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OTOMI TONES

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In 1948 Donald Sinclair and Kenneth Pike wrote that their investigations of Mezquital Otomí had led them to the conclusion that tone is phonemic. (Tonemes of Mesquital Otomi, IJAL 14.91-8).

Mentioning that a few of the early linguists in the area had been led to about the same conclusion (that 'highness' or 'lowness' could distinguish words otherwise alike), they went on to show that tone is not simply an occurrence of phonemic stress as in Spanish.

It is the purpose of this paper to investigate Sinclair and Pike's demonstration and to submit their findings to a new analysis.

Sinclair and Pike stated that there are three tones in Otomí: high / ˊ / , low / ˋ / , and rising / ˊˋ / . They rightly consider that high tone is not necessarily coterminous with stress. It is my objective to show that their analysis may be simplified by consideration of the following two points: (1) rising tone is not phonemic but is a predictable function of length and conforms to other tone patterns in the language; and (2) tone marking is uneconomical under their analysis.

In an article in the *Anales of the INAH of Mexico*, 1963, and in personal communication, Leon reiterates her suggestion for the consideration of rising tone in Otomi as a function of geminates. She and Swadesh (Leon and Swadesh, *Two Views of Otomi Prosody*, IJAL 15.100-5, 1949) have also disagreed with Pike and Sinclair's analysis, concerning themselves as we do here with the consequences for the economy of marking tones which a consideration of geminates affords. They did not, however, formulate any set of ordered rules for the marking of Otomi tones though they considered tones a predictable function of stress. This paper clarifies such a notion and goes beyond it, demonstrating the rule that only a single syllable in any non-monosyllable need be marked as plus high (+ˊ).

Finally, considering a recent theoretical discussion by McCawley (James McCawley, *What is a Tone Language?*, Paper presented at Summer Meetings of LSA, Indiana University, August 1, 1964), the economical reduction of tone marking in the following analysis will force us to relinquish the notion that Otomi is a tone language at all. For as we will show, tone marking is predictable after initial determination of a non-predictable marked syllable and tones are not independent and non-predictable attributes of individual vowels.

In stating reasons for their classifying Otomí as a tone language, Sinclair and Pike say: "A second hindrance to the recognition of tones in Otomí is that the rising tone may be erroneously interpreted as length of vowels.

This results from the fact that in general the ascending toneme occupies a little more time than the other tonemes. This being the case, an investigator may attempt to write the non-phonemic duration in place of the rising of the voice. That it is the rising of the voice which is phonemic is evidenced by the fact that the syllables which rise can be pronounced as rapidly as the rest, although generally they are a little slower. This instability in length argues against duration as the phonemic feature [emphasis mine: HRB]. When the rising syllables are pronounced rapidly one has to listen very carefully to detect the rising glide, for with the rapidity the duration is lost, and the sound approximates more to that of the high syllables" (Sinclair and Pike, 96).

I would argue that the rising tone is exactly a function of length, and that there is no argument, in terms of instability of length, to suggest otherwise. It is noticed in Otomí that there are diphthongs. They are: /ei, ui, æi, iɪ, oɪ, ɔi/. Inspection has shown that in every case of diphthongs, a rising intonation is to be observed phonetically. Along with Sinclair and Pike, we could attribute this to the fact that these are cases of low tone vowels immediately followed by high tone vowels. Sinclair and Pike, in fact, mark these syllables in that manner, i.e. /`´/.

It is my opinion that these diphthongs are only a fraction of the clusters which occur in Otomí and that the others are nine geminates: /ii, iɪ, uu, ee, ʌʌ, oo, ææ, aa, ɔɔ/. Thus it could be said that in all vowel clusters, phonetic tone is predictable: it is rising. Furthermore, no matter how hard an untrained observer may have to strain to hear this phenomenon, it is still there in single words and slow speech. The very fact that risingness is lost is ample argument to doubt that it is the risingness itself which is phonemic. Also, in diphthong clusters no matter how fast the speech becomes, there is a distinct risingness to the second vowel, although in very rapid speech it may often seem that both vowels in a cluster are high. When this happens, it is the length of the syllabic which forms the significant distinctive feature.

In terms of symmetry, an analysis considering all rising tone a function of length (or more precisely, clustering) allows us to eliminate one asymmetrical aspect of Sinclair and Pike's analysis. With their terms there would be two types of long syllabics: (1) diphthongs with the vowels having low and high tone in that order; and (2) long vowels analyzed as having a separate phonemic tone with length being a concomitant of the tone. In my analysis, all long syllabics are treated as clusters, and all have a predictable rising tone, as mentioned above.

Another simplification utilizes a distinctive feature argument. Note that if we eliminate the rising tone, we are left with only two contrasting levels of tone. This, too, is more symmetrical than Sinclair and Pike's analysis. That they are concerned with symmetry of this nature, is evident when they state: "Finally, difficulty is found in recognizing a tone system which is not symmetrical. Up to the present, having high, low, and rising tonemes, descending syllables are lacking" (Sinclair and Pike, 96) and "there is still the possibility of finding a toneme which descends in degree comparable to the rise of the rising toneme" (Sinclair and Pike, 92). It seems to me that there is little need for concern over this apparent asymmetrical aspect of Otomí 'tonology'

and I suggest that the problem be considered at least partially solved by the elimination of the rising toneme altogether. By doing this, two distinctive features of the tone component, i.e. + or - high, would suffice to segregate all occurrences of high from all occurrences of low. With three phonemic tones, it is obvious that this simple binary contrast would be lost.

