.g., *yja* 'tortilla'
  - One-tone sequences: H, M, L, MS, MH, LH, LM, ML (*ti*^{ML} 'ten')
  - Two-tone sequences: H-(S), HL-(S), L-(S), ML-(MH), M-(H), e.g., *xneʔ*$^{M-(H)}$ 'dog'

Tone: San Juan Quiahije Eastern Chatino

(E. Cruz & Woodbury 2006; Cruz 2011; Cruz & Woodbury 2014)

- Two-tone sequences: H-(S), HL-(S), L-(S), ML-(MH), M-(H)
  - The second tone is a floating tone that links to:
    - No word if no word follows (so it ends up unexpressed)
    - The next word if it is toneless or otherwise ‘receptive’
    - The host word if the next word is ‘nonreceptive’



- Dissimilation sandhi [Like YAI but more extensive]
  - But no true spreading across toneless words, and no downstep

Tone: San Juan Quiahije Eastern Chatino

(E. Cruz & Woodbury 2006; Cruz 2011; Cruz & Woodbury 2014)

- SJQ tone is based on ZAC's 'amplified African register tone', but crushed onto single syllables
  - Monosyllabic words [Unlike ZAC, but like YAI]
  - Levels and contour tones [more than ZAC]
  - Floating tones [Like ZAC]
  - 14 tonal sequences, but one linked plus one floating tone is max [ZAC allows three linked and one floating]
- ZAC/SJQ cognate pairs showing 'crushing' of the conservative ZAC tone sequence by SJQ (but floating tones survive!)
    - 'scorpion': ZAC xūnēʔè˩ (M-M-L) vs. SJQ xʔę^{MH} (MH)
    - 'is sprinkling': ZAC ndūsǎnè` (M-S-L-(L)) vs. SJQ nsne$^{H\text{-}(S)}$ (H-(S))

Chatino Tone: Typological summary

- YAI tone: monosyllabic words with many level and contour tones (super-Chinese)
- ZEN tone: polysyllabic words with H, M, or no tone linked to moras, high tone spreading, downstep (African ‘register tone’)
- ZAC tone: like ZEN but with more tones, forming 15 tonal sequences that are hosted by words and which link to available moras (amplified African ‘register tone’)
- SJQ tone: Like ZAC’s ‘amplified African register tone’, but crushed onto single syllables

Chatino Tone: Reconstruction

(Campbell & Woodbury 2010 & in prep)

- The new Chatino tone analyses were cross-validated as robust cognate relations showed up
- Correspondences generally hold among word-level tonal sequences rather than among individual tones
- The next slide shows three sets of tonal cognate correspondences, representing three different tones reconstructed for proto-Chatino

Chatino tone: Correspondences

(Campbell & Woodbury 2010 & in prep)

		Coastal Chatino					
		Eastern Chatino					
	Gloss	**YAI**	**SJQ**	**ZAC**	**TAT**	**ZEN**	***pCh**
a.	spouse	*kʷʔo*^{3}	*ʔo*	*kʷilʸoʔo*	*klʸoʔo*	*lʸoʔo*	**kwi-loʔo*
b.	tortilla	*kija*^{3}	*yja*	*kyaja*	*tʸaja*	*chaja*	**kyaja*
c.	earth	*yuu*^{3}	*yu*^{L}	*yoo*	*yuu*	*yuu*	**yuu*
d.	ant	*kʷtʸeʔ*^{12}	*kteʔ*^{LH}	*kʷitʸēēʔ*	*kʷitʸeèʔ*	*kʷiteeʔ*	**kʷitèèʔ*
e.	pig	*kweʔ*^{12}	*kʷeʔ*^{LH}	*kūwēʔ*	*kuwèʔ*	*kuweʔ*	**kùwèʔ*
f.	cloud	*ko*^{12}	*ko*^{LH}	*kōō*	*koò*	*koo*	**kòò*
g.	sacred	*jʔo*^{23}	*ʔo*$^{M\text{-}(H)}$	*joʔō´*	*joʔò*	*joʔō*	**joʔò*
h.	flour	*kta*^{23}	*kta*$^{M\text{-}(H)}$	*kitā´*	*katʸà*	*ketā*	**ketà*
i	flower	*ke*^{23}	*ke*$^{M\text{-}(H)}$	*keē´*	*keè*	*keē*	**keè*

Chatino tone: Correspondences

(Campbell & Woodbury 2012 & in prep)

	Coastal Chatino					
	Eastern Chatino					
	YAI	SJQ	ZAC	TAT	ZEN	*pCh
	3	*Ø~L*	*Ø*	*Ø*	*Ø*	**Ø*
	12	*LH*	*M-M*	*L*	*Ø*	**L-L*
	23	*M-(H)*	*M-(H)*	*L*	*M*	**L-(H)*

Chatino Tone: Summary and prospects

- Chatino shows astonishing tonal diversity, encompassing amplified versions of Asian type contour inventories and African-type ‘register tone’
- Tonal inventories and word length vary, but most Chatino languages show tonal sequences hosted by the word and linked to moras or syllables
- There is tonal shift and tonal loss but not much tonogenesis
- The Chatino systems discussed involve no interactions with glottal consonants or phonation type distinctions, <u>despite the prevalence of these features in related Zapotec!</u>

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