

STUDIES
in
AFRICAN LINGUISTICS

APRIL 1982
Volume 13, Number 1



Published by the Department of Linguistics
and the African Studies Center
University of California, Los Angeles

STUDIES IN AFRICAN LINGUISTICS

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

Editor

Russell G. Schuh

Executive Board

Michael Lofchie
Robert P. Stockwell
Philip J. Jaggard

Editorial Assistance

Alice McGaughey
Maxine H. Schuh
Deborah Wilkes

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
William R. Leben
Ian Maddieson
Olasope O. Oyelaran
Carol Myers Scotton
William E. Welmers

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. All correspondence and contributions to the journal should be sent to

The Editor, *Studies in African Linguistics*
Department of Linguistics
University of California
Los Angeles, CA 90024

Subscriptions: Individuals: \$10.00 per year, \$18.00 for two years
Institutions: \$15.00 per year
Single issues: \$5.00
Supplements: \$8.00 (if ordered separate from subscription)
(Add \$7.00 per year for overseas Air Mail subscriptions.)

Make checks payable to The Regents of the University of California.

Volume 13, Number 1, April 1982

Copyright 1982

by the Regents of the University of California

ISSN 0039-3533

Grateful acknowledgements to the National
Endowment for the Humanities for partial
funding of this issue of *Studies in African
Linguistics* (NEH Challenge Grant #CE-31990-
78-971).

STUDIES IN AFRICAN LINGUISTICS

Volume 13, Number 1
April 1982

TABLE OF CONTENTS

Articles

Douglas Biber, ACCENT IN THE CENTRAL SOMALI NOMINAL SYSTEM	1
Donald G. Churma, RULE INVERSION IN CHADIC: A CLOSER LOOK	11
Carol Stanley, DIRECT AND REPORTED SPEECH IN TIKAR NARRATIVE	31
Kenneth N. Shepardson, AN INTEGRATED ANALYSIS OF SWAHILI AUGMENTATIVE-DIMINUTIVES	53
Baruch Elimelech, SYLLABLE COUNTING IN YORUBA	77
CONFERENCE ANNOUNCEMENT	89
PUBLICATIONS RECEIVED	90
Guidelines for Contributors	inside back cover

ACCENT IN THE CENTRAL SOMALI NOMINAL SYSTEM*

Douglas Biber
University of Southern California

The accentual system of Central Somali nominal forms is described in this paper and contrasted with the systems of Northern Somali and Proto-Somali. In particular, it is shown that a diachronic rightward shift of the accent has had widespread consequences, resulting in surface alternations and a restructuring of the accentual system. However, despite the complications introduced by this change, it is possible to describe the system with two synchronic accentual rules, which generally reflect the history of this development.

1. INTRODUCTION

The prosodic system of Northern Somali has recently been described by Hyman [1981] as a tonal-accent one, as opposed to either a "pure" tone system or a stress-accent system. That is, every non-particle, i.e. noun, verb, adjective, etc., can have at most one H tone, marking the system as accentual, yet an underlying accent is realised as a high pitch (rather than part of an intonational pattern), marking the system as a tonal-accent one (see Hyman [1981:177-178] for a fuller discussion).

The purpose of the present paper is to describe the accentual system of Central Somali and to contrast this system with the one operative in Northern Somali. The prosodic system of Central Somali is also a tonal-accent one. However, there are major differences between the two surface accentual systems. In particular, it will be shown that a simple diachronic shift of the accent to the right in Central Somali has resulted in surface accentual alternations and an overall restructuring of the accentual system.¹

*I would like to thank B. Comrie and L. Hyman for their many helpful comments on earlier versions of this paper.

¹This study is limited to nominal forms, although the overall accentual system of this dialect should be analysed at some point.

Central Somali (self designation *reeween*, otherwise known as *Rahaween* or *Rahanweyn*) is spoken by approximately 20,000 people living in Mandera District, Kenya, plus a larger population residing within Somalia. The overall grammatical system of this dialect has recently been described by Saeed [to appear]. The two language assistants who helped with the present paper are both from Mandera: Mahamad Adan and Hassan Abdirahman.

