

Tone Alternation Patterns for Potential Aspect in Chicahuaxtla Triqui*

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1. Introduction

Chicahuaxtla Triqui is spoken in Oaxaca, Mexico and belongs to the Mixtecan branch of the Otomanguean family. In Chicahuaxtla Triqui, usually a phonemic tone on a final syllable is lowered in a potential aspect. In this paper, I will analyze tone alternation patterns for a potential aspect in Chicahuaxtla Triqui and compare them with those in Copala Triqui, which have been studied more comprehensively than Chicahuaxtla Triqui. The data on Chicahuaxtla Triqui, Copala Triqui and Itunyoso Triqui used in this paper were gathered from respective native speakers by the author.

2. Chicahuaxtla Triqui tones

Chicahuaxtla Triqui has five levels of tones from 1 to 5: 1 is the lowest and 5 is the highest. Tone 1 and tone 2 are classified as low register tones and tone 3, tone 4 and tone 5 are classified as high register tones.

Exactly how many contour tones exist in Chicahuaxtla Triqui is controversial. Longacre (1957) lists fifteen contour tones: seven rising tones (45, 34, 23, 15, 14, 13, 12), six falling tones (54, 53, 43, 32, 31, 21) and two more complicated tones (323, 312). In his recent study (Longacre et al. 2006), he lists six rising tones (45, 34, 23, 15, 14, 13) and five falling tones (54, 43, 41, 32, 21). Another hypothesis by Good (1978) assumes two rising tones (23, 13) and four falling tones (43, 32, 31, 21). In other Triqui languages, Copala Triqui (Hollenbach 1984, 1992, 2004) has one rising tone (13) and two falling tones (32, 31) and Itunyoso Triqui (DiCanio 2008) has one rising tone (13) and three falling tones (43, 32, 31).

I have identified at least one rising tone (13) and three falling tones (43, 32, 31) in Chicahuaxtla Triqui. However, I am still analyzing a Chicahuaxtla Triqui phonemic tone system and one or two more phonemic contour tones might exist in Chicahuaxtla Triqui. Contour tone 13 is a low register tone and contour tones 43, 32 and 31 are high register tones.

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In Chicahuaxtla Triqui and Copala Triqui, usually a word has a phonemic tone only on a final syllable and non-final syllables are phonemically toneless. Some irregular words have phonemic tones both on final and non-final syllables. In Chicahuaxtla Triqui and Copala Triqui, regular verbs take only a high register tone on a final syllable.

3. Chicahuaxtla Triqui aspects and potential tone alternation patterns

Chicahuaxtla Triqui has three aspects (continuative, completive and potential). Completive and potential aspects take a *g(V)*- aspect prefix to be distinguished from a continuative aspect. This aspect marker is *g-* before a vowel and *gV-* before a consonant. A vowel after *g-* is unpredictable. To distinguish a potential aspect from a completive aspect, a high register tone on a final syllable is lowered in a potential aspect.

CON	COM	POT	
(1) ache ⁵	g-ache ⁵	g-ache ²	‘walk’
(2) nã ⁵	gi-nã ⁵	gi-nãh ¹	‘wash’
(3) rãh ⁴	gi-rãh ⁴	gi-rã ²	‘buy’
(4) zha ⁴³	zha ⁴³	zha ²	‘eat’

Some verbs do not take the aspect marker *g(V)*- like (4). In this case, a continuative form and a completive form are same but a potential form has a lower tone. Tone lowering patterns for a potential aspect are summarized bellow and the details are discussed in the following subsections.

Non-POT	POT
V ⁵	Vh ¹ /V ²
Vh ⁴	Vh ² /V ²
V ⁴³	V ² /V ¹
VCV ³	V ² CV ³
V ³	V ¹
32	2
31	1

Figure 1: Tone Alternation Patterns for Potential Aspect in Chicahuaxtla Triqui

3.1. Tone 5

In Chicahuaxtla Triqui, tone 5 occurs only on a plain vowel (<V>). When a phonemic tone on a final syllable is tone 5, tone 5 becomes tone 1 or tone 2 in a potential aspect. When tone 5 becomes tone 1 in a potential aspect, a vowel type is also changed into an aspirated vowel (<Vh>): see (5)-(6).

