The Zapotecan languages

WORKSHOP, STATE OF THE ART OF MESOAMERICAN LINGUISTICS
Max Planck Institute for Evolutionary Anthropology, 7 Dec. 2014

George Aaron Broadwell
University at Albany, State University of New York

Eric Campbell
University of California, Santa Barbara

Anthony C. Woodbury
University of Texas at Austin
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)

<table>
<thead>
<tr>
<th>Otomanguean (OM)</th>
<th>Eastern OM</th>
<th>Western OM</th>
<th>Zapotecan</th>
<th>Chatino</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mazatecan–Zapotecan</td>
<td>Tlapanec–Manguean</td>
<td>Mazatecan</td>
<td>Tlapanec–Sutiaba</td>
</tr>
<tr>
<td></td>
<td>Amuzgo–Mixtecan</td>
<td>Otopamean–Chinantec</td>
<td>Amuzgo</td>
<td>Chorotegan†</td>
</tr>
<tr>
<td></td>
<td>Mixtecan</td>
<td></td>
<td>Mixtecan</td>
<td>Otopamean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chinantec</td>
</tr>
</tbody>
</table>
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

proto–Zapotecan (pZn)

proto–Zapotec (pZp)   proto–Chatino (pCh)
Defining Zapotec

From pZn to pZp (Kaufman 2006: 122)
1. shift of prominence from root-final to penultimate syllables
2. loss of vowel nasality (\*\(\ddot{\text{V}}\) > \*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

<table>
<thead>
<tr>
<th></th>
<th>pZp</th>
<th>pCh</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Kaufman 1993-2007)</td>
<td>(Campbell 2013, to appear)</td>
</tr>
<tr>
<td>a.</td>
<td>‘armadillo’</td>
<td>*kwe=kukkwe</td>
</tr>
<tr>
<td>b.</td>
<td>‘village’</td>
<td>*keetze</td>
</tr>
<tr>
<td>c.</td>
<td>‘wide’</td>
<td>*xe x = [ʃ]</td>
</tr>
<tr>
<td>d.</td>
<td>‘white’</td>
<td>*na=kattye</td>
</tr>
<tr>
<td>e.</td>
<td>‘pot’</td>
<td>*kessoʔ</td>
</tr>
<tr>
<td>f.</td>
<td>‘tuber’</td>
<td>*koo</td>
</tr>
<tr>
<td>g.</td>
<td>‘long’</td>
<td>*sikwi</td>
</tr>
</tbody>
</table>
Defining Zapotec

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

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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>*kw &gt; *b</td>
<td>pre-tonic sylls.</td>
<td>pre-tonic &amp; tonic</td>
<td>all positions</td>
</tr>
<tr>
<td>*kkw &gt; *p</td>
<td></td>
<td></td>
<td>post-tonic</td>
</tr>
</tbody>
</table>

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

From pZn to pCh (Kaufman 1993-2007)

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

<table>
<thead>
<tr>
<th></th>
<th>pZp</th>
<th>pCh</th>
<th>pZn</th>
<th>pCh</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ‘skin’</td>
<td><em>kiti</em></td>
<td><em>kijji</em></td>
<td><em>t</em></td>
<td><em>j</em></td>
</tr>
<tr>
<td>b. ‘squash’</td>
<td><em>kettu</em></td>
<td><em>ky̱øjò</em></td>
<td><em>tt</em></td>
<td><em>j</em></td>
</tr>
<tr>
<td>c. ‘blood’</td>
<td><em>tyene</em></td>
<td><em>tènè</em></td>
<td><em>ty</em></td>
<td><em>j</em></td>
</tr>
<tr>
<td>d. ‘paper’</td>
<td><em>kiʔttyi</em></td>
<td><em>kiti</em></td>
<td><em>tty</em></td>
<td><em>j</em></td>
</tr>
<tr>
<td>e. ‘salt’</td>
<td><em>seteʔ</em></td>
<td><em>tejeʔ</em></td>
<td><em>s</em></td>
<td><em>j</em></td>
</tr>
<tr>
<td>f. ‘black’</td>
<td><em>kassak</em></td>
<td><em>n-kàtá</em></td>
<td><em>ss</em></td>
<td><em>j</em></td>
</tr>
<tr>
<td>g. ‘six’</td>
<td><em>k-xooʔkkwa</em></td>
<td><em>súkwa</em></td>
<td><em>x</em></td>
<td><em>j</em></td>
</tr>
<tr>
<td>h. ‘cheek’</td>
<td><em>xxakaʔ</em></td>
<td><em>sàkàʔ</em></td>
<td><em>xx</em></td>
<td><em>s</em></td>
</tr>
</tbody>
</table>
Defining Chatino

