Studies in African Linguistics

Published by the Department of Linguistics
and the James S. Coleman African Studies Center
The University of California, Los Angeles

Editor
Russell G. Schuh (through Volume 21)
Robert Botne (beginning Volume 22)

Editorial Board
Eyamba G. Bokamba
George N. Clements
Gerard M. Dalgish
David J. Dwyer
Victoria A. Fromkin
Talmy Givón
Robert Hetzron
Jean-Marie Hombert
Larry M. Hyman
Hilda Koopman
William R. Leben
Carol Lord
Ian Maddieson
O5lasope O. Oyelaran
Carol Myers-Scotton
John V. Singler

Executive Board
Edmond Keller
Russell G. Schuh

Editorial Assistance
Brigette Teboh
Alice Nabalamba
Maxine H. Schuh

Studies in African Linguistics is published three times a year. Occasional supplements are published at irregular intervals and are available to current subscribers at reduced rates. Contributors please see “Guidelines for Contributors” inside the back cover.

For subscription information, write to
Studies in African Linguistics
James S. Coleman Center for African Studies
UCLA
Los Angeles, CA 90024-1310
USA

Subscriptions: Individuals: $16.00 per year, $30.00 for two years
Institutions: $25.00 per year
Single issue: $8.00 per issue
Supplements: variable price depending on supplement
(Add $17.00 per year for overseas Air Mail subscriptions.)

Make checks payable to The Regents of the University of California

Volume 22, Number 1, April 1991
Copyright © 1994
by the Regents of the University of California

ISSN 0039-3533
Studies in African Linguistics

Volume 22, Number 1
April 1991

Table of Contents

Articles

John Victor Singler, Phonology in the Basilect: the Fate of Final Consonants in Liberian Interior English 1

Long Peng, Swati and Kikuyu Reduplication: Evidence Against Exhaustive Copy 45

Adenike S. Lawal, Yoruba pe and ki: Verbs or Complementizers 73

Publications received 85

Conference announcement 98

Advertising 99

Guidelines for contributors inside back cover
PHONOLOGY IN THE BASILECT: THE FATE OF FINAL CONSONANTS IN LIBERIAN INTERIOR ENGLISH*

John Victor Singler
New York University

Pidginized Liberian Interior English (LIE) has English as its lexifier language and Mande languages as its substrate. Broadly speaking, this means that LIE takes its lexicon from English and its phonology from Mande. However, the structure of English words clashes with Mande syllable structure conditions, particularly with regard to word-final consonants. To resolve this conflict, LIE has in some cases restructured the English words and in others created phonological rules to make underlying English forms more Mande-like on the surface. These rules include paragoge (for verbs only), resyllabification, and deletion. In the present study, a variable-rule analysis of LIE performance data identifies the crucial linguistic and social factors that bear upon rule choice, thereby making possible a linguistic assessment of regularities in the rules' distribution.

1. Introduction

Whatever the controversy about the nature and extent of substratal influence upon pidgin/creole syntax, there is a general recognition that substratal influence upon pidgin/creole phonology is pervasive and profound. Certainly this influence exerts itself at the level of broad phonotactic principles, as in the case of restrictions on syllable and word structure. In cases where the substrata's

* An NYU Research Challenge Fund Grant made possible the research upon which this article is based. I am grateful to the elders of Borkeza for their willingness to be interviewed. I also wish to thank David Peewee, Boakai Zoludua, and especially Sumoyea Guluma for their invaluable assistance. A preliminary version of this article was presented to the annual meeting of the Society of Pidgin and Creole Linguistics at Washington and at the University of Pennsylvania, York University, Ohio State University, and the University of South Carolina. Robin Sabino, Tucker Childs, David Dwyer, and Russ Schuh made insightful comments about an earlier version of this article.
principles are incompatible with those of the lexifier language, the pidgin/creole creates phonology that will reconcile the two sources. Sometimes this is accomplished by adjusting the syllable structure conditions (SSC’s) that operate upon underlying forms; in these cases, substrate-influenced SSC’s cause items in the lexicon to be restructured. In other cases, the pidgin/creole phonology innovates, coming up with rules that push surface representations into greater conformity with the substrate.

The fate of word-final consonants in Liberian Interior English (LIE) illustrates the use both of diachronic processes and synchronic rules to bring English-lexifier items closer to Mande phonotactics. It is this “Mande-cization” of English words that forms the basis for the present study.

1.1. Liberian Interior English and its Mande substrate languages. A pidginized form of English arose in Liberia in the eighteenth century. This variety is referred to as Kru Pidgin English [Hancock 1971, Singler 1981]. The name reflects not only its use by the Kru mariners who plied the West African Coast but also the Kru substratal influence upon the pidgin [Singler 1988]. Subsequently, a second pidgin developed in Liberia. Early in this century, the Liberian government set out to establish military and political control of the country’s interior. The tactics used by the Liberian Frontier Force to accomplish this were so harsh that many young men availed themselves of one of two opportunities to escape. One method was by migrating to the coast to work at the Firestone rubber plantation; the other was by joining the Frontier Force itself. As the plantation and the Frontier Force came to be dominated by first-language speakers of Mande languages, a repidginization of Kru Pidgin English seems to have occurred in these places. Thus, LIE was born. LIE is distinct from KPE in several ways, e.g. tense-mood-aspect (cf. Singler [1987, 1990]). Then, when the Mande-dominated Frontier Force spread throughout the Mande-speaking interior and the rubber tappers returned home (to this same region), LIE took root.

Five Mande languages comprise LIE’s substrate. Welmers [1971] divides Mande into two branches: Northern-Western and Southern-Eastern. The Liberian Mande languages that form the substrate for LIE come from the Southwestern (a part of Northern-Western) and Southeastern (a part of Southern-Eastern). Kpelle, Loma, and Bandi are Southwestern; Mano and Dan (Gio) are Southeastern. Despite the distant relationship of Southwestern to Southeastern, the longtime physical proximity of the five languages in question means that they share many areal features (cf. Dwyer [1975]).

Of these five languages, Kpelle permits a tautosyllabic final nasal, /ŋ/. All other syllables in Kpelle must end with a vowel. The other four languages do not even have the tautosyllabic nasal. In these languages, every syllable must end with a
vowel.\textsuperscript{1} Given the frequent final consonants and final consonant clusters of English, the issue at hand is how LIE reconciled—and continues to reconcile—English words with Mande principles of syllable structure.

1.2. The reduction of word-final clusters. The diachronic part of the LIE solution has been a compromise between Mande and English: at the phonemic level in LIE, syllable-final consonant clusters are not permitted, but single syllable-final consonants are. The reduction of English final clusters has been effected in several ways. These are set forth in (1).\textsuperscript{2} Like Mande, LIE has phonemic nasal vowels, and in the case of clusters of the final type in (1) the vowel preceding the cluster has become phonemically nasal.

(1) \begin{tabular}{llll}
\textbf{English cluster} & \textbf{becomes} & \textbf{LIE} & \textbf{Example} \\
fricative + stop & fricative & /asl/ & ‘ask’ \\
liquid + obstruent & obstruent & /bed/ & ‘build’ \\
nasal + /t/ & nasal & /wɔn/ & ‘want’ \\
nasal + any other obstruent & obstruent & /tɛk/ & ‘think’ \\
\end{tabular}

1.3. Word-final consonants in LIE. Unlike the Liberian Mande languages, LIE does permit phonemic syllable-final consonants. However, LIE has devised phonological rules that minimize the occurrence of these syllable-final consonants on the surface. In some sense, LIE has English (or English-like) underlying representations; phonological rules then alter these representations on their way to the surface to render them more Mande-like. Presumably the English underlying representations continue to obtain because LIE is part of a continuum, one whose upper range is in constant contact with English. (The creole continuum is a model set forth by DeCamp [1971] to characterize situations where the creole continues to be in contact with its lexifier language and where a progression of speech varieties obtains intermediate between the creole and the local standard variety of the lexifier language. While the speech community encompasses the entire continuum, an individual speaker ordinarily commands a subset of it. Singler [1984] shows the applicability of this model to the Liberian situation.)

\textsuperscript{1}As noted above, I assert that LIE represents a repidginized form of KPE, with the repidginization having been carried out by first language Mande speakers. If speakers of Kru languages were also involved in the repidginization that yielded LIE, this would mean that Kru languages played a more direct role in the formation of LIE than I have assumed. For the present study this difference in assumptions about the history of LIE has little impact: the relevant Kru languages (in particular, Bassa and Klao) are like the relevant Mande languages in their strict avoidance of syllable-final consonants.

\textsuperscript{2}English post-vocalic \( r \) never obtains in LIE. Thus, for those speakers who use the \textipa{-ɛ} (< \textit{ing}) suffix, the suffixed form of \textipa{ɛtə} ‘enter’ is \textipa{ɛtaɛ}. Because post-vocalic \( r \) is never present on the surface, it can be assumed that it is not present underlyingly either.
Clearly the preferred syllable structure in LIE is one that is vowel-final, but LIE has various ways of dealing with word-final consonants. Thus, when a word has the structure of the type given in (2), several different strategies can be employed to yield the preferred structure:

\[
(2) \quad \sigma \quad \sigma \\
/\quad /\ \\
O \quad N \quad O \quad N \\
| \quad | \quad | \\
C \quad V \quad C \quad V \quad C
\]

Given the structure in (2), there is also the question of how LIE treats syllable-initial clusters. In the present study I will concern myself with these only to the extent that they bear upon the treatment of word-final consonants. It should be noted, however, that except when two obstruents are involved, e.g. /stl/, initial clusters appear to be less problematic. That is, they have for the most part been accepted into LIE.

To return to the question of how LIE can deal with the “stranded” word-final consonant in (2), one possibility involves the construction of a syllable to go with the leftover consonant. This involves a rule of *paragoge*, one that inserts a mid-front vowel, e.g. /tek/ [teke] ‘take’. Another solution brings in the first syllable of the following word. If that syllable has an empty consonantal slot, then *resyllabification* can occur, as when /tek ewel/ ‘take away’ becomes [te$ke$we]. A third strategy is simply to delete the “left-over” consonant, e.g. /tek/ [te]. Note that these three processes, each quite distinct from the other two, all succeed in yielding the preferred syllable structure. It is only when none of the three are invoked that the preferred structure is not attained.

For word-final voiceless stops, there is an additional alternative: the stop can become a glottal stop, e.g. [teʔ]. This option, discussed below, occurs only infrequently in the present corpus. While it is a highly reduced consonant, a glottal stop is a consonant nonetheless and fills a slot in the CV tier. That is, changing a voiceless stop to a glottal one may somehow reduce the saliency of the leftover consonant, but it does not do away with the consonant.

The present study examines the strategies that speakers of basilectal LIE use to prevent word-final consonants from reaching the surface. Given the range of

---

3The terms “basilect”, “mesolect”, and “acrolect” were coined by William Stewart. In the creole continuum, the basilect is the variety furthest from the standard/lexifier language, the acrolect is the variety closest to it, and the mesolect spans the range intermediate between basilect and acrolect. Although the original designation suggests that the basilect and acrolect are extreme points, common usage has extended them. Basilect now refers to the range of varieties (rather than a single variety) furthest from the standard language. Thus, LIE, which is basilectal, is not homogeneous. There is a range inside it, from an extreme that is furthest from standard to varieties that move closer to the mesolect. The kind of variation to which I refer is made obvious in the discussion that follows.
choices that are available, the central question must be this: which factors favor consonant deletion, which paragoge, which resyllabification, and which none of these? In the corpus the rule of paragoge is limited to monosyllabic, consonant-final verbs. Accordingly, the present examination will be confined to monosyllabic consonant-final verbs. (For reasons to be outlined below, only verbs whose final consonant is oral have been included in the data set.) Beyond those specifications on the rule of paragoge, all of the relevant rules are fundamentally variable. In order to go beyond the simple statement that these rules are optional, I will employ a quantitative analysis to get at the nature of the variation, making use of the VARBRUL statistical program [Cedergren and Sankoff 1974, Rousseau and Sankoff 1978].

1.4. Lorna phonology. The present study focuses on the LIE of speakers whose first language is Lorna. As mentioned above, Lorna is one of the Liberian Mande languages that require that every syllable be vowel-final. According to Sadler [1951:19], the “predominant basic word pattern for nouns, adjectives, and verbs is CVCV” in Lorna. Other possible patterns are CV, CVV, and CVVCV (“common with nouns and verbs, but uncommon with adjectives”), and CVVV, CVVCVV, and CVCVV (“seldom found”). Further, “[a]lmost all word classes have patterns limited to two syllables, with CV [syllables] predominating” (p. 19). The only word classes that permit vowel-initial words are pronouns and conjunctions.

It should be pointed out that Lorna has contrastive vowel length. Thus, in Sadler’s characterization of basic structures, a VV sequence frequently refers to a single long vowel.

With regard to consonant clusters, Sadler states, “CC is limited to word-beginning, and is used only with nouns, adjectives, and verbs” (p. 19). His examples all involve a velar stop followed by a /w/, e.g. gwála ‘big’. In other cases, words that Sadler transcribes as, for example, [bóá] ‘knife’ or [púá] ‘poured’ frequently approach monosyllabic status in actual speech, e.g. [bwá] and [pwa] (p. 316). Further research is needed to determine whether this reduction in

---

4French Soldier, one of the speakers in this study, does use paragoge with du ‘do’, as in (i):

(i) odawa, wa hi won tu du, i we di dat won bifo.

    otherwise what he want to do he will do that one before

    ‘Otherwise, whatever he wanted to do, that's what he used to do.’

However, French Soldier seems to be alone in doing this, and he seems to do it only with du. The one principled exception to the statement that the rule of paragoge is limited to verbs involves wene ‘when’ and efe ‘if’, both of which frequently undergo paragoge.

5Sadler [1951:20] comments that “CVV and CVVV patterns are often the result of a lost consonant.” Elsewhere, he elaborates, “With the exception of /œ/, all non-identical VV combinations ending in a vowel other than /i/ are undoubtedly the result of a lost consonant” (p. 315). Sadler also presents synchronic examples of the deletion intervocalically of glides /w,y/ and the voiced velar fricative /ɣ/. (In addition, he presents a rule that converts the sequence VVV to VyV, e.g. /kóía/, [kóya] ‘monkey’ (p. 316). Though Sadler does not say so, one can assume that the medial vowel has to be a front vowel for this rule to obtain.)
syllabicity obtains only for the sequence of a back vowel followed by a non-back one and only when the two are preceded by a velar, labial, or labio-velar consonant.

Dwyer’s [1981] dictionary is like Sadler’s grammar in listing several words that contain kw and gw. Dwyer also lists some loan words that begin with the CC sequence fl, e.g. fláwáí ‘flour’ (p. 123). Though neither Sadler nor Dwyer mentions it, the fl sequence is part of a larger pattern within Liberia’s Mande languages. That is, Welmers notes the presence of “extra short vowels” between word-initial obstruent-liquid clusters in Kpelle [1973:26]. He then notes that, in doing fieldwork on Dan, his “early transcriptions showed consonant clusters including pr, tr, kr, pl, kl.” However, “[t]one patterns require the presence of a vowel in all of these cases”, a vowel identical to the one that follows the liquid. Thus, Welmers ultimately posits an underlying vowel between the consonants in Dan and also in Kpelle. Loma shares the “extra-short vowel” phenomenon with the other Mande languages. One illustration of this is the fact that the name fólómó, widespread in Loma society, is ordinarily spelled <Flomo>.

An additional point about Loma is that it has neither palato-alveolar fricatives nor affricates. LIE—like Liberian English generally—does have word-initial affricates; however, in other positions, these affricates are usually realized as [ʃ] e.g. [riʃ] reach.’ While /s/ and /ʃ/ are best analyzed as separate phonemes in LIE, /ʃ/ is often realized as [s], particularly when the phoneme occurs other than word-initially. (Less often, /s/ is realized as [ʃ]). In the present corpus there are twenty tokens of catch, reach, and teach. Of the fifteen instances where a final consonant is realized (either with or without a paragogic vowel), that consonant is [s] three times, [ʃ] ten times, and [c] twice. (There are no instances in the corpus of a verb whose English counterpart ends in /ʃ/.) Given both the low numbers of verbs ending with English /ʃ/ and the “slipperiness” of non-word-initial palato-alveolar sibilants vis-a-vis alveolar ones, I have combined /ʃ/, /ʃ/ and /s/ in the discussion that follows.

1.5. The data sample. The present corpus comes from seven interviews conducted in Borkeza, Gizima District, Lofa County, Liberia, in 1981 and 1985 by Sumoyea Guluma, a Western-educated Loma speaker. Guluma himself was born in Borkeza and grew up there. The seven men whom Guluma interviewed are all retired rubber tappers and/or soldiers. The job histories are summarized in Table 1; individual elders are given pseudonyms based on the jobs that they held.
Table 1: The data base.

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Tapper</th>
<th>Soldier</th>
<th>Other Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaster</td>
<td>Yes</td>
<td>No</td>
<td>Detonator at iron ore mine</td>
</tr>
<tr>
<td>Bottlepicker</td>
<td>Yes</td>
<td>No</td>
<td>Warehouse worker in Monrovia</td>
</tr>
<tr>
<td>French Soldier</td>
<td>Yes</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Overseer</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>PFC</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Tailor</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Tapper</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

*(French Soldier served a three-year stint in French West Africa.)*

The elders vary in their work experiences, from Blaster and Bottlepicker, who held jobs beyond the rubber plantation and the barracks, to Tapper and Tailor, whose only participation in the cash economy was as rubber tappers. Of the other three men, PFC is alone in never having worked as a tapper. Overseer served briefly in the Frontier Force but worked for twenty-five years at Firestone, serving as a tapper for many years before eventually rising to the position of overseer, i.e. foreman. Similarly, French Soldier did other work at Firestone in addition to being a tapper. The job that he held for the longest time there was as a watchman for an office. It should be noted that the job of rubber tapper is an arduous one; its grueling labor and low pay make it a position of very low status.

A portion of each interview was selected at random so that it would yield 75 monosyllabic oral-consonant-final verbs. These verbs form the basis for the present study.

1.6. On ordering and variable rules. Each of the three processes under study—paragoge, resyllabification, and deletion—bleeds the other two. (If paragoge or deletion were obligatory, it would bleed the other two rules absolutely.) For example, once paragoge has operated, the word-final consonant is no longer word-final. Consequently, it is no longer eligible for linking via resyllabification to a following syllable nor for final-consonant deletion. Because of the bleeding-bleeding relationship that obtains among each pair of these three rules, it is argued below that paragoge carries a social stigma. This suggests that the lack of sympathy between interviewer and interviewee would make the interviewee less likely to use a socially stigmatized rule. Thus, it can be predicted that the level of paragoge in the present data is lower than would obtain in truly vernacular speech. It is not clear to me how the rate of occurrence of the other rules in question would be affected.

9The focus in §1.6 is on paragoge, resyllabification, and deletion. However, the points made in this section with regard to ordering and to variable-rule input apply equally to glottal-stop formation. This rule's relationship with each of the other three rules is in every case a bleeding-bleeding one.
necessarily the case that a given surface form has undergone at most one of the three rules.

In order to carry out a variable-rule analysis, it is necessary to establish the input and output of a given variable rule. In the present case, given the strict bleeding relationships, the output is readily determined. The forms that can be said to have undergone paragoge, for example, are all and only those forms that show up on the surface with a paragogic vowel.

While establishing the output for each rule is straightforward, establishing the input is not. For example, if paragoge is ordered before deletion, resyllabification, and glottal-stop formation, then its input consists of all the forms under consideration. But if deletion is ordered before paragoge, then the input for the rule of paragoge consists of all forms except those that show up on the surface with the consonant deleted. Similarly, if deletion and resyllabification are both ordered before paragoge, the input for the rule of paragoge now consists of all the forms except those that show up on the surface with the consonant either deleted or resyllabified. Statements like this can be made about each of the rules. Given the bleeding-bleeding relation between each pair of rules, there is no clear way to establish the sequential ordering of the rules.

The practical problems presented by the inability to establish a sequential ordering for these rules do not prove critical. Inasmuch as the output is always the same regardless of the linear order, the variable-rule results tend not to vary much when different inputs are attempted. For example, for the rule of resyllabification, following grammatical environment (the syntactic category of the word that follows the verb) is the factor group that shows greatest statistical significance regardless of whether resyllabification is considered as having applied to all forms, or is instead assumed to have occurred after paragoge, i.e. as having applied only to those forms that failed to undergo paragoge.

Sankoff and Rousseau [1989] draw on principles from the study of probability to promote alternatives to strict linear ordering in the analysis of performance data. Though the present data and rules differ fundamentally from those that Sankoff and Rousseau examine, the latter’s point is readily extended. Accordingly, rather than advocating a specific linear order (whose ability to be falsified is in doubt), I have analyzed each rule as if it had maximal applicability. And, while the rules of resyllabification and glottal-stop formation have restricted domains, maximal applicability is assumed within those domains. (Still, there is some evidence for particular ordering relations, and I will introduce it where relevant below.)

A further point to be considered about the study at hand is whether it is legitimate to assume in the case of word-final consonants not present on the surface that they are present underlyingly. It has already been pointed out that LIE has reduced the word-final clusters of English. Further, as fn. 2 makes clear, English postvocalic /r/ has disappeared, both phonetically and phonologically, from LIE. What about other word-final consonants? That is, is it always the case that the consonants at hand have undergone a rule of deletion, or are some of these
consonants simply not present underlyingly? The 525 tokens in the corpus represent 67 different verbs. Of these, 59 verbs are represented at least once in the corpus by a form that shows the stem-final consonant (via paragoge, via resyllabification, or via resistance to all rules). This means that for these 59 verbs some if not all of the speakers in the group have the final consonant in their underlying representation of the verb.

The eight verbs that never show up with the consonant on the surface in the corpus are given in Table 2, with the number of tokens of each listed after it:

<table>
<thead>
<tr>
<th>Verb</th>
<th>Word Meaning</th>
<th>Tokens</th>
</tr>
</thead>
<tbody>
<tr>
<td>stil</td>
<td>'steal'</td>
<td>15</td>
</tr>
<tr>
<td>muv</td>
<td>'move'</td>
<td>4</td>
</tr>
<tr>
<td>tek</td>
<td>'thank'</td>
<td>3</td>
</tr>
<tr>
<td>het</td>
<td>'hurt'</td>
<td>2</td>
</tr>
<tr>
<td>brek</td>
<td>'break'</td>
<td>2</td>
</tr>
<tr>
<td>rog</td>
<td>'steal'</td>
<td>1</td>
</tr>
<tr>
<td>sp:JJ</td>
<td>'spoil, break'</td>
<td>1</td>
</tr>
<tr>
<td>tas</td>
<td>'cover with thatch'</td>
<td>1</td>
</tr>
</tbody>
</table>

Of the verbs in Table 2, five (muv, brek, rog, sp:JJ, and tas) show up elsewhere in the recorded interviews with the final consonant pronounced. LIE has a verb suffix, -e, discussed below. For stil, tek, and het (the three verbs in the data sample that do not show up in the interviews with the final consonant at any time), the suffixed form in LIE speech shows the final stem consonant, i.e. stil'ë 'stealing,' teke 'thanking,' and hetë 'hurting'. Thus, apart from the fact that LIE has reduced verb-final consonant clusters to a single consonant and apart from the special case of r, LIE has final consonants everywhere that English does—at least for verbs. This may not be true for other parts of speech. For verbs, after all, there is an alternation between bare and inflected verb forms, even if the suffixed form is not used frequently. The stem-final consonant occurs between vowels in the inflected form; as a result, it is not ordinarily subject to deletion there.

In §2 I present each of the rules that apply to word-final consonants, in each case focussing on those of the rule’s properties that are not subject to variation. Then in §3 I examine those factors that influence variation, specifically the factors and factor groups that promote or inhibit a particular rule’s application.

2. Phonological Rules

2.1. Paragoge. The rule of paragoge adds a mid front vowel to a monosyllabic consonant-final verb.

---

10 In the case of rog and tas, it is tokens of the cognate noun of each that show the final consonant; there is no reason to assume for either word that the noun form differs underlyingly from the verb form.
LIE, like Atlantic pidgins and creoles generally, has few suffixes. As mentioned, it does have a verb suffix, -ē. Its source is English -ing, and it often signals progressive/continuous meaning. However, in the basilect there are times when -ē seems to add no clear element of meaning to the verb it marks, a point discussed in Singler [1984, 1987] and illustrated by the examples in (3) and (4). In (3) the suffixed verb is an infinitive; in (4) it is unambiguously punctual.

