

1978

On the Distinction between "Pitch-Accent" and "Tone" Languages

Mary M. Clark

The University of Massachusetts at Amherst and the School for International Training

Follow this and additional works at: <https://scholarworks.umass.edu/nels>



Part of the [Linguistics Commons](#)

Recommended Citation

Clark, Mary M. (1978) "On the Distinction between "Pitch-Accent" and "Tone" Languages," *North East Linguistics Society*. Vol. 8 , Article 7.

Available at: <https://scholarworks.umass.edu/nels/vol8/iss1/7>

This Article is brought to you for free and open access by the Graduate Linguistics Students Association (GLSA) at ScholarWorks@UMass Amherst. It has been accepted for inclusion in North East Linguistics Society by an authorized editor of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.

On the Distinction between "Pitch-Accent" and "Tone" Languages

Mary M. Clark

The University of Massachusetts at Amherst and the
School for International Training

In analyzing languages with lexical tone, linguists have traditionally distinguished between two classes of languages -- "pitch-accent" languages and "tone" languages. I will begin this paper by attempting to explain what this distinction is, and why it has been thought necessary to make it. I will then question the validity of the distinction, on the grounds that it is difficult or impossible to establish consistent criteria for assigning languages to one or the other of these categories. Finally, I will propose a theory of tone in which tone contours are represented dynamically, by means of tone-markers which represent pitch changes. One of the advantages of this theory is that it allows lexical tone contours to be represented in the same way in both "pitch-accent" and "tone" languages. In other words, the theory allows us to dispense with the formal distinction between these two language classes. In addition, as I will show, the theory provides a particularly elegant account of certain tonal phenomena which are troublesome for theories which represent tone contours in terms of level tones.

The distinction between pitch-accent and tone languages has traditionally been made on the basis of lexical tone contours. In a tone language like Mende, any syllable of a word may have any tone, as can be seen from the three-syllable words which are listed below. (These examples and the other Mende data which is given in this paper are taken from Leben (1977).):

- (1) a. hawama 'waistline' b. simenti 'cement'
c. felama 'junction' d. lansana (proper name)
e. kpakali 'tripod chair' f. lele^{ma} 'praying mantis'
g. ndevula 'sling' h. nikili 'groundnut'

"Tone" languages like Mende are usually assumed to have their lexical tone contours already assigned in the lexicon. For example, the Mende word nikili is usually considered to have the lexical representation nikili. Alternatively, a tone language may be con-

L H L

sidered to have a set of basic tone melodies which are mapped onto the words of the language in a one-tone-per syllable fashion, beginning from the beginning of the word. In an analysis of this sort, the word nikili would be marked in the lexicon with a feature indicating that its tone melody is LHL. The tone melody would then be

The assignment of the rest of the tone melody is determined by universal tone-mapping conventions, which create the associations below:

- (7) a. $\begin{array}{c} * \\ \text{?inoti} \\ \swarrow \searrow \\ \text{H L} \end{array}$ b. $\begin{array}{c} * \\ \text{kokoro} \\ \swarrow \searrow \\ \text{H L} \end{array}$ c. $\begin{array}{c} * \\ \text{?atama} \\ \swarrow \searrow \\ \text{H L} \end{array}$ d. $\begin{array}{c} * \\ \text{miyako} \\ \swarrow \searrow \\ \text{H L} \end{array}$

Notice that the tone-association process assigns the same tone contour to final-accented words like ?atama (c) and unaccented words like miyako (d). The difference in the surface contours of these words is created by the following rule, which simplifies the falling glide at the end of miyako, but not at the end of ?atama.

- (8) $L \rightarrow \emptyset / \begin{array}{c} [-*] \\ \text{V} \\ \swarrow \searrow \\ \text{H} \quad \underline{\quad} \end{array}$

Finally, a surface-level rule which I will not state here introduces the low tone which is associated with the first syllable of ko|ko|ro, ?a|tama, and mi|yako. This low tone appears only when the word is initial in its phrase.

