

IDIOSYNCRATIC, SUPRASEGMENTAL PROCESSES IN MENDE

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1. Introduction

In my paper read before the conference on African linguistics in Gainesville [Dwyer 1976], I claimed that Mende was not a suprasegmental tone language of the type envisioned by Leben [1973]. Yet, in that paper I suggested that there were a number of processes in Mende which nevertheless appeared to be of a suprasegmental nature. In this paper, I present two types of these processes, the development of the H HL tone pattern and "demorphologized" compounds and then show first how these phenomena support an autosegmental view of phonology and second, how idiosyncratic features fit into a general theory of phonology.

2. The Development of the H HL Tone Pattern

Mende contains a small set of disyllabic morphemes that display a high-falling tone pattern. These words, taken from Spears [1968] are given in (1):

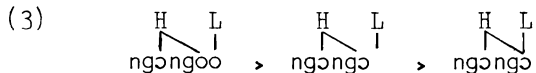
- (1) ngóngô tooth hókpô navel pókô imitate
 tókplâ seat, bottom mbémbé circle

Because examples of this tonal pattern are few in number and because this pattern is not present in Proto Southwestern Mande, the high-falling tone pattern appears to be a fairly recent development in Mende. The ways in which this pattern arose provide an important insight into the nature of suprasegmental tone processes.

One source of this tone pattern appears to be from the loss of a final low-toned syllable with the reassignment of the low tone to the preceding syllable. Evidence for this comes from the various alternate forms reported for 'tooth' and 'navel' by Spears [1968] and by Innes [1969]. Interestingly, these variants do not all appear in the same dialect, or possibly idiolect, but appear to be randomly distributed as the following example (2) illustrates:

- (2) ngóngólì (S), ngóngóù (I), ngóngóó (S), ngóngô (S,I) S=Spears [68]
 hókpólì (I), hókpóì (I), hókpóù (I), hókpô (S,I) I=Innes [69]

Clearly the variants given in (2) suggest a progression from left to right and that some of the forms given in (1) represent reduced versions of fuller forms. And from this analysis we can conclude that a suprasegmental tonal process is involved. By suprasegmental I mean that the tonal melody of the words in question is to some extent independent of the composition of the segments to which the melody is associated. This suprasegmental process is adequately described by the autosegmental framework developed by Goldsmith [1976], as the following derivation (3) illustrates:



It is important to also note that this process is idiosyncratic, that is, it does not apply to all potential forms. For example, neither Innes nor Spears recorded all variations from their sources. Secondly, not all potential inputs to the process described in (3) undergo the process, as the examples in (4) illustrate:

- (4)
- | | | | |
|-------------|---|-----------|---------------|
| kpɔ́ngbɔ̀nì | ~ | *kpɔ́ngbô | 'palsy' |
| ngéngéù | ~ | *ngéngê | 'finger nail' |
| bòtánì | ~ | *bòtâ | 'fist' |

A second source for the high-falling tone pattern appears to result from syncope rather than from apocope. This process differs from the first because it results in a medial consonant-liquid cluster. The following set of examples (5) show the optional application of this process:

- (5)
- | | | | | | | | |
|--------|---|------|-------|-------|---|------|---------|
| ngí là | ~ | ng â | 'dog' | kú lò | ~ | kl ô | 'small' |
| ngú lè | ~ | ng ô | 'oil' | | | | |

On the basis of this evidence, it appears likely that a word like tɔ́kp|â with its consonant-liquid cluster was originally derived from a fuller form, say tɔ́kpɔ́|à or tɔ́kpá|à in much the same way that the short form fú|ô 'dust' is derived from its free variant fúfú|ò.

In considering this second process, it too is clearly suprasegmental in nature and is clearly idiosyncratic. Thus the development of the high-falling tone pattern in Mende appears to be the result of two independent processes, both of which are idiosyncratic and both of which are suprasegmental in nature.

Evidence of this sort, the loss of a segment and the reassignment of its tone to an adjacent syllable, has been used by Goldsmith [1976] and others to support an autosegmental view of phonology. The data may be novel in the sense that these processes are highly idiosyncratic, but as such do not really provide any new support for the autosegmental position.

In the next section, I present evidence that if correct provides even stronger evidence in support of autosegmental compounds.

