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VOWEL COALESCENCE--A REPLY

Nicholas Faraclas
University of California, Berkeley

In his article entitled "Vowel Coalescence Across Word Boundaries in Chumburung" (in this volume), K. L. Snider suggests that vowel fusion across morpheme boundaries in Obolo (as described in Faraclas 1982) and in Igede (as described in Bergman 1971) would be optimally accounted for by a series of generative rules. Snider's proposed rules include an assimilation rule (by which the second vowel in coalescence assimilates in some cases to the quality of the first) followed by a deletion rule (affecting the first vowel in coalescence). I would like to acknowledge Mr. Snider's sincere interest in the elaboration of an analytical framework capable of accounting for the behavior of vowels across morpheme boundaries in Niger-Congo, a goal which I myself share with him. It is in the spirit of the struggle to achieve this common objective that I would like to comment on some of Mr. Snider's assertions.

It should be noted that while, according to Snider, vowel elision is automatic or obligatory when two vowels are juxtaposed across morpheme boundaries in Chumburung, in my 1982 article I described a variety of processes including diphthongization (desyllabification), glide formation (raising), medial vowel formation (assimilation), and elision which <u>all</u> occur <u>variably</u> or optionally where vowels are juxtaposed across morpheme boundaries in Obolo.

In Faraclas (1982), I outlined the following hierarchy of relative "strength" of syllabic segments and processes of syllabic fusion to account for any generalizations that could be made regarding the interaction of syllabic segments in Obolo:

I) Hierarchy of relative "strength" of syllable segments:

1) A non-nasal syllabic (a vowel) is stronger than a syllabic nasal.
2) A low vowel is stronger than a mid vowel.
3) Except where low vowels or syllabic nasals are involved the second of two adjacent syllabic segments is stronger than the first.

II) Processes of syllabic fusion:

1) Where diphthongization occurs, the stronger vowel constitutes the nucleus of the resulting diphthong.
2) Where vowels are of relatively equal strength, they may coalesce to form a single vowel which combines some of the features of both.

3) In the case of elision, the weaker vowel is elided and only the stronger vowel remains.

Let us now attempt to formulate generative rules to account for the Obolo facts, using the assimilation-deletion model suggested by Snider:

A) In Obolo, all processes affecting syllabic segments in contact across morpheme boundaries may fail to operate at any time.

(1) /ìdzó étìp/ > [ìdzó étìp] 'bad luck'
bad luck

Thus, all of the rules formulated to handle these phenomena must be variable rules.

B) As stated above, there is a general tendency for the second of two vowels in contact across morpheme boundaries to be "stronger". Snider suggests a rule similar to R1 below to account for this (< > indicates that a rule or set of rules apply variably):

R1 [+syll] > ∅ / ____ [+syll]

As shown in example (2) however, the behavior of syllabic nasals requires that we order a rule (R2) which desyllabifies nasals before R1:

(2) /gé Ńkpɔ́/ > [gémkpɔ́] 'write something!'
write thing

R2 [+nas] > [-syll] / [+syll] ____

C) Other desyllabification processes, however, are not accounted for by R2 and R1.

(3) /ìdzó étìp/ > [ìdzwétìp] 'bad luck'

(4) /ámà ófífî/ > [ámáwfífî] 'another town'
town other

In most cases where this type of desyllabification occurs, it is the first vowel which loses its syllabicity if it is [-low], otherwise it is the second vowel in contact which desyllabifies. To account for these facts within the framework proposed by Snider (that is, without eliminating R1 we could posit two additional desyllabification rules which must be disjunctively ordered as follows:

R3 ⟨[+syll] > [-syll] / [+syll, +low] ___ ⟩

R4 ⟨[+syll] > [-syll / ___ [+syll]⟩

These rules may be collapsed as follows:

R3' ⟨[+syll] > [-syll] / ⟨[+syll, +low] ___ , ___ [+syll]⟩⟩

D) Despite their similarity in form, R2 and R3' may not be collapsed, due to the different relationship that each rule bears to R1. The only fusion process which syllabic nasals may undergo at morpheme boundaries is that summed up by R2. R2 must therefore be ordered before R1 and R3' to prevent these latter rules from applying to environments in which [+nas] > [+syll]. As shown in examples (1) and (3), either R1 or R3' but not both may apply in the exact same environment:

(1) /ìdzó étìp/ > [ìdzétìp] (by R1)
(3) /ìdzó étìp/ > [ìdzwétìp] (by R3')

Thus, the following relationship holds between R1, R2, and R3':

$$\left\langle R2 \left\{ \begin{matrix} R1 \\ R3' \end{matrix} \right\} \right\rangle$$

E) The process by which fusion of vowels across morpheme boundaries results in a vowel whose quality lies somewhere between those of the two juxtaposed vowels (as exemplified in (5) below), poses further problems.