Besides serving as a reference point for the rule which maps on the basic tone contour and accounting (by way of rule (8)) for the difference in tone contour between words of the accented and unaccented classes, the diacritic feature "*" also plays a crucial role in the "accent-reduction" process by which the accent of a particle or of the copula de|su is deleted when it follows an accented noun. An example of "accent-reduction" is given below:

- (9) $\text{ko|ko|ro} + \text{de|su} \Rightarrow \text{ko|ko|ro desu}$ 'It's a heart.'

The example above contrasts with the phrase

- (10) mi|yako de|su 'It's a city.'

in which the head noun is unaccented, and in which the accent of the copula is not deleted. If we assume that the phrases of (9) and (10) are unit phonological words, then the loss of the accent of de|su in (9), but not in (10), is an automatic consequence of the tone-assignment rule (5), for this rule ignores all but the first starred vowel within a phonological word. Thus this rule associates the H of the HL tone melody with the phrases of (9) and (10) in the manner shown below:

- (11) a. $\begin{array}{c} * \quad * \\ \text{kokoro desu} \\ \swarrow \searrow \\ \text{H L} \end{array}$ b. $\begin{array}{c} * \quad * \\ \text{miyako desu} \\ \swarrow \searrow \\ \text{H L} \end{array}$

and LHL, as in

(15) $\underline{\text{ka}}\text{bu}^*\text{to}$ 'helmet' $\underline{\text{noko}}\text{gi}^*\text{ri}$ 'sow'

In spite of the fact that it has two tone melodies, Osaka Japanese is usually classified as a pitch-accent language.

Characteristic (b), which specifies that there must be a variation in the way a given tone melody is mapped onto the phonological string, is usually considered a necessary property of a pitch-accent language. Thus the Miyokonozyo dialect of Japanese, which has high tone on the last syllable of every phonological word, and low tone on every preceding syllable, is analyzed by Haraguchi as a non-accentual language. However, characteristic (b) by itself does not qualify a language as a pitch-accent language, for if it did, then almost every language with lexical tone would be a member of this class. For example, even Mende has sets of words like

(16) $\underline{\text{sime}}\text{nti}$ 'cement' $\underline{\text{fe}}\text{lama}$ 'junction'


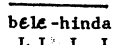

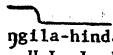
which may be regarded as having the same basic tone melody (HL) mapped on in different ways.

Finally, let us consider whether the presence or absence of an "accent-reduction" process like that illustrated for Japanese in (9) and (10) above is helpful in distinguishing pitch-accent from tone languages. The answer is that it is not, for there are "pitch-accent" languages like Serbo-Croatian which do not, to my knowledge, have tonal processes of this sort, while on the other hand there are tonal processes very much like accent-reduction in languages which would not ordinarily be analyzed as star-using languages. For example, the second element of a compound in Mende has a HL tone contour when the first element of the compound ends on a high tone level, but becomes low throughout when the first element ends with a low tone. Examples are given below:

(17) a. where the first element of the compound ends on a high tone level

 pele 'house' H H	 pele-hinda 'house-business' H H H L
 navo 'money' L H	 navo-hinda 'money-business' L H H L

b. where the first element of the compound ends on a low tone level.

	'trousers'		'trouser-business'
L L		L L L L	
	'dog'		'dog-business'
H L		H L L L	

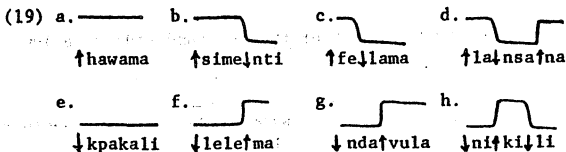
In the theory of tone which we have been using up to now, this alternation in Mende compounds cannot be analyzed as an instance of accent-reduction, because it would not be plausible to claim that the items in first position in the compounds of (a) are "starred", while those of (b) are not. Thus some non-accentual mechanism must be provided within the theory to account for this alternation. (See, for example, the analysis of these facts which is proposed by Leben (1977).) But once such a mechanism has been introduced into the theory, it is no longer possible to use the presence of an "accent-reduction" process as a test for pitch-accent languages, because whatever mechanism is used to account for the above alternation in Mende compounds will also account for the Japanese "accent-reduction" process which was illustrated in (9) above. Consequently, it is impossible to determine in advance whether a given instance of such a process is or is not an instance of "accent-reduction", and the presence of such a process in a language does not insure that that language must be a pitch-accent (=star-using) language.