CON		POT	
(5) achĩ ⁵	=>	g-achĩh ¹	‘ask’
(6) nã ⁵	=>	gi-nãh ¹	‘wash’
(7) ache ⁵	=>	g-ache ²	‘walk’

(8) achra⁵ => g-achra² ‘sing’

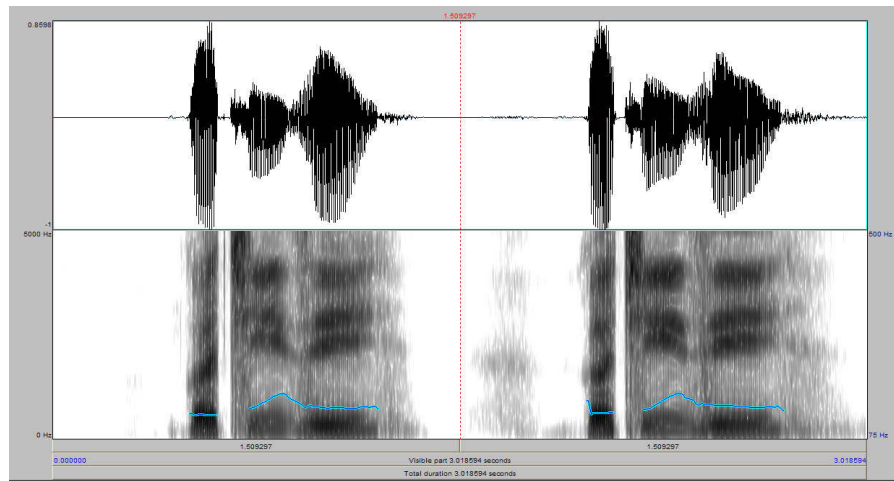


Figure 2: g-achī⁵ zī³ ('He asked.')

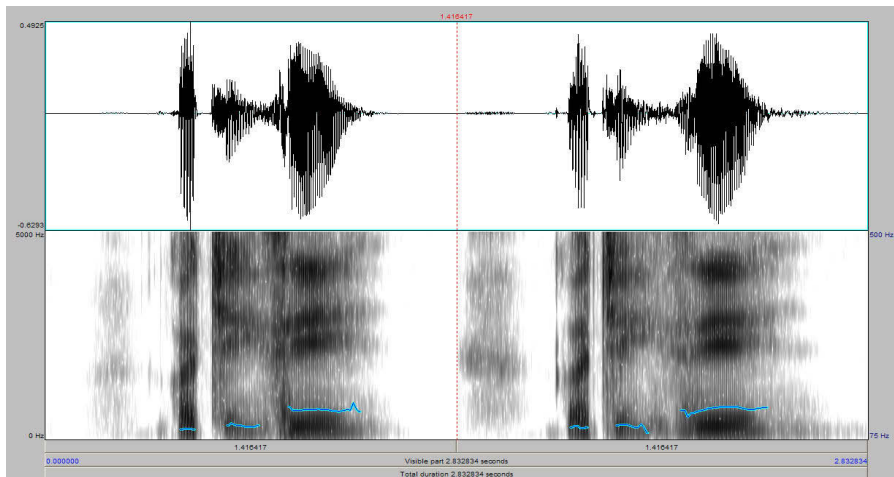


Figure 3: g-achīh¹ zī³ ('He will ask.')

3.2. Tone 4

Tone 4 occurs only on an aspirated vowel. When a phonemic tone on a final syllable is tone 4, tone 4 becomes tone 2 in a potential aspect. In some words, post-vocalic aspiration is lost in a potential aspect: see (11)-(12).

CON		POT	
(9) unāh ⁴	=>	g-unāh ²	‘run’
(10) a’yāh ⁴	=>	g-a’yāh ²	‘blow’
(11) rāh ⁴	=>	gi-rā ²	‘buy’

¹ Each sentence was recorded twice. zī³ is the third person singular male pronoun ('he').

(12) atuh⁴ => g-atu² 'enter'