(3) wia ṥí se, wi tra tu mekè di klo.
    our own self we try to make the clothes
    ‘We ourselves, we tried to make our clothes.’ (Tapper)

(4) dē de gev me, de fese pepa, “da yu.”
    then they give me they fix paper that you
    ‘Then they gave me a paper, they fixed it and said, “It’s yours.”’ (PFC)

(While the addition of a vowel via paragoge is confined to cases where the verb is monosyllabic and consonant-final, suffixal -ē can occur with multisyllabic verbs and with vowel-final ones.)

Thus, LIE has a phonetically motivated rule of paragoge that adds the oral vowel [e] and a grammatically motivated process of suffixation that adds the nasal vowel /-ē/. It could well be that some of the time the presence of a nasalized vowel on the surface actually constitutes paragoge rather than suffixation. Indeed, in cases where the motivation for the nasalized vowel is uncertain, it is possible that it represents camouflaged paragoge. After all, while -e is stigmatized, -ē is not. (On the other hand, in the absence of any evidence in LIE for a widespread rule of denasalization, I assume that every oral vowel that shows up at the end of a consonant-final verb is an instantiation of paragoge.) Whatever distinction there is between paragoge and suffixation, it collapses when the verb ends with a nasal consonant. There is a low-level phonetic rule in LIE such that an oral vowel in a nasal environment becomes nasalized. A surface form like [kɔmē] ‘coming/come/came’ can either be monomorphemic or bimorphemic underlyingly, either /kɔm/ plus paragoge or /kɔm/ plus verb suffix. In light of this ambiguity, I have confined the investigation of variation in paragoge to non-nasal environments. All verbs whose final consonant is nasal have been excluded from consideration.11

11 With regard to the larger question of word-final consonants, it should be noted that a rule that combines vowel nasalization with nasal-stop deletion applies variably to all nasal-final words in LIE; it is presented in (i):

(i) Vowel Nasalization/Nasal Stop Deletion
    \[ V \ N \ # \]
    \[ 1 \ 2 \ 3 \ \Rightarrow \ 1 \ \emptyset \ 3 \]
    [+ nas]
2.2. Resyllabification. Paragoge retains the verb-final consonant (so that no part of the signal is lost) in a way that is consistent with Mande phonotactics. This can be said of resyllabification as well, with the difference that its applicability is limited. While paragoge is an option any time that a monosyllabic verb ends with a consonant, resyllabification can only occur when the following syllable has an empty site for a consonant. Thus, it can apply to /tek ewe/, ‘take away’, yielding [te$ke$we], but not to /tek dan/ ‘take down,’ [*te$kdā].

The motivation for resyllabification can be found in Clements and Keyser’s [1983] Onset First Principle, particularly in its first half:

(5) Onset First Principle

a. Syllable-initial consonants are maximized to the extent consistent with the syllable structure conditions of the language

b. Subsequently, syllable-final consonants are maximized to the extent consistent with the syllable structure conditions of the language in question (p. 37).

When there is a word-final consonant in LIE and an available C slot in the first syllable of the following word, what is required is a resyllabification across word boundaries. That is, the word boundary is dropped and the Onset First Principle re-invo3ked.

In the discussion that follows, I will explore the types of resyllabification that are possible. First, however, it is appropriate to consider the special nature of resyllabification as a process. That is, in the case of paragoge or deletion, there is a change in segments. One of these rules adds a segment, and the other deletes one. In the case of resyllabification, there has been no such change, no such ready sign of the operation of a rule. In determining whether or not resyllabification has occurred in a given instance, except where it is impressionistically clear that resyllabification has not taken place, I have taken the retention of the consonant on the surface as evidence of some sort of link to the following syllable. In many

This rule operates most often when the nasal is /n/, less often when it is /m/ or /ŋ/. A further point relevant to paragoge is that, in relative clause constructions where the direct object of the clause is its head, LIE frequently inserts a resumptive pronoun (cf. Singler [1988]). When the appropriate pronoun is e ‘it’, it is frequently not possible to tell whether the vowel that follows the verb represents a resumptive pronoun or an instance of paragoge. The sentence in (ii) illustrates this.

(ii) di mone, di prave, di won wa de kole/kol e pōgala, da fo dala.
the money the private the one what they “calli”/call it pōgala, that four dollar

‘The salary, for a private, the amount they call “pohngala” [in Loma], that’s four dollars a month.’ (Overseer)

In order to avoid ambiguity of this sort, I have removed from the data sample tokens where the DO has been fronted (whether a paragogic-vowel/resumptive-pronoun shows up after the verb in question or not).
cases, the resyllabification is perceptually (impressionistically) distinct. In others, the consonant has become ambisyllabic.\textsuperscript{12} Regardless, if the consonant is still present and not obviously and only linked to the preceding syllable (as a syllable-final consonant), then I have considered that token to count as an instance of resyllabification. It is possible that what I am calling resyllabification may in some cases be instances where an active resyllabification has not actually taken place but where, instead, deletion has been blocked (still, I would argue, as a consequence of the following phonological environment). While such tokens are clearly in the minority, I do not mean to suggest that they do not exist.

Sometimes a verb-final consonant is followed by a consonant identical to it, e.g. /mek kʊtri medesen/ ‘make traditional (country) medicine’. When paragoge does not occur in such an environment, it is generally not possible to characterize the fate of the verb-final consonant. That is, it is not possible to tell whether it has been subject to deletion, resyllabification, or some type of merger with its twin. Accordingly, for all rules other than paragoge, I have removed from consideration those tokens where what follows the verb phonologically is a consonant that is identical to the verb-final consonant (or is identical to it in everything but voicing).

Of the various environments in which resyllabification is possible, the most important is one in which the following word begins with a vowel. Given that Lorna essentially requires lexical items to be consonant-initial, it would seem that resyllabification would be doubly desirable in LIE, that is, it both removes a syllable-final consonant and provides a syllable-initial one.

Of the syllable-initial consonant clusters permitted by English, the following are relevant here:

\begin{itemize}
  \item /s/ + nasal
  \item /s/ + /p, t, k/
  \item obstruent + liquid
  \item obstruent + glide
\end{itemize}

As noted in §1.4, Loma permits some velar-glide clusters, and the Liberian Mande languages in general “almost” have obstruent-liquid ones. On the other hand, there seems to be no basis in Loma for either the /s/-nasal or obstruent-obstruent (/sp/, /st/, /sk/) clusters.

In addition to these types of resyllabification, another one is possible, one involving a word-final voiceless stop followed by a word-initial /h/. In this case the stop takes over the position occupied by the /h/.

The types of resyllabification and an example of each are presented in Table 3.

\footnote{In general, there is no parallel in LIE for the widespread ambisyllabicity of intervocalic consonants in American English (cf. Kahn [1976]). This fact about LIE is consistent with the variety’s overall avoidance, wherever possible, of consonants in syllable-final position.}
Table 3. Resyllabification: Sequences of verb-final consonant and following segment.

<table>
<thead>
<tr>
<th>Verb-final consonant</th>
<th>First segment of following word</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. stop</td>
<td>vowel</td>
<td>tek eni</td>
</tr>
<tr>
<td>b. fricative</td>
<td>vowel</td>
<td>lev č</td>
</tr>
<tr>
<td>c. liquid</td>
<td>vowel</td>
<td>kel eni</td>
</tr>
<tr>
<td>d. /s/</td>
<td>nasal</td>
<td>as mi</td>
</tr>
<tr>
<td>e. /s/</td>
<td>stop</td>
<td>los de</td>
</tr>
<tr>
<td>f. obstruent</td>
<td>liquid</td>
<td>kuk ras</td>
</tr>
<tr>
<td>g. obstruent</td>
<td>glide</td>
<td>wep yu</td>
</tr>
<tr>
<td>h. stop</td>
<td>/h/</td>
<td>bit hi</td>
</tr>
</tbody>
</table>

2.3. Deletion. The most straightforward of the rules is deletion. It is blocked from occurring when the verb-final consonant is /p/.\(^{13}\) Otherwise, it is without complication.

2.4. Glottal-stop formation. In addition to the rules already listed, there is a rule that changes a word-final consonant into a glottal stop.

In examining this rule of glottal-stop formation, I have limited consideration to those cases where the verb occurred non-prepausally. When a word-final consonant is in prepausal position and is not realized, it is usually not possible to determine whether the “absent” consonant has been deleted or has been converted to a glottal stop. There are 39 “absent” prepausal consonants in the corpus; I have counted them all as having undergone deletion (rather than glottal-stop formation).

For all practical purposes, in the present corpus glottal-stop formation is limited in its application to instances where the verb-final consonant is a voiceless stop. More mesolectally, it seems, the rule has a broader domain, but for the Borkeza speakers its rate of application on other verb-final consonants is so low as to be considered categorically non-occurring.\(^{14}\) A special point about glottal-stop formation when the verb-final consonant is not a voiceless stop occurs with the following frequency:

\(^{13}\)The rate of deletion when /p/ is the verb-final consonant is 3% (1/34). In accordance with the usual procedure in variation studies, I have counted any frequency of less than 5% as an example of categorical non-occurrence. In all cases where I make reference to categorical non-occurrence, I am pointing out that the rule did not take place in a given environment; I am not saying that the grammar blocks it from occurring there. The present analysis is based entirely on what speakers did and did not say. It does not draw on speakers’ intuitions about what they can and cannot say.

\(^{14}\)Glottal-stop formation when the verb-final consonant is not a voiceless stop occurs with the following frequency:
formation is its relationship to the rule of deletion. There are ways in which glottal-stop formation seems like partial or incomplete deletion. That is, a consonant that undergoes it has been stripped of all distinctive features, with only a "skeleton" remaining. To be sure, for the Borkeza corpus, because glottal-stop formation is confined to voiceless stops, the presence of a glottal stop indicates that a voiceless stop (and not just any consonant) is underlyingly present. At the same time, as noted earlier, replacing the rule of word-final consonant deletion with a rule of glottal-stop formation edges LIE closer to English phonotactics and away from Mande phonotactics. However restricted or incomplete a glottal stop may seem as a consonant, it is a consonant nonetheless.

Section 2 has presented four rules that "compete" for word-final consonants in LIE. Table 4, given below, shows the frequency of occurrence of each of these rules by speaker. Each frequency is a percentage of the number of times the rule operates as a fraction of the possible times that the rule could operate. For paragoge, that is 75 times for each speaker. For the other rules, I have removed tokens where the verb-final consonant is followed by an identical consonant (or one identical except for voicing). In addition, because deletion is categorically non-occurring when the verb-final consonant is /p/, I have removed /p/-final tokens from the deletion column of the table. Further, I have limited glottal-stop formation to tokens where the verb-final consonant is a voiceless stop in a non-prepausal environment (and is followed neither by an identical consonant nor a nasal; see fn. 14), and I have limited resyllabification to instances where operation of the rule is possible.

<table>
<thead>
<tr>
<th>Verb-Final Consonant</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>/l/</td>
<td>1/60</td>
</tr>
<tr>
<td>a fricative</td>
<td>1/107</td>
</tr>
<tr>
<td>a voiced stop</td>
<td>0/22</td>
</tr>
</tbody>
</table>

Glottal-stop formation is also sensitive to following phonological environment; in particular, categorical non-occurrence obtains when the following segment is a nasal or when it is identical to the verb-final consonant (or identical to it in all save voicing). For instances where the verb-final segment is a voiceless stop and would otherwise be eligible for glottal-stop formation, the following frequencies show up:

<table>
<thead>
<tr>
<th>Following Segment</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>nasal</td>
<td>0/37</td>
</tr>
<tr>
<td>identical segment</td>
<td>1/63</td>
</tr>
</tbody>
</table>

These restrictions on the occurrence of glottal-stop formation converge to make the point that, for the present speakers at least, this rule's domain of operation is quite limited.
Table 4. Frequency of rule operation by speaker.

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Paragoge</th>
<th>Deletion</th>
<th>Resyllabification</th>
<th>Glottal-Stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaster</td>
<td>10/75</td>
<td>30/58</td>
<td>4/19</td>
<td>7/27</td>
</tr>
<tr>
<td>Bottlepicker</td>
<td>6/75</td>
<td>45/66</td>
<td>9/14</td>
<td>1/10</td>
</tr>
<tr>
<td>Fr. Soldier</td>
<td>14/75</td>
<td>26/70</td>
<td>10/19</td>
<td>6/30</td>
</tr>
<tr>
<td>Overseer</td>
<td>36/75</td>
<td>24/59</td>
<td>1/10</td>
<td>3/26</td>
</tr>
<tr>
<td>PFC</td>
<td>27/75</td>
<td>26/58</td>
<td>6/19</td>
<td>2/26</td>
</tr>
<tr>
<td>Tailor</td>
<td>39/75</td>
<td>6/59</td>
<td>11/20</td>
<td>2/16</td>
</tr>
<tr>
<td>Tapper</td>
<td>40/75</td>
<td>6/40</td>
<td>8/13</td>
<td>0/26</td>
</tr>
<tr>
<td>n</td>
<td>525</td>
<td>410</td>
<td>114</td>
<td>166</td>
</tr>
</tbody>
</table>

Table 4 points to the vast range of variation from rule to rule, from speaker to speaker. For example, the frequency of occurrence of deletion ranges from 10% to 68%, that of paragoge from 8% to 53%. Are there patterns in the variation? What causes the variation, and what causes the patterns? These are the questions that §3 addresses.

3. The Factors That Shape Variation

In the discussion that follows, six factor groups will be considered, one after the other. Though these factor groups vary in importance, four are of statistical significance for every rule. They are the speakers, following grammatical environment, following phonological environment, and word-final consonants. In addition, the frequency of the verb’s occurrence and the height of the vowel in the verb are sometimes statistically significant as well.

3.1. The speaker. For every one of the rules under discussion, variation among speakers is statistically significant. For example, the probabilities by speaker for paragoge are given in Table 5. In this and subsequent tables, probabilities greater than .50 favor application of the rule; probabilities less than .50 disfavor it. The

---

15Simultaneous attention to following grammatical environment and following phonological environment introduces an overlap when the verb is the final word of a clause, e.g.

(i) a kē supos tu it
    I HAB supposed to eat (HAB = habitual aspect)
    ‘I’m supposed to eat.’ (PFC)

In order to avoid the overlap, tokens of this type were removed from consideration as a following grammatical environment and were only evaluated as a type of following phonological environment. A further point raised by the example in (i) is the fact that the study of verb-final consonants is not confined to finite verbs. Verbs were considered regardless of whether they were past or nonpast, were bare or had one or more auxiliaries, and were finite or nonfinite; however, none of these differences prove to be statistically significant.
further a factor’s probability is from .50, the stronger the factor’s effect upon the rule.\textsuperscript{16}

Table 5. Speakers as a factor group for paragoge.

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaster</td>
<td>.18</td>
</tr>
<tr>
<td>Bottlepicker</td>
<td>.22</td>
</tr>
<tr>
<td>French Soldier</td>
<td>.24</td>
</tr>
<tr>
<td>PFC</td>
<td>.62</td>
</tr>
<tr>
<td>Overseer</td>
<td>.74</td>
</tr>
<tr>
<td>Tapper</td>
<td>.75</td>
</tr>
<tr>
<td>Tailor</td>
<td>.78</td>
</tr>
</tbody>
</table>

The probabilities reveal a sharp split among the speakers. Note that it is an occupational split: the two men who worked outside the plantation and the military are joined by the watchman in disfavoring paragoge. In contrast, the soldier and the three longtime rubber tappers all favor it strongly. The correlation of job status with frequency of paragoge need not be surprising, for in Liberia paragoge is a shibboleth, a stigmatized feature of basilectal speech.

Evidence of the socially marked status of the paragogic vowel comes from David Peewee, a first-language-Loma speaker who is a high school graduate. Peewee is a son of a soldier and spent part of his childhood in army camps. Asked how soldiers talk, Peewee gives the answer in (6):

(6) e se, “luki æʔ hē. luki æʔ hē.” e min, “luk æt hem.”
they say look at him look at him it mean look at him
bo de jos put e dakana we, “luki æʔ hē.”
but they just put it that-kind-of way look at him

\textsuperscript{16}The probabilities listed in Table 5 and subsequently are the ones that obtain when all statistically significant factor groups for a particular rule are determined simultaneously. Thus, the values in Table 5 represent an evaluation of paragoge that is determined not only by the role of individual speakers but also by the importance of following grammatical factor, following phonological factor, vowel height, and verb-final consonant. The full listing of statistically significant factor groups for a particular rule is given in the Appendix. In the case of paragoge, however, the sharp split among speakers represents a difference not only in the extent to which they favor or disfavor paragoge but also a pervasive difference as to which environments favor paragoge and which disfavor it; this is discussed in §3.2 below. Thus, the Appendix presents two sets of probabilities for paragoge, one for the top three speakers in Table 4 and one for the bottom four.
Peewee served as my research assistant in 1980-81. At that time he interviewed an elderly friend of his, a speaker of basilectal LIE whose first language is Dan. In an instance where he seeks to clarify something that the Dan speaker has said, Peewee converts the Dan speaker’s form from basilectal to mesolectal. The basilectal speaker then echoes Peewee.17

(7) Nimba Watchman: \textit{de bede tu, s\={o} waze fo d\={e}.}  
they build two some houses for them  
\textit{no z\={e}.}  
no zinc  
\textit{de puti tasi on e.}  
they put thatch on it

Peewee: \textit{pam tae.}  
palm thatch

Nimba Watchman: \textit{pam tae.}  
palm thatch

NW: ‘They built two, uh, some houses for them. They didn’t use zinc. They put thatch on it.’

P: ‘Palm thatch.’

NW: ‘Palm thatch.’

The examples in (6) and (7) make the same point, namely that paragoge is a basilectal feature, a salient and stigmatized basilectal feature.18 Indeed, it is perhaps the single most salient badge of basilectal status. Deletion of word-final consonants, on the other hand, is not identified exclusively with the basilect and does not carry the same negative affect, a point that is returned to below. A further

\[17\] While Nimba Watchman’s paragogic vowel in (7) is unusual in that it occurs on a noun, the relevant point—that paragoge is stigmatized speech—is the same. In the half-hour segment from which this example comes, Nimba Watchman adds the paragogic vowel forty times to verbs and three times to nouns.

\[18\] The character of the grammar (or grammars) along the continuum has been an ongoing topic of discussion in creole studies (cf. Bickerton [1975]). As noted in §1.3, it is assumed that an individual occupies a range along the continuum, but it is also assumed that no speaker has a grammar that spans the entire continuum. Thus, in contrast to the seven speakers in the present study, David Peewee does not have the rule of paragoge, at least not as part of his ordinary \textit{productive} competence. In discussing the social weight of paragoge, I don’t mean to suggest that only the speakers who avoid paragoge are aware of its affect. Surely all the speakers in the corpus are aware of it. This leads to questions as to why basilectal speakers elect to retain stigmatized features in their speech, an issue that LePage’s [1972, 1977] social psychological model addresses.
point, also to be discussed below, is that there is a connection in the present case between job status and linguistic behavior; specifically, the correlation for these speakers is between their job status and their place along the Liberian English continuum.

At first glance the results for resyllabification suggest an utter lack of parallel to those for paragoge. These results show no pattern that can be linked to speaker’s occupation. These results are given in Table 6, with speakers listed in the same order in which they appeared in Table 5; there they were arranged from most strongly disfavoring paragoge to most strongly favoring it.

Table 6. Speakers as a factor group for resyllabification.

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaster</td>
<td>.06</td>
</tr>
<tr>
<td>Bottlepicker</td>
<td>.44</td>
</tr>
<tr>
<td>French Soldier</td>
<td>.79</td>
</tr>
<tr>
<td>PFC</td>
<td>.48</td>
</tr>
<tr>
<td>Overseer</td>
<td>.19</td>
</tr>
<tr>
<td>Tapper</td>
<td>.96</td>
</tr>
<tr>
<td>Tailor</td>
<td>.51</td>
</tr>
</tbody>
</table>

In §1.6 I raised the issue of how to characterize the input of the variable rules under consideration. At that time I concluded that ordinarily it would be assumed that the input to a given rule would be all eligible forms. For resyllabification this means every token for which the following syllable had an available C slot in the onset. However, when paragoge is assumed to have operated prior to resyllabification, the results set forth in Table 6 change dramatically. In environments where resyllabification is possible, for the three speakers who favor paragoge most strongly (Tailor, Tapper, Overseer), resyllabification is categorical precisely when paragoge does not apply. Thus, the probabilities for these three speakers for resyllabification simply reflect the proportion of resyllabifiable environments in which paragoge occurred relative to the proportion in which resyllabification did. Clearly, to get at differences between speakers with regard to resyllabification, the more meaningful measurement is one in which tokens of paragoge have been removed from the input. Table 7 presents the results once this adjustment has been made. It lists first the probabilities for paragoge itself, then the probabilities for resyllabification when the paragoge tokens have been removed.
Table 7. Speakers as a factor group, first for paragoge and then for resyllabification (when instances of paragoge have been excluded)

<table>
<thead>
<tr>
<th></th>
<th>Paragoge</th>
<th>(Adjusted) Reyllabification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaster</td>
<td>.18</td>
<td>.02</td>
</tr>
<tr>
<td>Bottlepicker</td>
<td>.22</td>
<td>.71</td>
</tr>
<tr>
<td>French Soldier</td>
<td>.24</td>
<td>.77</td>
</tr>
<tr>
<td>PFC</td>
<td>.62</td>
<td>.86</td>
</tr>
<tr>
<td>Overseer</td>
<td>.74</td>
<td>(1.00)</td>
</tr>
<tr>
<td>Tapper</td>
<td>.75</td>
<td>(1.00)</td>
</tr>
<tr>
<td>Tailor</td>
<td>.78</td>
<td>(1.00)</td>
</tr>
</tbody>
</table>

The probabilities for the first four speakers in the second column of Table 7 are relative to one another; the three speakers displaying categorical behavior have been removed from consideration. As can be seen, once paragoge has been factored out, there are three groups of speakers when it comes to resyllabification: those speakers who resyllabify categorically, those who strongly favor resyllabification (but who do not resyllabify categorically), and the one speaker who strongly disfavors resyllabification. There is a connection with job status: the categorical resyllabifiers are the low-status rubber tappers. At the other end—strongly disfavoring resyllabification—is Blaster, one of the two men who achieved a non-plantation, non-military employment.

In the case of paragoge, the link between continuum and rule operation is apparent. Paragoge is a stigmatized rule. But why should resyllabification be tied to the continuum? Specifically, why should greater resyllabification be tied to more basilectal speech? It would seem that a case could be made for the claim that the opposite result is the expected one, i.e. that resyllabification would be most favored by those whose LIE is closest to English.

In fact, the answer seems to lie in the status of the third major rule, deletion. The probabilities for it by speaker are given in Table 8.

Table 8. Speakers as a factor group for deletion.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaster</td>
<td>.80</td>
</tr>
<tr>
<td>Bottlepicker</td>
<td>.75</td>
</tr>
<tr>
<td>Overseer</td>
<td>.66</td>
</tr>
<tr>
<td>French Soldier</td>
<td>.63</td>
</tr>
<tr>
<td>PFC</td>
<td>.57</td>
</tr>
<tr>
<td>Tapper</td>
<td>.22</td>
</tr>
<tr>
<td>Tailor</td>
<td>.07</td>
</tr>
</tbody>
</table>
This time there is a sharp distinction between the two most basilectal speakers (Tapper and Tailor) and the other five, with the two most basilectal speakers sharply disfavoring deletion. Of the other five speakers, Blaster and Bottlepicker distinguish themselves as strongly favoring deletion. In this case, the three speakers who are neither most basilectal nor least basilectal do stand intermediate between the two, but they are certainly closer to Blaster and Bottlepicker than to Tapper and Tailor. 19

The results in Table 8 make the point quite emphatically that deletion is viewed positively by speakers. It would seem to be a sign of fluency, of greater facility in English. Certainly those in the present corpus closest to the mesolect (and acrolect) are the ones who delete most frequently. Moreover, truly mesolectal speakers of Liberian English, e.g. Monrovia speakers, delete consonants frequently (and never engage in paragoge). More acrolectally still, of course, deletion wanes. The relevant point here is that for the Borkeza speakers the deletion of consonants seems to correlate strongly with position on the continuum. To return, then, to the question of why less basilectal speakers do not resyllabify more, the answer seems to be that these speakers favor deletion instead. Rather than resyllabifying a word-final consonant whenever possible, they elect instead to delete it or to change it to a glottal stop.