2. Accent Assignment

In Northern Somali, nominal forms do not have an underlying accent, but rather they are assigned an accent on the basis of their phonological shape plus the factors of gender and number.² In particular, vowel-final roots (Hyman's class D2) are assigned a penultimate accent, as are consonant-final masculine roots,³ while consonant-final feminine roots are assigned an ultimate accent [Hyman 1981:180]. The only additional major factor to be noted at this point is that accent is assigned to moras rather than syllables. That is, each vowel is a potential tone-bearing unit. This is particularly relevant with respect to CVVC syllables, since this analysis does away with the need for gliding tones while at the same time maintaining the unity of the overall analysis, i.e. masculine CVVC roots are assigned penultimate accent (CVVC) while feminine CVVC roots are assigned ultimate accent (CVVC).

In Central Somali, the system is essentially the same, i.e. accent is predictable based on the phonological shape of the root and grammatical factors and must be analysed in terms of moras rather than syllables, except that diachronically the accent has shifted one mora to the right. Thus, accent in V-final and masculine C-final roots has shifted from the penultimate to the ultimate mora. Consider the following examples:⁴

- | | | | |
|--------------------|-----------------|-----------------|------------------|
| (1) <i>dubé</i> | 'ox' (masc.) | (5) <i>hoóg</i> | 'strength' (m.) |
| (2) <i>maroodé</i> | 'elephant' (m.) | (6) <i>waár</i> | 'baby goat' (m.) |

²There are additional grammatical factors such as case which condition accentual alternations in Northern Somali.

³There is a small exception class of masculine roots with final accent (Hyman's [1981:180] class D3).

⁴D and G are implosive consonants. There are actually ten vowel positions in Somali, although this paper will follow the standard Somali ortho-

- | | | | |
|------------|-------------------|----------------|---|
| (3) sheeké | 'story' (fem.) | (7) ilbaáb | 'door' (m.) |
| (4) abeesé | 'puff-adder' (f.) | (8) ferés | 'horse' (m.) |
| | | (9) nebeddoón | 'committee' (m.)
[lit. 'peace-want'] |
| | | (10) turjubaán | 'translator' (m.) |

Forms (1-4) illustrate the general phonological rule which assigns accent to V-final roots, i.e.

Rule 1a: $V \rightarrow [+A] / _ \#$

That is, regardless of the gender, V-final roots are assigned a final accent.

The normal pattern for C-final masculine roots is illustrated by (5-10), that is, accent is assigned to the ultimate mora. This rule could be written:

Rule 1b: $V \rightarrow [+A] / V X _ C \#]_{+Masc.}$

However, rule 1a and rule 1b both perform the same function, which can be shown by collapsing the two of them, i.e.:

Rule 1: Final Accent Assignment

$$V \rightarrow [+A] / V X _ <C> \#]_{\text{NOUN}}^{<+Masc.>}$$

This rule applies only to roots with two or more vowels, i.e. CVC roots are excluded. In isolation, CVC roots are all accented, and therefore it might be supposed that CVC masculine roots would be assigned an accent by Rule 1. For example:

- | | | | |
|----------|----------------|----------|---------------------|
| (11) Dár | 'clothes' (m.) | (13) íd | 'home/village' (f.) |
| (12) Dfb | 'problem' (m.) | (14) fár | 'finger' (f.) |

However, the following discussion of CVC+suffix forms will show that this accent is assigned by a later rule (Rule 2), regardless of the gender.

In the case of C-final feminine roots the accent is in effect shifted off the word, with a new accent appearing word-initially, e.g.

graphy and distinguish only five of these. Finally, Central Somali has the following near-surface phonological rule: $n \rightarrow \eta / _ \#$.

- | | |
|----------------------------|---------------------------------|
| (15) béer 'farm' (f.) | (18) gálan 'hand/arm' (f.) |
| (16) wáar 'baby goat' (f.) | (19) máGaayed 'restaurant' (f.) |
| (17) fllg 'tooth' (f.) | (20) máhakamad 'court' (f.) |

These forms illustrate the normal pattern for C-final feminine roots, that is, accent is assigned to the initial mora. This same accent assignment also holds for a very small class of masculine roots,⁵ e.g.

- | | |
|----------------------------------|----------------------------|
| (21) réer 'extended family' (m.) | (23) wálaal 'brother' (m.) |
| (22) fúud 'soup' (m.) | (24) áfaaf 'entrance' (m.) |

In fact, it will be seen that this rule applies just before the surface representation to *any* phrase which has no other assigned accent. That is, this rule functions to prevent the possibility of a nonaccented nominal form on the surface. Thus, the nouns of the masculine exception class, e.g. (21-24), would simply be marked [-Rule 1], and by default they will receive an initial accent. The rule could be formalised as:

Rule 2: Default Accent Assignment

V → [+A] / % (C) ___ X % Condition: X does not contain
an accented vowel

where % represents a phrase boundary.