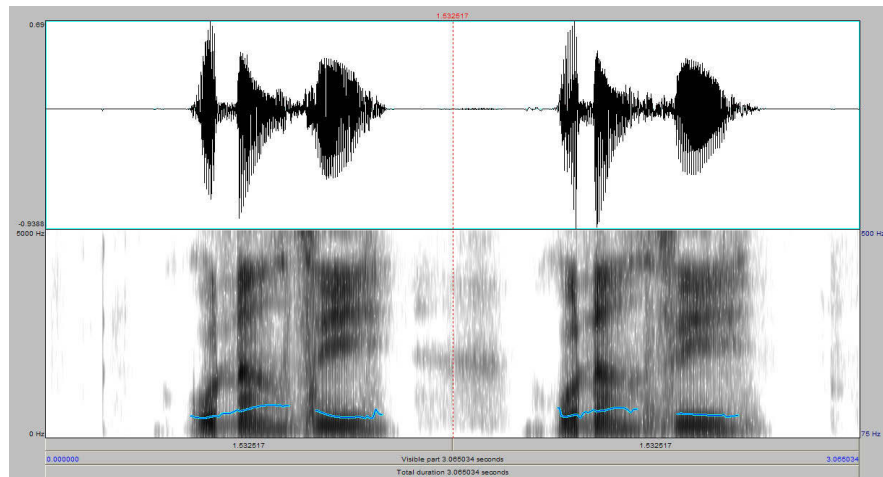


Figure 4: gu-nāh⁴ zi³ ('He ran.')

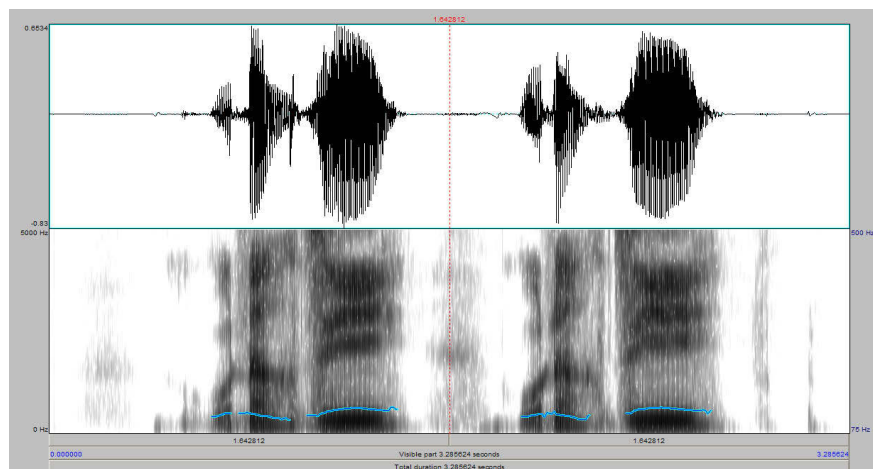


Figure 5: gu-nāh² zi³ ('He will run.')

3.3. Tone 43

Contour tone 43 occurs only on a plain vowel. When a phonemic tone on a final syllable is tone 43, tone 43 becomes tone 2 or tone 1 in a potential aspect (tone 2 is more common).

CON		POT	
(13) achĩ ⁴³	=>	g-achĩ ²	'pass'
(14) ane ⁴³	=>	g-ane ²	'chew'
(15) numã ⁴³	=>	gu-numã ¹	'return'

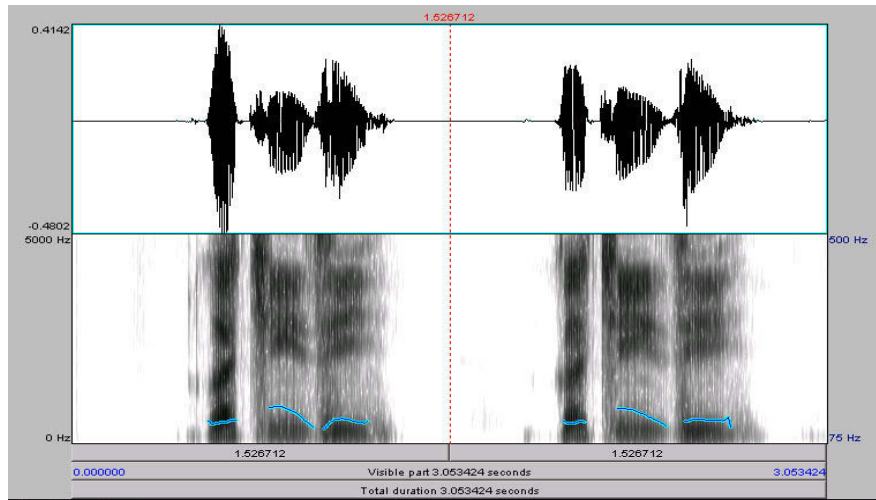


Figure 6: g-achi⁴³ zi³ ('He passed.')