Indeed, glottal-stop formation represents another cue of higher status on the continuum. As noted in §2.4, in the Borkeza corpus this rule is effectively limited to voiceless stops. Tapper does not display the rule at all (0/26); Overseer's rate of rule application (3%, 1/31) is so low as to count as categorical non-occurrence. Failure to use the rule of glottal-stop formation constitutes the basilectal extreme. For the other speakers, the distribution correlates with position on the continuum, but in a way that is slightly complicated. When what follows the verb is consonant-initial, there is no significant difference among the five remaining speakers. In contrast, when what follows the verb is vowel-initial, there is a sharp difference, with Blaster and Bottlepicker strongly favoring glottal-stop formation in this environment. This combination of factors (speaker and following phonological environment) yields the probabilities set out in Table 9: 20

19The possibility exists that deletion is like resyllabification in being skewed by the paragoge results. However, this prediction is not borne out, particularly not in the case of the gap between Tapper/Tailor and the remaining five speakers. When the instances of paragoge are removed, Tapper and Tailor continue to disfavor deletion strongly: the probability for deletion in Tapper's speech is .26, for Tailor's .08.
20The frequency of glottal stops by following phonological environment when the speakers are divided into less basilectal (Blaster and Bottlepicker) and more basilectal (all others) is the following:

<table>
<thead>
<tr>
<th></th>
<th>Following V</th>
<th>Following C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaster, Bottlepicker</td>
<td>4/12</td>
<td>4/24</td>
</tr>
<tr>
<td>French Soldier, PFC, Tailor</td>
<td>2/17</td>
<td>8/58</td>
</tr>
</tbody>
</table>
Table 9. Speakers and following phonological environment as a combined factor group for glottal-stop formation.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaster/Bottlepicker, following vowel</td>
<td>.77</td>
</tr>
<tr>
<td>Blaster/Bottlepicker, following consonant</td>
<td></td>
</tr>
<tr>
<td>French Soldier/PFC/Tailor, following vowel</td>
<td>.23</td>
</tr>
<tr>
<td>French Soldier/PFC/Tailor, following consonant</td>
<td></td>
</tr>
</tbody>
</table>

If all following-consonant tokens are removed from consideration and only following-vowel ones are examined, the same sharp distinction obtains between Blaster/Bottlepicker and the others. On the other hand, if all following-vowel tokens are removed from consideration and only following-consonant ones are examined, the difference between Blaster/Bottlepicker and the other speakers is not statistically significant.

An overview of speaker interaction with individual rules indicates the extent to which these rules are sensitive to a speaker’s position on the continuum. Table 10 below and the accompanying Table 11 demonstrate the correlation that obtains across rules. In Table 10 I posit particular behavior as being “most basilectal”, “least basilectal”, or “intermediate”. In the case of paragoge, deletion, and glottal-stop formation, it is quite clear that “least basilectal” behavior in the Borkeza corpus corresponds directly to mesolectal behavior in Liberian English more generally. This is precisely what is to be expected.21

Table 10. Rules pertaining to word-final consonants and their correlation with position on the continuum.

<table>
<thead>
<tr>
<th>Rule Type</th>
<th>Least Basilectal</th>
<th>Intermediate</th>
<th>Most Basilectal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paragoge</td>
<td>Disfavor</td>
<td>—</td>
<td>Favor</td>
</tr>
<tr>
<td>Deletion</td>
<td>Strong Favor</td>
<td>Weak Favor</td>
<td>Disfavor</td>
</tr>
<tr>
<td>Glottal-stop</td>
<td>Favor</td>
<td>Disfavor</td>
<td>Non-Occurring</td>
</tr>
<tr>
<td>Resyllab.</td>
<td>Disfavor</td>
<td>Favor</td>
<td>Categorical</td>
</tr>
</tbody>
</table>

*Glottal-stop formation is with reference to following vowels only.

**Resyllabification is with reference to post-paragoge results.

---

21 The link between “least basilectal” Borkeza speech and mesolectal Liberian English generally may also extend to resyllabification; it simply has not been investigated. The point should be made that the least basilectal Borkeza speech is pointing in the direction of the mesolect; it is not itself mesolectal speech. Clear differences exist to make this point. For example, the least basilectal Borkeza speakers use paragoge infrequently; mesolectal speakers use it not at all. Similarly, the least basilectal Borkeza speakers show some use of the rule of glottal-stop formation, but only when the input is a voiceless stop and, even then, not all that frequently. In contrast, the rule is far more widespread in mesolectal speech, both in domain and in frequency.
Table 11. Each speaker’s performance relative to position on the continuum. (*least* = least basilectal, *inter.* = intermediate, *most* = most basilectal)

<table>
<thead>
<tr>
<th></th>
<th>paragoge</th>
<th>deletion</th>
<th>glottal-stop</th>
<th>resyllab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaster</td>
<td>least</td>
<td>least</td>
<td>least</td>
<td>least</td>
</tr>
<tr>
<td>Bottlepicker</td>
<td>least</td>
<td>least</td>
<td>least</td>
<td>inter.</td>
</tr>
<tr>
<td>French Soldier</td>
<td>least</td>
<td>inter.</td>
<td>inter.</td>
<td>inter.</td>
</tr>
<tr>
<td>PFC</td>
<td>most</td>
<td>inter.</td>
<td>inter.</td>
<td>inter.</td>
</tr>
<tr>
<td>Overseer</td>
<td>most</td>
<td>inter.</td>
<td>most</td>
<td>most</td>
</tr>
<tr>
<td>Tailor</td>
<td>most</td>
<td>most</td>
<td>inter.</td>
<td>most</td>
</tr>
<tr>
<td>Tapper</td>
<td>most</td>
<td>most</td>
<td>most</td>
<td>most</td>
</tr>
</tbody>
</table>

Table 11 indicates the regularity across rules vis-a-vis the continuum in the Borkeza corpus. The two least basilectal speakers routinely display the least basilectal strategy (in all four cases for Blaster and three out of four for Bottlepicker). At the other end of the continuum, Tapper, Tailor, and also Overseer regularly display the most basilectal pattern. The most fully basilectal status of Tapper and Tailor correlates with their having held a low-status job—and no other—within the cash economy; Overseer’s long history of employment at the rubber plantation makes it unsurprising that he talks like other rubber tappers. Finally, French Soldier and PFC stand intermediate between the two extremes. Except in the case of paragoge, which has no intermediate position, French Soldier and PFC always end up in the middle. These results indicate that PFC, who was a soldier but never a tapper, is located further up the continuum than Tapper and Tailor, who were tappers but never soldiers. While large generalizations based upon such a small number of speakers is risky, it does seem consistent with the nature of their occupations that soldiers would need to use pidgin far more extensively than tappers would. In turn a greater range of communicative need would seem to encourage less basilectal speech. At the same time, PFC is considerably younger than Tapper and Tailor, a fact which may also bear on the differences in their speech.

The social weight of paragoge is an obvious fact about LIE, one that speakers of Liberian English talk about. Tables 10 and 11 make the point that all the rules under consideration correlate with social position. But, given the strength of paragoge, is the seeming social significance of the other rules actually an illusion, a statistical consequence of the power of this one rule? The answer is no. For resyllabification the link to the continuum only emerges when the paragoge tokens are removed, and the correlation between speakers’ position and rates of deletion and glottal-stop is unchanged when the paragoge tokens are removed from the input to these rules. For the Borkeza speakers, position on the continuum correlates not just with one rule but with all four, reflecting not only the extent to which a speaker retains basilectal rules like paragoge and resyllabification but also
the extent to which he uses mesolectal ones like deletion and glottal-stop formation.

3.2. Following grammatical environment. Tokens were divided according to what followed the verb, whether a full NP, a pronoun, an adverb or prepositional phrase, or a particle. "Particle" here refers to a word (ordinarily an "objectless preposition") that combines with the verb to form a "two-word verb" such as *nak o* ‘knock off, stop work for the day’ or *mek fo* ‘cause’. With one exception, all of the two-word verbs in the corpus are intransitive, i.e. *wi wek o* ‘we woke up,’ not *wi wek o koluba* or *wi wek koluba o* ‘we woke up Koluba’. The one exception is given in (8):22

(8) ... *du yu tēk de we bak o mi?*  
do you think they will back up me  
‘... do you think they will back me up?’ (Bottlepicker)

This sentence illustrates the general Liberian English requirement that the particle be next to the verb even when there is a pronominal object.

In §3.1 it was shown that in the case of paragoge there is a sharp split between the four more basilectal speakers (who strongly favor application of the rule) and the three less basilectal speakers (who strongly disfavor it). However, as Table 12 shows, the rate of paragoge when a particle follows the verb is precisely the opposite of the overall rate. While the less basilectal speakers display paragoge on the verb in verb-particle combinations about as often as they display it overall, the more basilectal speakers—the heavy users of paragoge—never display paragoge when the verb is part of a verb-particle combination. (The speaker Overseer has no particle tokens; for that reason, he has not been included in Table 12. In general, however, he patterns with the more basilectal group when it comes to paragoge.)23

<table>
<thead>
<tr>
<th></th>
<th>Particle</th>
<th>Other words</th>
</tr>
</thead>
<tbody>
<tr>
<td>More basilectal speakers</td>
<td>0/18</td>
<td>103/189</td>
</tr>
<tr>
<td>(Tapper, Tailor, PFC)</td>
<td></td>
<td>54%</td>
</tr>
<tr>
<td>Less basilectal speakers</td>
<td>3/20</td>
<td>27/170</td>
</tr>
<tr>
<td>(Blaster, Bottlepicker, French Soldier)</td>
<td></td>
<td>16%</td>
</tr>
</tbody>
</table>

---

22 *Do*-support is not a characteristic of LIE; the sentence in (8) is exceptional in that regard.

23 Excluded from Table 12 are those instances where the verb is the final word in the sentence.
A verb-particle combination should perhaps be thought of as a single semantico-syntactic unit in LIIE. Following from this, it seems to be the case that for the more basilectal speakers a verb-particle combination is a single phonological unit as well. Adding a vowel is essentially a word-final operation in LIIE. Word-internal insertion of an epenthetic vowel between the final consonant of one syllable and the initial consonant of the next is rare. If the verb-particle unit is like a single word, then paragoge may be perceived by the speaker as inappropriate unit-internally. On the other hand, the fact that paragoge obtains for the verb in verb-particle combinations for less basilectal speakers suggests that, for these speakers, the verb and particle are separable.

If verb and particle are truly a single phonological unit for the more basilectal speakers, it might seem possible to have paragoge applying to the final consonant of the particle rather than to the verb, yielding forms like luk-laki (<look like) 'seem as if, resemble'. In fact, no such forms obtain. Paragoge is limited to monosyllabic forms, and a verb-particle combination is necessarily multisyllabic.

With regard to paragoge, the probabilities for following grammatical environment are given in Table 13. As noted, the speakers have been split into two groups. This has been done because the overall difference in frequency mapped out in Table 12 corresponds to a difference in distribution. The most dramatic aspect of this difference lies in the treatment of verb-particle combinations (as indicated in Table 12).

Table 13. Following grammatical environment as a factor group in paragoge.

<table>
<thead>
<tr>
<th></th>
<th>More basilectal speakers (Tapper, Tailor, PFC, and Overseer)</th>
<th>Less basilectal speakers (Blaster, Bottlepicker, and French Soldier)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full NP</td>
<td>.72</td>
<td>.78</td>
</tr>
<tr>
<td>Adverb/PP</td>
<td>.42</td>
<td>.68</td>
</tr>
<tr>
<td>Pronoun</td>
<td>.34</td>
<td>.31</td>
</tr>
<tr>
<td>Particle</td>
<td>(.00)</td>
<td>.22</td>
</tr>
</tbody>
</table>

Syntactically, the status of a direct or indirect object is ordinarily the same whether it is a full NP or a pronoun. Phonologically, on the other hand, the two are not the same. For example, in English there is a rule of v-deletion that applies to the /v/ in the verb save in (9a) but not in (9b) [Selkirk 1972]:
Differences of this type between full NP and pronoun objects are readily expressed via the Prosodic Hierarchy developed by Selkirk [1978, 1980, 1981] and Nespor and Vogel [1982, 1983]. The Hierarchy recasts syntactic bracketing to reflect phonological phrasing. Without going into great detail about the Hierarchy, I will draw on Hayes’s [1989] expansion of the principles set forth in Selkirk in order to bring the insights of the formalism to bear on the issues at hand with regard to following grammatical environment. The counterpart in the Hierarchy to a syntactic phrase is the Clitic Group. (A critical difference, however, is that all units in the Hierarchy, including Clitic Groups, are non-recursive.) Hayes [1989:208] posits the following rules for the derivation of Clitic Groups from syntactic structure:

(10) **Clitic Group Formation**

a. Every content word (lexical category) belongs to a separate Clitic Group.

b. Definition: The HOST of a Clitic Group is the content word it contains.

c. Definition: X and Y SHARE CATEGORY MEMBERSHIP in C iff C dominates both X and Y.

d. Rule: Clitic words are incorporated leftward or rightward into an adjacent Clitic Group. The group selected is the one in which the clitic shares more category memberships with the host.

The sentence *He kept it in a large jar* can be used to illustrate the procedure of Clitic Group Formation. There are three content words, so there are necessarily three Clitic Groups. The syntactic structure given in (11a) gives rise to the Clitic Group designations in (11b). In terms of the relevant categories for the study of LIE consonants, full NP’s, PP’s, and adverbs each fall into a Clitic Group distinct from that of the verb that precedes them. Pronouns, on the other hand, are part of the same Clitic Group as the verb. The same is true for particles. Indeed, for the more basilectal speakers the possibility exists that verb and particle are seen not just as being in the same Clitic Group but as a single word (phonologically and not just syntactico-semantically).
As the figures in Table 13 show, paragoge is strongly disfavored when the following word is in the same Clitic Group as the verb. It is either favored or less disfavored when the following word is in a separate Clitic Group from the verb. (There is a single exception to this, namely that paragoge is favored among the less basilectal speakers when a particle follows the verb. This is a phenomenon for which I have no explanation.)

With particular reference to the difference between full NP's and pronouns in their impact upon paragoge and other processes (see below), the difference between them with regard to Clitic Group membership vis-a-vis the verb is perhaps reinforced for the Borkeza speakers by what happens in Loma. Loma is an SOV language; in it, object pronouns surface as verb prefixes. While the word order differences between Loma and LIE may well mitigate Loma’s influence on LIE in this regard, the Loma facts nonetheless converge with the English ones in distinguishing phonologically between objects that are full NP’s and those that are pronouns.

While the Prosodic Hierarchy bears directly on the difference between full NP’s and PRO’s and also perhaps on the categorical avoidance of paragoge in verb-particle instances for the more basilectal speakers, it does not account for the difference between full NP’s and adverb/PP’s. For both the more and the less basilectal speakers, it is the case that a following adverb or PP disfavors paragoge while a following NP favors it. Certainly, if it were only a question of the Prosodic Hierarchy, then following adverbs and PP’s would be expected to favor paragoge with a strength comparable to that of following full NP’s.24

24Inasmuch as the locative adverbs *hya* ‘here’ and, especially, *de* ‘there’ are arguably pronoun-like and may be thought of as grammatical items rather than lexical ones, the possibility exists...
One possibility is that the difference between following NP's and following adverbs/PP's is to be explained by an alternate analysis, one in which the added vowel carries grammatical information, specifically to signal transitivity (with a full NP only). If paragoge is limited in application to instances where there is a Clitic Group juncture, i.e. to cases where what follows the verb is an NP, adverb, or PP, and if following NP’s predominate in this environment, speakers may re-analyze a meaningless vowel that has been tacked on for reasons of euphony as a meaning-bearing element that is inserted only when a full NP follows. This alternative view of what vowel insertion does gets the most support from Tapper’s speech. In the corpus Tapper has 41 following NP’s and only 6 following adverbs/PP’s. For NP’s the rate of paragoge is 85%; for adverbs/PP’s it is a much lower 33%. This kind of re-analysis by speakers, even if it is incompletely realized, would help to account for the difference between following NP’s and following adverbs/PP’s as regards their impact on paragoge.25

In the present corpus, glottal-stop formation appears to be another rule that applies word-finally but not word-internally. The same kind of correlation between Clitic Group membership and frequency of rule operation that obtains for paragoge shows up here, too. Indeed, for glottal-stop formation the probabilities grow stronger when a simple dichotomy is made between membership in a different Clitic Group from the verb (NP, Adverb/PP) or in the same one as it (Particle, PRO). Table 14 reflects this.

<table>
<thead>
<tr>
<th>Clitic Group Membership</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Different Clitic Group</td>
<td>.80</td>
</tr>
<tr>
<td>Same Clitic Group</td>
<td>.20</td>
</tr>
</tbody>
</table>

In sum, when the following item is in a different Clitic Group, glottal-stop formation is strongly favored; equally, when the next word is in the same Clitic Group, glottal-stop formation is disfavored.

In the cases of resyllabification and deletion, the correlation between Clitic Group membership and frequency of rule operation is partially borne out and partially confounded. In terms of boundaries, since resyllabification entails the dismantling of a word boundary, it follows that weaker boundaries would be more

---

25In the use of a front vowel post-verbally to signal transitivity, LIE would parallel Tok Pisin. However, unlike the case of Tok Pisin, there seems to be no obvious substratal source for a transitivity marker for LIE.
ready to fall, more likely to favor resyllabification. As Table 15 makes clear, this prediction holds for pronouns, not for particles.

Table 15. Following grammatical environment as a factor group in resyllabification

<table>
<thead>
<tr>
<th>Group</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pronoun</td>
<td>.93</td>
</tr>
<tr>
<td>Particle</td>
<td>.53</td>
</tr>
<tr>
<td>Adverb/PP</td>
<td>.37</td>
</tr>
<tr>
<td>Full NP</td>
<td>.10</td>
</tr>
</tbody>
</table>

The question that arises is why particles do not behave like pronouns. There seem to be two parts to the answer. One is the fact, noted earlier, that less basilectal speakers are willing to permit paragoge when there is a following particle. (As noted, I have no account for this.) The second, more important reason why following particles do not favor resyllabification even as following pronouns do lies in the fixed nature of verb-particle combinations. Any transitive verb can enter into a verb-pronoun combination. In contrast, verb-particle combinations are usually frozen, there being a limited number of them. Thus, in theory a verb-particle sequence such as luk lak ‘seem as if, resemble’ is subject to resyllabification, to yield $ju$klak$; in reality, however, the frequent occurrence of this combination as a single semantic unit has yielded the pronunciation [ulu], as in (12):

(12) des ma, e lula hi stupe
    this man it look-like he stupid

    ‘It seems as if this man is stupid.’ (PFC)

With frequently occurring lexical chunks, “erosion” is possible. In the present case, apart from differences in boundary strength, this means that deletion correlates with frequency of occurrence and resyllabification with infrequency. This account, one that links verb-particle combinations with frequency of occurrence and links infrequency of occurrence with resyllabification, has its parallel in the fact that a verb that occurs infrequently in the corpus favors resyllabification (regardless of the verb’s following grammatical environment). This issue of verb frequency is discussed in §3.5 below.

A further point about Table 15 is the fact that, while following full NP’s and following adverbs/PP’s are alike in disfavoring resyllabification, there is a difference in their strength, with full NP’s disfavoring resyllabification far more strongly than do adverbs/PP’s. In fact, this difference is strictly a byproduct of the strong affinity that following full NP’s have for paragoge. When all the instances of paragoge are removed from the consideration of resyllabification, i.e. removed from the input, the difference between following NP and following adverb/PP with
regard to resyllabification virtually disappears, with following adverb/PP actually disfavoring resyllabification slightly more than following NP (.25 for following NP’s, .20 for following adverbs/PP’s).

With regard to deletion, following phonological environment is of greater statistical significance than following grammatical environment. Moreover, in ways that did not obtain in the case of other rules, there is skewed distribution between these two types of following environment, phonological and grammatical. To avoid the skew, the examination of following grammatical environment is confined to cases where a consonant follows the verb. The grammatical-environment factor group’s probabilities vis-a-vis deletion are given in Table 16.

Table 16. Following grammatical environment as a factor group in deletion
(Limited to cases where the following segment is a consonant.)

<table>
<thead>
<tr>
<th>Factor Group</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adverb/PP</td>
<td>.69</td>
</tr>
<tr>
<td>Pronoun</td>
<td>.51</td>
</tr>
<tr>
<td>Particle</td>
<td>.48</td>
</tr>
<tr>
<td>Full NP</td>
<td>.31</td>
</tr>
</tbody>
</table>

Here (as in the case of NP vs. adverb/PP for resyllabification), the differences within the factor group are largely a byproduct of the facts of paragoge and, to a lesser extent, resyllabification. When all tokens which show paragoge on the surface are removed from the consideration of deletion, i.e. removed from the input, following grammatical environment ceases to be statistically significant.

3.3. Following phonological environment. The role of following phonological environment in glottal-stop formation has already been noted: in less basilectal speech, glottal-stop formation is strongly favored when a vowel follows. There is a complement to this in deletion. There, for all speakers, when a vowel follows, deletion is strongly disfavored, as Table 17 indicates.

Table 17. Following phonological environment as a factor group for deletion

<table>
<thead>
<tr>
<th>Factor Group</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pause</td>
<td>.78</td>
</tr>
<tr>
<td>Consonant</td>
<td>.77</td>
</tr>
<tr>
<td>Vowel</td>
<td>.08</td>
</tr>
</tbody>
</table>

The fact that a following vowel has the opposite impact on deletion from what it does on glottal-stop formation makes the point that glottal-stop formation is not simply quasi-deletion. While the two rules seem to carry similar social weight, they are distinct, favored by opposing environments.

Another rule where following phonological environment is statistically significant is that of resyllabification. Here, however, it is not following
environment alone that should be looked at. Rather, it is the combination of following segment with the verb-final consonant that matters. Accordingly, for resyllabification a factor group was devised of pairs of segments. The factors in this group were given in Table 3 and are repeated below:

Table 3. Resyllabification: Sequences of verb-final consonant and following segment.

<table>
<thead>
<tr>
<th>Verb-final consonant</th>
<th>First segment of following word</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. stop</td>
<td>vowel</td>
<td>tek eni</td>
</tr>
<tr>
<td>b. fricative</td>
<td>vowel</td>
<td>lev ė</td>
</tr>
<tr>
<td>c. liquid</td>
<td>vowel</td>
<td>kel eni</td>
</tr>
<tr>
<td>d. /s/</td>
<td>nasal</td>
<td>as mi</td>
</tr>
<tr>
<td>e. /s/</td>
<td>stop</td>
<td>los de</td>
</tr>
<tr>
<td>f. obstruent</td>
<td>liquid</td>
<td>kuk ras</td>
</tr>
<tr>
<td>g. obstruent</td>
<td>glide</td>
<td>wep yu</td>
</tr>
<tr>
<td>h. stop</td>
<td>/h/</td>
<td>bit hī</td>
</tr>
</tbody>
</table>

Included in the /s/-stop sequence are instances where the stop is voiced. This was done inasmuch as there is no contrast in English between voiced and voiceless stops following an initial /s/. In fact, whether such cases are included or not is inconsequential: resyllabification does not take place here. In fact, of all English clusters, obstruent-obstruent ones seem to be least likely to appear on the surface in LIE. Indeed, the reduction of such clusters has, in some cases at least, been lexicalized, e.g. pe tapa, (< spare tapper) ‘a substitute rubber tapper’, and fayaton ‘Firestone’. Given the tendency to avoid the initial /s/ in such a cluster when it occurs within a word, the failure of resyllabification to create new instances of the cluster should be expected.

A few further comments with regard to the list in Table 3 are in order. To begin with, in the case of obstruent-liquid and obstruent-glide combinations, consideration was limited to those where the resultant resyllabification would yield a permissible cluster in English. For example, put roba ‘put rubber’ would have been included but not put letes ‘put latex’. All of the obstruent-liquid combinations are actually stop-liquid ones. Similarly, almost all of the obstruent-glide combinations are stop-glide (and most of them involve velar stops).