In the absence of reliable criteria for distinguishing between pitch-accent and tone languages, I would like to propose a theory of tone in which it is neither necessary nor desirable to make this distinction. In this theory, the tone contour of a word like the Mende word ni[↑]ki[↓]li 'groundnut' will be defined not in terms of the tone levels of its syllables, but in terms of the changes of pitch which take place within it. Thus this word is represented in the lexicon as

(18) \downarrow ni[↑]ki[↓]li

where the up-arrow "[↑]" symbolizes a rise in pitch, and the down-arrow "[↓]" symbolizes a drop in pitch. The tone-change markers "[↑]" and "[↓]" are units of the phonological string which occur only at the boundaries of tone-bearing units. (The tone-bearing unit of a given language may be either the syllable or the mora. In Mende and Tokyo Japanese, the tone-bearing unit is the syllable, and tone markers in these languages will occur no more often than one per syllable boundary.)

The lexical representations of the other Mende words of (1), listed below, parallel that of nikili:



Notice that there is a tone marker at the beginning of each of the words of (19). This tone marker is not pronounced when the word comes at the beginning of a phrase, but simply indicates the pitch level on which the phrase begins. A tone-change marker between two syllables of a Mende word is realized as a change in pitch at the boundary at which it occurs.

There is one other possible position for a tone marker in Mende, and that is the position at the end of a word. Examples like nyaf^h_h 'woman' suggest that there may indeed be a tone marker in this position, and that such a tone marker is realized as a gliding tone on the final syllable of the word. Thus nyaf^h_h will be represented as

(20) ↓nyaf^h_h 'woman'


The conventions which determine the realization of tone markers in Mende are summarized below:

- (21) a. A tone marker at the beginning of a phonological phrase is not pronounced.
- b. A tone marker at the end of a word is pronounced as a gliding tone on the final syllable of the word.
- c. A tone marker in any other position is realized as a change in pitch at the syllable boundary at which it appears.


The conventions for the realization of tone markers in other languages are similar, but not identical, to those of Mende. For example, in Igbo, a tone marker at the end of a phonological phrase is not pronounced, and a tone marker at the beginning of a phrase is realized as a gliding tone on the syllable which follows it.

While the tone marker at the beginning of a Mende word is not pronounced when the word is initial in its phrase, a tone marker in this position does show up as a change of pitch when the preceding word of the phrase has a tone-change marker of opposite direction as its last tone marker. For example, the ↓ at the beginning of the plural marker ↓gaa shows up as a drop in pitch when the preceding noun is one like ↑péle 'house', which has a ↑ for its last tone

marker:

(22) 
 ↑pɛlɛ ↓ŋɡaa 'houses'

However, when the word which precedes ↓ŋɡaa is one which has a ↓ as its last tone marker, the ↓ at the beginning of ↓ŋɡaa does not show up in the surface form. An example is given below with the noun ↓bɛlɛ 'trousers':

(23) 
 ↓bɛlɛ ŋɡaa 'trousers' (pl)

In order to account for the absence of a pitch drop at the beginning of ↓ŋɡaa in this form, we will have to introduce a rule to delete the second of a sequence of ↓'s within a phrase. A similar rule will be needed to eliminate the second of a sequence of ↑'s. These two rules can be collapsed into the general rule below:

(24) Like-Tone-Marker Deletion

	tone marker	...	tone marker	...	\$
s.d.	1	2	3	4	5
s.c.	Delete 3.				

Conditions: (i) 2 contains no tone markers.

(ii) 1 = 3

The symbol "\$" in this rule represents the boundary of a phrase.

