

Twentieth Century Sound Change in Zenzontepec and Tataltepec Chatino*

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Abstract

This paper reports on a study of the earliest extant transcriptions of the Chatino languages (Zapotecan, Oaxaca). Belmar (1902) contains transcriptions of Zenzontepec Chatino and Tataltepec Chatino, and when Belmar's data was compared to later transcriptions and analysis of these languages, two sound changes present in the more recent data (the earliest of which dates from 1960) were not present. These findings allow the relative chronology of their sound changes to be better understood, and underscore how quickly sound change can spread within a speech community.

1 Introduction

The Chatino languages of Oaxaca, Mexico are poorly attested in the historical record. Unlike the nearby Zapotec and Mixtec languages, there is not an abundance of surviving Colonial-era alphabetic writing and to my knowledge, no Pre-Colombian writings or inscriptions have been shown to clearly represent a Chatino language. Nevertheless, there are many Chatino topolects spoken today, and through the application of the comparative method, a fair amount of Proto-Chatino lexicon and phonology has been reconstructed, and the historical developments of its daughter languages have been postulated (Campbell

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2013). This paper will provide the first direct evidence of some of these changes in two Chatino languages, Zenzontepec Chatino (ZC) and Tataltepec Chatino (TC) by comparing transcriptions from two of the earliest periods from which Chatino data is available: the early and mid Twentieth Century. Sound changes which could have occurred any time since the diversification of these languages will be shown to have, in fact, occurred quite recently. Since the languages are have completely diversified by the earliest transcriptions in our sample, I will not argue for a very late diversification date for these languages, but rather for a very late date of sound changes which are characteristic of ZC and TC.

The remainder of this section will provide relevant background on the Chatino and Zapotec languages and introduce the sources of data for this paper. The following Section 2 will discuss the development of consonant clusters in ZC, then Section 3 will show the lowering of unstressed *e in TC. Finally Section 4 will conclude the paper and discuss its findings.

The Chatino languages are a shallow family of four attested languages (Boas 1913; Campbell 2013; Sullivant In press) that are coordinate with the Zapotec languages in the Zapotecan branch of Otomanguean (Mechling 1912; Kaufman 2006). The three extant languages are TC, ZC, and Eastern Chatino (EC). In contrast to the internally-diverse Eastern Chatino, ZC's main dialect is spoken fairly uniformly in over twelve communities across a relatively wide area (for an indigenous language of Oaxaca), with two minor dialects spoken on the periphery (Campbell 2014), and TC is spoken in and around one town and has no known dialect variation (Sullivant 2015). ZC is spoken by some 8000 people, whereas TC is spoken by fewer than 500.

The Chatino languages are very closely related to each other, and show a great deal of lexical and morphological similarity, though sound changes in their segmental and tonal phonologies results in a great deal of unintelligibility between the three extant languages. The great lexical similarity is why speakers can identify isolated words from other topolects at fairly high rates (Egland 1978) even when actual communication between language pairs is difficult to impossible, and why glottochronological methods date their divergence to after European contact (1525-1675 CE). Campbell (2013) estimates an earlier period of diversification of 1000-1400 CE.¹ In contrast to the relative lexical and morphological stability of these languages, their phonologies appear to have changed

¹All of these figures are for the diversification of Core Chatino (ZC, TC, and EC) and do not take into account the poorly attested and very divergent Teojomulco Chatino, which clearly separated from the Core Chatino group before the latter's diversification (Sullivant In press).

rather quickly, especially those arising from a cluster of processes grouped together under the heading of monosyllabification.

Proto-Zapotecan (PZn) roots were generally disyllabic and non-compound words could be preceded by a prefix (generally of form *CV- or *CCV-) and followed by an enclitic (Kaufman 1993-2007; Fernández de Miranda 1995). The two daughter branches each stressed a different syllable of the historic root: the Zapotec languages stressed the first syllable of the root, and the Chatino languages (except Teojomulco Chatino which was in close contact with Zapotec languages (Sullivant In press)) the second. Since the Proto-Zapotecan stage, most Zapotec and Chatino languages have undergone some form of reduction or deletion of at least some unstressed vowels: the vowels in historic prefixes and either the post-tonic vowel (for Zapotec languages) or the pre-tonic vowel (for Chatino languages). These differing patterns of syncope have resulted in Zapotec and Chatino cognates often having rather different word shapes, as shown in Table 1 where Mitla Zapotec (Stubblefield and Stubblefield 1991) has kept the PZn root’s initial vowel whereas the Quiahije dialect of EC (Cruz et al. 2010) has kept the PZn root’s final vowel (here represented by Kaufman’s Proto-Zapotec) in each of the cognate words.