---

26 The only exception in the corpus to the statement that LIE speakers do not resyllabify /s/-stop clusters is Blaster, specifically with three occurrences of los de ‘lost a day (of work)’. Apart from that, resyllabification of these clusters was categorically rejected by all.

27 Inasmuch as Liberian English parallels American English in blocking sy and ty sequences (and coronal-/y/ sequences generally), I excluded them from consideration here.
Finally, fricative-V and liquid-V combinations have been merged. The results for the entire factor group are given in Table 18.

Table 18. The combination of verb-final consonant and following segment as a factor group for resyllabification

<table>
<thead>
<tr>
<th>Combination</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>/s/-Nasal</td>
<td>.90</td>
</tr>
<tr>
<td>Stop-Vowel</td>
<td>.84</td>
</tr>
<tr>
<td>Stop-/h/</td>
<td>.62</td>
</tr>
<tr>
<td>Stop-Liquid</td>
<td>.57</td>
</tr>
<tr>
<td>Fricative/Liquid-Vowel</td>
<td>.17</td>
</tr>
<tr>
<td>Obstruent-Glide</td>
<td>.05</td>
</tr>
</tbody>
</table>

It was noted in §2.2 that in the case of the stop-/h/ sequence the segmentation changes. There is a split among speakers with respect to the operation of resyllabification in this instance. Only the three most basilectal speakers—these are the same speakers who resyllabify categorically after paragoge has operated—carry out this rule. Lorna does not have an /h/. It can be argued that the most basilectal speakers in the corpus lack /h/ in LIE (or are ambivalent about its status there). In that case, resyllabification of a stop-/h/ sequence is for them simply a variant, if not an instantiation, of the stop-vowel sequence. In contrast, less basilectal speakers would seem to have syllable-initial /h/ in their LIE. For these latter speakers, the phonemic status of /h/ blocks resyllabification from occurring.

Sankoff and Rousseau [1989] raise the issue that in some instances a single variable rule may reflect the operation of more than one underlying rule. That would not seem to be the case where paragoge is involved. It seems to be a unitary process, one whose output is readily recognizable. On the other hand, in the case of resyllabification Sankoff and Rousseau’s observation probably applies. In fact, the six factors in Table 18 may represent as many as four distinct processes. By this reckoning, there is one rule that links a verb-final /s/ to a following nasal. This rule is virtually categorical, occurring 14 times out of 15 in the corpus. (The fifteenth time is an instance of paragoge.) There is a second rule that links a verb-final consonant to a following vowel. This rule is highly favored by a verb-final stop and highly disfavored by any other verb-final consonant. Similarly, there are rules that resyllabify a verb-final stop to a following liquid and a verb-final obstruent (ordinarily a stop) to a following glide. As noted, the stop-/h/ sequence is essentially a variant of the stop-vowel rule in more basilectal speech and is blocked from operating in less basilectal speech. Thus, it does not constitute a separate rule.

If, as I am suggesting, resyllabification comprises four rules rather than one, the factor groups that favor and disfavor each of these processes need to be worked out, but a larger sample is required for this. Two obvious questions for further
study are why the /s/-nasal sequence favors resyllabification so strongly and why stops favor resyllabification pre-vocally while other consonants do not.

Finally with regard to following phonological environment, there is this factor group’s role in paragoge. When the Borkeza corpus is split into more and less basilectal speakers, following phonological environment is not statistically significant for the more basilectal group. For the less basilectal speakers, on the other hand, it is statistically significant, but in a way that seems backward. That is, paragoge would seem to be most strongly favored when what follows is a pause or a consonant. In these instances it would prevent a verb-final consonant from reaching the surface in word-final position. On the other hand, when a vowel follows, paragoge seems less likely. After all, in these cases resyllabification is looming as a possibility. However, as Table 19 sets forth, a following vowel favors paragoge, a following consonant or pause disfavors it. I have no explanation for this.

Table 19. Following phonological environment as a factor group for paragoge for less basilectal speakers

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Vowel</td>
<td>.76</td>
</tr>
<tr>
<td>Consonant</td>
<td>.42</td>
</tr>
<tr>
<td>Pause</td>
<td>.31</td>
</tr>
</tbody>
</table>

3.4. The verb-final consonant. For the most part, there are only six oral consonants that occur word-finally in verbs in LIE: /l/, /p/, /t/, /k/, /s/, and /v/.28 (As noted in fn. 2, LIE is truly /r/-less; the postvocalic /r/’s of English do not obtain at any level of LIE, phonological or phonetic.)

In getting at the variation in the processes under consideration, differences among the verb-final consonants themselves are crucial. In the case of glottal-stop formation, only voiceless stops undergo the rule. (The differences among /p/, /t/, and /k/ with regard to glottal-stop formation are not themselves statistically significant.) Then, in the case of resyllabification, the interaction of verb-final consonants with following segments is crucial. There resyllabification is highly favored for /s/-nasal and stop-vowel sequences.

28In addition to the final consonants that I have listed, the corpus also contains tokens of the following words:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>bed</td>
<td>‘build’</td>
</tr>
<tr>
<td>lod</td>
<td>‘load’</td>
</tr>
<tr>
<td>hod</td>
<td>‘hold, detain’</td>
</tr>
<tr>
<td>ad</td>
<td>‘add’</td>
</tr>
<tr>
<td>grab</td>
<td>‘grab’</td>
</tr>
<tr>
<td>rog</td>
<td>‘steal’</td>
</tr>
<tr>
<td>flrg</td>
<td>‘flog, beat’</td>
</tr>
</tbody>
</table>

Apart from the rule of glottal-stop formation (which is limited in application to voiceless stops), there is no instance in the present study where the distinction between voiced and voiceless stops displays any statistical significance. Accordingly, for all rules other than glottal-stop formation, the voiced stops have been classed with their voiceless counterparts.
For paragoge, there is a distinct difference in pattern between the more basilectal and less basilectal speakers. For the more basilectal speakers, /p/ and, to a lesser extent, /s/ favor application of the rule; the other consonants disfavor it, /k/ and /v/ weakly, /t/ and /l/ strongly. No generalization seems to exist as to which types of consonants favor paragoge and which disfavor it. In contrast, for the less basilectal speakers, fricatives strongly favor paragoge, while stops as a group strongly disfavor it and /l/ weakly disfavors it. (Internal to the stop category, /p/ favors paragoge weakly while /t/ and /k/ both disfavor it strongly.) Probabilities for word-final consonants for the two groups of speakers are given in Table 20.

Table 20. Verb-final consonants as a factor group for paragoge

<table>
<thead>
<tr>
<th></th>
<th>More basilectal (Tapper/Tailor/Overseer/PFC)</th>
<th>Less basilectal (Blaster/Bottlepicker/French Soldier)</th>
<th>All speakers combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/</td>
<td>.85</td>
<td>.56</td>
<td>.80</td>
</tr>
<tr>
<td>/t/</td>
<td>.29</td>
<td>.26</td>
<td>.26</td>
</tr>
<tr>
<td>/k/</td>
<td>.45</td>
<td>.25</td>
<td>.38</td>
</tr>
<tr>
<td>/v/</td>
<td>.43</td>
<td>.72</td>
<td>.59</td>
</tr>
<tr>
<td>/s/</td>
<td>.69</td>
<td>.75</td>
<td>.68</td>
</tr>
<tr>
<td>/l/</td>
<td>.25</td>
<td>.45</td>
<td>.27</td>
</tr>
</tbody>
</table>

When consonants are classified by type for the less basilectal speakers, the probabilities that obtain are the following: stops, .30; fricatives, .75; and /l/, .44.

The results for paragoge can be juxtaposed with those for deletion; the comparison of the two (using the third column of Table 20) is given in Table 21.

Table 21. Verb-final consonants as a factor group for paragoge and deletion

<table>
<thead>
<tr>
<th></th>
<th>Paragoge</th>
<th>Deletion</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/</td>
<td>.80</td>
<td>(.00)</td>
</tr>
<tr>
<td>/t/</td>
<td>.26</td>
<td>.67</td>
</tr>
<tr>
<td>/k/</td>
<td>.38</td>
<td>.35</td>
</tr>
<tr>
<td>/v/</td>
<td>.59</td>
<td>.40</td>
</tr>
<tr>
<td>/s/</td>
<td>.68</td>
<td>.13</td>
</tr>
<tr>
<td>/l/</td>
<td>.27</td>
<td>.90</td>
</tr>
</tbody>
</table>

As Table 21 indicates, there is a complementarity between the two processes. Thus, /p/ and /s/ strongly favor paragoge and strongly disfavor deletion (/p/ categorically); at the same time, /t/ and /l/ strongly disfavor paragoge and strongly favor deletion. (The two remaining consonants, /k/ and /v/, are essentially intermediate in both cases.) A complementarity of this type is, from a statistical
perspective, not surprising. That is, if paragoge applies pervasively to a given consonant, there will be relatively few tokens left to which deletion can apply. The proof that the complementarity is not simply a result of the statistical procedure employed comes when the paragoge tokens are removed from the input for deletion, as Table 22 shows. While the two intermediate consonants (/k/ and /v/) undergo something of a change (with /k/’s disfavoring of deletion disappearing), the consonants whose presence most strongly affects the probability of rule operation—/p/, /t/, /s/, and /l/—have hardly changed at all.29

Table 22. Verb-final consonants as a factor group for deletion (with varying inputs)

<table>
<thead>
<tr>
<th></th>
<th>all tokens</th>
<th>with paragoge removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/</td>
<td>(0.00)</td>
<td>0.08</td>
</tr>
<tr>
<td>/t/</td>
<td>0.67</td>
<td>0.64</td>
</tr>
<tr>
<td>/k/</td>
<td>0.35</td>
<td>0.52</td>
</tr>
<tr>
<td>/v/</td>
<td>0.40</td>
<td>0.59</td>
</tr>
<tr>
<td>/s/</td>
<td>0.13</td>
<td>0.17</td>
</tr>
<tr>
<td>/l/</td>
<td>0.90</td>
<td>0.95</td>
</tr>
</tbody>
</table>

The comparison of the force of individual verb-final consonants in paragoge and deletion makes the point that there is, overall, a genuine correlation between the two. However, the fact that this correlation exists does not explain why particular consonants favor paragoge and others deletion. It is not clear to me why consonants pattern in the way that they do with respect to these two rules.

3.5. Frequency of occurrence of the verb. An additional factor group classified verbs by the number of times each occurred in the corpus. The original division was into four categories: 1-2 tokens, 3-9, 11-24, and more than 24. (The latter category consists of three verbs: get/got ‘get’, 70; mek ‘make’, 50, and tel ‘tell’, 38.) Such a division is obviously crude; the verbs represented in the corpus are not necessarily a mirror of the actual distribution of verbs in LIE more generally. Nonetheless, verb frequency proves to be statistically significant both for glottal-stop formation and for resyllabification. In each case there is a sharp dichotomy between the two groups of less frequent verbs and the two groups of frequent ones. Thus, the finer distinction into four groups gives way to a binary distinction between “infrequent” verbs, those occurring fewer than ten times in the corpus, and “frequent” ones, those occurring more than ten times.

The distribution of infrequent and frequent verbs in the two cases where frequency proves to be statistically significant is given in Table 23.

29When the paragoge tokens are removed from consideration, the frequency of /p/-deletion is 7% (1/14) and is no longer below the cutoff point (of 5%) for categorical non-occurrence.
Table 23. Frequency of the verb’s occurrence as a factor group in resyllabification and glottal-stop formation

<table>
<thead>
<tr>
<th>Infrequent</th>
<th>Frequent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resyllabification</td>
<td>.86</td>
</tr>
<tr>
<td>Glottal Stop</td>
<td>.28</td>
</tr>
</tbody>
</table>

Infrequently occurring verbs strongly favor resyllabification, while frequently occurring ones favor glottal-stop formation. The consonant is preserved in resyllabification, while it is lost in glottal-stop formation. Whether it is because glottal-stop formation is a kind of fast-speech rule (and resyllabification not) or because a less complete signal is needed when a frequently occurring verb is used, in either case the correlation between frequency and reduction of the underlying form is not surprising.

3.6. Vowel height. A final factor group to be considered is the height of the vowel in the verb. These are all monosyllabic verbs, and there is a widely operating rule of monothongization. Essentially, LIE has a seven-vowel Mande system plus a mid-central vowel that occurs in grammatical items. English /i/ has merged with /e/, e.g. gev ‘give’, English /u/ with /u/, e.g. put ‘put’, and English /ʌ/ with /ɔ/, e.g. /kʌt/ ‘cut’. In the case of English /æ/, there is variation—it is sometimes realized as [ɛ], sometimes as [a], and less often as [æ].

Vowel height proves to be a factor only in paragoge. Its influence here further reflects the extent to which this rule focuses on the verb itself. The probabilities for this factor group are given in Table 24.

Table 24. Vowel height as a factor group in paragoge

<table>
<thead>
<tr>
<th>More basilectal:</th>
<th>High</th>
<th>Mid</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.25</td>
<td>.80</td>
<td>.43</td>
</tr>
<tr>
<td>Less basilectal:</td>
<td>High/Low</td>
<td>Mid</td>
<td>.65</td>
</tr>
</tbody>
</table>

For the less basilectal speakers, when high and low are separated, the factor group is not statistically significant. The fact that the factor group is statistically significant when the two heights are combined merely makes the point that what matters for the less basilectal speakers, as for the more basilectal speakers, is the opposition between mid vowels and other vowels. It is not clear why middle height favors paragoge. The paragogic vowel is itself mid, and there may be something about a mid stem vowel that “attracts” the mid paragogic vowel. (On the other hand, the height of the paragogic vowel is optionally raised to high when the stem vowel is high.)
4. Conclusions

This study has examined the ways in which a pidgin resolves conflicts between the syllable structure conditions (SSC’s) of the lexifier language and those of the substrate, particularly in a case where the substratal SSC’s are more restrictive than those of the lexifier language. In such a case, the SSC’s that result are intermediate between the lexifier and the substrate languages. Beyond that, the pidgin creates phonological rules that will move it still closer to the substratal SSC’s. LIE did not get paragoge or final-consonant deletion from the Liberian Mande languages. These languages, lacking final consonants, have no need for such rules. Rather, these are innovated rules whose purpose is to make English-like underlying forms look as Mande-like as possible on the surface. Singh [1987] argues for a view of phonology in which “all truly phonological alternations are governed by WFC’s [Well-formedness Conditions]” and “these WFC’s trigger one of a universal set of repair strategies to fix or alleviate their violations as and when they arise” (p. 273).  

30 (In this way Singh eliminates phonological rules as they are ordinarily envisioned in the literature.) Though Singh’s focus was not pidgins or creoles, his model seems to capture the nature of the processes that affect verb-final consonants in LIE: they are all repair strategies.

Thus, paragoge, deletion, and resyllabification provide speakers with a choice of strategies for the “Mande-cization” of English words. In the present study, the use of variable rules has made it possible to see the linguistic and social factors that shape speakers’ choices. The most important linguistic factors are Clitic Group membership (specifically, whether the word that immediately follows the verb is in the same Clitic Group as the verb or not), the phonological character of the first segment following the verb, and the verb-final consonant itself. In the course of the article, I have discussed the ways in which these factors have affected individual rules and have offered some explanations for the particular character of the interaction between factors and rules. The remaining factor group that proves to be critical is that of the speaker’s location directly to his work history. In terms of job status, the three longtime tappers are at the bottom, the soldier and the Firestone watchman in the middle, and the men who worked at iron ore mines and at factories in the capital at the top. A direct correlation between job status and linguistic behavior obtains here, but one should not always expect that neat kind of correlation; there are too many other pertinent social factors for this one always to prevail.

The link between position on the continuum and application of individual rules means that the most basilectal speakers favor paragoge and resyllabification while the least basilectal speakers favor deletion and glottal-stop formation. There is

30 Singh specifies “truly phonological” to distinguish phonological from morphological. Because Singh argues that universal principles will determine which repair strategy will apply in a given situation, his proposal is not equipped to accommodate the choice of strategies available in LIE.
ample evidence for this pattern; further, it is worth noting that the promotion of Mande SSC’s lasts well into the mesolect. The best way to recognize less basilectal speech is not by the high number of word-final consonants that show up on the surface but by the high number of word-final consonants that do not show up there, i.e. the high number of forms that have undergone deletion. But why is this so? Why should deletion be the best positive index of non-basilectal status? Since all of the rules except glottal-stop formation achieve the restoration of Mande syllable structure, why should one be stigmatized and another favored?

In considering this question of social stigma, I will focus on the two rules with broadest applicability, paragoge and deletion. There are two complementary facts that seem to me to be the basis for the difference in status of the two. One fact involves Loma, and the other English. As for Loma, it was observed in the introduction that, according to Sadler [1951:19], “the predominant basic word pattern for nouns, adjectives, and verbs is CVCV”, where a single V refers to a short vowel. For verbs in Loma the only departures from this pattern are of three types. First, there are disyllabic forms with one or two long vowels, i.e. CV(:)CV(:). Second, there are CVV and CVVV forms, most of which obtain because a consonant has dropped out (see fn. 5). (If the vowels are identical in a CVV form that arose through medial-consonant loss, the form is a monosyllable; otherwise, it remains disyllabic.) And, third, there are some CV verbs. With these exceptions noted, the fact remains that most Loma verbs are disyllabic, and it is fair to speak of a CVCV template for Loma verbs.

To return to LIE: in the case of a verb-particle combination, if it is a single phonological unit, it is already disyllabic. In other words, it already looks like a Loma verb and nothing need be added to it. On the other hand, in cases where the verb stands alone, i.e. without a following particle, if a paragogic vowel is added, the result is the canonical CVCV. (In contrast, if the final consonant is deleted, a monosyllabic verb remains.) This suggests that the speakers furthest from English, by showing a strong preference in LIE for disyllabic verbs, retain the Loma verb template. This view is supported by the fact that the operation of paragoge is confined—in the present sample at least—to monosyllabic verbs. Paragoge applied to a disyllabic verb moves it away from, rather than towards, the Loma template. In short, by their frequent use of paragoge the most basilectal speakers are the ones who conform most strongly to the Loma pattern.

As for the English facts and their bearing upon the choice between paragoge and deletion, within Liberia English is the prestige norm. Thus, that speech which sounds most like English is going to be the most highly valued. I would speculate that verbs whose final consonant has been deleted sound more English-like than verbs to which an extra syllable has been added, the addition of a syllable being

---

31 Robin Sabino [p.c.] called my attention to this link between Loma verb structure and LIE paragoge, but it is also Robin who pointed out to me the anomaly that this approach, if valid, does not account for the behavior of nouns and adjectives, which are also ordinarily CVCV in Loma yet are largely immune to paragoge in LIE.
more salient perceptually than the loss of a single syllable-final consonant, particularly in a syllable-timed language like LIE.

A related point about LIE involves fluency and speed. When these obtain, fast-speech phenomena arise, and segments get reduced and even deleted. Because deletion is in general a cornerstone of fast speech, the LIE rule of deletion fits right into the model, while paragoge stands as a step in the opposite direction. That is not to say that there are no fast talkers among the paragoge-using speakers of Liberian English. There clearly are. I am instead offering a general proposition about the correlation of deletion with fast speech and the subsequent assignment of social weight to the fast-speech variant.

I take paragoge to be an old rule, one that may have arisen or, alternatively, been preserved as a result of the alternation of verb forms between the stem form and the suffixed form, e.g. tek/teke ‘take’/’taking’. (I think it likely that suffixed forms, at least of some verbs, have been a part of the pidgin from the outset. Whether the suffix was meaningfully interpreted is an entirely different question.) While deletion and glottal-stop formation are alike in correlating with more mesolectal speech, I think that their histories are quite different. Glottal-stop formation, it seems to me, is a rule that has been introduced to the baseline from the mesolect, a rule that is working its way down. Deletion, on the other hand, is surely a rule of long standing. After all, for lexical items other than verbs, deletion is the primary strategy used by all of the baseline to address the problem of the word-final consonant. (And where resyllabification is not an option, deletion is the only strategy for these words.) I have presented arguments as to why deletion is more compatible with mesolectal language and paragoge less compatible. If the two rules are both ones of long standing, the question arises as to how the social differentiation that exists between them came to be put into practice. I would suggest that, so long as the two rules co-existed, paragoge was the dominant rule for verbs. Then, as paragoge took on a negative social evaluation, less basilectal speakers would have begun to stop using it so much, the increased use of deletion arising to fill the vacuum. The fact that it is not the increased presence of verb-final consonants that replaces paragoge but rather an increased occurrence of deletion fits in with an observation by Washabaugh [1977:334] that the “strongest motive for variation in decreolization is the pressure to avoid the basilect, not the pressure to acquire the acrolect”. That is, paragoge is shunned, but English verbs with their final consonants intact are not adopted. While less basilectal speakers

---

32 Glottal stops have no status in Loma [David Dwyer, p.c.] or in Liberia’s Mande languages in general. As far as I know, the only use of glottal stops in the phonology of any of Liberia’s Niger-Congo languages involves the Jiao (Sasstown) dialect of the Kru language Klao, where a glottal stop has replaced /kf/. It is possible that the rule has come into Liberian English from other varieties of English, in particular Liberian Settler English. This variety is spoken by those whose ancestors were the African-American immigrants to Liberia in the nineteenth century (cf. Singler [1989]). The existence of such a rule in this variety could have given rise to the mesolectal pidgin rule.
would have been making the switch from paragoge to deletion, more basilectal speakers would have done so less vigorously if at all. The result of change in the upper basilect and a relative lack of change in the lower basilect would yield the social differentiation that obtains today.

Given its social standing, the question arises as to the future of paragoge. Formal education in English has entered the Mande-speaking area; since the 1960’s elementary schools have been ubiquitous even though attendance is not universal and the dropout rate overwhelming. The presence of the schools has had the effect of introducing the mesolect into the region itself, a development that may well hasten the decline of paragoge. The disappearance of this rule, if it comes to pass, should not be equated with the disappearance of Mande influence on LIE syllable structure conditions, for this is an influence that persists, not only in the basilect but also in the mesolect and beyond.
APPENDIX

Probabilities for paragoge, resyllabification, deletion, and glottal-stop formation, all factor groups

Listed below for each rule are those factor groups that are statistically significant for its operation. They are listed in order of decreasing statistical significance. The threshold for statistical significance is \( p < .05 \).

