TONOGENESIS IN NORTHERN TEPEHUAN

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ABSTRACT

Northern Tepehuan, a Uto-Aztecan language of Mexico, displays contrastive pitch on clusters of two vowels. These pitch contrasts have been described as phonemic tone[1]. Northern Tepehuan, Southern Tepehuan, Upper Piman and Lower Piman form the Tepiman Branch of Uto-Aztecan. The loss of Proto-Tepiman *ʔ and *h has resulted in vowel clusters in Northern Tepehuan, thus providing some of the environments for the contrasting tones. The other three Tepiman languages display stress in corresponding environments. This incipient tone system presents an ideal situation in which to examine once more the ways in which tone develops in a language.

INTRODUCTION

In his article "Tonogenesis in Southeast Asia", James A. Matisoff (1973) says: "...it appears that to become truly tonal a language must have a basic monosyllabic structure. Polysyllabic languages may develop 'pitch accent systems...'" Matisoff refers to the latter as "marginally or incipiently tonal"[2].

It is precisely this "incipient" or "marginal" nature of the contrastive pitch phenomena in Northern Tepehuan which provides the motivation for this paper. The precise definition of a tone languages has yet to be agreed upon. This paper will reflect the view that tone is present where contrastive pitch is found on the lexical level.

Northern Tepehuan is spoken by approximately eight thousand people living in the mountains of Chihuahua in Northern Mexico. Northern Tepehuan (NT), Southern Tepehuan (ST), Papago (UP), and Pima (LP) form the TEPIMAN sub-group of the Sonoran Branch of Uto-Aztecan. This paper reflects the field work done by the author in these languages.

Because NT has a relatively simple tone system (only two tones), and because the tone contrasts are restricted to vowel clusters, tone has a very low functional load. Since the other three Tepiman languages do not have tone, it seems very likely that tone is just developing in Northern Tepehuan and that it is therefore an ideal situation in which to inquire about how tone originates in a language.

SYLLABLE STRUCTURE

The syllable in NT must always have a V or a VV as its nucleus. It may have a C onset and/or coda. It may be short, i.e., contain a single vowel; or long, i.e., contain a vowel cluster. The VV of the long syllable may be geminate or diverse. This unit displays the contrasting pitch patterns of NT. All four possible tone sequences of high and low tone on a sequence of two vowels occur in NT. I accept this fact as a part of the evidence for tone in NT. The following examples show the structure of the syllable as described:

V	á.ki	'stream'
VV	áá.ki	'popcorn'
VC	áš.tʸa.ñi	'throw it out'
CV	bá.vi	'beans'
CVC	táš.ka.li	'tortilla'
CVV	daá.ka	'nose'

NT words may consist of as many as eight syllables (or more if one includes clitics) as seen in: ga.ma.máá.ti.tu.li.tʸa.dai 'he was teaching someone'.

While long syllables play an important role in NT phonology, not every word is required to have a long syllable. In one limited environment long consonants appear to "take the place of" long vowels. Following a short high-toned initial syllable, a consonant is lengthened as in: /bávi/ [ˈbáb·il] or [ˈbáb·biI] 'beans'. But bavígadi 'his beans' has no long syllable.

TONE IN NORTHERN TEPEHUAN

Northern Tepehuan has two contrastive pitches (tones), high (´) and low (` in phonetic representations and unmarked in phonemic representations). There is at most one high-toned syllable in a stem. Any of the following qualifies as a high-toned syllable: V́, V́V́, V́V, or VV́. Pitch contrasts occur only on VV (sequences of two vowels). A VV is the nucleus of a long syllable. There is at most one long syllable in a stem, which is considered to be the nucleus of the stem. The long syllable is not always the high-toned syllable. Stems may be composed of from one to three syllables. For example:

/móo/	[ˈmóòO]	'head'
/móódi̱/	[ˈmóó.di̱l]	'his head'
/maákai̱/	[ˈmaá.kàìl]	'he gives'
/kiˈlívi/	[ki.ˈlí.bìl]	'he shells corn'

The claim that stems have no more than one long syllable in NT is not contradicted by maákai since the final -i is not a part of the stem. It is the "present" or better the "atemporal" verb suffix. The final -i of nouns is the "absolutive" suffix.

The evidence for tone is found on the following (C)VV sequences:

/áási/	[ˈáásìl]	'catfish'
/áasi/	[ˈáásìl]	'are they others ?'
/aási/	[ˈaásìl]	'he laughed'
/aasíi/	[ˈáásíìl]	'is it a catfish ?'
/tuudákii/	[ˈtūūdákìì]	'he dances'
/tóódakii/	[ˈtóódākìì]	'it beats' (the heart)

For further evidence of contrastive pitch see Pike, Barrett and Bascom[1].