3. Accentual Alternations

Both nominal roots and suffixes show accentual alternations. However, these alternations do not appear in the masculine paradigms:

- | | |
|---|--|
| (25) waárke 'the baby goat'(m.) | (26) feréske 'the horse' (m.) |
| waárkli 'the ...' (previous
reference) | feréskii 'the ...' (previous
reference) |
| waárkun 'this ...' | feréskun 'this ...' |
| waárkaas 'that ...' | feréskaas 'that ...' |
| waárkey 'my ...' | feréskey 'my ...' |

⁵Of the 222 nominal forms surveyed for this study, 117 belong to the masculine class, 83 to the feminine class, and only 22 to this class of exceptions.

- (27) turjubaánke 'the translator' (m.)
 turjubaánkii 'the ...' (previous reference)
 turjubaánkun 'this ...'
 turjubaánkaas 'that ...'
 turjubaánkey 'my ...'

That is, the accent in masculine roots remains in the final-mora position throughout the paradigms. However, both the feminine forms and the CVC words show a synchronic accentual alternation:

CVC forms

- | | | | | | |
|---------|---------|--|---------|---------|---|
| (28) a. | Dfbkii | 'the problem' (m.)
(previous reference) | (29) a. | fártii | 'the finger' (f.)
(previous reference) |
| | Dfbkaas | 'that ...' | | fártaas | 'that ...' |
| b. | Dibké | 'the ...' | b. | farté | 'the ...' |
| | Dibkún | 'this ...' | | fartún | 'this ...' |
| | Dibkéy | 'my ...' | | fartéy | 'my ...' |

Feminine

- | | | | | | |
|---------|----------|------------------|---------|----------|--------------|
| (30) a. | wáartii | 'baby goat' (f.) | (31) a. | íilgdii | 'tooth' (f.) |
| | wáartaas | | | íilgdaas | |
| b. | waarté | | b. | iligdé | |
| | waartún | | | iligdún | |
| | waartéy | | | iligdéy | |
- (32) a. máGaayeddii 'restaurant' (f.)
 máGaayeddaas
- b. maGaayeddé
 maGaayeddún
 maGaayeddéy

Thus ke/te, kun/tun and the possessive suffixes⁶ are assigned an accent while kii/tii and kaas/taas are not. The default rule, i.e. rule 2, will account for the (a) forms in both the feminine paradigms and the CVC+

⁶All possessive suffixes follow the same pattern as key/tey, although only the first person singular form is given here.

suffix paradigms. As for the (b) forms, an additional rule is required, which must be ordered before the default rule. That is, the accent in feminine roots has shifted from the ultimate position in Proto-Somali to a post-root position, i.e.

$$X C (V) \overset{[+A]}{V} C \# Y > X C (V) V C \# \overset{[+A]}{Y}$$

Thus it could be said (synchronically) that feminine roots are assigned a post-verbal "floating" accent, which is realised on the immediately following suffix if there is one, and otherwise is reduced. In this latter case, Rule 2 would later apply to assign an initial accent.

The rule assigning accent to feminine roots is actually the "elsewhere" case corresponding to Rule 1 [Kiparsky 1973]. That is, #CVC# roots were assigned an underlying accent in Proto-Somali, which has since been shifted to the post-root position in the same way as feminine roots. The same holds for the masculine exception class (marked [-Rule 1]). Thus synchronically all roots not assigned a final accent by rule 1 are assigned a post-root accent, i.e.

Rule 3: Post-Root Accent

$$V \rightarrow [+A] / \overset{[-A]}{V} C \# (C) _$$

If there is a suffix following the root, this rule will assign an accent to its initial vowel. However it will not apply to masculine forms, due to the root-final accent assigned by Rule 1. Under this analysis, *kii/tii* and *kaas/taas* must be treated as full words, e.g. *waar##taas*, so that no accent is assigned to them. Finally, if there is no vowel for the accent to associate with, the rule will not apply. These rules are illustrated by the following derivations:

<u>Masculine</u>	/feres/	/feres#kun/
Rule 1	ferés	feréskun
Rules 2-3	---	---
Surface Rep.	ferés	feréskun

Feminine

	/lllg/	/lllg#dun/	/lllg##daas/
Rule 1	---	---	---
Rule 3	lllg ^o	lllgdún	lllgdaas
Rule 2	fllg	---	fllgdaas
Surface Rep.	fllg	lllgdún	fllgdaas