The rule of Like-Tone-Marker Deletion is needed independently in Mende to account for the tonal alternation in compounds which we observed above in (17). Since the tone contour of the second element of a compound is independent of its lexical tone contour, let us assume that the rules of compound formation in Mende erase the lexical tone contour of the second element and insert a ↓ after its first syllable. Then the compounds of (17) will have the underlying representations shown below:

- (25) a. ↑pɛlɛ # hi↓nda 'house-business'
 b. ↓naɾvo # hi↓nda 'money-business'
 c. ↓bɛlɛ # hi↓nda 'trousers-business'
 d. ↑ŋɡiɾla # hi↓nda 'dog-business'

Clark: On the Distinction between "Pitch-Accent" and "Tone" Languages

The rule of Like-Tone-Marker Deletion applies in (25c) and (25d) only, deleting the second of the sequence of ↓'s, and creating the surface forms

- (26) a. ↓bɛlɛ # hinda b. †ɣgiɹla # hinda

The underlying forms (25a) and (25b) do not meet the structural description of the rule; thus the surface forms of these compounds are exactly the same as their underlying forms:

- (27) a. †pɛlɛ # hiɹnda b. ↓naɹvo # hiɹnda

It is a strength of the dynamic tone analysis which has been proposed here that it allows the tonal alternation in the second element of a Mende compound to be accounted for by means of an independently-motivated rule.

Having seen how a dynamic-tone representation of tone contours works for the tone language Mende, let us now return to our pitch-accent language, Tokyo Japanese. Assuming virtually the same conventions for the realization of tone markers in Japanese as in Mende, we may represent the lexical tone contours of the Japanese words of (3) in the manner shown below:

- (28) a. accented first syllable: ?i↓noti
 b. accented second syllable: koko↓ro
 c. accented third syllable: †atama↓
 d. unaccented: miyako

The "accent" of a Japanese word is represented here by a pitch-drop marker -- there is no need to resort to a diacritic feature. The difference between an accented word like †atama↓ and an unaccented word like miyako is simply that the former contains a pitch-drop marker, while the latter does not.

The "accent-reduction" process which deletes the accent of a particle or of the copula de↓su when it follows an accented noun is easily accounted for in this system by means of a rule of Like-Tone-Marker Deletion like the one which was motivated above for Mende:

(29) Like-Tone-Marker Deletion (Japanese)

	tone marker	...	tone marker	...	##
s.d.	1	2	3	4	5
s.c.	Delete 3.				

at most one tone marker, and that tone marker must be a ↓. In formal terms, the lexicon of Tokyo Japanese is subject to the following lexical structure condition, which does not apply to the lexicon of Mende:

- (32) In a word of the form $[\dots \underset{1}{[+unit]} \underset{2}{\dots} \underset{3}{\dots}]$, if 2 is a tone marker, then 2 is a ↓, and 1 and 3 contain no tone markers.

There are also languages like Osaka Japanese, whose lexical tone contours are intermediate in predictability between those of Mende and those of Tokyo Japanese.

In summary, I have argued here that it is difficult or impossible to establish criteria for assigning languages to the traditional categories "pitch-accent language" and "tone language." In response to this indeterminacy in the theory, I have proposed a new theory of tone which allows lexical tone contours to be represented in the same way in all languages. Besides allowing us to dispense with an awkward and nearly vacuous classificatory system for tone languages, the dynamic-tone theory which has been proposed here also provides illuminating analyses of certain tonal phenomena which are less easily accounted for within level-tone theories. For example, the analyses of Mende and Tokyo Japanese which have been proposed here include particularly straightforward treatments of (i) the tonal alternation in the second element of a compound of Mende, and (ii) the sequence of pitch drops which is found in Tokyo Japanese when two or more accented words succeed one another within a phonological phrase.

References

- Goldsmith, John (1974) "An autosegmental typology of tone: and how Japanese fits in," in E. Kaisse and J. Hankamer, eds., Papers from the fifth annual meeting, Northeastern Linguistic Society.
- Goldsmith, John (1976) Autosegmental phonology, unpublished doctoral dissertation, MIT, Cambridge, Massachusetts.
- Haraguchi, Shosuki (1975) The tone pattern of Japanese: an autosegmental theory of tonology, unpublished doctoral dissertation, MIT, Cambridge, Massachusetts.
- Leben, W.R. (1977) "Studies in the suprasegmental representation of tone," mimeographed paper, Stanford University.
- McCawley, J.D. (1968) The phonological component of a grammar of Japanese. Mouton, The Hague.