3. Demorphologized Compounds

A detailed examination of the Mende lexicon reveals a substantial number of word forms which appear to be compounds on the basis of their general morphological appearance, but which in one way or another deviate from compounds. In Table 1, items (a-c) represent normal compounds, while the others (d-m) represent what I call demorphologized compounds.

I use the term "demorphologized compounds" because these forms cannot be directly generated from their constituent morphemes without the additional application of ad hoc rules, implying of course that these forms are no longer regarded as morphologically complex and consequently entered as individual units in the lexicon. By the term "true compound" I mean the anticipated form of the compound were it derived from the suggested constituents using the known compound rules. For details see Spears [1968].

In examining these compounds, it becomes clear that while these demorphologized compounds (examples (e) through (m)) appear to be the result of idiosyncratic processes, their form is nevertheless constrained in a very definite way. In order to demonstrate this, the following observations are important:

- (6) a. Item (e) and (f) have the same number of syllables as the true compound.
- b. Items (f, g, h, i, j and k) have one less syllable than the true compound.
- c. Item (l) has the same number of syllables as the true compound, but the tones have been repositioned.
- d. Item (m) has one more syllable than the true compound.

Assuming that the "demorphologized" compounds were originally derived from their corresponding true compounds, an assumption which is by no means certain, the question arises: in what way are they derived and what principle do they follow? A closer examination reveals that they all have three syllables and three tones. This observation could be explained by what I call the principle of tonal/segmental parity (7):

- (7) The least marked relationship that can exist between a tonal melody and a string of syllables is for each note of the melody to be uniquely associated with one tone-bearing segment.

All of the examples in Table 1 contain a three note melody (L H L). Using the principle of tonal/segmental parity we would expect that items

Table 1. Normal vs. Demorphologized Compounds

Gloss	Demorphologized Compound	True Compound	First Constituent	Second Constituent
a. woman	nyàhâ	nyà + hâ	nyá ?	há female
b. child	ndòpô	ndò + pô	ndó child	pò ?
c. tear	ngàyâ	ngà + yâ	ngă eye	yă water
d. fire	ngòmbû	ngòm + bû	ngǒŋ fire	bù in
e. girl	nyàápò	nyàhá + pò	nyàhâ woman	pò ?
f. male	hìfndò	hìní + ndò	hìní man	ndó child
g. potato leaf	njòlââ	njòpò + lâwà	njòpǒ potato	lâwá leaf
h. God	ngèwóò	ngèlè + wóò	ngèlě sky	wóó big
i. spy	mànéè	màà + nénéè	màă on	nènè shadow
j. pipe	tàvéè	tàwà + véè	tàwă tobacco	vèě bowl
k. snuff	tàvúka	tàwà + vúka	tàwă tobacco	vúká powder
l. morning	ngèéndà	ngèlè + ndâ	ngèlě sky	ndă mouth
m. saliva	ndàáyà	ndà + yâ	ndă mouth	yă water

Furthermore the alternation of the word glossed as 'gravel', which in its full form is clearly a reduplicated morpheme, suggests that the large percentage of words of the type: $C_1V_1C_1V_1C_2V_2$ may also be reduced reduplicates which are moving in the direction of tonal/segmental parity. These examples are given in (10) below:

- (10) ndòsòlò <? *ndòsòl + lóìlò earth, ground
 kókókòlì <? *kókòlì + kókòlò to seek
 kékékélé <? *kékélé + kélélé fraction
 fùfùfùlò < *fùlò + fùlò dust
 fìvífì < *fìlì + vífìlì shake (dry)
 tòòólò < *tòlò + lólò kola nut

The evidence given in (9) and (10) strongly suggests that the principle of tonal/segmental parity (7) is a true operating principle in Mende, and interestingly suggests one way in which partially reduplicated forms arise diachronically.

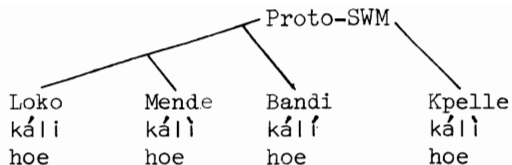
Before going further, I would like to point out an apparent contradiction to the principle in (7). The data presented in section one show that certain processes appear to operate against the principle of tonal/segmental parity, because it results in a falling tone (where two notes are assigned to the same syllable).