Gloss	Proto-Zapotec	Mitla Zapotec	Quiahije EC
‘town’	*ketse	geḁʒ	ktʃĩ
‘snake’	*k ^w -e:ʔlla	bæ:l	knã ^H
‘mouth’	*tʃoʔwa	roʔ	tʔwa

Table 1: Unstressed Vowel Loss in Zapotec and Chatino

Beyond being supported by comparative evidence, the monosyllabification can be directly observed for the Zapotec languages spoken in the Valley of Oaxaca. As seen in Table 2, post-tonic vowels are present in colonial writings, such as de Córdoba (1578), but are generally absent in modern Zapotec languages spoken in the same area, represent in this Table by Mitla Zapotec (Stubblefield and Stubblefield 1994). Proto-Zapotec forms are provided for reference.

There are no extant colonial or pre-Columbian Chatino texts, so for Chatino languages, this monosyllabification process could only be inferred (Kaufman 1993-2007; Campbell In press). Apart from a few transcriptions in a German engineer’s travel diary (Mühlenpfordt 1839), the next extant source is Belmar (1902), which contains numerous transcriptions in no less than four Chatino languages. After Belmar, the next document useful for observing historical change is Upson and Longacre (1965), which provide

Gloss	PZp	Colonial Valley Zapotec	Mitla Zapotec
'mouth'	*tyoʔwa	<tóhua> <tóua> <tóa>	roʔ
'person, man'	*kw-enne(?)	<péni>	behnn
'deer'	*kwe-tzinaʔ (?)	<pichina>	bizuhn
'snake'	*kw-ella (?)	<pélla>	bäl
'water'	*n-issa	<niça> <níça>	nis

Table 2: Unstressed Vowel Loss within Zapotec

transcriptions collected in the early 1960s of words in three Chatino languages to support their reconstruction of Proto-Chatino. Both Belmar and Upson and Longacre provide transcriptions of ZC and TC, and many of the same lexemes are present in both. This paper will contrast data from these two sources separated by some sixty years to date two sound changes which have previously been posited but have not been directly observed until now. Data from later periods will also be cited to support assertions and fill in any gaps in the data, including Campbell (2014) and Campbell and Carleton (In press) for ZC and Pride and Pride (1970), Sullivant (2015) and my own field notes for TC.

2 Zenzontepec Chatino

Proto-Chatino has been reconstructed as having fairly rigid phonotactics. Roots were maximally disyllabic, with medial sequences of glottal stop and sonorant (*ʔn, *ʔw, and *ʔj) and word-initial nasal-obstruent sequences (*nt, *nk, and *nk^w) being the only permitted consonant clusters (Campbell 2013, 2014). However, most modern languages show a larger inventory of possible shapes and consonant clusters due to the posited syncope of unstressed pretonic vowels.

ZC today shows a number of secondary clusters which Campbell (2014:181) presumes to have arisen as the result of a particular syncope process based on reconstructions of Proto-Chatino and synchronic variation across modern ZC dialects. The sound change is given in (1) and basically states that the first syllable of a root will be reduced to /h/ if the onset of that syllable is a “simple obstruent” (/t k s ʃ/) followed by a high vowel, and the following syllable’s onset is /n/ or /l/ and does not have the same vowel as the first syllable. The effects of this process can be seen in Table 3. In this table, some C₁VC₂ sequences reconstructed for Proto-Chatino appear as hC₂.

$$(1) \quad *C_1V_{1[+high]} > h/ _ \{n, l\}V_2 \text{ (where } C_1 \text{ is a simple obstruent and } V_2 \neq V_1)$$

Gloss	PCh	Zenzontepec Chatino		
		Belmar (1902)	U&L (1965)	Campbell (2014)
'offspring of'	*sineʔ	<shiñé>	hnyĩʔ	hniʔ
'dog'	*funèʔ	<sunée>	hněʔ	hnēʔ
'chile'	*kináʔ	<quiña>	hnyãʔ	hnyáʔ
'cold'	*tilaʔ	<quilia>	hlyaʔ	hlyaʔ
'bird'	*kini	<quiñi>	kinyi	kinī