**PARAGOGÉ**

<table>
<thead>
<tr>
<th>More basilectal speakers</th>
<th>Less basilectal speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vowel Height</strong></td>
<td></td>
</tr>
<tr>
<td>high</td>
<td>.25</td>
</tr>
<tr>
<td>mid</td>
<td>.80</td>
</tr>
<tr>
<td>low</td>
<td>.43</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Verb-final consonant</strong></td>
<td></td>
</tr>
<tr>
<td>/p/</td>
<td>.85</td>
</tr>
<tr>
<td>/t/</td>
<td>.29</td>
</tr>
<tr>
<td>/k/</td>
<td>.45</td>
</tr>
<tr>
<td>/v/</td>
<td>.43</td>
</tr>
<tr>
<td>/s/</td>
<td>.69</td>
</tr>
<tr>
<td>/l/</td>
<td>.25</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Following grammatical environment</strong></td>
<td><strong>Following grammatical environment</strong></td>
</tr>
<tr>
<td>NP</td>
<td>.72</td>
</tr>
<tr>
<td>pronoun</td>
<td>.34</td>
</tr>
<tr>
<td>adverb/PP</td>
<td>.42</td>
</tr>
<tr>
<td>particle</td>
<td>(.00)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>input</td>
<td>.49</td>
</tr>
<tr>
<td>p &lt; .000</td>
<td></td>
</tr>
</tbody>
</table>

**Less basilectal speakers**

<table>
<thead>
<tr>
<th>Following phonological environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>consonant</td>
</tr>
<tr>
<td>vowel</td>
</tr>
<tr>
<td>pause</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Verb-final consonant</strong></td>
</tr>
<tr>
<td>/p/</td>
</tr>
<tr>
<td>/t/</td>
</tr>
<tr>
<td>/k/</td>
</tr>
<tr>
<td>/v/</td>
</tr>
<tr>
<td>/s/</td>
</tr>
<tr>
<td>/l/</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Following grammatical environment</strong></td>
</tr>
<tr>
<td>NP</td>
</tr>
<tr>
<td>pronoun</td>
</tr>
<tr>
<td>adverb/PP</td>
</tr>
<tr>
<td>particle</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Vowel height</strong></td>
</tr>
<tr>
<td>mid</td>
</tr>
<tr>
<td>non-mid</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>input</td>
</tr>
<tr>
<td>p &lt; .035</td>
</tr>
</tbody>
</table>
**RESYLLABIFICATION**

<table>
<thead>
<tr>
<th>Following grammatical environment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NP</td>
<td>.10</td>
</tr>
<tr>
<td>pronoun</td>
<td>.93</td>
</tr>
<tr>
<td>adverb/PP</td>
<td>.37</td>
</tr>
<tr>
<td>particle</td>
<td>.53</td>
</tr>
</tbody>
</table>

Final consonant plus following phonological element

| /s/-nasal                         | .90 |
| stop-V                            | .84 |
| stop-/h/                          | .62 |
| stop-liquid                       | .57 |
| nonstop-V                         | .17 |

**DELETION**

<table>
<thead>
<tr>
<th>Verb-final consonant</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/</td>
<td>(.00)</td>
</tr>
<tr>
<td>/t/</td>
<td>.67</td>
</tr>
<tr>
<td>/k/</td>
<td>.35</td>
</tr>
<tr>
<td>/v/</td>
<td>.40</td>
</tr>
<tr>
<td>/s/</td>
<td>.13</td>
</tr>
<tr>
<td>/l/</td>
<td>.90</td>
</tr>
</tbody>
</table>

**Speaker**

| Blaster            | .80 |
| Bottlepicker       | .75 |
| French Soldier     | .63 |
| PFC                | .66 |
| Tailor             | .07 |
| Tapper             | .22 |

**Frequency of occurrence**

| frequent            | .14 |
| infrequent          | .86 |

**Following phonological environment**

| consonant           | .77 |
| vowel               | .08 |
| pause               | .78 |

**Following grammatical environment**

| NP                  | .31 |
| pronoun             | .51 |
| adverb/PP           | .69 |
| particle            | .48 |

input  

| input | .56 |
| p < .001 |  |
GLOTTAL-STOP FORMATION

Following grammatical environment

NP, adverb/PP .80
PRO, particle .20

Speaker/following phonological environment

Blaster, Bottlepicker/vowel .77
All other tokens .23

Frequency of occurrence

frequent .72
infrequent .28

input .09
p < .045

REFERENCES


SWATI AND KIKUYU REDUPLICATION:
EVIDENCE AGAINST EXHAUSTIVE COPY*

Long Peng
National University of Singapore

This paper addresses the central question of deriving shape-invariance of partial reduplication in two competing models of reduplication: Selective Copy [McCarthy and Prince 1986, 1988, and 1990] and Exhaustive Copy [Steriade 1988]. I show that the core difference lies in the fact that whereas Selective Copy favors prosodic templates, Exhaustive Copy selects parameters defined in terms of prosodic units. This distinction is examined against Swati diminutive reduplication which shows the base-independent vowel a. Crucially, to insert a requires access to segmentally unspecified prosodic units. Under Selective Copy, prosodic templates provide exactly the structures for defining insertion. In contrast, Exhaustive Copy cannot provide an internally consistent mechanism to express a insertion, with its reliance on parameters. This incapability reveals a larger problem confronting Exhaustive Copy: how to account for reduplication involving base expansion rather than base reduction. Unless a mechanism is found, Exhaustive Copy, with its parameter approach, is unable to explain base-expansion cases in reduplication.

0. Introduction

Two intriguing properties of reduplicative affixes are first, that they are invariant in shape and second, that their segmental makeup is dependent upon the base to which they are attached. Previous autosegmental explanations of shape-

* This paper would not have been written without considerable help and encouragement from Diana Archangeli and Mike Hammond. In addition, I am grateful to Jean Ann and Russell Schuh, whose comments have helped to clarify and focus my writing. I have presented a previous version of this paper at Arizona Phonology Conference III; discussions with the conference participants and in particular Kelly Sloan and Cari Spring are gratefully acknowledged. I would also like to thank Peter Mwangi for discussing and doublechecking the Kikuyu data presented here. My research on Swati and Kikuyu is made possible partially by a grant from the Graduate Student Program Development Fund at the University of Arizona.
invariance and base-dependent melody adopt two mechanisms: (i) a skeletal template to account for the consistency in weight and (ii) a copying mechanism that transfers base segmental content into a reduplicative template [Marantz 1982, Broselow and McCarthy 1984, Levin 1985]. These accounts have since come under attack for a number of reasons. One major criticism concerns the unconstrained nature of templates; in principle, any string of skeletal slots can be licensed as a template under these earlier accounts [Clements 1985, McCarthy and Prince 1986, 1988, Steriade 1988].

To cope with this problem, McCarthy and Prince [1986, 1988] show that reduplicative affixes are best defined by prosodic templates: (i) core syllables \( \sigma_c \), (ii) light syllables \( \sigma_l \), (iii) heavy syllables \( \sigma_{hh} \), (iv) syllables \( \sigma \), (v) bimoraic feet \( F_{hh} \), (vi) iambic feet \( F_{ll} \), (vii) disyllabic feet \( F_{lll} \), and (viii) prosodic words. An immediate consequence of imposing prosodic constituency on reduplicative templates is that it severely reduces the number of templates predicted in natural languages. McCarthy and Prince [1986, 1988] exploit a copying mechanism as well. Copying takes two forms: (i) an entire sequence of base segmental melody can be targeted for copying; or (ii) a portion of it can be targeted for copying as long as that portion is prosodically defined or “circumscribed” [McCarthy and Prince 1990]. In either case, copying is selective in that it excludes suprasegmental structures. Hence, I will refer to this model as Selective Copy.

In contrast, Steriade [1988] advocates a parametric approach to reduplication. Under her proposal, shape-invariance results from an interplay of weight and syllable markedness parameters. Among the weight parameters are (i) light syllables, (ii) monosyllabic feet, (iii) bimoraic feet, and (iv) disyllabic feet. These weight parameters differ from prosodic templates posited by Selective Copy. They are not templates that possess independent prosodic structures. Yet formally, weight parameters are stated in terms of prosodic units that specify which prosodic constituent is targeted as the reduplicant. This conception of weight parameters forces a different copying apparatus. Copying must be exhaustive: it must target both the segmental melody and the prosodic structure of the base. This is critical; without the prosodic structures of the base, weight parameters cannot determine which unit of the copied base is to be retained as the reduplicant. In what follows, I refer to this model as Exhaustive Copy.

This contrast demonstrates two radical differences between Selective Copy and Exhaustive Copy: (i) templates vs. parameters and (ii) selective vs. exhaustive copying. These differences impose an additional contrast in expressing the insertion of base-independent melody. Whereas insertion can make reference to the prosodic units of a template with Selective Copy, it cannot rely on parameters.
with Exhaustive Copy. Insertion can and must be defined by the existing prosodic structure of the copied base.

This distinction becomes significant in examining diminutive reduplication in Swati. A critical property of Swati reduplication is that a base-independent\(^2\) vowel \(a\) surfaces in a reduplicant only when a base cannot supply sufficient melody for a foot-sized reduplicant: *lingi-*lingis ‘resemble a little’ vs. *goba-*gob ‘bend a little’. The question addressed here is whether or not these two proposals can express \(a\) insertion. I demonstrate that \(a\) insertion cannot be formally stated by Exhaustive Copy. Crucial to the argument is that an insufficient base is lacking not only in segmental melody but also in the prosodic constituency essential for defining the locus of insertion.

Motivation for an insertion treatment takes two steps. First, internal evidence from passive formations suggests that \(l\) functions as the default vowel—not \(a\) in Swati. Second, \(a\) behaves in Kikuyu\(^3\) like an archetypical instance of “prespecification” in that it overrides any vowel in the base. Considering that Kikuyu and Swati are both members of the Bantu family and that diminutive reduplication is a common property of Bantu morphology [Meinhof 1932], there is an advantage in treating Swati \(a\) on a par with Kikuyu \(a\) since the former cannot be filled in by default.

The layout of this paper is as follows: Section 1 contrasts the two models of reduplication through examples from Tagalog. Section 2 applies Selective Copy to an account of Swati and Kikuyu reduplication. In particular, I demonstrate that Swati \(a\) requires an insertion treatment. Section 3 spells out the argument against Exhaustive Copy from Swati \(a\). I demonstrate that a fundamental flaw with Exhaustive Copy lies in its inability to deal with cases of reduplication which require base expansion, rather than base reduction. Section 4 concludes with further consideration of the templatic vs. parametric opposition for an unified theory of morphology.

---

\(^2\)A base-independent melody refers to (i) a melody of the reduplicant that overrides a corresponding segment in the base, e.g. *cara-*cargk ‘pop a little’ in Kikuyu or (ii) a melody that cannot be supplied by a base too small for the reduplicant, e.g. *goba-*gob ‘bend a little’ in Swati. In either case, they are independent of the base from which a reduplicant is derived. As a term, base-independent is purely descriptive; it does not carry any theoretical connotation. In this regard, base-independent is to be distinguished from prespecification, which carries both a theoretical and descriptive sense. Theoretically, prespecification refers to prelinking to a template. Descriptively, prespecification is equivalent to (i). Occasionally, I have to refer to prespecification in its descriptive sense. In such cases, “prespecification” is quoted to distinguish it from prespecification in its theoretical sense, which is not in quotation.

\(^3\) Swati is a Bantu language, which is spoken in some areas of South Africa and Mozambique. Kikuyu is a Bantu language spoken in Kenya. Diminutive reduplications presented here are not limited to Swati and Kikuyu. Reduplications with similar semantic and phonological properties are abundant in the languages of the Bantu family [Meinhof 1932]. For instance, Kinande is another case with similar reduplications analysed in detail by Mutaka and Hyman [1990].
1. Two Models of Reduplication.

An important conceptual contrast between Selective Copy and Exhaustive Copy is how a shape-invariant reduplicant is derived. With Selective Copy, a single prosodic template is sufficient to explain a given reduplicative process in a language. Under Exhaustive Copy, an identical reduplicative affix can be accounted for by one or a subset of weight and syllabic markedness parameters. A consequence of the difference is that whereas Selective Copy posits a single core syllable (σ_c) template, Exhaustive Copy relies on the interaction of two parameters. A further contrast that will emerge from this discussion is how copying is executed by the two proposals; Exhaustive Copy, not Selective Copy, is forced to target both segmental and prosodic information for copying.

The differences in templates versus parameters and selective versus exhaustive copying have a significant impact on the formal expression of base-independent melody. Crucially, it will be shown that base-independent melody can be stated only through insertion into a prosodic position of the copied base by Exhaustive Copy. This is because parameters are not constituents with prosodic structures. But Selective Copy is not similarly restricted. Base-independent melody can be accounted for by either prespecification and insertion into a prosodic template.

1.1. Selective Copy. Recall that Selective Copy relies on prosodic templates which include (i) core syllables (σ_c), (ii) light syllables (σ_μ), (iii) heavy syllables (σ_μμ), (iv) syllables (σ), (v) bimoraic feet (F_μμ), (vi) iambic feet (F_μμμ), (vii) disyllabic feet (F_σσ), and (viii) prosodic words. Of particular interest to this demonstration is the core syllable template (σ_c). A core syllable is universally defined as consisting maximally of a CV sequence. An empirical consequence of this template is that it simplifies complex onsets; for a maximum of one onset consonant is sanctioned by σ_c.

Consider the Tagalog Recent Perfective reduplication in (1). As shown in (1a), consonant clusters are licensed as the syllable onset (tr in trabaho). But in the reduplicant, tr is reduced to t.

(1) a. ka-ta-trabaho ‘just finished working’
   b. ka-ga-galit ‘just got mad’

---

4 This statement should not be taken to mean that Selective Copy is simpler than Exhaustive Copy since it requires one template. Templates and parameters are theoretical apparatuses built into the two models of reduplication. Their significance does not lie in the numerical value but in their ability to handle the empirical data. Numbers are used only to highlight the different ways in which a reduplicant is derived.

5 For clarity, the reduplicant is underlined; a dash is used to mark morpheme boundaries. Where ambiguous, a period is inserted to indicate syllable boundaries.
McCarthy and Prince [1986] posit a core syllable template $\sigma_c$ to derive the reduplicant. A derivation for *ka-ta-trabaho* is illustrated in two steps. The diagram in (2a) shows that a $\sigma_c$ template is prefixed and the entire segmental melody is copied to the left of the base. The diagram in (2b) is the result of the left-to-right mapping.

$$
\begin{array}{l}
(2) \quad \text{a. } \sigma_c \\
\quad \text{trabaho} \quad t \quad r \quad a \quad b \quad a \quad h \quad o
\end{array} \quad \rightarrow \quad \\
\begin{array}{l}
\quad \text{b. } \sigma_c \\
\quad \text{trabaho} \quad t \quad r \quad a \quad b \quad a \quad h \quad o
\end{array}
$$

Two points need to be emphasized. First, $t$ alone saturates the onset of $\sigma_c$, given the definition of core syllables. Second, copying selects only the segmental information. The empirical effect is that a single template not only derives the base-dependent melody but also functions to eliminate the non-initial onset consonant $r$ in the reduplicant.

1.2. Exhaustive Copy. In direct contrast with prosodic templates, parameters of weight and syllabic markedness constitute an important component of the formal machinery required by Exhaustive Copy. These parameters serve as instructions which are executed by satisfaction procedures. An illustration of parameters and satisfaction procedures is shown below:

(3) Exhaustive Copy [Steriade 1988]

a. Weight Parameters:
   - whether copy is monosyllabic or polysyllabic
   - if monosyllabic, whether light or heavy

b. Parameters of syllabic markedness:
   - are complex onsets permissible
   ...

c. Satisfaction Procedures:
   - monosyllabic template: eliminate all but the first/last syllable
   - no complex onsets: eliminate all but initial segment in onset

Note that weight parameters are defined in terms of prosodic constituents such as syllables. Consequently, for a weight parameter to be executed by satisfaction procedures, there must be prosodic constituents in the copied base.
Of interest to the reduplication in Tagalog are two parameters: (i) light syllable and (ii) complex onset. The settings for the two parameters are given in (4a). These settings are then executed by the satisfaction procedures in (4b):

(4) Analysis of Tagalog Recent Perfective Reduplication

a. Weight: unfootable domain (= light syllable)
   Complex Onset: unmarked setting (onset may not be complex)

b. Satisfaction Procedures:
   - monosyllabic template: eliminate all but the first syllable
   - no complex onsets: eliminate all but initial segment in onset

Since the Tagalog reduplication is prefixal, the satisfaction procedure eliminates all but the first syllable. A derivation of ka-ta-trabaho ‘just finished working’ demonstrates how weight and syllabic markedness parameters are executed. My notations in (5) follow Steriade [1988] who maintains that syllables are composed of onsets (O) and rhymes (R). In (5a) is a full copy of the base including both segmental melody and syllable structure. The structure in (5b) results from executing the weight parameter by means of the satisfaction procedure. The noninitial onset consonant r is removed through the complex onset parameter, as shown in (5c).

(5) a. b. c.

What is important here is (i) the reduplicative affix is obtained by carrying out two parameters of weight and syllable markedness, as shown in (5b) and (5c) and (ii) copying is exhaustive in that it must target the syllabic structure as well as the segmental melody (5a). Moreover, exhaustive copying is a necessity driven by parameters that are themselves defined in terms of prosodic constituents.

What this demonstration points to are two radical differences between Selective Copy and Exhaustive Copy: (i) templates versus parameters and (ii) selective versus exhaustive copying. More importantly, the above differences necessitate a further contrast in how the two models treat base-independent melody in reduplication.
1.3. Base-independent melody. An important fact about base-independent melody is that it appears at a specific prosodic position of the reduplicant. If prespecification is invoked as the mechanism, a template with prosodic structures is needed. If insertion is invoked, there must be prosodic constituency to define the locus of insertion. Under Selective Copy, reduplicative templates possess prosodic structures; therefore, prelinking to or insertion into a prosodic template are possible from a theoretical point of view. But with Exhaustive Copy, there is one and only one option; insertion must be defined by the prosodic constituency of the copied base.

As an illustration, let's consider how these two models treat the base-independent vowel \( a \) in \( \text{cara-carek} \) ‘pop a little’ in Kikuyu. One option with Selective Copy is to posit a template with a prelinked \( a \), as shown in (6a). Left-to-right mapping stops when the template is saturated by \( \text{car} \) together with the prelinked melody, as shown in (6b):

\[
(6) \text{Prespecification} \\
\begin{align*}
\text{(a)} & \quad \text{F} \\
& \quad \sigma \sigma \\
& \quad \mu \mu \mu \\
& \quad a \\
& \quad \text{c a r e k} \quad \text{c a r e k} \\
\rightarrow & \quad \text{c a r e k} \quad \text{c a r e k} \\
\text{(b)} & \quad \text{F} \\
& \quad \sigma \sigma \\
& \quad \mu \mu \mu \\
& \quad a \\
& \quad \text{c a r e k} \quad \text{c a r e k} \\
& \quad \text{c a r e k} \quad \text{c a r e k}
\end{align*}
\]

A second option with Selective Copy is through insertion. The locus of insertion can be defined as the nucleus position of the second syllable in the template. The diagram in (7c) shows the effect of the insertion:

\[
(7) \text{Insertion} \\
\begin{align*}
\text{(a)} & \quad \text{F} \\
& \quad \sigma \sigma \\
& \quad \mu \mu \mu \\
& \quad \text{c a r e k} \quad \text{c a r e k} \\
\rightarrow & \quad \text{c a r e k} \quad \text{c a r e k} \\
\text{(b)} & \quad \text{F} \\
& \quad \sigma \sigma \\
& \quad \mu \mu \mu \\
& \quad \text{c a r e k} \quad \text{c a r e k} \\
\rightarrow & \quad \text{c a r e k} \quad \text{c a r e k} \\
\text{(c)} & \quad \text{F} \\
& \quad \sigma \sigma \\
& \quad \mu \mu \mu \\
& \quad \text{c a r e k} \quad \text{c a r e k} \\
\rightarrow & \quad \text{c a r a k} \quad \text{c a r e k}
\end{align*}
\]
Note that insertion into a template is possible because templates come with prosodic constituency under Selective Copy.

But prespecification is not possible with Exhaustive Copy. Insertion into a template is impossible as well because weight parameters are not templates with prosodic structures. However, as Steriade [1988] has argued, insertion can be defined by the prosodic constituency of the copied base. In this case, a insertion can be stated as “insert a into the nucleus position of the second syllable in the copied base”. In (8a) we see a full copy of the base. Diagram (8b) shows the result of executing a disyllabic foot parameter. Insertion into the copied base is illustrated in (8c).

(8) Insertion into the copied base

\[
\begin{align*}
\text{a.} & \quad \text{F} & \quad \text{F} \\
& \quad \sigma & \quad \sigma
\end{align*}
\]

\[
\begin{align*}
\quad \text{ORORO} & \quad \text{ORORO} \\
\quad \text{ca re k} & \quad \text{ca re k}
\end{align*}
\]

\[
\rightarrow \quad \text{ca re} \quad \text{ca re k}
\]

\[
\begin{align*}
\text{b.} & \quad \text{F} & \quad \text{F} \\
& \quad \sigma & \quad \sigma
\end{align*}
\]

\[
\begin{align*}
\quad \text{OROR} & \quad \text{ORORO} \\
\quad \text{ca re} & \quad \text{ca re k}
\end{align*}
\]

\[
\rightarrow \quad \text{ca re} \quad \text{ca re k}
\]

\[
\begin{align*}
\text{c.} & \quad \text{F} & \quad \text{F} \\
& \quad \sigma & \quad \sigma
\end{align*}
\]

\[
\begin{align*}
\quad \text{OROR} & \quad \text{ORORO} \\
\quad \text{ca re} & \quad \text{ca re k}
\end{align*}
\]

It must be pointed out here that templates supply the prosodic structure in (6) and (7), but the base supplies the prosodic structure in (8).

The templatic vs. parametric difference matters in a language where the base is smaller in weight than the reduplicant. Imagine a language which possesses a foot-sized reduplication that is derived from a CV syllable (CVCa-CV). Further, a is base-independent. Under Selective Copy, this a can be derived via prespecification (6) or insertion into a template (7). However, insertion into the copied base is the only option with Exhaustive Copy. By being smaller than a foot, the copied base lacks the exact prosodic structure needed to define the locus of insertion as shown by the parentheses:

(9) \[
\begin{align*}
\sigma & \quad \sigma & \quad \sigma \\
\text{OR} & \quad \text{OR} & \quad \text{OR}
\end{align*}
\]

\[
\begin{align*}
\text{cv} & \quad \text{cv} (\quad ) \quad \text{cv}
\end{align*}
\]

An exhaustive copy of a CV syllable yields only another CV syllable. If the base-independent melody must be defined on the basis of the copied base, then there is
no prosodic structure upon which the insertion can be defined. I argue that Swati reduplication presents such an instance of reduplication. Consequently, it provides evidence against Exhaustive Copy.

2. For Selective Copy

Two crucial properties of Selective Copy are its prosodic templates and selective copying apparatus. These properties provide an appealing account of Swati reduplication. In particular, it is argued that (i) the Swati reduplicative affix manipulates a foot-sized template and (ii) the base-independent a is to be treated on a par with archetypical cases of “prespecification.” Evidence for (i) stems from the C and CVC roots which inevitably surface with a foot reduplicant. With regard to (ii) independent evidence in Swati demonstrates that I is the default segment, not a. Further evidence for (ii) comes from the base-independent a in diminutive reduplication of Kikuyu.

Kikuyu reduplication is important as a comparison with Swati. Like Swati, Kikuyu manipulates a foot-sized reduplicant as a marker of diminutives. Moreover, the base-independent melody a is present in both languages. Kikuyu a is in every respect a typical case of “prespecification” in that it overrides any existing melody in the base. This fact, together with evidence for a default i in Swati, supports an unified account of the Kikuyu and Swati base-independent melodies, namely, via insertion. I discuss Swati reduplication in §2.1 before moving on to an analysis of Kikuyu reduplication in §2.2. Section 2.3 establishes insertion as the mechanism of stating base-independent melody to the exclusion of prespecification.

2.1. Swati reduplication. One significant aspect of diminutive reduplication concerns the base-independent vowel a in Swati. In particular, we will see that this vowel surfaces only where the base fails to supply sufficient melody, and it is not limited to a given position in the reduplicant. These two properties of Swati a are directly opposed to Kikuyu a considered in §2.2. First, Kikuyu a is present whether the base can or cannot provide the required melody. Second, Kikuyu a is constrained to a specific location of the template. These differences might suggest that Swati a is a default vowel while Kikuyu a is an instance of “prespecification” in the sense of McCarthy and Prince [1986] and Steriade [1988]. In §2.1.2, I provide an independent argument against a default a in Swati. The analysis of the Swati reduplication is presented in §2.1.1.

---

6 Swati reduplication data are taken from Ziervogel and Mabuza [1976]. I follow their orthographic system in this paper. Note that all sequences of adjacent consonants are to be treated as a single segment.
2.1.1. Analysis. First, consider how CVCVC verbs reduplicate in Swati. As shown in (10), the leftmost CVCV sequence is copied and prefixed to the base:

(10) CVCVC Verbs: CVCVC → CVC-CVCV

a. lingis ‘resemble’ → lingi-lingis ‘resemble a little’
   b. khulum ‘talk’ → khulu-khulum ‘talk a little’

Note that no base-independent melody is present in the reduplicative affixes of (10). Examination of CVC verbs shows a somewhat distinct pattern in (11). In particular, the reduplicant surfaces with a full copy of the base together with the base-independent vowel a.

(11) CVC Verbs: CVC → CVCa-CVC

a. gob ‘bend’ → goba-gob ‘bend a little’
   b. dlal ‘play’ → dlala-dlal ‘play a little’

This same a is observed in VC verbs as well. What distinguishes CVC from VC roots is the presence of y in the latter.