This development may not be in opposition to the principle, however, for a number of reasons. First, the reason for the developments in section 2 appears to be reduction processes, while that in section 3 appears to be a word internal readjustment. Thus section 2 processes can be seen as bunching processes while section 3 processes are unmarking processes. Second, we may note that while the association of notes in (1) may violate the principle in (7), the numbers of notes and tone-bearing segments do not. Given this second observation, we might expect the derived H HL words in (1) to eventually reduce to H L words, because of the principle of tonal/segmental parity.

Although it is not clear at this point, there is some evidence in the history of Southwestern Mande (of which Mende is a member) that the restructuring of H HL to H L may have taken place once before.

The Southwestern Mande languages contain a small set of morphemes which have a high-falling pattern in Loko, a high-high pattern in Bandi, and a high-low tone pattern in Mende and Kpelle (the Loma data is irrelevant here). The generally accepted family tree relationship of these languages is given in (11):

(11)



suggests a situation more awkward than the new alternative suggested here, the possibility of a parallel evolution of H HL to H L in both Mende and Kpelle can be tolerated.

Furthermore, this reinterpretation of the development of this tonal pattern permits a better statement of its development in Southwestern Mande. According to Dwyer [1973], only two tonal classes in Southwestern Mande have cognates in Northern Mande (the most closely related group of languages). These are *(H)H and *(L)P, where P = polarized tone, while the remainder: *L HL, *H L (reanalyzed here as *H HL) and *L L represent recent (Proto Southwestern Mande) innovations. Evidence of the sort presented in (6) was used to suggest that the *L HL tone patterns may have resulted from opaque nominal compounds while the remainder could only be explained as borrowings. With the reanalysis of *H L as *H HL, it is possible to suggest that at least some of the H HL words arose from the processes illustrated in section one of this paper. The result of this reanalysis, in addition to maintaining coherence with the principle of tonal/segmental parity, suggests that borrowing may have had less influence on the development of Southwestern Mande tone patterns than was previously supposed.

4. Implications

This paper raises a number of issues which may serve as avenues of future research;

- a. the nature of idiosyncratic tone processes
- b. the nature of phonological complexity or markedness

4.1 Idiosyncratic processes. Each of the suprasegmental processes described here are idiosyncratic in nature. That is, while we can provide a statement of the class of words which undergo a particular process, we cannot identify the specific words which fit that process. This notion parallels Labov's [1972] observation of the fronting rule in New York City English. While it is possible to characterize the class of words undergoing this process (those containing æ), not all of the words in this class undergo this fronting process. Furthermore, even though the number of words which do undergo the process are increasing, it was impossible to determine which word would be next. Although these processes have been characterized as idiosyncratic with respect to the particular words to which they apply, the nature of the phonological changes are clearly identifiable as a legitimate phonological process. Thus, once a particular phonological string undergoes a particular rule, there is no doubt as to its outcome.

The fact that idiosyncratic processes exist in language gives rise to the question how might this fact be incorporated into a theory of phonology and why? The question can most appropriately be answered given a lexicalist view of the lexicon such as that provided by Jackendoff [1975], who argues that whole words as strings of morphemes are stored in the lexicon rather than individual morphemes as the 1965 Aspects model suggests.

Given this view, we can distinguish between idiosyncratic rules which apply within the lexicon and the standard, regular rules which apply to the output of the lexicon. (The model of "upside down phonology" as put forward by Leben and Robinson [1975] with its notion of frozen rule could easily be incorporated in this framework, as could the notions of natural phonology put forth by Vennemann, Stampe and Hooper.) Although space does not permit a full elaboration of the point, it is worth noting that many rules which start out as idiosyncratic rules later become regular and then apply to all words which meet the structural description of the rule. This observation provides at least one answer to the complex question: where do (regular) phonological rules come from?

Secondly, a systematic examination of these idiosyncratic processes may lead to a better understanding as to why such processes exist, particularly in the light of "reductive" processes. Drawing from Zipf's observation that there is a strong positive correlation between a word's semantic complexity and its phonological complexity, Eulenberg [1964] concludes that rules actually operate to bring about a better balance between semantic content and phonological content. Eulenberg further points out that such a proposal does not "itself predict the existence or exact nature of individual rules, but rather acts as a constraint on the definition of a possible...rule" [Eulenberg 1964:198].