Table 3: Consonant clusters in ZC

Table 3 also shows that the secondary clusters were also present earlier in data collected in 1960 (Upson and Longacre 1965), but are not found in Belmar’s data from 1902. With this evidence we can either conclude that Belmar’s ZC is a dialect that has not survived to today (and that all surviving dialects may have had /hC/ clusters at this time), or else Belmar’s ZC is an ancestor of one of the surviving dialects which all have /hC/ clusters in these forms since at least 1960. The former scenario is unlikely given how the core dialect of ZC is spoken fairly uniformly over a large area centered on the main town of Santa Cruz Zenzontepec. Though we do not know anything about the speaker or speakers who provided this data, it is more likely that Belmar either traveled to Santa Cruz or corresponded with authorities there to elicit forms rather than a smaller outlying community. It is more plausible, then, that the differences in forms between Belmar (1902) and Upson and Longacre (1965) represent the occurrence of the sound change in (1).

It bears mentioning here, that the sound change is mostly, but not entirely complete, and in fact, has progressed further in ZC’s peripheral dialects of San Jacinto Tlacotepec (where deletion occurs even in some words where C₂ is not part of the typical set spelled out in (1)) and Santa María Tlapanalquiahuil (where some /hC/ clusters are present even when V₁ is the same as V₂) (Campbell 2014).

3 Tataltepec Chatino

Belmar (1902) contains transcriptions of four distinct Chatino languages. Three languages’ transcriptions are found in a table comparing some 228 words and phrases, and a fourth forms the bulk of the Chatino data in his paper. The three languages in the table are identified with the names of their communities: Juquila (clearly a dialect of EC), ZC, and Tejomulco Chatino. The fourth language is distinct from these three, and there is no metadata given. In this section, I will first briefly demonstrate that this language is

TC (§ 3.1), then I will show how these transcriptions give us direct evidence of a sound change (§ 3.2).

3.1 The origin of Belmar’s Chatino

Campbell (2013) identifies a number of criteria for classifying Core Chatino topolects, many of which are useful for classifying Belmar’s Chatino (BC). Table 4 shows the criteria which he identifies as useful for distinguishing TC and EC from ZC (1–7), and for separating EC (8–9) and TC (10–20) from the rest of Core Chatino. Though Campbell’s analysis did not benefit from Teojomulco Chatino data, it is included here to show its behavior on each of the criteria, where it can be determined.

Isogloss	Teojomulco	ZC	TC	BC	EC
1. Proto-Chatino *ts, *s > tʃ, ʃ after *i	×	×	✓	✓	✓
2. /n-/ accretion on ‘spider’	×	×	✓	✓	✓
3. *loo ‘face’ becomes compound with *ta	×	×	✓	✓	✓
4. <i>u-</i> CAUS shifts to <i>xi-</i> for ‘leave’	×	×	✓	✓	✓
5. *-aha? ‘lie down’ shifts to ‘to sleep’	×	×	✓	✓	✓
6. *-kùná? shifts to ‘get lost’	?	×	✓	✓	✓
7. Spanish <i>fiscal</i> borrowed as /ʃkali/	?	×	✓	✓	✓
8. Metathesis in ‘water’	×	×	×	×	✓
9. Penultimate *e > /i/	×	×	×	×	✓
10. *C _[+cor] > C ^j / e ₋	×	×	✓	✓	×
11. *k+j > /tʃ/	×	×	✓	✓	×
12. /nk ^w a-/ , /nt ^j -/ , /k-/ prefixes on ‘make’	?	×	✓	✓	×
13. /nt ^j -/ , /nt ^j -/ , /t ^j -/ prefixes on Class By verbs	?	×	✓	✓	×
14. /=ma/ 2PL pronoun	?	×	✓	✓	×
15. ‘hen’ = /soʔõ/	?	×	✓	✓	×
16. ‘rooster’ = /ntʃeʔe/	?	×	✓	✓	×
17. Spanish <i>santo</i> borrowed for ‘doll’	?	×	✓	✓	×
18. Spanish <i>tripas</i> present in ‘guts’	?	×	✓	✓	×
19. Mid vowel in ‘light’	?	×	✓	✓	×
20. Mixtec <i>chumi</i> borrowed for ‘cat’	?	×	✓	✓	×