STRESS

Stress in NT is predictable. Phonetically, stress is loudness. Most frequently there is only one stress per word. It occurs with high tone, as in:

/nóvi/	[ˈnóbìl]	'hand'
/gi̱móo/	[gi̱ˈmóòO]	'your head'.

In words which begin with CVVCV or CVV stress fluctuates. In this special environment the stress fluctuates between the low-toned V(V) and the high-toned vowel which follows, or both may be stressed, as in:

/naadámi/	[ˈnāādámìl]	
or	[nāāˈdámìl]	
or	[ˈnāāˈdámìl]	'six'
/kášiš koí/	[ˈkášiš ˈkōì]	
or	[ˈkášiš kōˈí]	
or	[ˈkášiš ˈkᵊí]	'Did he already go to sleep ?'

Compound words may occur with two high-toned syllables accompanied by stress.

THE DEVELOPMENT OF TONE IN NORTHERN TEPEHUAN

Some of the most significant sound changes in the development of the Tepiman languages from Proto-Tepiman (PT) involve the loss of *ʔ and *h (h is a glottal fricative in ST and UP, and a velar fricative in NT and LP). These changes are related to the development of tone in NT, since they have in some instances resulted in the vowel clusters where tone contrasts occur.

All PT *ʔ are lost in NT. Word initial *ʔ has been retained in ST, UP, and LP. Non-initial PT *ʔ is retained in ST and is split to ʔ/0 in UP and LP (*ʔ is the onset of a syllable, not part of the syllable nucleus). The following examples show some of the correspondences displaying these sound changes:

PT		NT	ST	UP	LP	Gloss
*ˈʔoobai	>	oóbai	ˈʔoab	ˈʔoobi̱	ˈʔoob	'foreigner'
*baˈʔagai	>	báágai	baˈʔaaʔ	ˈbaʔagi̱	ˈbaʔag	'eagle'
*ˈmoʔo	>	móo	ˈmoʔ	ˈmoʔo	ˈmoʔo	'head'
*ˈʔaapiʔi	>	aápi	ˈʔaapiʔ	ˈʔaapi	ˈʔaapi	'you'

Initial PT *h has almost completely disappeared in NT (some speakers use the archaic forms with initial h); has split to h/0 in ST and has been retained in UP and LP. Non-initial PT *h has split in all four languages to h/0. The following examples show some of the correspondences displaying these sound changes (see Bascom 1965[3] for a complete set of correspondences).

PT		NT	ST	UP	LP	Gloss
*ˈhaaki		áàki	ˈhaak	ˈhaaki	ˈhaahak	'popcorn'
*hioˈsigai	>	yoošígai	ˈyooši?	ˈhi̱osigi̱	ˈhioškam	'flower'
*ʔiahaˈtagi	>	yaatági	ˈʔiatgi-	ˈʔiatogi-	ˈʔiahtg-	'to lie'

The purpose of this list of examples is to present evidence for the contrasting development of NT phonology as compared with ST, UP, and LP, especially to show that, while tone has developed in NT, stress has remained contrastive in the other three languages. The examples have been chosen to illustrate the four tone patterns on vowel clusters in NT (high-high, high-low, low-high and low-low).

Source of high-high tone sequence.

The high-high tones occurring on a (C)VV sequence have three sources in PT.

Loss of *ʔ. Both *ˈCVʔV... and *CVˈʔV... > NT CV́V... The three dots (here and subsequently) indicate that the sequence is followed by one or more syllables in the same word, as in:

PT		NT	Gloss
*ˈgi̱ʔi̱ri	>	gíi̱li	'boy'
*ˈkoʔokori	>	kóókoli	'chile'
*ˈmuʔidu	>	múídᵘu	'there are many'
*ˈvaʔigi̱i	>	váígi̱i	'she fetched water'
*baˈʔagai	>	báágai	'eagle'
*koˈʔoko	>	kóóko	'it hurts'
*vaˈʔaki	>	vááki	'house'
*ʔiˈohogi̱i	>	yóógi̱i	'he coughs'

Loss of *h. (either initial or medial) *ˈhVV... > NT V́V́ and *ˈCVhV... > CV́V́. If *h represented an unequivocal example of the loss of a laryngeal resulting in a sequence of high tones this would be worthy of note. However, only two of the daughter languages actually have the glottal fricative for the reflex of *h while the other two have a velar fricative reflex.

*ˈhaaki	>	ááki	'parched corn'
*ˈhaahaga	>	áága	'leaves'
*ˈhoonita	>	óóñiᵗai	'he takes a wife'
*ˈhuuhutu	>	úútu	'fingernails'
*ˈbihugimu	>	bíúgimu	'he is hungry'
*ˈhahaduñi	>	ááduñi	'relatives'
*ˈhihina	>	íña	'he shouts'
*ˈmi̱hida	>	mi̱ídᵘa	'he burns it'

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Two forms do not follow this rule:

*ˈtahapai	>	taápai	'he split it'
*ˈti̱hanai	>	ti̱ánai	'he orders'

They seem to follow the rule that PT *ˈCVV > NT CV́ which might indicate that they lost the *h before the tone rule was applied.