Before going further, I would like to add to this proposal the suggestion that the frequency of use of a given morpheme may have an equally important bearing on the question of phonological complexity as well. This is consistent with Zipf's observation because function words are not only smaller in semantic content than major category words, but more frequent in occurrence.

Logically following from this proposition is the conclusion that idiosyncratic rules are those which generally cope with an informational imbalance of individual lexical items while regular rules are those which cope with the imbalance of whole word classes. Taking this fact and the observation that word classes are generally defined by affixes, and the fact that the semantic content of an affix is considerably less than the free standing word from which it is derived, we can begin to see why so many regular (morphophonemic) rules involve affix boundaries while the idiosyncratic processes do not, and why morphophonemic rules are reductive.

This brief statement is intended to give an insight into the nature of idiosyncratic phonological rules and their relationship to a general

theory of phonology and into the complex question why are there phonological rules. In closing this section I would like to add that the study of the idiosyncratic processes through time has largely been neglected in favor of the more impressive regular developments. In this regard, I would venture to say that a diachronic investigation of idiosyncratic processes would prove to be as rewarding as has been the diachronic study of the regular processes.

4.2 The nature of phonological complexity. The principle of tonal/segmental parity (7) suggests an interesting axiom, that of phonological tension:

- (12) The association of two notes of any tier with the same segmental unit is more complex than the association of a single such note.

While space does not permit an elaboration of this principle, the following examples will give an illustration of how this principle might be used to explain certain types of developments.

4.2.1 The definite suffix. The definite suffix -í in Mende has two effects on the phonetic realization of Mende nouns. First, under certain conditions, it may cause a fronting of the preceding vowel; second, it may assimilate to that vowel. (There are also situations where no effect occurs.) These situations are given in (13), where tone is not relevant:

- (13) /maha-i/ [mahɛi] /fala-i/ [fala-a]

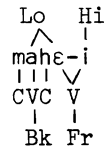
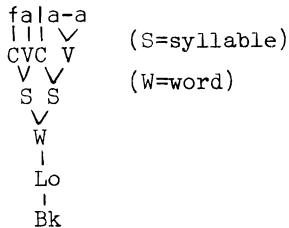
The conditioning factors for these developments are at least complex and probably will involve the use of a diacritic feature; however, these facts are not relevant to the task of illustrating phonological tension.

When the affix -í is added, tension is created (14):

- (14)
- | | | | | |
|--------|----|--|--------|----|
| Lo | Hi | | Lo | Hi |
| | | | | |
| Bk | Fr | | Bk | Fr |
| \ | / | | \ | / |
| fala-i | | | maha-i | |
| | | | | |
| | | | | |
| | | | | |
| CVC V | | | CVC V | |

This tension results from a conflict between two autosegmental tiers: the oral feature tier and the major class tier. Because the final segment of the noun and the only segment of the suffix are vowels, a single vowel note is assigned to these segments (a-i in the above examples). Because each vowel requires different oral features, a situation of phonological tension arises. To resolve this, readjustments are required. For example, tension can be relieved by shedding some notes from one tier or the other. Interestingly, each of the examples in (14) undergoes a different tension-releasing process to arrive at the observed surface form, given in (15). In the first example, fala-í the definite suffix loses its markings of [high] and [front]; in the second example the final vowel of the noun acquires the frontness of the affix.

(15)



By the definition of tension in (12), each of the forms in (15) can be seen to be less tense versions of their underlying forms. Likewise, the developments given in (2) can also be seen to follow a tension-reducing progression.

These two examples serve to illustrate that the principle of tonal/segmental parity and its more general case, phonological tension, may be useful in explaining why certain types of phonological rules develop the way they do. First, the addition of an affix creates tension which subsequently is reduced by phonological rules.

5. Conclusion

In this paper, I have examined a number of idiosyncratic phonological (suprasegmental) processes in order to demonstrate, first, that while these processes are idiosyncratic, they are not random, and second, that because they are not random they are of phonological interest. The particular interest that such processes give concerns 1) the relationship between general and idiosyncratic processes, 2) the possible origin of some types of phonological processes, and 3) an insight into the interrelationship between various melodic tiers such as tone, vowel quality, etc.

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