

The emergence from tone of vowel register and graded nasalization in the Eastern Chatino of San Miguel Panixtlahuaca, part 1

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Franz Boas (1913) identified three distinct Chatino ‘dialects’ (now regarded as languages): Zenzontepec, Tataltepec, and a grouping consisting of 15 or so remaining village varieties, referred to by Campbell (2013) as Eastern Chatino (EC), who shows that EC is indeed a genetic unit distinct from the others. All three languages retain the conservative Proto-Chatino vowel inventory: */a, e, i, o, u/, with nasalized counterparts */ạ, ẹ, ị, ọ/. Pride & Pride’s 2004 dictionary of San Miguel Panixtlahuaca Eastern Chatino (PAN) indicates the same for that variety. However, work by our group¹ beginning in 2011 tells a quite different story. We find that PAN, uniquely among EC varieties, departed from the system by developing what appears to be a more elaborate vowel system: /a, ε, e, i, ɔ, o, u/ (Cruz et al. 2012), as well as by contrasting “weak” and “strong” nasalized vowel sets: /ạ, ẹ, ọ/ vs. /ạ^ɰ, ẹ^ɰ, ị^ɰ, ọ^ɰ/.

In my portion of this presentation I will discuss how such a situation evolved historically. John Kingston (as part of his own presentation) will discuss the articulatory and acoustical properties of the members of this expanded inventory, and propose some mechanisms for the developments.

Historically, it appears the main trigger for the expansion of this inventory was the presence or absence of a tonal sequence in Proto-EC symbolized as *L-(S): a linked L (or HL) falling tone followed by a super-high floating tone (S). In its (etymological) presence, the historical vowel system was rendered as /a, ε, e, ɔ, o/ and /ạ, ẹ, ẹ, ọ/ (merging *ẹ with *ị); while in its absence the system was rendered as /ɔ, e, i, o u/ and /ạ^ɰ, ẹ^ɰ, ị^ɰ, ọ^ɰ/. We call the two renditions the LOW (and weak-nasal) REGISTER vs. the HIGH (and strong-nasal) REGISTER, where ‘low’ and ‘high’ refer to the overall effect on Proto-EC vowel quality. This is shown in Table 1.²

Table 1: Reflexes from San Juan Quiahije Eastern Chatino (SJQ) and PAN of the proto-EC (pEC) oral and nasal vowels in the contexts of pEC toneless words and of pEC words bearing the tonal sequence L-(S). SJQ’s tones and vowels are conservative, whereas those of PAN are innovative. For PAN, M[^] and M- are slightly falling and level mid-tones that are barely distinct for some speakers, and merged for others. The tonal analysis is based in part on Campbell & Woodbury (2010).

pEC Vowel	pEC *toneless words			pEC *L-(S) words		
	Gloss	SJQ	PAN	Gloss	SJQ	PAN
*a	<i>old</i>	k ^w la	k ^w lɔ ^{M^}	<i>will.be</i>	ka ^{HL-(S)}	ka ^{M-}
*e	<i>rock</i>	ke	ke ^{M^}	<i>yellow</i>	ye ^{HL-(S)}	yε ^{M-}
*i	<i>father</i>	sti	sti ^{M^}	<i>tomato</i>	xi ^{HL-(S)}	mxe ^{M-}
*o	<i>rain</i>	kyo	tyo ^{M^}	<i>will.remove</i>	klo ^{HL-(S)}	k ^w lɔ ^{M-}
*u	<i>will.eat</i>	ku	ku ^{M^}	<i>will.grow</i>	klu ^{HL-(S)}	klo ^{M-}
*ạ	<i>will.fill</i>	xʔạ	xʔạ ^{ɰM^}	<i>topil</i>	xʔạ ^{HL-(S)}	xʔạ ^{M-}
*ẹ	<i>sprout</i>	tɛ̣	k ^w tɛ̣ ^{ɰM^}	<i>orange</i>	ndzwẹ ^{HL-(S)}	ndzẹ ^{M-}
*ị	<i>leather</i>	kxị	kxị ^{ɰM^}	<i>will.burn</i>	skị ^{HL-(S)}	skẹ ^{M-}
*ọ	<i>bee</i>	k ^w tɔ̣	k ^w tɔ̣ ^{ɰM^}	<i>will.stop</i>	t ^y q̣ ^{HL-(S)}	t ^y q̣ ^{M-}