From pZn to pCh (Campbell to appear)

<table>
<thead>
<tr>
<th>pZn</th>
<th>pCh</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.  *l &gt; *n / ___ V_c</td>
<td></td>
</tr>
<tr>
<td>7.  *VV &gt; *V</td>
<td></td>
</tr>
<tr>
<td>8.  *Ø &gt; Ø / before obstruents and */l</td>
<td></td>
</tr>
<tr>
<td>9.  *V_1 &gt; V_2 / ___ ?/j V_2 (translaryngeal V harmony)</td>
<td></td>
</tr>
</tbody>
</table>

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!

<table>
<thead>
<tr>
<th>Shared with Chatino</th>
<th>Did not undergo</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. *CC &gt; *C</td>
<td>3. *(s)s &gt; *t</td>
</tr>
<tr>
<td>2. *(t)t &gt; *(j)</td>
<td>5. *(x)x &gt; *s</td>
</tr>
<tr>
<td>4. *(t)ty &gt; *t</td>
<td>9. translaryng. V harmony</td>
</tr>
<tr>
<td>6. */ &gt; */n / __ Vnerg</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Juchiteco Zapotec (Pérez Báez &amp; Kaufman)</th>
<th>Teojomulco† (Belmar 1902)</th>
<th>Zenzontepec Chatino (Campbell &amp; Carleton to appear)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a. ‘six’</strong></td>
<td><em>joopa</em></td>
<td><em>súkwa</em></td>
</tr>
<tr>
<td><strong>b. ‘breast’</strong></td>
<td><em>fidzi</em></td>
<td><em>sitiʔ (pCh)</em></td>
</tr>
<tr>
<td><strong>c. ‘salt’</strong></td>
<td><em>zidi</em></td>
<td><em>tejeʔ</em></td>
</tr>
<tr>
<td><strong>d. ‘bean’</strong></td>
<td><em>bi=zaa</em></td>
<td><em>ntáā</em></td>
</tr>
<tr>
<td><strong>e. ‘water’</strong></td>
<td><em>nisa</em></td>
<td><em>ítá</em></td>
</tr>
</tbody>
</table>
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

- Chatino – Campbell (2013)

Both are refined here with even more recent findings
Zapotec internal classification (Smith Stark 2007)

Zapotec
  /    /
Soltec† Western Core
    /     
   Papabuco Southern Central Northern
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 de维尔arize in any position, and *kw did not unconditionally de维尔arize (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 deverbalization in Soltec and Western Zap

<table>
<thead>
<tr>
<th></th>
<th>Juchiteco</th>
<th>Western Zap</th>
<th>Soltec†</th>
<th>Zen Chatino</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>San Pedro el Alto</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. ‘two’</td>
<td>ʧupă</td>
<td>&lt;tiucuá&gt;</td>
<td>&lt;toco&gt;</td>
<td>tūkwa</td>
</tr>
<tr>
<td>b. ‘dried corn’</td>
<td>ʒubáʔ</td>
<td>&lt;llucua&gt;</td>
<td>&lt;yoco&gt;</td>
<td>ntzukwāʔ</td>
</tr>
</tbody>
</table>
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 pronoun $y\bar{a}$

  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” varieties form a lower-level subgroup with Central and Northern Zapotec.

It’s only one isogloss -- caution!
Zapotec internal classification (Operstein 2012)

- Zapotec
  - Western
  - Papabuco
  - Coatecan
  - Core Zapotec
    - Southern
    - Central
    - Northern
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 \(*na(?)+da?*\)
Zapotec internal classification

Zapotec
  ├── Soltec
  │    └── Papabuco
  │        └── VERY TENTATIVE
  │            where does Cisyautepecan go?
  └── Western
      └── Coatecan
          └── Narrow Core Zapotec
              └── VERY TENTATIVE
                  Southern? Central? Northern

Smith Stark (2007)
Operstein (2012)
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