Non-final *Vi. *ˈCVi... > CV́í when followed by other syllables in the same word.

*ˈdaikaroi	>	dáíkaroi	'chair'
*ˈkaidi̱	>	káídᵛi̱	'its seed'
*ˈki̱isa	>	kííša	'he stepped on it'
*ˈsoiga	>	sóíga	'domesticated animal'
*ˈvoisikai	>	vóíšikai	'he sweeps'
*ˈkoi-	>	kóí	'he killed them'

Source of low-high tone sequence.

The low-high sequence of tones on a CVV syllable in NT comes from *ˈCVV under the following conditions: #*ˈCVV(...) > NT CV́V(...), # means that *ˈCVV is initial in the word; (...) means that #*CVV is optionally followed by one or more syllables in the same word; neither *CVi (non-geminate) nor *hVV is followed by another syllable; if *C is *h or *ʔ then NT is 0.

*ˈbaaba	>	baába	'mother's mother'
*ˈbiitai	>	biítᵛai	'excrement'
*ˈdaada	>	daáda	'mama'
*ˈmi̱i̱	>	mi̱i̱	'he ran'
*ˈtuu	>	tuú	'he put out the fire'
*ˈʔii	>	ií	'he went'
*ˈhuu	>	uú	'he ate'
*ˈdai	>	daí	'he set it down'
*ˈkoi	>	koí	'he slept'

Note that in NT the contrast between kóí 'he killed them' and koí 'he slept' the former comes from a PT bisyllabic form while the latter comes from a PT monosyllabic form.

Source of high-low tone sequence.

The high-low sequence of tones on a CVV syllable in NT comes from PT *ˈCVʔV when this sequence represents the whole stem. It is followed in the same word only by 0 or -i.

*ˈmoʔo	>	móo	'head'
*ˈmuʔi	>	múi	'many'
*ˈtuʔi	>	túi	'flour'
*ˈkoʔoi	>	kói/kóóyi	'snake'
*ˈni̱ʔi̱i	>	ní̱i/ní̱i̱yi	'he sings'
*ˈiʔiʔii	>	yíi/yíi̱yi	'he drinks'

Source of low-low sequence of tones.

The low-low sequence of tones on a CVV syllable in NT comes from an unstressed long syllable in PT, as in:

*baaˈbahi	>	baabáhi	'tails'
*baaˈbanai	>	baabánai	'coyotes'
*daaˈdaka	>	daadáka	'noses'
*daaˈkadi̱	>	daakádi̱	'his nose'
*duuˈkami	>	duukámi	'official'
*gi̱i̱ˈsimi	>	gi̱i̱šímí	'he is falling'

An alternate approach.

This study is not an exhaustive one. That would require much more comparative work. Nevertheless, the primary thrust of the paper, namely, that the pitch contrasts observed in NT have developed in part from the loss of PT *ʔ and *h, is well established by the evidence presented. How phonetic facts are interpreted in a phonological analysis depends in part on the basic assumptions of the analyst. While this paper has analyzed the pitch contrasts as tone, the fact that NT tone contrasts occur in such a limited environment makes it desirable to entertain the possibility of an alternate solution. Nancy Woo has done this in her paper on "Tone in Northern Tepehuan"[4]. Her analysis claims to account for all of the pitch phenomena in NT on the basis of a set of rules involving the shapes of stems, historical and comparative information, and the introduction of a rule involving a special kind of "syllabic" feature. Since she was not working directly with native speakers of Northern Tepehuan she did not have all of the information about the language in hand, thus her analysis does not handle all the forms. For example: maradi̱ 'his child' or 'its branch' has two plural forms whose tones contrast, i.e., maamáradi̱ 'his children' vs. máámaradi̱ 'its branches'. If I have understood Woo's rules correctly, they predict the former but not the latter.

Some of the assertions Woo makes which reveal her underlying assumptions about the nature of phonological analysis and which seem to be essential to her thesis are at best debatable. The claim, at one point in her argument, that speakers of a language "remember" lost laryngeals (historically lost, not synchronically) is not a concept accepted by all linguists.

Even if one grants that Woo's rules do handle the material she had access to and might well be expanded to cover all of the phonological facts, it remains that some prefer to stay closer to the observable phonetic phenomena and live with fewer generalizations; and also to treat historical and comparative facts as information to be considered after the synchronic picture has been developed.

Northern Tepehuan phonology has moved away from a strictly "stress-accent" system in Proto-Tepiman to a "pitch accent system" synchronically. As long as one keeps the total word in focus and does not introduce morphology, specifically stem boundries, into the phonological analysis, contrastive pitch is phonemic. I prefer to call this contrastive pitch tone, but am willing to settle for the term "pitch accent" as a viable alternative.

References

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