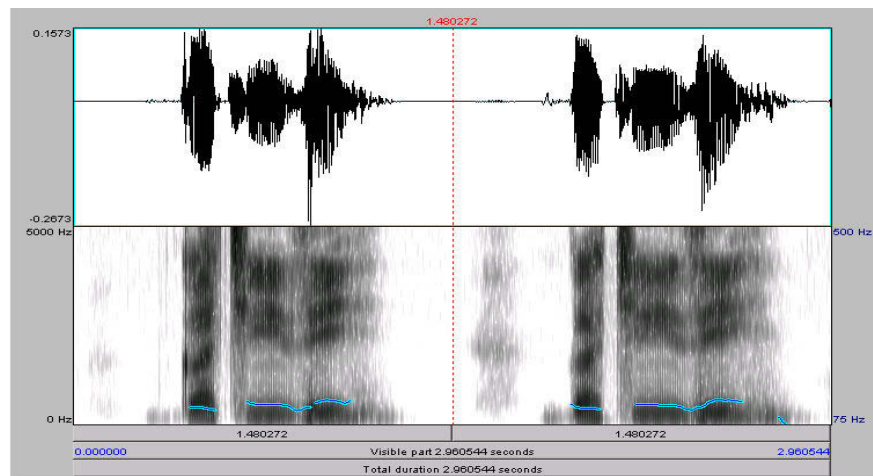


Figure 7: g-achi² zi³ ('He will pass.')

3.4. Tone 3

Unlike tone 5, tone 4 and tone 43, usually tone 2 is assigned on an initial syllable and tone 3 on a final syllable is retained in a potential aspect when a phonemic tone on a final syllable is tone 3.

CON		POT	
(16) utā ³	=>	g-u ² tā ³	'suck'
(17) ata ³	=>	g-a ² ta ³	'carry'

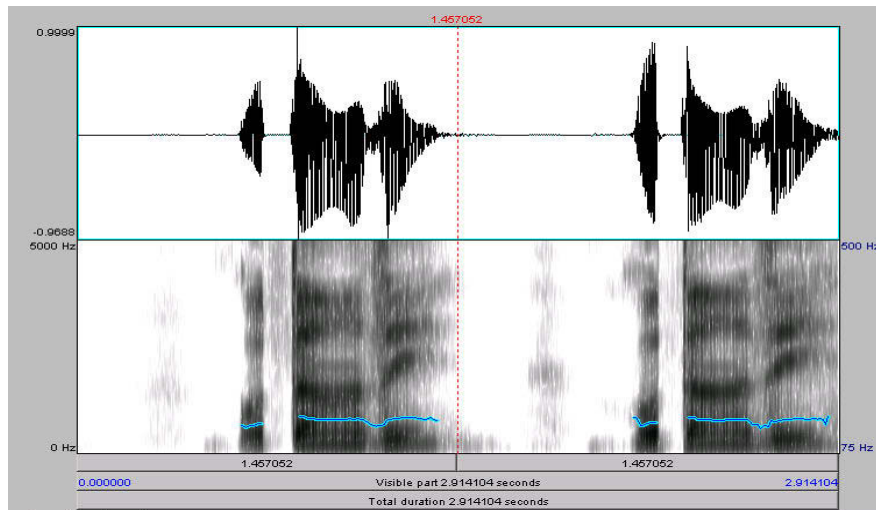


Figure 8: g-utā³ zi³ ('He sucked.')

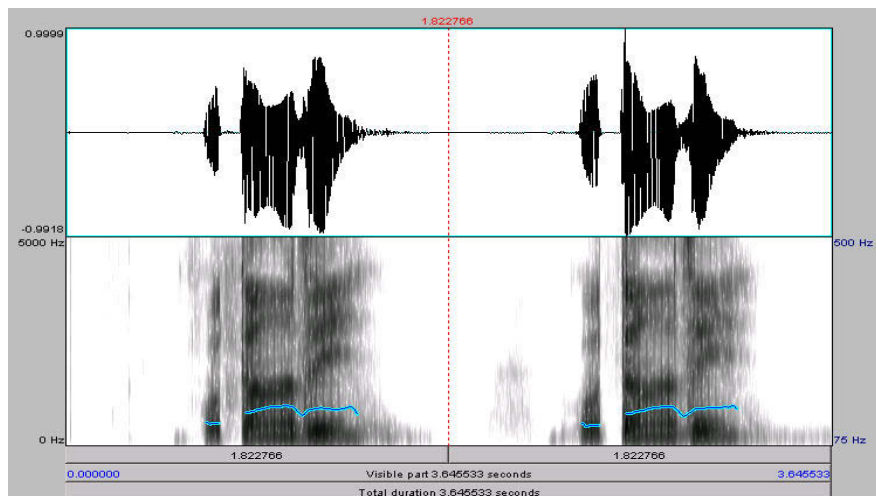


Figure 9: g-u²tā³ zi³ ('He will suck.')