(12) VC Verbs: VC → VCa-yVC

a. os ‘roast’ → osa-yos ‘roast a little’
   b. ent ‘do’ → enta-yent ‘do a little’

A further property of a is revealed by C verbs in (13) where a appears right after the root consonant in the first syllable of the reduplicative affix. In addition, yi is filled in to make up the second syllable:

(13) C Verbs: C → Cayi-C

a. n ‘rain’ → nayi-n ‘rain a little’
   b. dl ‘eat’ → dlayi-dl ‘eat a little’

---

7Reduplication data presented in (10) through (13) involve C, VC, CVC, CVCVC roots. According to Ziervogel and Mabuza [1976], CV and CVCV roots are not attested in Swati. VCVC roots are attested. However, the initial vowel of VCVC roots is “latent”; that is, it is not present at the time when reduplication takes place. Thus, VCVC roots behave in all respects like CVC roots.
To summarize, $a$ is filled in only when the base fails to supply sufficient segmental melody: *lingi-lingis* vs. *goba-gob* or *osa-yos*, and $a$ is not fixed to any specific location in the reduplicant: *goba-gob* or *osa-yos* vs. *nayi-n*.

Apart from the base-independent $a$, a recurring pattern of the reduplicative affix from (10) to (13) is that it is invariantly disyllabic. This shape-invariant property of Swati reduplication is quite robust, because three additional segments can be epenthesized to meet the disyllabic requirement. I take this to indicate that Swati diminutive reduplication manipulates a disyllabic template. Further evidence for disyllabicity will be shown in §2.1.2.

One additional aspect of Swati reduplication that calls for explanation is the presence of $y$ in both (12) and (13). I argue below that $y$ epenthesis is conditioned by a phonotactic constraint banning vowel clusters in Swati. Evidence for this constraint comes from vowel elision present in both compounding and *-ana* suffixation. In verb-noun compounding, we see the elision of the second vowel when a vowel-final verb is combined with a vowel-initial noun, as shown in (14):

(14) **Verb-Noun Compounding**

- a. cosha + indvodza $\rightarrow$ ema-cosha-ndvodza  ‘ashes’
- b. phandza + ematala $\rightarrow$ im-phandza-matala  ‘fowl’

With regard to *-ana*, a diminutive suffix of nouns, we see the deletion of the first vowel when *-ana* is suffixed to a noun that ends with a vowel:

(15) **-ana Suffixation**

- a. lilawu -ana $\rightarrow$ lilaw-ana  ‘boys’ hut’
- b. ligwayi -ana $\rightarrow$ ligway-ana  ‘tobacco’

Taking (14) and (15) together, we see that two points are evident. First, Swati does not tolerate vowel clusters. Second, $a$ remains after vowel elision in cases where two vowels come in contact, one of which is $a$.

These facts suggest one plausible explanation for $y$ epenthesis. In (12) and (13), vowel clusters made up of $a$ and some other vowel would result without $y$ epenthesis. According to (14) and (15) vowel elision would be a natural means to resolve vowel clusters. However, deletion is not desirable for reduplication. In the case of *VCa-VC* in (12), to delete the second vowel would result in *VCa-C*. Even though this representation does not violate the disyllabic constraint on the reduplicant, its surface result would not be distinguishable from a simple C

---

8.Russell Schuh [p.c.] suggests that the Sonority Hierarchy can explain why $a$ surfaces in vowel deletion. More sonorous than any other vowel, $a$ is expected to be preserved in vowel deletion. Further investigation of Swati indicates that the data are consistent with this observation.
reduplication in (13). With regard to Cayi-C in (13), the elision of the second vowel would render the reduplicative prefix smaller than the required disyllabic foot. Thus y is called for in reduplication to resolve a constraint violation that cannot be handled by elision.

A preliminary account of Swati reduplication is provided on the basis of Selective Copy in (16):

(16) a. Prefix a disyllabic template.
   b. Copy the base melody.
   c. Map the base melody from left to right.
   d. Insert a in an empty position of the template from left to right.
   e. Insert i in an empty position of the template.
   f. Insert y between two adjacent vowels.
   g. Erase stray segments.

Of importance here is that a insertion is conditioned by an unfilled template. This is possible because a given prosodic template licenses a particular sequence of segmental melody.

A yet unmotivated aspect of (16) is that a, i, and y are all stated through insertion. As §2.1.2 will show, there is a default segment in Swati, represented as [+high, -low, -back]. This default segment, which I represent as I, has two surface realizations. I shows up as i when functioning as the syllable nucleus. I appears as y when it serves as the onset. As suggested by Russell Schuh [p.c.], one appealing consequence of deriving both i and y from I (that is, [+high, -low, -back]) is that it explains why y appears as the onset, rather than w or glottal stop.

This proposal has two implications for (16). First, i and y insertions need not be stated as a rule. Their appearances can be viewed as an automatic consequence of filling in [+high, -low, -back] that is left unspecified in underlying representation. Second, a ought to be expressed via either insertion or prespecification. For the moment, I assume insertion to be the mechanism for deriving a, i, and y in the reduplicant.

Consider now a step-by-step derivation of a C verb. In (17a) a foot template is prefixed, together with a copy of the base. Mapping in (17b) scans leftwards and incorporates the only base consonant into the template. Diagrams (17c) and (17d) show the result of a and i insertion. Since a and i create a vowel sequence, y is epenthesized in (17e):
In contrast with (17), consider another derivation of a CVCVC verb. We see in (18b) that the initial CVCV sequence is mapped into the foot template. Rules (16d) through (16f) are either blocked because the template is already saturated or inapplicable when there is no conditioning environment for \( y \) epenthesis. Since no coda consonant is allowed in a syllable, \( m \) is erased through (16g).

This account of the base-independent melodies relies on an important component of Selective Copy: prosodic templates. By definition, a template is a prosodic architecture unspecified for segmental melodies. This makes it possible to refer to an unspecified prosodic position in the template. As demonstrated by the contrast between CVCVC and C/VC/CVC roots, access to an unfilled prosodic position is crucial in defining the locus of insertion.

2.1.2. For the default \( I \). The above examination of Swati reduplication has identified two properties of the base-independent \( a \). First, its appearance is conditioned by an unfilled template. Second, it is not restricted to a single position in the reduplicant. Donca Steriade [p.c.] suggests that these two attributes may lead to the conclusion that \( a \) is a default vowel in that it is devoid of featural content in underlying representation and its features are filled in via
redundancy rules. It turns out, however, that Swati passive conjugations suggest that I is the default segment, not a. Crucially, I must function as the syllable nucleus, thus appearing as i in passive conjugations.

Formation of simple passive takes one of the two suffixes w and iw. I argue that w is the underlying form and i surfaces only when the passive verb is less than two syllables. Motivation for a disyllabic constraint on passive formation comes also from passive perfect conjugations in Swati. Two results will emerge from this discussion. First, I is the default segment, surfacing as i in passive formations. Second, the disyllabic constraint imposed on reduplicative affixes is evidenced independently in passive formation.

Simple passive can be formed by attaching either one of the two suffixes: w and iw. When the passive suffix is attached to a CVC or longer root, only w is added, appearing between the root and the final vowel (FV).

\[(19)\]
\[
\begin{array}{llll}
\text{Root} & \text{Root + FV} & \text{Simp. Pass.} & \text{Gloss} \\
\hline
\text{a. val} & \text{val-a} & \text{val-w-a} & \text{`close’} \\
\text{b. esus} & \text{esus-a} & \text{esus-w-a} & \text{`take away’} \\
\text{c. jikijel} & \text{jikijel-a} & \text{jikijel-w-a} & \text{`throw’} \\
\end{array}
\]

Note in (19) that surface forms of simple passive are always two or more syllables.

In contrast, a verb consisting of a single consonant is passivized by suffixing not w but iw, as shown below:

\[(20)\]
\[
\begin{array}{llll}
\text{Root} & \text{Root + FV} & \text{Simp. Pass.} & \text{Gloss} \\
\hline
\text{a. dl} & \text{dl-a} & \text{dl-iw-a} & \text{`eat’} \\
\text{b. ph} & \text{ph-a} & \text{ph-iw-a} & \text{`give’} \\
\end{array}
\]

I argue that this variant iw is derived from an underlying w; i is filled in when a simple passive verb is less than disyllabic. This sensitivity to disyllabicitity is not only present in the formation of simple passive but also perfect passive.

First, consider how perfect verbs are conjugated. A CVC or longer root can take either a long perfect suffix ile or a short perfect suffix e.

\[(21)\]
\[
\begin{array}{llll}
\text{Root} & \text{Long Perf.} & \text{Short Perf.} & \text{Gloss} \\
\hline
\text{a. lahl} & \underline{\text{lahl}}-\underline{\text{ile}} & \text{lahl-e} & \text{‘throw away’} \\
\text{b. lahlek} & \underline{\text{lahlek}}-\underline{\text{ile}} & \text{lahlek-e} & \text{‘lose’} \\
\end{array}
\]
Similarly, a C verb can take a long perfect or a short perfect suffix:

(22) Root Long Perf. Short Perf. Gloss

a. *dl dl-ile dl-e ‘eat’
b. *ph ph-ile ph-e ‘give’

With CVC or longer roots, a long perfect can be rendered passive by substituting \( w \) for \( l \) in \( ile \) with \( w \); a short perfect can be passivized by inserting \( w \) before the perfect suffix \( e \):


a. lahl lahl-iwe lahl-w-e ‘throw away’
b. lahlek lahlek-iwe lahlek-w-e ‘lose’

But with respect to a C verb, Ziervogel and Mabuza [1976:83] note that it can have a long perfect passive, but not a short perfect passive.


a. *dl dl-iwe *dl-w-e ‘eat’
b. *ph ph-iwe *ph-w-e ‘give’

The explanation for the attested \( lahl-w-e \) versus the unattested \( *dl-w-e \) lies in the disyllabic constraint on passive formations, regardless of whether it is a simple passive or perfect passive. With respect to a CVC or larger root, suffixing \( w \) alone produces a disyllabic form, \( lahl-e \rightarrow lahl-w-e \). Yet attaching \( w \) to a C verb is insufficient to create a disyllabic short perfect passive since \( w \) can be syllabified as the onset with \( dl \) (25b). Consequently, \( l \) is needed to maximize the base to meet the disyllabic requirement on passive formation. As shown in (25c), \( l \) can appear only as \( i \) in order to create a surface disyllabic form.

(25) a. b. c.

\[
\begin{array}{c}
\sigma \\
\mu \\
\| \\
\mathrm{dl} \mathrm{e} \\
\end{array} \quad \rightarrow \quad \begin{array}{c}
\sigma \\
\mu \\
\| \\
\mathrm{dl} \mathrm{w} \mathrm{e} \\
\end{array} \quad \rightarrow \quad \begin{array}{c}
\sigma \\
\mu \\
\| \\
\| \\
\mathrm{dl} \mathrm{iw} \mathrm{e} \\
\end{array}
\]
Note that as a result, the distinction between a long perfect passive and a short perfect passive is completely neutralized on the surface. This account provides a straightforward explanation for Ziervogel and Mabuza’s [1976:83] observation regarding the absence of short perfect passives. Short perfect passives can be formed, but due to the disyllabic constraint, the form of the short perfect passive is rendered indistinguishable from the long perfect passive by the default insertion of $i$.

This unified account of simple and perfect passives hinges on two crucial points. First, $i$ is the default segment, not $a$. Second, formations of passive, simple or perfect passive, must make reference to disyllabicity. Thus, the passive conjugations constitute independent evidence for positing a disyllabic reduplicative template and treating $i$, not $a$, as the default segment.

With $i$ established as the default segment, we can simplify the analysis in (16). As shown in (26), $i$ and $y$ insertions need not be stated as a rule. Following Archangeli [1984], Archangeli and Pulleyblank [1989], and Abaglo and Archangeli [1989], a default segment is one that is not specified and its feature content is specified via redundancy rules.

(26) a. Prefix a disyllabic template.
   b. Copy the base melody.
   c. Map the base melody from left to right.
   d. Insert $a$ in an empty position of the template from left to right.
   f. Erase stray segments.

In Swati reduplication, $i$ and $y$ appear only when a template is not saturated. In the case of a CVCVC root, the disyllabic template can be satisfied with the copied base melody. With regard to a CVC or VC root, mapping of the base melody and $a$ insertion fill up the template. Only a C root verb cannot meet the disyllabic constraint only with the base melody and $a$. Consequently, $i$ and $y$ surface only if the root possesses a single consonant.

What is Swati $a$ if it is not a default melody? This is where Kikuyu base-independent melody becomes relevant. To be shown next, Kikuyu $a$ reveals the major trait of “prespecification”. As Kikuyu and Swati are related and both possess a disyllabic diminutive reduplication, it is natural to assume that Swati $a$ is a case of “prespecification” on a par with Kikuyu $a$.

2.2. Kikuyu reduplication.9 Two important properties of Kikuyu diminutive reduplication will become evident from this section. First, there is independent

---

9 Reduplication data in Kikuyu come from Barlow [1960], Sharp [1960], and Benson [1964]. My consultations with Peter Mwangi, a native speaker of Kikuyu, confirm the data discussed in this paper.
evidence from verb and noun morphology that motivates a disyllabic template. In addition, Kikuyu base-independent \( a \) is a typical case of "prespecification". In this section, I assume that Kikuyu \( a \) is inserted, postponing my motivation for insertion and against prespecification to §2.3.

Consider the following examples of reduplication from Kikuyu. In (27-28), we observe a copy of either an initial CVC or VC sequence from the base. However, in both cases, the base-independent vowel \( a \) emerges together with (C)VC sequences as part of the reduplicant.

(27) CVC... → CVC\( a \)-CVC...

a. CVC \( ror \) ‘see’ \( rora-ror \) ‘see a little’
b. CVCVC \( carek \) ‘pop’ \( cara-carek \) ‘pop a little’
c. CVCVCVC \( holg\text{otok} \) ‘wander’ \( holga-holg\text{otok} \) ‘wander a little’

(28) VC... → VC\( a \)-VC...

a. VC \( an\text{d} \) ‘set aside’ \( an\text{da}-an\text{d} \) ‘set aside a little’
b. VCVC \( i\theta\text{or} \) ‘yield’ \( i\theta\text{a}-i\theta\text{or} \) ‘yield a little’
c. VCVCVC \( a\theta\text{imor} \) ‘sneeze’ \( a\theta\text{a}-a\theta\text{imor} \) ‘sneeze a little’

With regard to the base-independent \( a \), it is evident from the contrast between (27a) and (27b, c) and between (28a) and (28b, c) that \( a \) can surface in a vacant position or override a corresponding segment in the base. Moreover, \( a \) consistently appears as the second syllable nucleus of the reduplicant.

An analysis of Kikuyu reduplication based on Selective Copy is presented in (29).

(29) a. Prefix a disyllabic template.
   b. Copy the base melody.
   c. Map the base melody from left to right.
   d. Insert \( a \) into the second syllable of the template.
   e. Erase stray segments.

Note that a disyllabic template is posited for Kikuyu. Notice also that \( a \) insertion makes reference to the prosodic constituent of the disyllabic template. Two derivations illustrate the analysis in (29).

Consider the derivation in (30) first. Diagram (30a) shows that a foot-sized template and a copy of base melody have been attached to the left of the base. Diagram (30b) presents the result of mapping, which associates the first four
segments with the template. Since Kikuyu forbids coda consonants, the final k is not incorporated into the template. In (30c), a is inserted, replacing the original vowel.

(30) *cara*-carek ‘pop a little’

Similarly, we observe in (31a) the affixing of the template and the copied base melody. (31b) links base melody with the template; (31c) inserts a into the template.

(31) *rora*-ror ‘see a little’

A critical component of this analysis is the disyllabic template. Evidence for disyllabicity comes from examining surface monosyllabic verbs in Kikuyu. A survey of Barlow [1960] and Benson [1964] shows that all verbs are minimally disyllabic, apart from a total of fifteen monosyllabic verbs. This result is confirmed independently by Sharp [1960]. A striking property of monosyllabic verbs is that they show up with disyllabic reduplicants:
(32) Reduplication of Monosyllabic Verbs

<table>
<thead>
<tr>
<th>Monosyllabic Verb</th>
<th>Reduplication</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>he</td>
<td>‘give’</td>
<td>hee.a-hee.a</td>
</tr>
<tr>
<td>ne</td>
<td>‘hand over’</td>
<td>nee.a-nee.a</td>
</tr>
<tr>
<td>te</td>
<td>‘discard’</td>
<td>tee.a-tee.a</td>
</tr>
<tr>
<td>rea</td>
<td>‘eat’</td>
<td>ree.a-ree-a</td>
</tr>
<tr>
<td>hoa</td>
<td>‘dry up’</td>
<td>hoo.a-hoo-a</td>
</tr>
<tr>
<td>kua</td>
<td>‘die’</td>
<td>kuu.a-kuu-a</td>
</tr>
</tbody>
</table>

A detailed analysis of (32) is beyond the scope of the paper, but see Peng [1990] for such an analysis.

This account of reduplication calls for two important mechanisms: (i) a disyllabic template and (ii) *a* insertion. Evidence from monosyllabic verbs shows that Kikuyu diminutive reduplication manipulates a disyllabic template. Furthermore, the data reveal two properties of the base-independent *a*: (i) *a* appears in any position, empty or occupied, and (ii) *a* is limited to the second syllable of the template. These two properties together establish Kikuyu *a* as a case of “prespecification”.

As pointed out earlier, Kikuyu and Swati are related in that both are Bantu languages. Moreover, their patterns of reduplication are similar in that (i) they both require a foot-sized template and (ii) they both fulfill the diminutive function. As shown in §2.1.2, the default segment is *I*, not *a* in Swati. As Kikuyu *a* behaves in every respect as a “prespecified” vowel, I conclude that Swati *a* is a case of “prespecification”.

Once the base independent *a* has been established as a “prespecified” vowel, the question to be addressed next is whether or not it can be formally expressed as prelinking to a template. I argue for insertion and against prespecification in the following section.

2.3. Against prespecification. Under Selective Copy, two logically plausible mechanisms are available for formalizing the base-independent melody: (i) insertion and (ii) prespecification. I have assumed insertion in my analyses of Kikuyu and Swati *a*’s. It is therefore important to determine whether or not prespecification can be invoked to explain the presence of the base-independent segment since my argument against Exhaustive Copy hinges on inserting *a*. I argue below that Swati base-independent segment defies a prespecification account. Moreover, evidence from other languages suggests that prespecification is ineffective as a means of expressing the base-independent phenomenon in reduplication [McCarthy and Prince 1986, 1988]. Furthermore, insertion has
been shown to be independently required in other phonological processes [Steriade 1988].

It should be emphasized that my arguments against Exhaustive Copy do not hinge on whether there is compelling evidence against prespecification in Kikuyu. Swati $a$-insertion alone constitutes the crux of the argument against Exhaustive Copy. In the preceding section, the data from passive formations exclude the possibility of treating $a$ as a default vowel. This section further eliminates prespecification as the mechanism for deriving the base-independent segment.

Reduplication data from Swati in (33) are of importance to the argument against prespecification. As marked by the down arrow, the base-independent vowel $a$ shifts in location in the reduplicant:

(33) CVC/VC vs. C Roots

\[
\begin{align*}
&\text{\underline{\text{a. goba-gob}} \quad \text{‘bend a little’} \quad \underline{\text{vs. nayi-n}} \quad \text{‘rain a little’}} \\
&\quad \underline{\text{\downarrow}} \\
&\text{\underline{\text{b. osa-yos}} \quad \text{‘roast a little’} \quad \underline{\text{vs. dlayi-dl}} \quad \text{‘eat a little’}}
\end{align*}
\]

Recall that $a$ does not appear when the base can supply sufficient melody, as in lingi-lingis ‘resemble a little’.

This behavior of the base-independent segment provides a compelling argument against prespecification. If prelinking were invoked, we would be forced to posit three templates: one with $a$ prespecified to the second syllable for CVC or VC roots and another one with $a$ prelinked to the first syllable for C roots. In addition, to explain the reduplication of CVCVC roots requires yet a third template with no prelinked melody. There are two problems with such an analysis. First, it complicates the analysis of Swati reduplication. Moreover, positing three templates loses the generalization that diminutive reduplication is a single morphological process.

Further consideration of base-independent phenomena from other languages argues against prespecification. McCarthy and Prince [1986] discusses a number of cases of reduplication involving base-independent melody. One case is Kolami word reduplication which shows the base-independent melodies $gi\hat{g}i\hat{i}$:

(34) Kolami Word Reduplication

\[
\begin{align*}
&\text{\underline{\text{a. pal}} \quad \underline{\text{pal-gil}} \quad \text{‘tooth’}} \\
&\text{\underline{\text{b. iir}} \quad \underline{\text{iir-giir}} \quad \text{‘water’}} \\
&\text{\underline{\text{c. kota}} \quad \underline{\text{kota-gita}} \quad \text{‘bring it’}} \\
&\text{\underline{\text{d. maasur}} \quad \underline{\text{maasur-giisur}} \quad \text{‘men’}}
\end{align*}
\]
Prespecification is impossible for Kolami reduplication. In order for a base-independent melody to be prespecified, the template must be able to specify its internal prosodic structure, to which a base-independent melody is prelinked. But words differ in their sizes and internal prosodic constituencies. Thus, there is a suprasegmental structure corresponding to each word. A phonological word template cannot spell out the prosodic units for each word without being infinitely long. Consequently, prespecification is not an option.

In addition to evidence against prespecification, there is independent evidence for insertion adopted here. Citing the treatment of ablaut in the English strong verbs, Steriade [1988] points out that the analysis of sing vs. sang provided by Halle and Mohanan [1985] requires the insertion of [+low] into the matrix of the root vowel. Such insertions, she claims, are formally identical to the insertion of base-independent melody adopted here.

Evident from this discussion, prespecification is inadequate to explain base-independent melodies in reduplication. Swati a is of particular significance in that it cannot be formalized without unnecessary proliferation of templates. This result further suggests that a insertion is motivated in Swati.

To summarize, this analysis of Swati reduplication supports prosodic templates advocated by Selective Copy. In particular, the base-independent melody must make reference to a segmentally unspecified template in order to distinguish CVCVC from ones that cannot supply sufficient melodies. By definition, a template is an “unfurnished building”; thus it allows a straightforward definition of a insertion.

Motivation propelling an insertion treatment takes two steps. First, as evidenced by simple and perfect passive formations, I is filled in as a default segment, excluding a in that capacity in Swati. Kikuyu a further establishes Swati a as an instance of base-independent melody. Second, once it is shown that a is a base-independent vowel, Selective Copy in principle allows two options: (i) insertion and (ii) prespecification. Data from Swati and further consideration of base-independent facts favor an insertion analysis.

3. Against Exhaustive Copy

A crucial property of Swati base-independent a is that its appearance is conditioned by a segmentally insufficient base. But significantly, such a base is deficient in another way, viz. its prosodic constituency is not sufficient. Under Exhaustive Copy, insertion must access an existing prosodic structure of the copied base; yet, this structure is not present in an insufficient base. Section 3.1 addresses this point in detail. Section 3.2 attempts to salvage Exhaustive Copy by retaining its basic premises while incorporating an additional assumption. Section 3.3 further considers whether or not a parameter can generate prosodic units which a base fails to supply. The conclusion is that Exhaustive Copy fails to provide a principled mechanism to express the base-independent melody in Swati.
3.1. Exhaustive Copy. Two properties that differentiate Exhaustive Copy and Selective Copy are (i) parameters of weight and syllabic markedness and (ii) exhaustive copying. As pointed out in §1.2, parameters are stated in terms of prosodic units, which function as instructions governing how matching procedures are executed. This characteristic of Exhaustive Copy drives a specific copying mechanism. It must copy the segmental melody and prosodic constituency of the base. A matching procedure like, "Eliminate all but the first syllable," cannot be carried out unless the base identifies the syllable boundaries.

A further consequence of this model is that base-independent melodies must be inserted. Moreover, insertion must refer to an existing prosodic constituency. Steriade [1988:78] explains:

Prespecified reduplication results from the insertion of segments or features into the copied base. The locus of insertion is an existing syllable ... Unlike the segments affixed by concatenation, the segments introduced by insertion cannot generate a new syllable. They must find their place in an existing syllable.

Under Exhaustive Copy, insertion into an existing structure is not just a logical option, but a necessity driven by parameters devoid of prosodic constituency. A further point bears repeating here as well. Steriade claims that insertion cannot produce new prosodic structures. Two consequences follow from this statement: (i) a copied base must possess the structure for defining insertion or (ii) parameters must be able to create prosodic structures which a base cannot supply.