As mentioned earlier, Rule 2 must be ordered last, immediately preceding the surface representation, since its function is to prevent the possibility of an accentless surface form.⁷

A further complication of the accentual system of Central Somali results from the combination of both determiners and possessives in the same word. Consider the following masculine examples:

(33) waárkaaskéy	'that (m.) baby goat of mine'	(34) feréskaaskéy	'that horse (m.) of mine'
waárkunkéy	'this ...'	feréskunkéy	'this ...'
waárkilkéy	'the (prev. ref.) ...'	feréskilkéy	'the (prev. ref.) ...'
waárkekéy	'the ...'	feréskekéy	'the ...'

Examples (33) and (34) show the expected root-final masculine accent, but in addition the possessive suffix carries an accent in these forms. In fact, it is possible to reverse the order of these suffixes, e.g. feréskeykaas (/feres#key##kaas/) 'that horse of mine', and feréskeykún (/feres#key#kun/) 'this horse of mine'. These examples can be accounted for by the claim that Rule 3 applies to nominal suffixes as well as roots. Diachronically this analysis receives support from the fact that the demonstratives and possessive pronouns were assigned final accent in Proto-Somali, which was shifted to the post-root position in this dialect. Apparently this rule (Rule 3) has come to apply to the definite articles in addition to the demonstratives by analogy. This analysis is illustrated by the following derivation:⁸

⁷The possessive suffixes are assigned an accent (by Rule 3) in the same way as kun/tun, etc. However, a low-level phonetic rule assigns a H tone to both vowels in these forms, e.g. ROOT#tíis → ROOT#tíífs.

⁸There is additionally a surface rule lowering the pitch of the second accent in these forms.

(34)	/feres#kun#key/
Rule 1	feréskunkey
Rule 3	feréskunkéy
Rule 2	---
Surface Rep.	feréskunkéy

However, the following feminine examples show that Rule 3 must apply from left to right:

(35)	waartúntey	'this (f.) baby	(36)	lllgdúntey	'this tooth (f.)
	/waar#tun#tey/	goat of mine'		/lllg#dun#tey/	of mine'

as compared to:

	waartaastéy	'that (f.) baby		lllgdaastéy	'that tooth (f.)
	/waar##taas#tey/	goat of mine'		/lllg##daas#tey/	of mine'

That is, it is not possible for accents to occur on two adjacent syllables in Central Somali, which would be the result if Rule 3 applied simultaneously. Furthermore, the rule must apply from the left to the right, since the incorrect results are predicted by a right to left application, e.g.

(37)	/lllg#dun#tey/
Rule 1	---
Rule 3	lllg#duntéy
Rule 3	lllgdúntéy
Rule 2	---
Surface Rep.	*lllgdúntéy

However, under a left to right analysis, the application of the rule will be blocked by any immediately preceding accent (see the original formulation of this rule), and therefore the correct results are predicted. Consider the following derivations:

(38)	/lllg##daas#tey/	/lllg#dun#tey/
Rule 1	---	---
Rule 3	lllg ^o daas#tey	lllgdún#tey
Rule 3	lllgdaastéy	lllgdúntéy
Rule 2	---	---
Surface Rep.	lllgdaastéy	lllgdúntey

Finally it might be noted that both Rule 3 and Rule 2 assign an accent to a vowel immediately following a grammatical boundary. The major difference between the two rules is that Rule 2 "looks" to the right, and applies only if there is no *following* accent in the phrase; whereas Rule 3 looks to the left and applies only if there is no immediately *preceding* accent. However, Rule 3 will never apply if there is a following accent either. Therefore these two rules can be collapsed:

Rule 2-3: Post-Boundary Accent⁹

$$V \rightarrow [+A] / \% (X \overset{[-A]}{V} C \#) (C) _ Q \%$$

Condition: X contains no % and Q contains no [+A]

The Q variable in this rule has the interpretation: "take the longest possible expansion". Thus, the rule itself has two possible expansions: (1) the fullest expansion (including the parenthesized portion of the rule) will apply first, placing the accent after the left-most # which is not immediately preceded by an accented vowel; (2) otherwise the accent will be placed after the left-most boundary, i.e. after the %, resulting in an accent on the first syllable of the phrase. The condition on both of these readings is that there are no following accents in the phrase. Two points should be noted. First, under this formalisation, there is no need to specify a direction of application, since the Q variable guarantees the same result that a left to right application does in this case. Secondly, the fact that Rule 2 and Rule 3 can be collapsed indicates that the similarities between them are not accidental. That is, apparently Rule 3, which assigns an accent to the vowel