Sometimes tone 3 becomes tone 1 in a potential aspect only when tone 3 occurs on a glottalized vowel (<V'>) in a final syllable.

CON		POT	
(18) a'ne' ³	=>	g-a'ne' ¹	'cut'
(19) uta' ³	=>	g-uta' ¹	'fight'

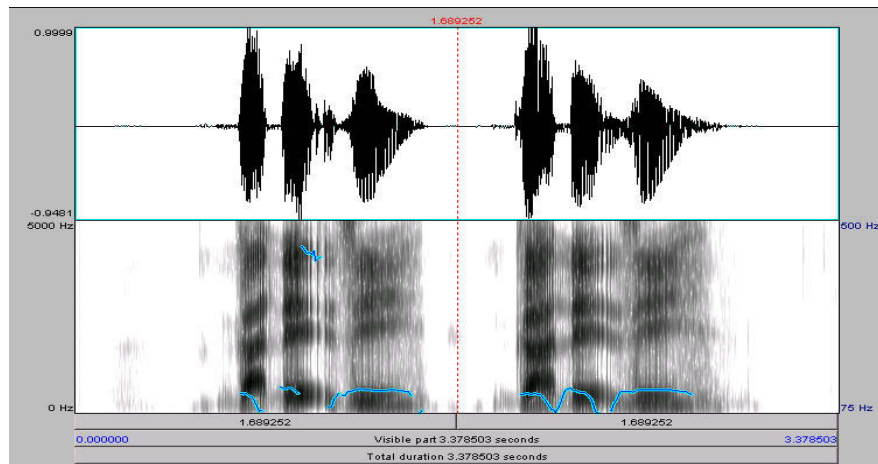


Figure 10: g-a'ne³zi³ ('He cut.')

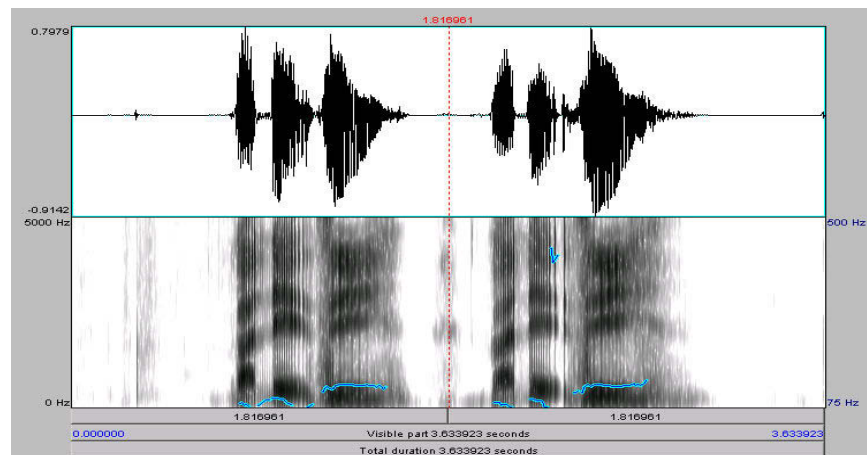


Figure 11: g-a'ne¹zi³ ('He will cut.')

3.5. Tone 32

When a phonemic tone on a final syllable is contour tone 32, contour tone 32 becomes tone 2 in a potential aspect.

CON		POT	
(20) a'mi ³²	=>	g-a'mi ²	'speak'
(21) atoh ³²	=>	g-atoh ²	'sleep'