¹Emiliana Cruz, Isaura de los Santos Mendoza, John Kingston, and Tony Woodbury, along with other colleagues and trainees.

²We also show that the facts are slightly different in syllables closed with glottal stop, suggesting a possible role for laryngeal features in the suite of developments in question.

In present-day PAN, however, the triggering tonal sequence *L-(S) is waning: for some speakers it is present but barely discernable; for others it is gone. Its functional load therefore passes to PAN's newly elaborated system of vowel register and graded nasalization. By contrast, *L-(S) is still robustly reflected in every other EC tonal system. This is shown in Table 2.

Table 2: Five Eastern Chatino tonal correspondence sets showing reflexes from San Marcos Zacatepece Eastern Chatino, SJQ, and PAN. Observe that sets B1 and B2, which contain pEC *L-(S), are merged with each other in ZAC and SJQ but highly distinct from all other sets; whereas in PAN, B1 vs. B2 are distinct from each other, but merge or nearly merge with one or more neighboring sets (for some speakers M^ may fall at the end whereas M is level throughout; and ML\ may fall slightly more than ML).

Set	*pEC	Gloss	ZAC	SJQ	PAN
A	*X	<i>rock</i> <i>tobacco</i> <i>will.fill</i>	kee kita čaʔa	ke kta xʔa	ke ^{M^} ktə ^{M^} xʔa ^{ɸM^}
B1	*L-(S)	<i>banana</i> <i>will.grow</i> <i>more</i>	jaʔwa ^{L-(S)} kalo ^{L-(M)} kinaʔa ^{L-(S)}	ʔwa ^{HL-(S)} klu ^{HL-(S)} kyʔa ^{HL-(S)}	jʔwa ^M klo ^M kʔa ^M
B2	*HL-(S)	<i>person</i> <i>night</i> <i>will.cry</i>	naʔe ^{L-(S)} tila ^{L-(S)} kuna ^{L-(M)}	nte ^{HL-(S)} tla ^{HL-(S)} k ^w na ^{HL-(S)}	nte ^{ML} tla ^{ML} k ^w na ^{ML}
C	*M-(H)	<i>was</i> <i>bat</i> <i>flour</i>	nk ^w a ^{M-(H)} k ^w e ^e ^{M-(H)} kita ^{M-(H)}	nk ^w a ^{M-(H)} k ^w e ^{M-(H)} kta ^{M-(H)}	nk ^w ə ^{ML\} k ^w e ^{ɸML\} ktə ^{ML\}
G	*M-M	<i>church</i> <i>tuber sp.</i> <i>shrimp</i> <i>mature</i>	laa ^{M-M} kəʔ ^{M-M} tita ^{M-M} nkuwe ^{M-M}	la ^{LH} kə ^{LH} kta ^{LH} nk ^w e ^{LH}	lə ^{ML\} kə ^{ɸML\} tə ^{MS} nk ^w e ^{ɸMS}

As far as we know, PAN is the only Chatino variety to have transformed a tonal distinction into vowel register and graded nasalization. But it well exemplifies the extraordinary typological diversity that has emerged in Chatino languages over a relatively short period of time. The register effects are reminiscent of Turkana in East Africa (Dimmendaal & Breedveld 1986) and of Mon-Khmer in Asia (Huffman 1976); and as John Kingston will show in his discussions, the vowel nasalization grading may have parallels in Chinanteco, Somali, and Kabiye.

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