Table 4: Some Chatino Isoglosses

Table 5 (where Zacatepec EC) shows how BC compares to other Chatino languages according to the criteria in Table 4. Items (a–d) show that Proto-Chatino *ts and *s have palatalized after *i in TC, EC, and BC (Isogloss 1). These languages also share in having an /n-/ accretion on their word for ‘spider’ (e) and a *tV prepound in their word for ‘face’

	ZC	TC	BC	Zacatepec EC	Proto-Chatino	Gloss
a.	/k ^w itsaa/	/k ^w tʃã/	/k ^w itʃa/	/kũtʃã/	*k ^w itsaa	‘sun’
b.	/kitsa/	/ktʃa/	/ktʃa/	/kitʃa/	*kitsa	‘illness’
c.	/kitsãʔ/	/ktʃãʔ/	/kitʃãʔ/	/kĩtʃãʔ/	*kitsãʔ	‘hair’
d.	/k ^w iseeʔ/	/k ^w ʃeèʔ/	/k ^w ʃeeʔ/	/k ^w ijēēʔ/	*k ^w i-sèèʔ	‘raccoon’
e.	/k ^w ijuʔ/	/nk ^w ijuʔ/	/nk ^w ijuʔ/	/nk ^w ijoʔ/	*k ^w ijuʔ	‘spider’
f.	/ntoo/	/kloo/ (< t-loo)	/tuloo/	/taloó/	*loo	‘face’
g.	/-u-t-ano/	/-ʃ-ti-anó/	/-ʃ-ti-ano/	/-ʃ-anó/	*-u-t-ano	‘leave it’
h.	/-jatē/	/-ahàʔ/	/-ahaʔ/	/-ahãʔ/	*-jatĩ	‘sleep’
i.	/-líhĩ/	/-kunáʔ/	/-kunaʔ/	/-kũnáʔ/	*-lihi	‘get lost’
j.	/ita/	/tʃa/	/tʃa/	/tiʔa/	*ʔita	‘water’
k.	/k ^w énãʔ/	/k ^w aníáʔ/	/k ^w eníaʔ/	/k ^w ináʔ/	*k ^w enáʔ	‘flesh’
l.	/keta/	/katʃa/	/ketʃa/	/kita/	*keta	‘tobacco’
m.	/k ^w eʔna/	/k ^w aʔnʃa/	/k ^w eʔnʃa/	/k ^w iʔna/	*k ^w eʔna	‘caiman’
n.	/tʃoo/	/tʃoo/	/tʃoo/	/kʃoo/	*kʃoo	‘rain’
o.	/tʃaha/	/tʃaha/	/tʃaha/	/kʃaha/	*kʃaha	‘tortilla’

Table 5: Forms demonstrating Campbell’s isoglosses

(f) (Isoglosses 2 and 3). Item (g) shows that TC, EC, and BC all share the innovative use of a /ʃ-/ causative prefix in ‘leave it’ (Isogloss 4), and items (h–i) show their replacement of Proto-Chatino etyma for ‘sleep’ and ‘get lost’ (Isoglosses 5 and 6). Item (j) shows that BC has not participated in EC’s metathesis of /ʔ/ and /t/ in ‘water’, nor has it raised penultimate *e to /i/ before non-high vowels as EC has done (k–m) (Isoglosses 7 and 8). These same forms (k–m) also show that TC and BC have palatalized coronals after *e which is not shared with any other topolect (Isogloss 9). Next, items (n–o) show that TC and BC share a palatalized coronal reflex of *kj rather than the post-alveolar affricate or palatalized velar reflexes found elsewhere in Chatino (Isogloss 10).

In addition to these established criteria, a number of other features of BC can be shown to be uniquely characteristic of TC, and these are listed in Table 6. Regarding their morphology, BC and TC share a similar set of aspect prefixes on the irregular verb ‘do/make’ (a–c) (Isogloss 11). In particular, BCh and TAT are unique in having a labialized velar in their completive prefixes. BC and TC both share the same set of aspect prefixes on verbs belonging to the inflectional Class By (d–f) (Isogloss 12). BC and TC also share a peculiar form of the 2PL morpheme, /ma/ (g), which is something like /wã/ in other Chatino languages (Isogloss 13).