(5) /ìdzó étìp/ > [ìdzǽtìp]

We could, as Snider suggests, formulate a rule of assimilation (5) by which the first vowel involved assimilates in roundness to the second vowel and order it conjunctively before R1.

$$R5 \quad \langle [+syll] > [\alpha\, round] \quad / \quad \left[\begin{matrix} +syll \\ \alpha\, round \end{matrix} \right] \_\_\_\_ \rangle$$

F) As it stands, however, R5 cannot account for other phenomena which could be interpreted as assimilation of the second vowel in juxtaposition across morpheme boundaries to the quality of the first under Snider's analysis, as shown in the following:

(6) /ámà îwà / > [ámwêwà] (height assimilation)
town many 'many towns'

(7) /úgâ úkpó:k/ > [úgôkpó:k] (height and roundness assimilation)
mother fear 'great fear'

Our assimilation rule must therefore allow for every possible type and combination of vowel assimilation processes in order for us to maintain the unidirectional (perseveratory) assimilation-plus-first vowel deletion scenario recommended by Snider. R5 must, then, be ammended as follows:

$$R5' \quad [+syll] > \left[\begin{matrix} \langle [\alpha\, round] \rangle_1 \\ \langle [\beta\, high] \rangle_2 \\ \langle [\gamma\, low] \rangle_3 \end{matrix} \right] \Big/ \left[\begin{matrix} +syll \\ \langle [\alpha\, round] \rangle_1 \\ \langle [\beta\, high] \rangle_2 \\ \langle [\gamma\, low] \rangle_3 \end{matrix} \right] \_\_\_\_\_$$

G) We now obtain the rule set listed below, which minimally accounts for the Obolo data:

R2
R5'
R1
R3'

Setting aside any criteria but those most commonly used by those working within the generative framework, let us now evaluate the set of rules we have formulated. In terms of simplicity, it would be very difficult to overlook the complexity of the ordering conventions proposed, especially in light of the fact that R3' contains yet another ordering specifiction, which, if stated explicitly at the level of the other rules would yield:

R2
R5'
R1
R3
R4

Given the fact that the processes in question normally occur over word boundaries and the fact that all are to some degree optional or variable, it would be quite difficult to simplify our ordering specifications by some use of the notion of cyclicity or of the distinction between "lexical" and "postlexical" rules.

Serious problems exist as well regarding the ability of the rules we have formulated to capture some key generalizations which can be made regarding the fusion of syllabic segments across morpheme boundaries in Obolo. The rules proposed by Snider which assume that assimilation is always perseverative and describable in terms of binary features, tend to make the Obolo situation appear to be less predictable than it actually is. Although the inherent "weakness" of syllabic nasals in fusion is fairly well captured by R2, the "strength" of low vowels is only indirectly reflected in R3', and then only in relation to diphthong formation. The hierarchy model, on the other hand, allows us not only to account in a straightforward way for the relative strength of low vowels in diphthong formation, but also in elision and medial vowel formation as well as in other assimilatory processes in Obolo, such as those which occur over several syllables.

(8) /Ǹgbɔ́ ké èjí/ > [ǹgbɔ́ɣɔ́j] (perseveratory)
time RELATIVE this 'now'

(9) /mé ótù ásùk/ > [mátásùk] (anticipatory!)
LOCATIVE mouth pool 'at (the) waterside'

All other, finer distinctions in syllabic "strength," such as that between high and mid vowels (which, though not explicitly stated, is implied by the parameters provided in the hierarchy model) are completely ignored by the generative rules formulated above. If in fact these finer distinctions are statable at all in terms of

binary features, to do so would require the formulation of a much more complex version of R5' or several delicately ordered rules to replace or supplement it, further aggravating our simplicity problem.

While the hierarchy model at least makes some suggestion as to when a given process is more likely to occur than another (for example, medial vowel formation is most likely to occur where two vowels of relatively equal strength are juxtaposed) this type of specification is absent in the generative account.

Because of the relatively primitive state of our knowledge regarding the cognitive mechanisms involved in the production and perception of language, the evaluation of Snider's generative model vs. the hierarchy model in terms of psychological reality would require a theoretical discussion beyond the limited scope of this reply. This is unfortunate, since in many ways the most interesting differences between the two models may be considered to be a direct consequence of two differing conceptions of the human mind. I would however, like to pose some questions which deserve careful consideration in this connection. While unidirectional processes and binary features allow the formulation of elegant rules in some cases, can such rules be said to reflect the very complex and synthetic processes of speech production and recognition with any useful degree of accuracy or completeness? Is the hierarchy model ad hoc because it accords to the human mental apparatus the power to perform a given cognitive task using strategies which might not be easily reducible to consecutively ordered unidirectional processes?

It is my hope that we as linguists do not allow our training in and appreciation for the generative framework to cause us to overlook, or worse, avoid the description and analysis of linguistic phenomena which do not lend themselves well to generative analysis (such as fusion in Obolo) in favor of phenomena which can be handled by generative rules in a more satisfying way (such as fusion in Chumburung). Careful study of both types of phenomena can yield valuable insights regarding the nature of language as well as the communities and individuals who use language. While elegant rules can shed light on how a system functions as an integral whole, more subtle but less mathematical descriptions of more variable, less regular patterns can expose weak points in systems which may provide valuable information concerning how systems change or give access to a fissure in an otherwise monolithic structure, through which some of the inner, less accessible parts of the structure can be be observed

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