This reliance upon (i) (that is, the prosodic constituency of the copied base) is problematic. Consider the results of exhaustive copying for CVC and C roots in (35). My notation follows that of Steriade [1988], who assumes that syllables are composed of onsets (O) and rhymes (R). The location of a insertion is highlighted with parentheses.

(35) a. \textit{goba-gob} ‘bend a little’ b. \textit{nayi-n} ‘rain a little’

\[
\begin{array}{ll}
\sigma & \sigma \\
O & O \ \\
\parallel & \parallel \\
g & o & b & ( ) & g & o & b & n & ( ) & n
\end{array}
\]

It should be apparent that an insufficient base lacks certain prosodic structures as well as melodic content. Regarding CVC roots, this entails that no syllable can be constructed on \textit{b} alone. Roots containing a single consonant exacerbate this problem; they are devoid of syllabic structures entirely. In order to define a insertion, reference to syllabic units is critical. Yet it is exactly in those which
lack prosodic constituency that access to such units is essential. This paradox is a logical consequence of a model which relies on parameters. It cannot be resolved unless melodiless prosodic structures are posited in the base. This option is considered in the next section.

3.2. An alternative. It is noted that a insertion requires reference to the base prosodic units. But these units are not available in roots with insufficient melodies. One logical possibility is to augment the base with prosodic structures that are left unspecified for featural matrices, as shown for a CVC base:

(36) *goba-gob* ‘bend a little’

\[
\begin{array}{cccc}
\sigma & \sigma \\
O & R & O & R \\
| & | & | \\
g & o & b \\
\end{array} \rightarrow \begin{array}{cccc}
\sigma & \sigma & \sigma & \sigma \\
O & R & O & R \\
| & | & | \\
g & o & b & g & o & b \\
\end{array}
\]

A base with a single consonant then requires the representation in (37):

(37) *nayi-n* ‘rain a little’

\[
\begin{array}{cccc}
\sigma & \sigma \\
O & R & O & R \\
| \\
n \\
\end{array} \rightarrow \begin{array}{cccc}
\sigma & \sigma & \sigma & \sigma \\
O & R & O & R \\
| \\
n & n \\
\end{array}
\]

Even though such representations as (36) and (37) make it possible to state insertion, they are problematic. Proliferation of unfilled prosodic structures is highly unconstrained; there is no principle determining whether a specific base should or should not posit empty prosodic constituency. Furthermore, these segmentally unspecified prosodic structures are a stipulation. Their existence should predict that Swati morphology and/or phonology can and do make reference to or use of these prosodic units. Yet there is no evidence besides reduplication that suggests that these prosodic units are necessary.

3.3. Summary. This discussion points to a fundamental flaw inherent in a model of reduplication that relies on reducing excessive materials to derive shape-invariance. An important flip side of reduction is base expansion, a point not elaborated in Steriade [1988]. This problem is pointed out by Mutaka and
Hyman [1990] in their analysis of Kinande reduplication, which requires a foot-sized reduplicant from a monosyllabic stem.

Steriade [1988:82] does mention certain instances of base expansion. One such case is Mokilese where the reduplicative affix requires a heavy monosyllable. In the case of a light syllable word, Steriade explains,

> When the stem is monosyllabic and light (e.g. pa ‘weave’), it is lengthened: paa-pa. The same lengthening procedure is used in polysyllabic stems like di.ar ‘find’, where the first and second syllables stand in hiatus: dii-di.ar.

But what is not spelled out is how lengthening takes place. Under a skeletal or moraic approach, vowel length is represented as either (38a) or (38b). Thus, lengthening usually results from mapping vocalic features into a skeletal or moraic position, as shown in (38c) or (38d):

\[
\begin{align*}
(38) & \quad a. \quad x \quad x \\
& \quad b. \quad \mu \quad \mu \\
& \quad c. \quad x \quad x \\
& \quad d. \quad \mu \quad \mu
\end{align*}
\]

With regard to pa, the copied base does not supply the second skeletal or moraic position for lengthening. This problem is a parallel case to Swati a. A question for Exhaustive Copy is what mechanism is responsible for creating an extra position. There are two options. First, a lengthened vowel projects an extra skeletal or moraic position independently of weight parameters. This option is problematic; it cannot explain why not every vowel projects such a position.

The other option is that weight parameters can insert prosodic structures. Unless a specific weight parameter is satisfied, it can generate prosodic units for such operations as lengthening and insertion. Even though a logical possibility, it must be considered in relation to the definition of parameters. Recall that a critical property that marks Exhaustive Copy as a competing model of reduplication rather than a notational variant is that it ascribes a central role to parameters. By definition, parameters are not templates; they are distinct in that they do not possess prosodic structures, even though they are stated in terms of prosodic units. Allowing parameters to create prosodic constituency essentially removes this distinction between parameters and templates. How can parameters which insert prosodic constituency be distinguished from templates which come with it?

The conclusion emerging from this discussion is clear. Exhaustive Copy cannot offer an internally consistent analysis of a insertion in Swati and base expansion cases in general. As demonstrated in §3.2, Exhaustive Copy must stipulate empty prosodic structure to account for the insertion of Swati a. Or it must allow weight parameters to create prosodic constituency, which renders parameters a notational variant of templates.
4. Conclusion

This paper addresses the central question of deriving shape-invariance in two competing models of reduplication: Selective Copy and Exhaustive Copy. A central difference is shown to be templates vs. parameters. Contingent on this opposition are two additional distinctions in copying and insertion. These distinctions are examined against Swati diminutive reduplication, which reveals the base-independent melody $a$. Crucially, $a$ insertion requires access to segmentally unspecified prosodic units. Under Selective Copy, templates provide exactly the right structures for defining insertion. In contrast, there is no internally consistent mechanism to express $a$ insertion within Exhaustive Copy.

In addition to reduplication, the templatic vs. parametric difference has further repercussions for other types of morphological phenomena. Specifically, two types of cases are in support of the templatic approach and against the parametric approach. One type of case involves base expansion, exemplified in Arabic Broken Plurals [McCarthy and Prince 1990] and Japanese hypocoristics [Ishihara 1990]. The other type of case concerns the Semitic and Yawelmani roots [McCarthy 1979, 1981; Hammond 1988; McCarthy and Prince 1990; Archangeli 1983, 1991]. A critical property of this second type is that they require the separation of melody from the prosodic constituency.

All these cases including the base-independent phenomena in reduplication point to a need for prosodic structures which are not filled with segmental material—a critical property of templates. Exhaustive Copy, with its reliance on parameters, is inadequate in this regard.
REFERENCES


This paper discusses the Yoruba items Pe and Ki. These items have sometimes been analyzed as verbs and sometimes as complementizers. Thus their status has not been clearly established. In this paper, we look at the various structures in which these items occur and at their behaviour and proceed to reanalyze them. In this re-examination attention is paid to the distributional criteria of both verbs and complementizers. The paper concludes that pe and ki are complementizers not verbs.

1. Introduction

Complementizers may be defined simply as particles which serve to mark out clause boundaries. They are usually found at the beginning of subordinate or embedded clauses. Complementizers thus serve to introduce clauses. An example of a complementizer is that in English as found in the sentence below:

(1) I know that he will arrive early.

The properties of complementizers play a crucial role in clause analysis and in the formulation of general properties of grammar, particularly within the GB framework. It is hoped that a study of comp-like elements in Yoruba will provide further insights into the role and properties of complementizers in grammar. Before going into the discussion of Yoruba complementizer-like elements we will briefly discuss some relevant features of the complementizer system.
1.1. Syntactic position of complementizers. Our discussion here will be within the framework of Government and Binding Theory [Chomsky 1977, 1981]. The syntactic position occupied by complementizers is that of COMP. The COMP node is introduced by the phrase structure rule for sentences:

\[
S' \rightarrow \text{COMP } S \\
\text{COMP } \rightarrow \pm \text{WH}
\]

One of the main assumptions in GB is that all sentences begin with a COMP node. The COMP node is specified for the feature \(\pm WH\), where \(-WH\) is the abstract element that dominates non-interrogative clauses while \(+WH\) dominates interrogative clauses. Verbs select for the feature \(\pm WH\). The main function of COMP is to designate a node in sentence initial position where constituents moved by fronting transformations can be attached. An example is the WH-movement transformation which moves constituents into sentence initial position. A second important function of COMP is to provide a syntactic position for sentence introducing elements such as question particles and complementizers. That Yoruba sentences begin with a COMP node is not controversial as Yoruba has sentence initial question particles such as \(njé\) and \(sé\). Also, WH-movement takes place in the language. These facts are illustrated in the examples below:

(2) a. \(njé \ Bólá \ wá?\) ‘Did Bola come?’
QPRT Bola came

b. \(sé \ Bólá \ wá?\) ‘Did Bola come?’
QPRT Bola came

c. \(Ta \ ni \ ó \ rí?\) ‘What did you see?’
WH FOC you saw

1.2. Complementizer-like elements in Yoruba. In Yoruba there are three items which may be identified as complementizers. They are \(pé\), \(ki\) and \(ti\).\(^1\) In this paper

\(^1\)The sentence introducer \(ki\) is sometimes realized as \(pé \ ki\), that is everytime we have \(ki\) alone it may be taken as an instance of deletion of \(pé\) from \(pé \ ki\), but \(pé\) alone does not represent deletion of \(ki\) from \(pé \ ki\). \(Pé\) alone is a separate complementizer as can be seen in the following examples.

(i) \(Ayo \ mò \ pé \ Bólá \ ti \ lọ\) Ayo knows that Bola has gone

(ii) \(*Ayo \ mò \ (pé) \ ki \ Bólá \ ti \ lọ\) Ayo knows that Bola has gone
we are concerned with the elements *pé* and *kí* as these are the elements on which controversy exists. Not all Yoruba linguists agree that *pé* and *kí* are complementizers. Some Yoruba linguists regard these items as verbs [Oyelaran 1983, Bamgbose 1966]. Below we will attempt to establish the true status of these elements. First we look at *pé*:

2. The Sentence Introducer *pé*

Arguments for *pé* as a verb have been motivated mainly by the fact that *pé* occurs in minimal sentences where it means ‘say’. The examples below illustrate this usage:

(3) a. Ọlù *pé* awọn ti ń dẹ́
     Olu says they have arrived

     b. Ọlù *pé* won wá
        Olu said they came

Sentences such as those in (3), where *pé* co-occurs with other verbs, have been analysed as serial verbal constructions [Oyelaran 1983]. Serial verbal constructions (SVC) are sentences which contain sequences of two or more verbs without any syntactic marker of subordination such as complementizers. Thus Oyelaran, on the basis of sentences such as (3), analyzes the sentences (4) below as instances of SVC [Oyelaran 1983]:

(4) a. Ọlù gbàgbé *pé* Bólá ti jàdè
     Olu forget (?) Bola PERF go out
     ‘Olu forgot that Bola has gone out’

     b. Ọlù rán tí *pé* Bólá Ṽíṣún
        Olu remember (?) Bola sleeping
        ‘Olu remembered that Bola was sleeping’

(iii) *Ayo ń* reti *(pé) kí* Bólá ń go
    Ayo PROG expect that Bola go
    ‘Ayo is expecting Bola to go.’

(iv) *Ayo ń* reti *pé* Bólá ń go
    Ayo PROG expect that Bola go

From the examples we can see that *pé kí* and *kí* occur in the same context but *pé*, *pé kí*, and *kí* may not substitute for each other without a change in meaning. (See Lawal [1989] for some discussion on their distribution and meanings). The shorter form *kí* is used more frequently than the longer *pé kí*, so whenever we talk of *kí* we are also referring to *pé kí*. 
The claim is that pé in (4) above is similar or identical in meaning with the sequence of pé and another verb in (3) where it is a verb meaning ‘say’. We will show below that this claim is untenable and that the sentences in (4) are not instances of SVC but sentential complement clauses with pé having the status of a complementiser. We will give arguments based on the distributional and syntactic properties of pé to support our claim.

2.1. Syntactic position of pé. One of the main problems which anyone who wants to analyze pé as a verb will have to account for is why pé occurs in sentence initial position, i.e. the COMP position. This is illustrated with the examples below:

(5) pé a jɔ lɔ dára
   ( ) we together went good
   ‘that we went together was good’

(6) pé obinrin lɔ bɔrì jɔ mì lójù
   ( ) woman FOC-she won resemble me eye
   ‘that a woman won surprised me’

In the above examples pé cannot be said to be the subject of the sentence as claimed by Oyelaran [1983]. In the first place for pé to be the subject of the sentence it must be a phrasal category not a lexical category since only phrasal categories can occupy an argument position, e.g. subject position. But pé is a lexical category not a phrasal category since it is only a bare verb stem.

The implication of having a bare verb as a subject of the sentence is theoretically not acceptable as it will mean permitting a structure like (7).
Such a structure cannot be defended or justified. Moreover, before a verb can occupy the subject position of a sentence in Yoruba, it must be nominalized. In Yoruba, nominalized verbs take special forms. They are either reduplicated as illustrated in (8),

(8) a. jò → jíjó  ‘dancing’
    b. lò → lílò  ‘going’
    c. pe → pipe  ‘calling’

or they are preceded by a nominalizing morpheme, as in (9):

(9) a. jò → i-jó  ‘dancing’
    b. lò → à-lò  ‘going’
    c. mò → i-mò  ‘knowledge’
    d. gbàgbé → i-gbàgbé  ‘forgetting’

The sentence introducer pé cannot be classified as a nominalized verb because it does not exhibit the required nominalized form. Pé also does not satisfy another minimum criteria for verbs which is that it cannot undergo reduplication for nominalization. All Yoruba verbs have this ability. Even defective verbs like bà, fì, and, tètè may be reduplicated. This is illustrated in (10a-c):

(10) a. títètè tì ó tètè lò dára
    hurry that he hurry go good
    ‘his hurrying to go is good’

    b. bíbá tì ó bá Bólá lò dára
    accompanying that he accompany Bola go good
    ‘his accompanying Bola’s going is good’
c. fifi ti Bọlá fi ọbe ọge isu dára
   using that Bola use knif cut yam good
e
   ‘Bola’s cutting the yam with a knife is good’

Contrast the above with the pé sentences in (10d-f):

d. *pípé ti ó dára pé a lọ
   ( ) that it good ( ) we went

e. *pípé ti ó gbàgbé pé Bísì ńbọ
   ( ) that he forgot ( ) Bisi is coming

f. *pípé ti pé a lọ
   ( ) that ( ) we went

Another point against classifying pé as a verb is the fact that pé clauses may be
conjoined with àti. In Yoruba the coordinator for verbs or VP is sí not àti. The
coordinator àti may only conjoin nouns. It cannot conjoin verbs or VP’s:

(11) a. *mo [VP lọ sí ọja] àti mo [VP ra isu]
    I went to market and I bought yams

    b. mo [VP lọ sí ọja] mo sí [VP ra isu]
    I went to market I and bought yams
    ‘I went to the market and I bought yams’

c. [NP pé Bólá wa] àti [NP pé mo wa] dára
    ( ) Bola came and ( ) I came good
    ‘that Bola came and that I too came is a good thing’

d. *[NP pé Bólá wa] sí [NP pé mo wa] dára
    ( ) Bola came and ( ) I came good

Koopman [1984] argues for the verbal status of a similar element in Vata by
claiming that the element na in Vata is an empty verb selected by the higher verb
which cannot directly select a sentential complement. Such a hypothesis cannot
work for pé for the simple reason that pé does not introduce only verbal
complements. It also introduces noun complement clauses:
Let us consider the phrase structure rules for the sentence which we gave earlier:

\[ S' \rightarrow \text{COMP} \ S \]

\[ \text{COMP} \rightarrow \pm\text{WH} \]

The assumption from the above rules is that all sentences begin with a COMP node. As shown earlier, Yoruba sentences also begin with a COMP node. The syntactic position occupied by \( \text{pé} \) which is sentence initial is the position of COMP, i.e. the position occupied by items such as complementisers and other sentence introducing particles. The COMP node is specified for the binary feature ±WH. The sentence introducer \( \text{pé} \) introduces non-interrogative clauses. It can therefore be safely assumed that \( \text{pé} \) has the feature -WH. Its syntactic position and
its syntactic distribution in contrast to that of the verb pe in (3) makes it uncontroversially a complementiser. It occurs in the position where complementisers occur.

Further evidence in support of the complementiser status of pe comes from its behaviour in coordinated clauses:

(14) a. [pe Bólá wa] āti [pe ō jeun] VP ...
    that Bola came and that she ate

    b. [pe Bólá jāde] āti [pe Bísí dé] VP ...
    that Bola went out and that Bisi arrived

In such coordinated clauses as can be seen from the examples above pe must be repeated. This shows that pe is a constituent of the S’ system.

The above facts and the foregoing discussion show that pe is an instance of an initial COMP node, not a verb or VP. PÉ may be translated as that in English. See Lawal [1989] for a discussion of the meaning properties of this element.

3. The Sentence Introducer Kí

The second COMP-like element we shall examine is the sentence introducer ki. As with pe not all Yoruba linguists agree on the complementiser status of ki. For instance Awobuluyi [1978] classifies ki as a nominalizing morpheme while Bamgbose [1966] classifies it as a preverb.

3.1. The two “kV” morphemes of Yoruba. Before we proceed, however, it is important to point out that the sequence involving the ki classified by Awobuluyi as a nominalizer should be distinguished from the homophonous sequence involving the ki which introduces clauses. Awobuluyi, however, lumps the two together as can be seen in the example given in Awobuluyi [1978].

(15) a. ëni kí ëni → ënikéni ‘anybody’
    person () person

   b. kí kó ilé
    () build house

   c. éyan kí éniyan → éyankéniyan ‘a good for nothing’
    person () person

   d. kí a so òótó dára
    () we say truth good

    ‘it is good to say the truth’
It is obvious that Awobuluyi's analysis of *ki* as a nominalizer is wrong as the nominalizing morpheme is *ku* rather than *ki*.\(^2\) That this morpheme shows up as *ku* in the examples below supports this claim:

\[(16)\]  
\[\begin{array}{lll}  
\text{a. } & \text{*igbà } & \\ 
\text{time} & \text{ku} & \text{igbà} \\ 
\rightarrow & \text{igbàkùbà} & \text{‘anytime’} \\
\end{array}\]

\[\begin{array}{lll}  
\text{b. } & \text{isọ } & \\ 
\text{saying} & \text{ku} & \text{isọ} \\ 
\rightarrow & \text{isọkúọọ} & \text{‘bad sayings’} \\
\end{array}\]

The ‘u’ is sometimes deleted before vowels other than ‘i’, and optionally deleted before ‘i’. Secondly in (15b) the sequence *ki* is not the nominalizing morpheme *ku* but the reduplicated ‘k’ of the verb *ko*, followed by the vowel ‘i’ as in examples like (17):

\[(17)\]  
\[\begin{array}{lll}  
\text{a. } & \text{lọ } & \\ 
\text{go} & \rightarrow & \text{lilọ} & \text{‘going’} \\
\end{array}\]

\[\begin{array}{lll}  
\text{b. } & \text{wá } & \\ 
\text{come} & \rightarrow & \text{wíwà} & \text{‘coming’} \\
\end{array}\]

\[\begin{array}{lll}  
\text{c. } & \text{ki } & \\ 
\text{greet} & \rightarrow & \text{kirí} & \text{‘greetings’} \\
\end{array}\]

And in (15d) and (15e) *ki* is a sentence or clause introducer not a nominalizing morpheme. We shall justify this below.

### 3.2. Syntactic distribution of *ki*.

The sentence introducer *ki* is analysed in Bamgbose [1966] as a verb, more precisely a preverb, but *ki* shares most of the syntactic features and behaviour associated with the element *pé*, which suggests that *ki* cannot be a verb. First, like *pé*, and unlike verbs, *ki* occurs in S-initial position, a position which a bare verb cannot occupy without being nominalized. *Ki* does not have a nominalized form in this position:

\[(18)\]  
\[\begin{array}{lll}  
\text{a. } & \text{*kirí } & \\ 
\text{ki-NOM} & \text{a lọ } & \text{dára} \\
\rightarrow & \text{ki-NOM} & \text{we go good} \\
\end{array}\]

\(^2\)This was first pointed out to me by a reviewer.
Contrast the *ki* sentences with the sentence below where a verb occupies the S-initial position:

(a) *[li]la wa] dára
   going our good

(b) *ki* a lọ dára
   ‘that we should go is good’
   ( ) we go good

Example (18d) is ungrammatical because the verb has not been nominalized. Secondly, *ki* unlike verbs cannot undergo the process of predicate clefting by reduplication:

(19) a. *kikí ti ó dára kí ó wa
   ki-NOM that it good ( ) we go

b. *kikí ti ó dára kí a lọ
   ki-NOM that it good ( ) we good

Contrast the unacceptable *ki* sentences with the sentences below where the verb has been clefted:

(c) gbígbàgbé tí Bólá gbàgbé kí ó ti ìlèkùn
   forgetting FOC Bola forgot ( ) she shut door
   ‘forgetting to shut the door that Bola forgot’

(d) iîfè tí mo fé kí Bólá fé Bísì
   marrying FOC I want ( ) Bola marry Bisi
   ‘marrying that I want Bola to marry Bisi’

Thirdly, *ki* clauses just like *pé* clauses may not be coordinated with *si*, the coordinator for VPs. Rather the coordinator that may be used is *âti*, the coordinator for NPs and PPs.

(20) a. wón gbàgbé [kí wón ra bürèdî] âtì [kí wón gbé qmô]
   they forgot ( ) they bought bread and ( ) they pick child
   ‘they forgot to buy bread and to pick the child’
b. *wón gbàgbé [kí wón ra büréđì wón] sì [kí gbé qmo]
    they forgot () they buy bread they and () pick child

Fourthly, when *ki clauses are coordinated, *ki like *pé must be repeated, showing
that it forms part of the expansion system of S’ system (see the examples (20a)
above).

*Ki is sometimes found in main clauses, and this has been used as evidence
against its complementiser status [Bamgbose 1966]. However, this fact is
uncontroversial since in such sentences *ki occupies the S-initial position, which is
the COMP position:

(21) a. *ki Olúwa pèlú wa
    ( ) God be with us

b. *ki è têtè dé
    ( ) you quick come
    ‘*that come back quickly’

Its occurrence in such structures does not count as evidence against its
complementiser status. Moreover, other COMP-like elements are also realized in
main clauses in Yoruba. The examples below illustrate this:

(22) a. sé Bólá ti dé?
    QPrt Bola PERF arrived
    ‘has Bola arrived?’

b. òjé Bólá lo?
    QPrt Bola went
    ‘did Bola go?’

The COMP position in a main clause may have zero-realization or it may be overt.
What the data here shows is that Yoruba is one of the few languages where the
COMP is realized overtly in main clauses and is unlike English, which has
zero-realization of COMP in main clauses. The occurrence of *ki in main clauses
does not therefore count as evidence against its status as a complementiser.

4. Conclusion

We have shown in this paper that the items *pé and *ki in Yoruba are
complementizers, not verbs. We found that *pé and *ki have the properties which
characterize complementizers rather than verbs. Most importantly, our analysis
clarifies certain issues in Yoruba grammar: First, sentences in which *pé cooccurs
with other verbs are not serial verbal constructions but complement clauses and secondly, the syntactic position occupied by pé and kí is shown not to be that of subject but rather that of COMP, a position which is consistent with the facts and with the true status of these items.

REFERENCES


PUBLICATIONS RECEIVED


Mafa is a language of the Central-(=Biu-Mandara-) A branch of the Chadic family. An introduction describes the phonology (including features of palatal and labial prosody) and the morphology of the nominal, adjectival, and verbal systems. An Annexe lists pronouns, demonstratives, the numbers, forms of noun plurals, interrogatives, and negatives. The Mafa-French section has 4,000 entries, fully tone-marked and with grammatical information and many examples. There is also a French-Mafa index.


The book is designed for use at the intermediate level of instruction in a university context. Intended as a transition between an introductory textbook and independent reading of original Swahili texts, it consists of 31 graded reading passages, all from authentic texts. The reading passages are accompanied by grammatical and cultural notes and, for instructors, suggested conversational and grammatical activities


This work is a comparative dialect survey of the Manding dialects spoken in the north of the Ivory Coast. The first section presents a general overview of the geographic, demographic, and historical situation of the speakers of Ivory Coast Manding. Section 2 presents an extensive comparative phonetic study of the 23 dialects, including discussions of tone and syllable structure. Section 3 constitutes a grammatical comparison of these dialects. The author presents a reconstruction of Proto-Ivory Coast Manding, proposing explanations for the origins of certain phonemes and morphemes found in several of the dialects. The author also identifies certain features that characterize the various dialects. Volume 2 contains the survey questionnaire, maps, data, and reconstructions of certain roots.