Additionally, BC and TC have a number of lexical peculiarities in common. The na-

Feature	ZEN	TAT	BCh	ZAC
a. COMPL prefix on ‘do/make’	/nka-ʔne/	/nk ^w a-ʔni/	/nk ^w a-ʔne/	/nkā-ʔnī/
b. PROG prefix on ‘do/make’	/nte-ʔne/	/nt ^y -oʔni/	/nt ⁱ -oʔne/	/nkj-ūʔni/
c. POT prefix on ‘do/make’	/ʃ-ʔne/	/k ⁰ -oʔni/	/k-uʔne/	/k-uʔni/
d. COMPL prefix on class By verbs	/nk-j-/	/nt ⁱ -/	/nt ⁱ -/	/nk-j-/
e. PROG prefix on class By verbs	/nte-j-/	/nt ⁱ -/	/nt ⁱ -/	/ntī-k-j-/
f. POT prefix on class By verbs	/tʃ-/	/ti-/	/ti-/	/k-j-/
g. 2PL dependent pronoun	/=wã/	/=ma/	/=ma/	/=wã/
h. ‘hen’	/k ^w etu/	/sõʔõ/	/sõʔõ/	/k ^w itõ/
i. ‘rooster’	/nkaju/	/ntʃeʔē/	/ntʃeʔe/	/tʃeʔē’/
j. ‘light’	/ʃi/	/ʃeé/	/ʃee/	/ʃāá/
k. civil servant < Spanish ‘fiscal’	/wiskā/	/ ⁰ ʃkali/	/ʃkali/	/ʃkālī’/
l. ‘doll’ (< Spanish <i>santo</i>)	/piŋ sulu/	/ ⁰ santtu/	/suntu/	/p ⁱ ēē’ tatsī/
m. ‘guts’ (< Spanish <i>tripas</i>)	/hũ sēʔē/	/trí sēʔē/	/tri sēʔē/	/ti ʃēʔē/
n. ‘cat’ (< Mixtec <i>chúmī</i>)	/wītʃi/	/tʃumi/	/tʃume/	/m ⁱ tʃō/

Table 6: Morphological and Lexical Similarities between BC and TC

tive term for ‘hen’ (perhaps originally ‘domestic bird’), *k^wetu, has been replaced with /sõʔõ/ (h), and the term for ‘rooster’ features a nasal accretion (i) (Isoglosses 14 and 15). ZC has replaced its native term with a Spanish loan, *gallo*. The word for ‘light’ has a mid vowel (j) rather than a high or a low vowel in both BC and TC (Isogloss 16). BC and TC have both borrowed the Spanish *fiscal* (a rank in the civil-religious hierarchy) distinctly from ZC (k), though not from EC (Isogloss 17), and the words for ‘doll’ (l) and ‘guts’ (m) contain Spanish loans. ‘Doll’ was borrowed from Spanish *santo* ‘saint’, perhaps by analogy of religious icons (Isogloss 18). ‘Guts’ in other topolects is a compound of ‘rope’ (< *hũũ in ZC and < *lùtí in EC) and ‘excrement’, however in TC and BC, the first element has been replaced by a loan from Spanish *tripas* ‘guts’ (Isogloss 19). Finally, both TC and BC have replaced the native term for ‘cat’ (n) with a loan from a Coastal Mixtec language (here represented by Jamiltepec Mixtec *chúmī* (Johnson 1988:28)). The Zacatepec form of ‘cat’ is itself a loan, being another example of the spread of Romance ‘cat’ (Kiddle 1964).

Based on the abundance of similarities between BC and TC, we can safely presume that the unidentified Chatino language recorded by Belmar (1902) was indeed Tataltepec Chatino.

3.2 Penultimate *e lowering

When reconstructing Proto-Chatino, Campbell (2013) identified a pattern of vowel harmony that affected PC *e in unstressed (i.e. penultimate) syllables. Briefly, *e in final syllables was raised to /i/ if the final, stressed vowel was high and lowered to /a/ if the final, stressed vowel was not high. Modern penultimate /e/ in native TC vocabulary are usually limited to those examples where the final, stressed vowel is /e/.

One notable difference between Belmar's TC and later records of TC, as seen in Table 7, is that some reflexes of PC *e are present as <e> in Belmar, but as /a/ by Upson and Longacre. In Table 7, PC forms are from Campbell (2013) except for those in parentheses, which are my own tentative reconstructions. This sound change can be seen as a reduction of the number of possible unstressed vowels in TC. Whereas in 1902, many mid front vowels could appear in many positions, in later TC, mid front vowels generally only appear in native vocabulary if the final, stressed syllable also has a mid front vowel. This reduction of the number of permissible unstressed vowels can be considered a precursor to the loss of unstressed vowels (and often their entire syllables).