⁹There is another possible formulation of this rule:

$$V \rightarrow [+A] / \left\{ \begin{array}{l} [-A] \\ V \quad C \# \\ \% \end{array} \right\} (C) _ Q \%$$

However, the use of curly brackets here hides the real generalization. That is, this device can be used to collapse anything (regardless of whether there is any relationship between the collapsed items; see McCawley [1971:3-4]) and thus it would not capture the actual relationship between the environments

$\overset{[-A]}{V} C \#$ and $\%$.

immediately following the left-most #, has been generalised to assign an accent immediately following the absolute left-most boundary (%) in case no other accent has been assigned.

4. Conclusion

A complete study of accent in Central Somali should include the verbal paradigms, as well as adjectival phrases, genitive constructions, etc. In fact, the rightward accentual shift has affected most of these other parts of the grammar in addition to the nominal paradigms. For instance, imperative forms in Northern Somali take penultimate accent, e.g. *kéen* 'bring', *árag* 'see', *joój!* 'stop it', except for the conjugation class 3 (C3)¹⁰ [Hyman 1981:174] which is assigned a final accent, e.g. *baró* 'learn', *joogsó* 'stand'. The corresponding forms in Central Somali all show a rightward shift of the accent. For example: *jeén* 'bring', *arág* 'see', *rooj!* 'stop it', *barof* 'learn', *roogsof* 'stand'.¹¹ However, the verbal paradigms do not show the range of alternations that the nominal paradigms do. That is, the study of the nominal system in this dialect is especially interesting due to the opposition between masculine and feminine forms and the maintenance of this opposition despite the diachronic accentual shift.

REFERENCES

- Hyman, Larry M. 1981. "Tonal accent in Somali." *Studies in African Linguistics* 12:169-203.
- Kiparsky, Paul. 1973. "'Elsewhere' in phonology." In Stephen R. Anderson and Paul Kiparsky (eds.), *A Festschrift for Morris Halle*, pp. 93-106. New York: Holt, Rinehart and Winston, Inc.
- McCawley, James D. 1971. "On the role of notation in generative phonology." Indiana University Linguistics Club.
- Saeed, John I. To appear. "Central Somali—a grammatical outline." *Afroasiatic Linguistics* 8(2).

¹⁰The verbs of this class are composed of reflexive derived stems.

¹¹As can be seen, even the C3 verbs have undergone this shift by "creating" an extra vowel. The origin of the final -i in these forms is mysterious, as I am not aware of any evidence for its existence in Proto-Sam or Proto-Lowland East Cushitic. For example, consider the reflexive suffix in the following languages: Rendille +o ; Dasanech +u ; Oromo +aDu .

RULE INVERSION IN CHADIC: A CLOSER LOOK*

Donald G. Churma
Columbus, Ohio

Schuh [1972] has argued that the phenomenon of "rule inversion" has occurred in the historical development of Hausa and Kanakuru, while Leben [1974] maintains that this is not the case. This paper examines this controversy in the light of both the data discussed by Schuh and Leben and other data from Newman [1974]. It is concluded that, at least in the case of Kanakuru, Leben's analysis is incorrect and that some of the Kanakuru facts will pose extreme difficulties for any theory of phonology which does not allow for the possibility of rule inversion. Some discussion of the possibility of predicting when rule inversion will and will not occur is also given.

1. Introduction

Schuh [1972] has argued that in the historical development of the Chadic languages Kanakuru and Hausa, the phenomenon of "rule inversion" (cf. Vennemann [1972]) has occurred. In particular, Schuh claims that the synchronic grammars of these languages contain rules which convert underlying sonorants into stops, as opposed to the historical process(es) which converted stops into corresponding sonorants in certain phonological environments. (Newman [1974], in his synchronic account, refers to these as "hardening" rules, a term adopted by Schuh.) Leben [1974] challenges these claims. He maintains (pp. 265-6) that "the positing of a synchronic stage with 'conceptually anomalous' inverse rules constitutes a middleman which it would be advantageous to eliminate in principle from the realm of possible phonological systems" and presents alternative accounts of these phenom-

*This paper is a revised and expanded version of a paper presented at the Eleventh Conference on African Linguistics which was held at Boston University. I would like to thank Grover Hudson and Will Leben for comments which they made on that version, and also Russell G. Schuh and David Stampe for other helpful comments and discussion.

ena which, he argues, have all of the virtues of Schuh's accounts without requiring the undesirable "middleman" of inverse rules.