*Surviving Fieldwork* constitutes both a report and an appraisal of the hazards and difficulties that await the fieldworker. Although based on the problems encountered by a random sampling of anthropologists and specifically addressed to the fieldwork of anthropology, the various topics of health and safety that are covered—for example, the hazards of exposure to severe climatic conditions, to animals, to parasitic and infectious diseases, to accidents—are relevant to all those anticipating heading to the field. In addition to the discussion of various hazards, there are also chapters devoted to the problems of mental health and illness, families and practicing medicine on one’s own.


This is a Tangale-English, English-Tangale dictionary with a grammatical introduction. Tangale is a West Chadic “A” language, spoken in northeastern Nigeria. It is unusual in being perhaps the only Chadic language with a vowel harmony system. The 45 page grammatical introduction has the following sections: “The country and the people”, “The language and its dialects”, “Phonological and prosodological remarks”, and “Notes on morphology”, the latter with subsections “Noun and nominals”, “Pronoun”, “Verb”, and “Negation”. The Tangale-English section has approximately 2500 head words. Entries include relevant derived and inflected form and cross-references, and many entries include examples. The English-Tangale section is an index to the Tangale-English section.


[From the English Preface]: “The fruit bat (*jemage*) in the well-known Hausa story claims to be neither animal nor bird; the authors of this book could claim that it is neither a modern Hausa reader nor a dictionary. Of course it is a reader since the user will find some 5-6000 sentences or phrases, all of which have been found in newspaper articles and radio programmes; and it is a dictionary since it is organized like one. If we have to come down on the side of one rather than the other, then we must come down on the side of the dictionary.” The entries come mainly from transcripts of broadcasts of the Hausa Service of the Deutsche Welle, with some entries from Hausa language newspapers. It is intended as an aid in reading and understanding journalistic Hausa, though many entries (probably most) are items in everyday use as well. The Hausa entries, including all examples, are translated into both English and German, and introductory sections (Preface, User’s Guide to the Dictionary) are in all three languages. There are separate English-Hausa and German-Hausa sections.


Aiki (also called Runga) is spoken in the southeastern part of Chad and along a northern strip of the Central African Republic. It is classified as a member of Maba, a branch of Nilo-Saharan. Data were collected in 1982 from two informants living outside the Aiki-speaking area, in Bangui, C.A.R. The book is composed of four parts. The first part is a phonological sketch of the language, including a sketch of the tonal system. The second part is a grammatical sketch which includes discussion of the nominal and verbal phrase, verbal morphology, and numbers. The third part consists of two short texts, both animal tales, with word-by-word linguistic glosses. The fourth and final part of the book is an Aiki-French dictionary, followed by a French-Aiki lexical-index.

This book is a revised and shortened version of the author's Ph.D. thesis (University of London 1977) entitled "The Phonetics of the Karanga Dialect of Shona as Spoken in the Midlands Region of Rhodesia". The book is intended both as a text for students and as a reference for linguists interested in Shona phonetics. The first two chapters present a summary of the tenets of Karl Popper, used as an evaluation metric for the work of the American structuralists and, later, for the work of Doke, Fortune, and Stevick on Shona phonetics. Also presented in this first part is a discussion of the theoretical framework the author employs for his phonetic description and classification of Shona sounds. The second part (Chs 3-5) consists of a review of previous work on Shona phonetics, focusing on that of Doke (*Comparative Study in Shona Phonetics,* 1931), Fortune (*Analytical Grammar of Shona,* 1955; *Shona Grammatical Constructions,* 1980), and Stevick ("The implosive-explosive contrast in Manyika", *African Studies* XIX, 1960). In the third part (Chs. 7-12) the author presents his own phonetic description of Shona sounds. However, the book contains descriptions only of semi-vowels, affricates, nasals, nasal-consonant clusters, and alveolar /r/. Detailed descriptions of plosives, fricatives and vowels have not been included as the author has published those in separate journal articles. The description is based on acoustic data, spectrograms, palatograms and mingograms, which are included in the appendix.


[From the announcement]: "En s'attaquant à l’un des problèmes des plus embrouillés de la linguistique africaine, cet ouvrage tente de montrer comment le concept d’énonciation permet de fonder une linguistique qui articule grammaire et discours, langue et parole, unité de sens et polysémie. L’originalité de la méthode consiste à partir d’une description des phénomènes sur le plan de l’énoncé pour dégager les mécanismes réguliers de construction du sens. Ainsi, c’est à partir d’une étude des emplois extrêmement variés, parfois même contradictoires, des conjugaisons du wolof que l’on reconstruit la valeur unique de chacune d’entre elle et l’organisation générale du système verbal de cette langue. La diversité des valeurs d’emplois, tout comme les différentes nuances argumentatives, apparaissent alors comme le produit d’une articulation de ces morphèmes avec un context verbal ou situationnel variable mais caractérisable. Le traitement précis des conjugaisons du wolof et les réflexions théoriques qu’il appelle contribuent à l’élaboration d’un modèle général d’analyse des langues.” Chapter titles are 1. Présentation générale du système verbal, 2. Le parfait, 3. L’emphatique du verbe, 4. L’emphatique du sujet, 5. L’emphatique du complément, 6. Le présentatif, 7. Le narratif, 8. Les injonctifs, 9. L’inaccompli et les marques de temps, 10. La négation, 11. Synthèse et perspectives. There is an appendix of verbs classified semantically and an extensive bibliography of works on Wolof.

A volume of retrospective and prospective papers on the study of selected northern Nigerian languages in commemoration of the 20th anniversary of the establishment of the Centre for the Study of Nigerian Languages, Bayebo University, Kano. The papers are as follows: Paul Newman, “A century and a half of Hausa language studies”; Graham L. Furniss, “Hausa language studies: the present”; Bashir Ikara, “Hausa language studies: a projection”; Garba Kawu Daudu, “Problems of Fulfulde studies”; Umara Bulakarima, “Developments in Kanuri language studies”; E.N. Emenanjo, “The study of Nigerian languages in Nigerian universities; the past, the present and the future.”


This collection of nine papers represents primarily a study of tone in seven Tanzanian languages. Two papers focus on tone in different dialects of Southern Pare: “A study of the tonal system of the Gonja verbs and nouns: a dialect of the Southern Pare language” and “A study on the tonal system of the Mbaga dialect of the Southern Pare language”, both by Ryohei Kagaya. Six of the papers, all by Yasutoshi Yukawa, have the generic title “A tonological study of (LANGUAGE NAME) verbs”. The six languages studied are Machame, Sukuma, Nilamba, Nyaturu, Nyiha, and Makonde. The sole paper not dealing with tone is “Mood in Bantu languages: an exemplification from Shambala” by Ruth M. Besha.


The book is a catalog of publications on all of the languages of Ethiopia with the exception of Somali and the Semitic languages, which have been catalogued elsewhere. It includes a list of language names, charts of language classification, and indexes of publications arranged both by author and by language name.

From Foris Publications


[From the book jacket]: “This book consists of a detailed study of plurality in the Chadic language family, with special attention given to the historical analysis of Hausa. On the basis of systematic comparison, the marking of plurality in Proto-Chadic is reconstructed for verbs as well as nouns. Of particular historical and typological interest is the distinction drawn between inflectional plural-agreement verbs and derivational plural action (= “pluractional”) verbs. In the analysis of reduplication, the many different types of reduplication, the many different types of reduplication that occur in different constructions throughout the family are carefully documented. The book is addressed to specialists in Chadic and comparative Afroasiatic as well as to students and scholars in general historical linguistics and language typology.” Following an introductory chapter, chapter titles are “Noun plurals”, “Chadic pluractionals”, “Pluractionals in Hausa and Ngizim”, “Plural verbs”, “Plural imperatives”, and “Conclusion”. An appendix lists names, including alternative names, of all known Chadic languages and their classification.


[From the book jacket]: “This dictionary is the result of more than five years of intense collaboration between John Hutchison, Norbert Cyffer, Tijani El-Miskin, Shettima Bukar Abba, and Wakkil Modu. It is the first dictionary of the Kanuri language, containing approximately 10,000 entries and an elaborate system of cross-referencing which makes the morphology and
grammar of the rather complex verbal system of Kanuri readily accessible to the user. Borrowings are indicated from Arabic and a variety of other languages, with some of the Arabic borrowings being almost unrecognizable due to their longevity in the Kanuri lexicon." The Introduction gives a brief history of research on Kanuri, a discussion of the standard Kanuri orthography and spelling conventions in the dictionary, and notes on verb entries. A Grammatical Appendix lists pronouns, demonstratives, and abbreviations used in the dictionary.

From Garland Publishing, Inc.


[Announcement distributed with book]: "This work addresses the fundamental issue of how phonological forms are represented. Sagey proposed a hierarchical representation for distinctive features that is based on phonetics, elaborating on Clements' hierarchy by grouping place features according to the articulators that execute them, e.g., [high, back, low] under a tongue body constituent. This elaboration allows the author to account for the behavior of complex (multiply-articulated) segments such as labiovelars and clicks, and incorporate findings of Halle on the articulatory basis of the restricted types of possible complex segments. Complex segments are shown to contain unordered articulations, as opposed to contour segments which contain sequences of articulations. Sagey also redefines primary versus secondary articulations, such that primary articulations are those assigned phonological degree of closure, while secondary articulations are those not assigned phonological degree of closure. She also shows that each segment has only one specification for degree of closure regardless of the number of articulations it contains. And, traditionally accepted diagnostics for primary articulation, such as most radical construction, are found to be irrelevant. complex segment systems in numerous languages, including Hottentot, !Xu, !Xóô, Margi, Nupe, Shona, Kinyarwanda, Fula, Ngbaka, Kpelle, Zoque, and Pame, provide evidence for these proposals. Further support is drawn from phonological alternations and harmony processes not involving complex segments in languages such as Walpiri and Sanskrit."


[From the Introduction]: "From a general point of view, this dissertation aims at providing the description of a language within the framework of multidimensional and lexical phonology. From a specific viewpoint, it will be shown that the different variants of class markers in Fula, and more specifically in Pulaar, are predictable on a phonological and morphological basis, a result which will lead to great simplification of the analysis of the nominal class system in this language.” Titles of chapters following the Introduction are “Class markers in Pulaar”, “The vowel system”, “Consonants and their status”, “The sonority constraint”, and “Syllables, skeleton and w and y variants”. The book concludes with a lexicon of more than 1500 words from the Futankoore (Mauritania) dialect of Pulaar. There are both Pulaar-English and English-Pulaar sections. The nominal and verbal entries contain information necessary for predicting their alternations.

[From the Preface]: “In order to characterize a phonological process, one must at the very least determine the phonological representations involved and the domain within which the process takes place. This dissertation is an investigation of the importance of one component of phonological representations, viz. the skeletal tier, and of the importance of the domains to which phonological rules may be sensitive. These two aspects of linguistic theory will be studied with a view to determining their potential contribution to the explanatory adequacy of phonological descriptions.” Chapter titles are as follows: Chapter 1 “Some elements of phonology and morphology”, Chapter 2 “French external sandhi”, Chapter 3 “Nasalization and external sandhi”, Chapter 4 “Nasalization and internal sandhi”, Chapter 5, “Prosodic redistribution in Fula”, Chapter 6 “Propagation and copying in Fula”, Chapter 7 “Thai tonology and the skeletal tier”. Of primary interest to Africanists will be Chapters 4-5, which concentrate on the morphology of the verbal system. Quoting p. 125. “… the appearance and disappearance of Fula vowels is, in certain contexts, accompanied by the shortening and lengthening of other vowels within the word. The correlation between shortening, lengthening and deletion will be attributed to a common phonological operation involving the displacement of skeletal slots, which I will call prosodic redistribution.”

**Publications on African languages from Poland**


This is a pedagogical Oromo text intended for beginning learners of Oromo. The body of the work consists of 25 Units, each with a dialog and/or sentences in Oromo with facing English translation, grammatical notes, and exercises consisting of an Oromo reading, grammatical practice, and English → Oromo translation. There is a brief phonological introduction, Oromo-English and English-Oromo word lists, an answer key to the exercises in each Unit, a grammatical index stating the Units where various grammatical points are to be found, and a bibliography.


[From Chapter 3:] “[Earlier comparative Chadic works] were either too arbitrary in their sources or were rather inconclusive in their detail; [and I therefore] feel there is a need to take a closer look at the problem, the first step being a comparative examination of the Chadic vocabulary. The main aim of the present work is to present some tentative Chadic cognates elicited on the basis of comparing basic Chadic lexical items for which material from a representative number of languages is available; it is also to find out the common Chadic form for each item; and to arrange the matching consonants of these forms in consonant resemblance series.” The author pursues this goal with 17 selected items. Chapters are “Chadic lexical comparisons—a general survey”, “Sound correspondences in Chadic already stated”, “Aims and method of the present work”, “Languages and language sources”, “Some common Chadic basic lexical items”,
“Summary of the results”, and “Conclusions”. The work concludes with a fairly comprehensive bibliography of comparative Chadic publications, a map, and a language list.

From Warsaw University


This is a survey, in Polish, of Hausa literature. [From the English summary:] “Both oral and written literature are the subject of the book. The attention was also paid to the relations between the two respective literatures. Moreover, an attempt was made to discover and describe the connections of Hausa literature with other literatures, especially with the Arabic one, as well as with the Islamic culture in general. The author takes into account not only the works of the non-African researchers in Hausa culture, but also addsuces the views of native specialists in literature. The views of the latter are especially treated with due respect. The essential part of the book consists of seven chapters: I. Oral literature, II. The traditions of written literature, III. Religious poetry, IV. At the borderline of oral and written literature, V. Modern prose, VI. Drama, and VII. Modern poetry.”


This is a selection of excerpts from published Hausa literature. Aside from a preface, section headings, and glosses from a brief vocabulary, which are in Polish, the entire book is in Hausa, without translations or notes. There is a total of 99 selections, grouped under the following headings (Hausa headings translated into English): I. Prose [excerpts from Hausa novels], II. Poems [all excerpts from published written poetry with the exception of two excerpts from the singer, Dan Maraya Jos], III. Drama [excerpts from published plays], IV. Translations [from Arabic and English literature], V. Studies of Literature [literary criticism and commentary on Hausa literature in Hausa]. The work concludes with a bibliography of Hausa literary works consulted.


[From the Preface:] “The aim of our study is a critical edition of a historical manuscript in the Hausa language, written down in Arabic characters (Ajami). The first part of the manuscript describes the career of Samori, a well-known Malinke state builder. The second one deals with the Zabarma conquests in present-day Ghana and Burkina Faso (formerly Upper Volta). It is the activities of the Zabarmas which are the subject of the present volume. The manuscript under discussion was written in 1914 by a certain Mallam Abu and bears an English title ‘Histories of Samory and Babatu and others’. It counts well over three hundred pages and it would be difficult, for technical reasons, to edit in one book. Therefore, it was decided to publish it in two volumes. We came to the conclusion that in the first one the history of the Zabarmas should be presented. It is much shorter than the narrative about Samori, but from the historical point of
view, it seems to be more reliable than the other one, as it is based on the author's own observations and experiences.” The book contains an Introduction with the following sections: 1. Description of the manuscript, 2. A literary perspective, 3. A historical perspective, 4. Note on orthography, 5. Language features of the manuscript. Following this is a Transliteration of the Ajami manuscript into Romanized orthography, a Translation into English, An Index of geographic, ethnic and language names, an Index of personal names, and a Bibliography. The book concludes with a reproduction of the original Ajami manuscript.

*Studies of the Department of African Languages and Cultures, Warsaw University*


*Hausa Studies II*, 1989 (3 articles on Hausa language and literature).


*Hausa Studies IV*, 1990 (2 articles on Hausa language and literature & 6 book reviews).


*Number 15*, 1993 (1 article on Swahili polite language, an obituary of F.W. Parsons, and 3 book reviews).


*Publications from the Republic of South Africa*


[From the Preface]: “*Tswana for Beginners* was compiled to serve as a progression from phrase books and is integrated with the data contained in the trilingual dictionary, *DikisÈinare ya Setswana-English-Afrikaans Dictionary/Woordeboek*. This grammar for beginners can therefore serve as an introduction to a more comprehensive knowledge of the Tswana language and culture.” The book is divided into fourteen chapters which include grammatical descriptions, exercises, and, at the end of each chapter, a self-assessment questionnaire of the linguistic material covered.
Publications Received

From Marius Lubbe Publishers, Hout Bay


These books are all modeled on the same format as introductory textbooks to basic articulatory phonetics. They have been compiled according to the principles of what the authors call the "functional inductive method" of teaching. Each book has the same three introductory chapters, "Aims and objectives of phonetics", "Organs of speech", and "Airstreams used in articulation". The fourth chapter is a description and classification of the sounds in the language noted in the book's title. Unlike the others, the book on Northern Sotho also includes two chapters on the principles of phonology. All of the books have excellent pictures and drawings illustrating the speech organs and the various articulations.

From Via Afrika Ltd.


This grammar of Venda (Bantu, S21) contains ten chapters, organized under the following topics: the noun; pronouns and deictic expressions; qualificative; the verb (part 1): analysis of the verb root; the verb (part 2): conjugation of the verb; the copulative; the adverb; the ideophone; the interjection, the conjunction and the interrogative; and aspects of the sound system.

Compilation of this trilingual dictionary was begun in 1969 and ended in 1984. In the preface the editor indicates that the dictionary is intended primarily for use by secondary school pupils and university students. However, given the number of head entries (although no word counts are given, there appear to be 8,000-9,000 head entries for Setswana, approximately 6,000-7,000 each for English and Afrikaans), it should be extremely useful to the Bantu scholar as well. A preface (given in all three languages) provides a brief guide to use of the dictionary, which is divided into three sections, one for each of the languages.

**Periodicals**

*A(frikanische) A(rbeits) P(apiere).* Institut für Afrikanistik, Universität zu Köln.


*A(rbeiten des) K(öln)er U(niversalien)-P(rojekts).* Institut für Sprachwissenschaft, Universität zu Köln.


*Groupe de Recherche sur les Interactions Linguistiques et Langagières.* Université de Nice- Sophia Antipolis.

Bulletin de liaison du Réseau, Number 1, May 1990.

*Hausa Dialectology Newsletter.* Seminar für Afrikanische Sprachen und Kulturen, Universität Hamburg.

Number 2, 1992.

*Journal of Afroasiatic Languages.* Institute of Semitic Studies, Princeton University.

Volume 2, Number 2, August 1989.

*Linguistique africaine.* Groupe d’Études et de Recherches en Linguistique Africaine (GERLA), Université de Paris 7, Paris.

Number 3, 1989.
Number 4, articles on negation in 13 languages, 1990.
Number 5, 1990.
Number 6, 1991.
Number 7, 1991.
Number 8, 1992.
Number 9, 8 articles on lexical diffusion and African language classification, 1992.
Number 10, 1993.
Number 11, 1993

Méga-Tchad. (Réseau international de recherches pluridisciplinaires dans le bassin du lac Tchad). ORSTOM-LATAH, 72 route d’Aulnay, 93143 Bondy CEDEX, France.

Number 89/2, 1989.
Numbers 90/1, 90/2, 1990.
Numbers 91/1, 91/2, 1991.
Numbers 92/1, 92/2, 1992.
Number 93/1 & 2, 1993.
Number 94/1, 1994.

Nilo-Saharan Newsletter. Angelika Jakobi, Afrikanistik II, Universität, Postfach 10 12 51, D-95440 Bayreuth, Germany.

Number 4, June 1990.
Number 5, August 1992.
Number 6, December 1993.

Research in Yoruba Language and Literature. Department of African Languages and Literatures, Obafemi Awolowo University, Ile-Ife, Nigeria.

Number 1, January, 1991.
Number 2, March, 1992.
XIIIth International Congress of Phonetic Sciences

ICPhS 95 will be held in Stockholm, Sweden, August 13-19, 1995. The format of the Congress will follow the pattern of earlier ICPhS meetings with a mixed format of plenary and semi-plenary lectures, topical workshops and symposia, poster sessions, and parallel oral sessions. We invite participants to suggest topics for such events.

Preliminary Dates and Deadlines

- **September 1994:** Call for participation/abstracts
- **November 1994:** Deadline for submission of abstracts
- **January 1995:** Notification of acceptance, preregistration deadline
- **April 1995:** Deadline for full paper
- **May 1995:** Distribution of congress programme
- **August 12-19, 1995:** Congress

Please mail, fax, or e-mail your interest to ICPhS 95, Congrex, as soon as possible to guarantee that we reach you with further information about the congress. If possible include a preliminary title and suggestions on special events.

ICPhS 95  
c/o Congrex  
Box 5619  
S-114 86 Stockholm  
SWEDEN

**Phone:** +46-8-612 69 00  
**Fax:** +46-8-612 62 92  
**e-mail:** congrex@ask.se
"This volume considers data from some forty African languages on the East and West sides of the continent in an effort to answer the question, ‘How do languages of different word order typologies tell a story?’ The evidence suggests that the ordering of constituents on the clause level, i.e. subject, verb, and object/complement, often determines differences in the mechanics of story telling.”

You may order copies from

Subscription Manager
James S. Coleman African Studies Center
University of California
Los Angeles, CA 90024-1310

Enclosed is

___ copies @ $5.00 for current individual subscriber to Studies in African Linguistics $_____
___ copies @ $8.00 for current institutional subscriber to Studies in African Linguistics $_____
___ copies @ $12.00 for individual non-subscriber to Studies in African Linguistics $_____
___ copies @ $15.00 for institutional non-subscriber to Studies in African Linguistics $_____
$5.00 for overseas Air Mail for each copy ordered $_____
TOTAL enclosed $_____

Make checks payable to The Regents of the University of California
BOOK SALE!

BEATRICE AND WILLIAM E. WELMERS

IGBO: A LEARNER'S DICTIONARY

and

IGBO: A LEARNER'S MANUAL

The Welmers and Welmers Igbo books, originally published in 1968, were written as pedagogical texts for learners of Igbo, but they serve as general reference books on “Central Igbo” as well. The dictionary has both Igbo-English and English-Igbo sections. Entries in the Igbo section are alphabetized by initial root consonant rather than by prefix. The learner's manual has extensive information on syntax and in particular, on tonal alternations, which play a central part in the syntax.

The books are now being offered at the very special price of $3.00 each. The two Igbo books can be purchased as a set at the greater bargain of $5.00 for the two. Also now available for $15.00 is a set of eight cassette tapes to accompany the manual.

Use the order blank below or a facsimile. Prepayment in US dollars is required. Send orders to

African Books
Department of Linguistics
UCLA
Los Angeles, CA 90024-1543
USA

Please send me

___ copies of Igbo: A Learner’s Dictionary @ $3.00 each
___ copies of Igbo: A Learner’s Manual @ $3.00 each
___ sets of the two Igbo books @ $5.00 per set
___ sets of cassette tapes for the Learner’s Manual @ $15.00 per set

Book rate postage (surface): $2.00 for each book or cassette set ordered
Overseas air mail postage: $8.00 for each book or cassette set ordered

TOTAL ENCLOSED

NAME:
ADDRESS:

(Make checks payable to Russell G. Schuh)
New from UCLA Occasional Papers in Linguistics!

Ay Baati Wolof
AWolof Dictionary

by Pamela Munro and Dieynaba Gaye

Wolof is the major language of Senegal and Gambia. Ay Baati Wolof is the first Wolof-English dictionary and one of only two modern full-scale dictionaries of Wolof. It has a 154 page Wolof-English dictionary and a 94 page English-Wolof index. The Wolof-English entries contain grammatical information, examples, and frequent cross-referencing to related entries. It is based on the Dakar dialect and includes many recent innovations in Wolof as used in Dakar.

You may order copies from

Department of Linguistics
UCLA
Los Angeles, CA 90024-1543
USA

Please send me

_____ copies of Ay Baati Wolof @ $9.00/copy (postpaid) $_________

Add $3.00/copy for overseas air mail $_________

TOTAL enclosed $_________

Make checks payable to The Regents of the University of California