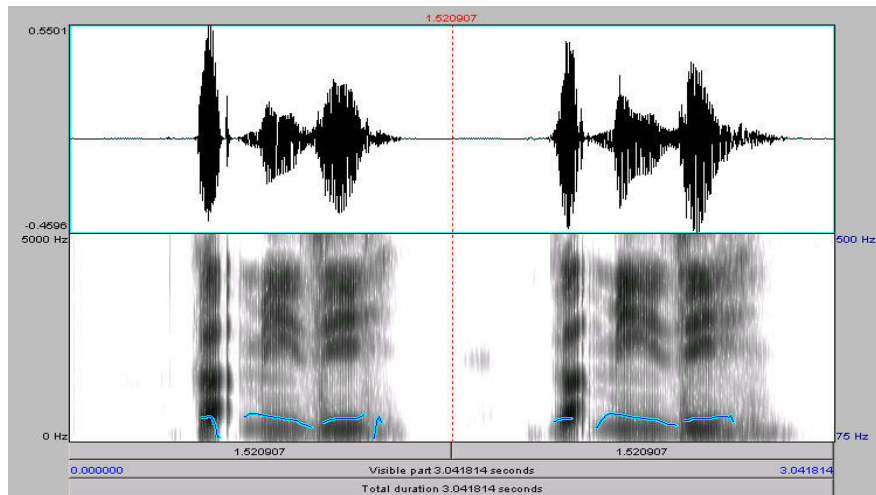


Figure 12: g-a'mi³² zi² ('He spoke.')

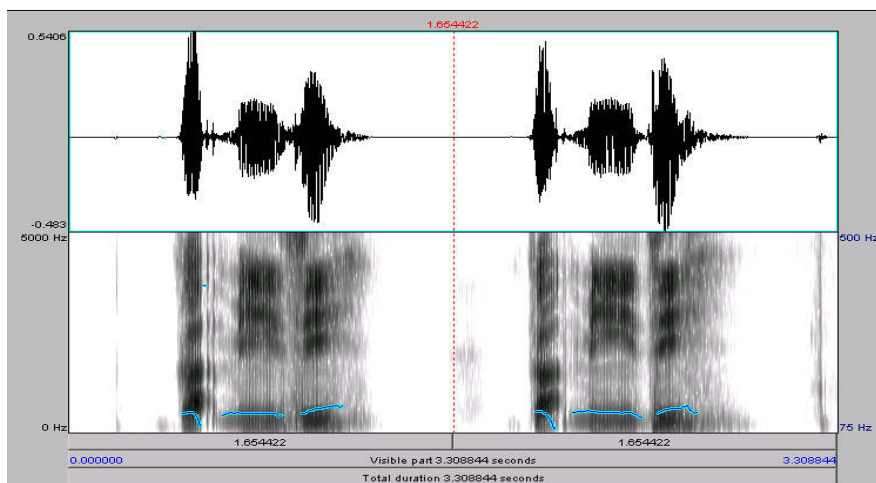


Figure 13: g-a'mi² zi² ('He will speak.')

3.6. Tone 31

When a phonemic tone on a final syllable is contour tone 31, contour tone 31 is lowered to tone 1 in a potential aspect.

CON		POT	
(22) na ³¹	=>	gi-na ¹	'rock'
(23) utu ³¹	=>	g-utu ¹	'break'

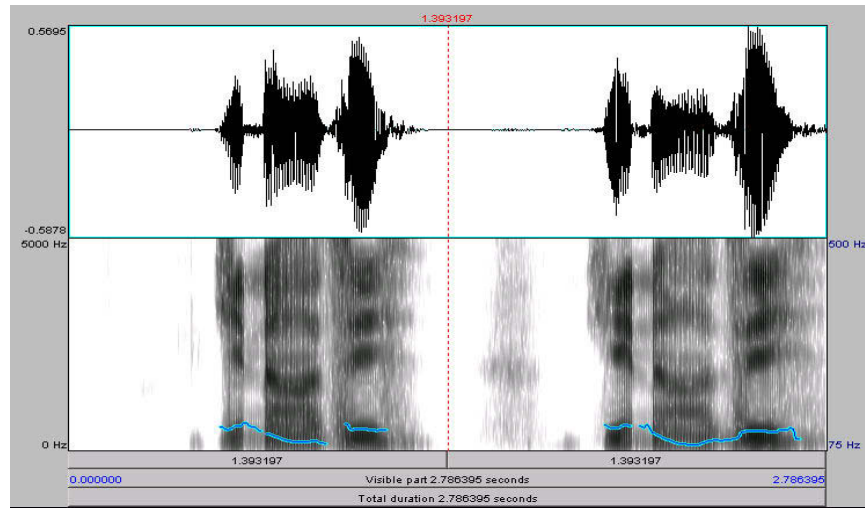


Figure 14: gi-na³¹ zi³ ('He rocked.')