Most of the instances of penultimate <e> in Belmar (1902) and /e/ in the TC data in Upson and Longacre (1965) correspond to /a/ in Sullivant (2015). For a few items, Upson and Longacre's data have a corresponding /ai/, which would suggest an $e > ai > a$ development for penult PC *e. Vowel sequences are uncommon in modern Chatino languages where they exist only as the result of post-lexical processes. Still other items are transcribed by Upson and Longacre with /e/, which either shows that the change was underway at the time their data was collected, or suggests that they variously transcribed the reflex of PC *e as <e>, <a>, or <ai>. It is perhaps notable that all instances where they transcribe <e> occur before coronals whereas <a> or <ai> is transcribed after almost all velars. The only exception to this generalization is 'blood', which is transcribed by Upson and Longacre as /tan^hi/, but also appears with a low vowel as <tañi> in Belmar's earlier data.

4 Conclusion

To conclude, this paper has shown direct evidence of two diachronic changes in Chatino languages. The first being the creation of consonant clusters in ZC following the loss of an unstressed vowel and the debuccalization of the first of two consonants. This change

Gloss	PC	Tataltepec Chatino		
		Belmar (1902)	U&L (1965)	Sullivant (2015)
‘plate’	(*keʔnà)	<kueña>	—	kaʔnʲà
‘flour’	(*ketà)	<ketia>	—	katʲa
‘glass’	(*ketã)	<ketia>	—	katʲã
‘tobacco’	*keta	<ketià>	—	katʲà
‘firearm’	(*kètó)	<ketio>	—	katʲó
‘star’	(*k ^w ela)	<kuelia>	—	k ^w alʲa
‘fox’	(*k ^w etàʔ)	<kuetia>	—	k ^w atʲàʔ
‘mushroom’	(*k ^w èjàʔ)	<kueya>	—	k ^w ajàʔ
‘sign, measure’	(*k ^w èjáʔ)	<kueya>	—	k ^w ajàʔ
‘lay an egg’	(*teʔja)	<teeya>	—	teʔja
‘strong, fierce, tight’	*tetsa	<techa>	—	tatʃa
‘solid’	*ti-kela	<tikelia>	—	tkalʲã
‘meat’	*k ^w enáʔ	<kueña>	—	k ^w anʲáʔ
‘fly’	(*k ^w èjáʔ)	<kueiya>	k ^w aijaʔ	⁰ k ^w ajaʔ
‘fish’	*k ^w ela	<kuellia>	k ^w aiʲa	k ^w alʲa
‘snake’	(*k ^w ená)	<kueña> <kueñía>	k ^w ainʲo	k ^w anʲá
‘caiman’	*k ^w eʔna	<kueña>	k ^w aʔnʲo	k ^w aʔnʲa
‘hawk’	(*k ^w èʔjà)	<kueya>	k ^w aʔja	k ^w aʔjà
‘tooth’	*leʔja	<leya>	leʔja	laʔja
‘night’, dark’	(*telà)	<telia>	telʲa	⁰ talʲà
‘blood’	*tènè	<tañi>	tanʲi	tanʲi

Table 7: Lowering of /e/ in TC

appears to have begun sometime after 1902 and was largely completed by 1960 in the most widespread dialect of the language, and some peripheral dialects have expanded the environments of this change. The second is the lowering of penultimate mid front vowels to merge with a low central vowel in TC. This change appears to have been incipient in 1902, was in a period of transition in 1960, but was complete by 1970. Both of these changes had been posited based on comparative evidence (Campbell 2013, 2014) but had not been directly observed before.

In addition to confirming hypotheses about the historical development of these languages, these findings also emphasize the recency of sound changes that could have occurred long ago in the past. ZC's consonant clusters could have arisen anytime after Pre-ZC speakers diverged from Pre-Coastal Chatino speakers, but instead could have occurred as recently as fifty-five years ago. Similarly, the lowering of PC *e before non-high vowels could have occurred any time after Pre-TC split from Pre-EC (where penult *e was raised to /i/ unconditionally), but was only complete around forty-five years ago. Beyond simply indicating how quickly sound change can occur, these facts also caution against using processes of monosyllabification as evidence for genetic subgrouping in Chatino (and perhaps elsewhere in Zapotecan or Otomanguan) as at least these have been shown to have occurred well after the linguistic diversification of their respective languages.

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