Sinclair and Pike do list one minimal pair of diphthongs with contrast between both vowels high in one and the low-high sequence yielding the rising intonation in the other. The particular case is /[?]bĩ/ to be and /[?]bɛ/ to be or to live. It seems clear that the meanings of the two words are much alike. They may have been taken from a corpus of rapidly spoken material in which the rising tone was blurred into the seeming two-high tone. Even if this were not the case, my own evidence shows that in isolation these two words are pronounced exactly alike; indeed, they are one and same morpheme.

As a final aspect of the problem of the rising tone, let me reiterate one point for emphasis. Even if length should prove to be completely unstable, and even if diphthongs appear to be single high tone syllables in rapid speech, the fact remains that native speakers, no matter how hard they were pressed, could not shorten any monosyllables marked by a phonetic rising tone when these were repeated in isolation.

Otomí is indeed a tone language. Tone is phonemic but there are only two tones, not three. These tones are high and low. The combination low-high is automatic in clusters.

We may proceed now to the second point of the argument, that of tone marking in Otomí. I suggest that using Sinclair and Pike's analysis, tones are overmarked. In describing the tone combinations of Otomí, they say: "The different tonemes follow each other freely in adjacent syllables. Ignoring word barriers, all possible sequence combinations in two syllables (˘˘, ˘˙, ˙˘, ˙˙, ˘˘, ˙˘, ˙˙) are seen in the following two sentences: rà déhé dícíhě dè gá zàbí the water which we drink is from a pool. rà zàbí šà bíxà yǎbí the pool is very distant" (Sinclair and Pike, 93).

If morpheme boundaries ('word barriers') are not ignored and are investigated for their effect on the tone pattern, the systematic phonemic representation of Otomí tones becomes almost magically simplified. Otomí verbs are, with certain predictable morphophonemic changes, constant as roots and are preceded by what we may call person-time markers. These indicate person, number and tense in a single morpheme. Plural person is marked by certain minor morphemes which follow the verb root. Sinclair and Pike treated these as prefixes and suffixes:

"These prefixes to the verb are either high or low, by this means distinguishing various tenses and aspects. The principal contrasts are illustrated in the following chart:

	present	preterite	future
1st pers.	dĩ-	dá-	gá-
2nd pers.	gĩ-	gá-	gì-
3rd pers.	--	bì-	dà-

	present	preterite	future
3rd pers. more or less distant (?)	bì		
3rd pers. (meaning ?)	dì		
3rd pers. with negative particle	gì		

"Note the following minimally contrastive pairs formed with these prefixes: dĩny ní I eat; dĩny ní he eats; gĩny ní you eat; gĩny ní you will eat; dány ní I ate; dány ní he will eat; gány ní you ate; gány ní I will eat; bĩny ní he ate; bĩny ní he eats (at a distance)" (Sinclair and Pike, 94).

First we notice for the first person future, their chart indicates /gá/ and in their examples they have /gány- ní/ I will eat. Since they are consistent everywhere else, and since my own data show the first person future marker to be of low tone (i.e. /gà/), I will consider that the high tone /gá/ in their chart for the first person future is a misprint and not their error. However, there is no good reason to consider these markers as prefixes. There is, on the other hand, a good reason for either writing them as separate words or in some other way indicating morpheme boundary after them. If this were done, there would be no instance in Sinclair and Pike's examples in which a high tone syllable is followed by a low tone syllable in the same morpheme. I found no example of this occurring with verbs in my entire corpus of data. Some compound nouns of three and four syllables show this pattern, but these are rare and in all such cases morpheme boundaries are evidently responsible. We are tempted to say that morpheme boundaries are distorting the tone pattern, but 'distort' is not the proper word. As in the case of the person-time markers, morpheme boundaries preserve the tones of the individual morphemes in such compounds.

Inspection of Sinclair and Pike's few examples given above will show that single syllable morphemes can have either high or low tone which must be marked, while all non-monosyllables show a distinct pattern: they end in either high or rising tone. Using the analysis of the rising tone suggested earlier in this section, it may be said simply that all non-monosyllables end in high tone. For example, /dĩčĩhě/ we drink (see above) is an example of plural person marked by a minor morpheme following the verb root. While Sinclair and Pike write this as attached to the verb and as rising tone /hě/ I would write this /hee/.

To recapitulate, polysyllabic words end in high. The following lexical rules show where tone must be marked in its non-predictable environments:

Word → #C[́]V#

#C[̀]V#

#C[́]V { C[́]V
CVV }

$$\#C\grave{V} \left\{ \begin{array}{l} C\acute{V} \\ CV \\ CVV \end{array} \right\}$$

In other words, either high or low can occur initially. If initial is high, then all subsequent syllables in a word will be either high or cluster and only high or cluster can follow high or cluster. Since clusters are predictable in their tone, if the first syllable is high we need only mark it. If the first syllable is low it may be followed by high, low, or cluster (except where the second syllable is morpheme final, in which case it must be high according to the previous rule; all non-monosyllables end in high tone). If the second syllable is low, it may be followed by high, low or cluster, and so on. It is obvious that only the first high, if it is not final, and if it doesn't occur in a cluster, must be marked. Thus, these lexical rules may be compacted to read:

Put high tone / ˊ / on the marked syllable.

With this one lexical rule, we can then state a series of three rules which, when applied in the correct order, give us all the phonetic tones in Otomí.

- (1) Put high tone / ˊ / on the second vowel of a cluster.
- (2) Put high tone / ˊ / on all non-cluster syllables if:
 - (a) they follow high
 - (b) they are final and preceded by non-null.
- (3) Put low tone elsewhere.