

SEGMENTAL FEATURES OF TEPEHUA WHISTLE SPEECH

GEORGE M. COWAN

Languages which are whistled as well as spoken have been reported from the Americas, Africa, Asia and New Guinea. Some are tonal languages and the whistled forms are based on the suprasegmental features of the language. Others are not tonal but include the articulation of vowels as an integral part of the whistle and the pronunciation of consonants as interruptions in the whistle. Tepehua, a language of Mexico, is one example of this latter type. The present paper is a preliminary report based on 700 recorded utterances, both spoken and whistled, of Juan Santiago, a Tepehua speaker of Huehuetla, Hidalgo, Mexico.

In whistled Tepehua, the whistle is normally produced with protruding lips, i.e., it is a lip-whistle, accompanied by movements of the tongue and lips, and with either egressive or ingressive lung air.

The sentence intonation contours of spoken Tepehua are reproduced in the whistle. Seven different intonation patterns occur in the data.

Contrastive stress on Tepehua words occurs in the whistle. A single main stress may fall on either the ultimate or penultimate syllable of the word, or there may be a dual stress on both the antepenultimate and ultimate syllables of the same word.

The segmental phonemes of spoken Tepehua include 17 voiceless consonants, three voiced consonants, and two voiced semivowels. All consonants are voiceless when occurring in whistled Tepehua. Phonemic contrasts, however, are preserved, except in a very few cases under circumstances still to be defined. All consonants, whether occurring singly or in clusters, are clearly articulated much as in normal speech. The friction of fricatives and affricates is clearly audible and distinguishable. Stops and affricates have complete closure. The point of articulation is identified by transition glides from and into the adjacent consonants or whistled vowels. Voiced nasals and the voiced lateral in whistled Tepehua are voiceless. Semivowel /y/ functions as a consonant in the syllable pattern but does not interrupt the whistle as other consonants do. It is whistled as a high, rising glide. Semivowel /w/ on the contrary usually occurs as a break in the whistle.

Tepehua has five long vowels and five short vowels, all voiced in speech except under certain conditions in utterance final position. The utterance final voiceless

vowels of speech are never whistled. Stops and affricates preceding them are aspirated in the whistle. Vowel tongue movements, corresponding to those in speech, accompany the whistling. There is some evidence that different degrees of lip rounding, corresponding in some way to the lip position of the vowel being whistled, also occur. The contrasting quality of whistled vowels seems to be distinguished by relative pitch and contrasting glides into and out of adjacent sounds.

I assume that pitch contours that help identify consonants and vowels in the whistle are similar to the pitch features of the transitions which help identify consonants and vowels in normal speech. An instrumental analysis of the pitch features of vowel-consonant sequences in speech, compared with the same sequences whistled might show if this assumption is valid. Palatography studies of consonant articulations of the same utterances spoken and whistled, would help determine what modifications, if any, occur due to the distinctive set of the lips and tongue in whistle. A comparison of moving picture documentation of lip and face movements in spoken and whistled Tepehua might also help show what contrastive lip positions occur in the whistle, reduced as they must be by the more fixed position of the lips,

Whistled Tepehua illustrates the fact that languages, whether spoken or whistled, are redundant in the sense that they contain much more than a minimum signal. In other words, the phonetic particulars of a phonological system may be considerably modified or reduced in number, as in whistle, yet the phonological system as such still function efficiently and the message get through.

The question might also be raised as to whether whistled Tepehua should not be considered more as a variant form or style of speech, as for example whisper is, than as a substitute for language, since it uses the same physiological mechanism and the same linguistic system to achieve the same cultural purpose.

Instituto Lingüístico de Verano, México

DISCUSSION

BREND (Ann Arbor, Mich.)

Is there evidence that the whistled consonants and vowels are grouped into syllables?

COWAN

Yes, there is evidence that whistled consonants and vowels are grouped into syllables. First, each spoken syllable is reproduced by one distinct stretch of whistle, with the one exception noted in the case of spoken utterance final syllables with voiceless vowels. Second, the semivowel /w/ in the whistle occurs as a break or interruption in the whistle, like all other consonants, except semivowel /y/, which, although functioning as a consonant does not interrupt the whistle but links the preceding and following vowels by a high rising then falling glide. So far as I can hear, the timing

factors of speech are reproduced in whistle, so that I assume syllable boundaries are also marked by this and other factors in the whistle too.

CATFORD (Ann Arbor, Mich.)

Will the lecturer please enumerate other languages or peoples who use whistle speech?

COWAN

I have personally worked with informants who whistled Amuzgo, Chol, Mazatec, Tepehua, Sierra Juarez Zapotec, as well as Spanish (all the foregoing in Mexico); have talked personally with field workers who reported whistle speech among the Chinantec and Villa Alta Zapotec of Mexico and among the Gadsup and Binumarien of New Guinea; and have read in the literature concerning whistle language among the Nahuatl, Otomi and Totonac of Mexico, among the Siriono of Bolivia, the Chepang of Nepal, the Chin of Burma, and among the Ewe, Tshi, Marka, Ulé, Daguri, Birifor, Burunsi, Bobo, Bafia and Bapé of West Africa. Then there is the well known Silbo Gomero of the Canary Islands. I understand the Turkish of Kusköy, Turkey is also whistled.

CINTAS (Charlottesville, Va.)

1. I apologize for my ignorance but I would appreciate if you could tell us whether Tepehua whistle speech is independent of normal spoken speech or is it a level?

2. What is the efficiency of the communication when whistle speech is used?

3. Do you know of any instances of whistle speech in English? French has one word, *oui*, which is often whistled ingressively.

COWAN

1. Normal spoken forms constitute the vast majority of inter-personal communications, but occasionally Tepehua speakers will whistle what they might otherwise say. In this sense it is a level or style of the usual spoken form, comparable, for example to whisper as a level or style.

2. The efficiency is exceedingly high. Of 40 to 50 whistled utterances (including several short conversations) which were recorded and played back to the informant 48 hours later, with no reminder and no natural context, he failed to recognize only six or seven, three of which were initial utterances of conversations, which he immediately reinterpreted correctly on hearing the reply, and two of the others involved Spanish-borrowed names imbedded in Tepehua sentences. Eight years later when tested again in similar fashion he did as well again.

3. I do not know of whistled English, although I have done it myself with a surprisingly good result in one or two cases. I had not known of the French example you cite. The Silbo Gomero of the Canary Islands is Spanish whistled. My Tepehua

informant also whistled Spanish as easily as Tepehua apparently, pronouncing all the Spanish consonants in the process, which is similar in some respects but quite different in several other respects from the Silbo Gomero as described by André Classe.

SOVIJÄRVI (Helsinki)

Are the children using whistle speech too?

COWAN

Yes, children learn to whistle too. Among the Mazatec of Mexico only males whistle, but I have found no Mazatec man or boy who could tell me when he learned to whistle. Apparently they learn it from childhood as an integral part of their total communication system. I do not know the situation as well in the case of the Tepehua children.

WODE (Kiel)

Are there any taboos about whistling in that community?

COWAN

I do not know of any taboos about whistling in the Tepehua community — but my knowledge of the cultural context in Tepehua is limited. Among the Mazatec no women whistle, although they understand everything that is whistled. I know of no specific taboo linked with this however.