Teojomulco† Core Chatino

Zenzontepec Coastal Chatino

Tataltepec Eastern Chatino
Chatino internal classification (Campbell 2013; Sullivant 2014)

Core Chatino innovations

1. *(s)s > *t
2. *(x)x > *s
3. *V₁ > V₂ / ___ ?/j V₂
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 \(*{tz, *s} > *{ch}, *{x} / *{i} ___\)

<table>
<thead>
<tr>
<th>Zenzontepec</th>
<th>Tataltepec</th>
<th>Zacatepec</th>
<th>pCh</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ‘thorn’</td>
<td>kitzeʔ</td>
<td>kcheʔ</td>
<td>kichèʔ°’</td>
</tr>
<tr>
<td>b. ‘sharp’</td>
<td>titza</td>
<td>cha</td>
<td>ticha</td>
</tr>
<tr>
<td>c. ‘raccoon’</td>
<td>kwisẹeʔ</td>
<td>kwxeèʔ</td>
<td>kwixẹẹʔ</td>
</tr>
<tr>
<td>d. ‘lies down’</td>
<td>nti-sukwā</td>
<td>”nxkwà</td>
<td>ndi-xukwà`</td>
</tr>
</tbody>
</table>
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=bi=ny   'He cut it' (SDOZ)
perf-cut=3:hum=3:inan
ASP-ROOT(=subj)(=obj)
```
Aspectual morphology

- Typical example

\[ \text{Chì ú-dziíny=rèby} \]

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

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Realization</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitual</td>
<td>r-</td>
<td>customary/habitual acts</td>
</tr>
<tr>
<td>Progressive</td>
<td>ka-</td>
<td>ongoing act</td>
</tr>
<tr>
<td>Potential</td>
<td>gi- ~gu- ~ fortition $^H$</td>
<td>event not yet begun; control complement</td>
</tr>
<tr>
<td>Definite Future</td>
<td>zi- ~ s-</td>
<td>event not begun, but emphasized</td>
</tr>
</tbody>
</table>
## Valley Zapotec aspect, continued

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Realization</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfective (or Completive)</td>
<td>(g)u- ~ bi-</td>
<td>completed telic past</td>
</tr>
<tr>
<td>Unrealized</td>
<td>ni- ~ ny-</td>
<td>complement of negation; counterfactuals</td>
</tr>
<tr>
<td>Stative</td>
<td>na-</td>
<td>stative events</td>
</tr>
</tbody>
</table>
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 töby bèldgitòò xníìà 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
    - Santa María Tiltepec
    - Santiago Cuixtla

- **Santa María Temaxcaltepec**
- San Juan Lachao
- Santa María Yolotepec
- Santa María Amialtepec
- San Francisco Ixpantepec
- San José Ixtapan
- Santa Cruz Tepenixtlahuaca

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:
  - xʔe2 ‘scorpion’, ti32 ‘rope’, jʔwa24 ‘banana’
- Minor sandhi: 3 → 2 / ω3 ω— (ω = word)
  - lo3 ‘on’ + yu3 ‘ground’ → lo3 yu2 ‘on the ground’
  - Cf. Chinese third (low) tone dissimulation
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)
  - Trimoraic words (9 patterns, derivative of the dimoraic patterns)
- Examples: jñya ‘griddle’ (toneless), jñýá ‘work’, kʷénā ‘snake’, lāwíī ‘clean’
- Spreading of H tone pitch into following toneless moras
  - chojo nkʷila ‘chilacayote squash’ vs. túkwa chojo nkʷilya ‘two c. squashes’
Tone: Zenzontepec Chatino
(Campbell 2014)

- Also has Downstep: $H, M \rightarrow M, L /H__$
- 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., lutí ‘rope’ (ā accent marks LH)
  - Two-tone sequences: L-M, L-S, M-M, M-H e.g., kʷíná ‘snake’ (ā=M, á=H)
  - Three-tone sequences: M-H-M, M-M-L e.g., xūnēʔè ‘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: *nk₇wá* ‘you were’
  - Dimoraic words: *kwᵰiná* ‘snake’