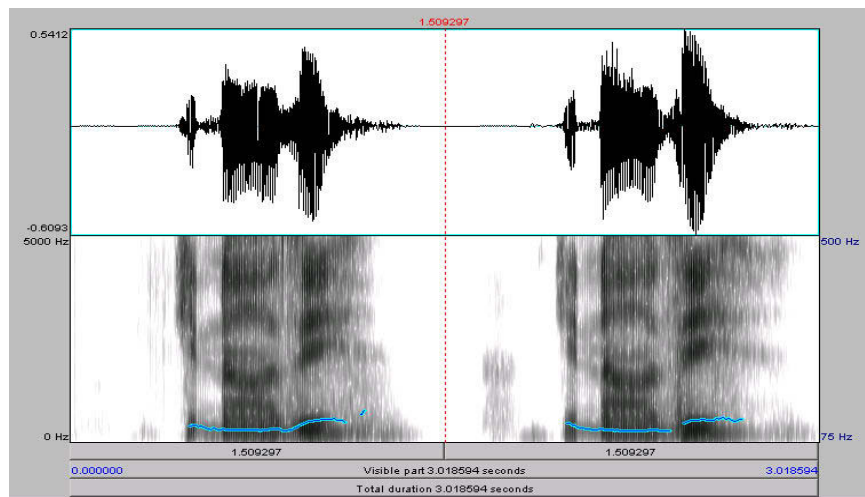


Figure 15: gi-na¹ zi³ ('He will rock.')

4. Comparison with potential tone alternation patterns in Copala Triqui

Copala Triqui (Hollenbach 1984, 1992, 2004) has similar tone alternation patterns for a potential aspect to those in Chicahuaxtla Triqui. The tone alternation patterns for a potential aspect in Chicahuaxtla Triqui and those in Copala Triqui are summarized below.

Chicahuaxtla		Copala	
Non-POT	POT	Non-POT	POT
V ⁵	Vh ¹ /V ²	VV ⁵	Vh ¹ /VV ²
Vh ⁴	Vh ² /V ²	Vh ⁵	Vh ² /VV ²
V ⁴³	V ² /V ¹	V ⁴	V ² /V ¹

VCV ³	V ² CV ³	3	13
V ³	V ¹	V ³	V ¹
32	2	32	2
31	1	31	1

Figure 16: Potential Tone Patterns in Chicahuaxtla Triqui and Copala Triqui

Although most of the tone alternation patterns are same or similar between Chicahuaxtla Triqui and Copala Triqui, a tone alternation pattern for tone 3 is different between them. In Chicahuaxtla Triqui, tone 2 is assigned on an initial syllable and tone 3 on a final syllable is retained in a potential aspect when a final syllable has tone 3. In Copala Triqui, tone 3 on a final syllable becomes tone 13 in a potential aspect. Like in Chicahuaxtla Triqui, tone 2 is assigned on an initial syllable and tone 3 on a final syllable is retained in Itunyoso Triqui when a final syllable has tone 3: see (24)-(25).²

CON	POT	
(24) unu ³	=> k-u ² nu ³	‘hear’
(25) ata ³	=> k-a ² ta ³	‘carry’

The tone alternation patterns for tone 5, tone 4 and tone 43 in Chicahuaxtla Triqui are not exactly same as the corresponding tone alternation patterns in Copala Triqui. These differences owe to historical tone shifts happened in Triqui languages.

Proto-Triqui	Chicahuaxtla	Copala	Itunyoso
*VV ⁴ [*VV ⁵]	V ⁵	VV ⁵	V ⁵
*Vh ⁴	Vh ⁴	Vh ⁵	V ⁴³
*V ⁴	V ⁴³	V ⁴ [V ⁴³]	V ⁴³
*V ³	V ^{3/4}	V ³	V ³ ?

Figure 17: Historical Tone Shifts in Triqui Languages

In Proto-Triqui, tone 5 was not a phonemic tone and tone 5 developed as an allotone of tone 4 on a long vowel: /*VV⁴/ > [*VV⁵]. Although Copala Triqui retains VV⁵, contrastive vowel length was lost and [*VV⁵] became V⁵ in Chicahuaxtla Triqui. Therefore, V⁵ > Vh¹/V² in Chicahuaxtla Triqui and VV⁵ > Vh¹/VV² in Copala Triqui were the same rule in Proto-Triqui. In Itunyoso Triqui, contrastive vowel length was lost and [*VV⁵] became V⁵ like in Chicahuaxtla Triqui.³

In Copala Triqui, tone 5 also developed from tone 4 on an aspirated vowel of Proto-Triqui: *Vh⁴ > Vh⁵. Therefore, Vh⁴ > Vh²/V² in Chicahuaxtla Triqui and Vh⁵ > Vh²/VV²

² In Itunyoso Triqui, an aspect prefix is *k-*.