  - Trimoraic words: *nkajᵰín₇a₇* ‘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., *xunīʔ* ‘dog’
  - Linking-linking-floating sequence: L-M-(S) e.g., *tāsāʾ* ‘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:
  - *xunīʔ* ‘dog’ + *nkayako* ‘ate’ → *xunīʔ* nkayakó
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’
  - 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’

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HL-(S)</td>
<td>Ø</td>
<td>HL-S</td>
<td>HL-(S)</td>
<td>LM</td>
</tr>
<tr>
<td>‘banana’</td>
<td>‘old’</td>
<td>‘old banana’</td>
<td>‘banana’</td>
<td>‘that’</td>
</tr>
</tbody>
</table>

● Dissimilation sandhi [Like YAI but more extensive]
  ○ But no true spreading across toneless words, and no downstep
Tone: San Juan Quiahijie 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 xʔ̚èMH (MH)
  ■ ‘is sprinkling’: ZAC ndūsănè` (M-S-L-(L)) vs. SJQ nsneH-(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)

<table>
<thead>
<tr>
<th>Gloss</th>
<th>YAI</th>
<th>SJQ</th>
<th>ZAC</th>
<th>TAT</th>
<th>ZEN</th>
<th>*pCh</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. spouse</td>
<td>kwʔo³</td>
<td>?o</td>
<td>k'il'oʔo</td>
<td>k'l'oʔo</td>
<td>l'oʔo</td>
<td>*kwi-loʔo</td>
</tr>
<tr>
<td>b. tortilla</td>
<td>kija³</td>
<td>yja</td>
<td>kyaja</td>
<td>t'aja</td>
<td>chaja</td>
<td>*kyaja</td>
</tr>
<tr>
<td>c. earth</td>
<td>yuu³</td>
<td>yu_L</td>
<td>yoo</td>
<td>yuu</td>
<td>yuu</td>
<td>*yuu</td>
</tr>
<tr>
<td>d. ant</td>
<td>k'w't'eʔ¹²</td>
<td>kte_LH</td>
<td>k'wit'ēeʔ</td>
<td>k'wit'ēe</td>
<td>k'witeʔ</td>
<td>*k'witēe</td>
</tr>
<tr>
<td>e. pig</td>
<td>kweʔ¹²</td>
<td>kwe_LH</td>
<td>kūwēʔ</td>
<td>kuwēʔ</td>
<td>kuweʔ</td>
<td>*kùwēʔ</td>
</tr>
<tr>
<td>f. cloud</td>
<td>ko¹²</td>
<td>ko_LH</td>
<td>kōō</td>
<td>koō</td>
<td>koo</td>
<td>*kōō</td>
</tr>
<tr>
<td>g. sacred</td>
<td>jʔo²³</td>
<td>?o^M(H)</td>
<td>joʔṓ</td>
<td>joʔō</td>
<td>joʔō</td>
<td>*joʔō</td>
</tr>
<tr>
<td>h. flour</td>
<td>kta²³</td>
<td>kta^M(H)</td>
<td>kitā́</td>
<td>kat'ā</td>
<td>ketā</td>
<td>*ketā</td>
</tr>
<tr>
<td>i. flower</td>
<td>ke²³</td>
<td>ke^M(H)</td>
<td>keḗ</td>
<td>keè</td>
<td>keē</td>
<td>*keē</td>
</tr>
</tbody>
</table>
Chatino tone: Correspondences
(Campbell & Woodbury 2012 & in prep)

<table>
<thead>
<tr>
<th>Coastal Chatino</th>
<th>Eastern Chatino</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YAI</td>
</tr>
<tr>
<td>3</td>
<td>Ø</td>
</tr>
<tr>
<td>12</td>
<td>LH</td>
</tr>
<tr>
<td>23</td>
<td>M-(H)</td>
</tr>
</tbody>
</table>
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, despite the prevalence of these features in related Zapotec!
References


References


Emiliana Cruz and Anthony C. Woodbury. 2014. Finding a way into a family of tone languages: The story and methods of the Chatino Language Documentation Project. Language documentation and conservation 8:490-524. Special Issue: Steven Bird & Larry Hyman (guest eds.), How to study a tone language.


León, Nicolás. 1902. Familias lingüísticas de México. México: Imprenta del Museo Nacional


References


Rasch, Jeffrey & Martín Suárez Martínez. Forthcoming. Diccionario de la lengua chatina de Yaitepec, Oaxaca. Chatino-Castellano. PDMLA. Mexico City: INALI.

References


Tejada, Laura (2012). Tone gestures and constraint interaction in Sierra Juarez Zapotec. University of Southern California.