³ V⁵ in Itunyoso Triqui is phonetically shorter than that of Chicahuaxtla Triqui. In Chicahuaxtla Triqui, a plain vowel is phonetically lengthened in a final syllable.

in Copala Triqui were the same rule in Proto-Triqui. In Itunyoso Triqui, $*Vh^4$ became a plain vowel V^{43} .⁴

In Copala Triqui, tone 4 on a short vowel is phonetically contour tone 43 (Hollenbach 1984:114-116). In Chicahuaxtla Triqui and Itunyoso Triqui, a corresponding tone to V^4 ($[V^{43}]$) in Copala Triqui is phonetically contour tone 43 too. Whether this contour tone 43 is a phonemic tone or an allotone of tone 4 needs further investigation. If this contour tone 43 is an allotone of tone 4 in Chicahuaxtla Triqui and Itunyoso Triqui, probably tone 4 on a short vowel in Proto-Triqui was also phonetically tone 43.

Tone 4 on a glottalized vowel is very rare in both Chicahuaxtla Triqui and Copala Triqui. Copala Triqui has only a few words with this combination and Chicahuaxtla Triqui has a few more words with this combination. When tone 4 occurs on a glottalized vowel only in Chicahuaxtla Triqui, a corresponding tone in Copala Triqui is tone 3: e.g. zo'^4 ('he') in Chicahuaxtla Triqui and zo'^3 in Copala Triqui. Probably, tone 4 in Proto-Triqui has mostly shifted to tone 3 on a glottalized vowel in Chicahuaxtla Triqui and Copala Triqui: $*V'^4 > V'^3$.⁵

This hypothesis is also supported by the tone alternation patterns for a potential aspect in Chicahuaxtla Triqui and Copala Triqui. In Chicahuaxtla Triqui, tone 2 is assigned on an initial syllable when a phonemic tone on a final syllable is tone 3 ($VCV^3 > V^2CV^3$) and sometimes tone 3 becomes tone 1 only on a glottalized vowel ($V'^3 > V'^1$). In Copala Triqui, tone 3 becomes either tone 13 or tone 1 on a glottalized vowel: $V'^3 > V'^{13}/V'^1$. If tone 4 on a glottalized vowel of Proto-Triqui has mostly shifted to tone 3 in modern Triqui languages, some V'^3 was originally $*V'^4$. Then, it seems possible to explain why there are two different potential tone patterns for V'^3 . That is, V'^3 , which developed from $*V'^4$, becomes V'^1 in both Chicahuaxtla Triqui and Copala Triqui and V'^3 , which was originally $*V'^3$, becomes V^2CV^3 in Chicahuaxtla Triqui and V'^{13} in Copala Triqui in a potential aspect.

Thus, tone 5, tone 4 and tone 43 in Chicahuaxtla Triqui correspond to somewhat different tones in Copala Triqui and Itunyoso Triqui. However, these differences have developed because of the historical tone shifts and the tone alternation patterns for a potential aspect in Chicahuaxtla Triqui and those in Copala Triqui were originally the same rules in Proto-Triqui.

5. Conclusion

In this paper, I analyzed the tone alternation patterns for a potential aspect in Chicahuaxtla Triqui and compared them with those in Copala Triqui. As a result, Chicahuaxtla Triqui and Copala Triqui have similar tone lowering patterns for a potential aspect. $V^5 > Vh^1/V^2$, $Vh^4 > Vh^2/V^2$ and $V^{43} > V^2/V^1$ in Chicahuaxtla Triqui correspond to $VV^5 > Vh^1/VV^2$, $Vh^5 > Vh^2/VV^2$ and $V^4 > V^2/V^1$ in Copala Triqui. The different tonal correspondences between them owe to the historical tone shifts happened in each

⁴ Since post-vocalic aspiration has been lost (at least for my Itunyoso Triqui speaker), V^{43} shifted from $*Vh^4$ and V^{43} shifted from $*V^4$ are very similar to each other. However, vowel length seems to be a little shorter for V^{43} , which was originally $*Vh^4$.

⁵ Itunyoso Triqui data are still under analysis, but probably $*V'^4$ has mostly shifted to V'^3 in Itunyoso Triqui too.

language. Since Itunyoso Triqui has similar tone lowering patterns for a potential aspect to those in Chicahuaxtla Triqui and Copala Triqui, these tone alternation patterns for a potential aspect seem to have been formalized at the stage of Proto-Triqui.

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