This paper is a further contribution to the issue of deciding whether rule inversion has in fact taken place in these languages. It is argued that, while Schuh's and Leben's accounts both appear to give reasonable explanations for the behavior of the forms under discussion, there are other forms, at least in the case of Kanakuru, which afford a basis for preferring Schuh's account to that of Leben.¹

The Kanakuru facts thus seem to indicate that rule inversion must be allowed in phonological theory if a more or less standard generative approach is adopted. What is more, it is not possible to account for these data within either the framework of "upside-down" phonology (Leben and Robinson [1977]) or some versions of what is called "Natural Generative Phonology" without allowing inverse rules. Thus the only way of accounting for such data for any theory appears to be the use of inverse rules. I will also give some attention to the issue of how to predict, if this is possible, when rule inversion will occur.

2. The Kanakuru Controversy

Relying on Newman [1970, 1974], Schuh first presents data (pp. 380-382) which indicate that in Kanakuru earlier stops "weakened to corresponding sonorants in phonologically specifiable environments," so that *t, *d, *d̂, became r, *k and *g became γ, and *p, *b, *b̂ became w. These weakenings resulted in many cases in synchronic alternations in a synchronic grammar of Kanakuru. Schuh presents three arguments in support of his contention (p. 384) that "the rules producing the alternations ... are 'hardening' rules and the sonorant variants are underlying." I will now sketch briefly these arguments, together with Leben's counters to them and further

¹For the sake of brevity, I will not discuss here the Hausa case. Although the issues in this case do not appear to be as amenable to a clear resolution as in the case of Kanakuru, I would maintain that Leben's arguments against Schuh's analysis are not nearly as telling as he apparently believes they are (cf. Leben [1974, 1979]). For a brief consideration of this question, see Churma [1981a].

discussion relevant to choosing between the accounts of Schuh and Leben.

2.1. Simplification of alternation types.

2.1.1. Schuh's arguments. Although at one point in the history of Kanakuru there were alternations between each of the original stops and the corresponding sonorants, as well as non-alternating stops and sonorants, this is no longer the case for contemporary Kanakuru. Now γ alternates only with k , w with p , and r with t (or, in a few words, with d'); the other original stops are not found in these alternations. Moreover, etymological sonorants (which, of course, did not alternate at all for a time) now show precisely the same kinds of alternations that are found with the etymological stops. The reason for these changes, Schuh maintains, is that, since "for the majority of lexical items, sonorants had now replaced etymological stops in the most basic syntacto-semantic forms" (p. 384), they soon came to be taken as also phonologically basic. Now that the sonorants were taken as underlying, however, each lexical item had to be marked as to which stop (if any) it alternated with: some w 's alternated with p , some with b , some with β , and still others did not alternate at all. "Since such lexical marking is conceptually anomalous" (p. 385), the markings have been eliminated, and now only one of the stops shows up in the alternations, even when there had originally been no alternation. In sum, the appearance of the sonorants in the more "basic" categories caused them to become underlying phonologically and thus necessitated an inversion of the rules in question, as evidenced by the subsequent changes in the language. That is, unless the alternations were at some point due to an inverse rule (and the concomitant change in underlying representations), the changes observed would have been unlikely; but the changes did occur, and so it is likely that there has been a rule inversion.

2.1.2. Leben's reply. Leben argues (p. 267) that "if we do not assume that sonorants became basic, it is still possible to explain the historical developments." Recall that one phenomenon to be explained is the fact that sonorants now alternate only with voiceless stops. Leben proposes an alternative explanation for this: "In the examples given by Schuh, the voice-

less stops resulting from this regularization appeared in a typical devoicing environment, immediately preceding a voiceless stop ... If, in addition, etymological *d*, *b*, etc., ceased to surface phonetically as voiced stops, then future generations would be presented with no synchronic evidence for setting up underlying voiced stops in these words." Thus, the (voiceless) stops *could* become underlying for this reason in the case of etymological stops. As for the historical sonorants which now alternate with stops, Leben notes (p. 268) that "the only instances he cites of the extension of the alternation to historical sonorants occur in word final position, and Schuh himself notes (p. 386) that 'word final is a position of neutralization where stops and sonorants cannot contrast either phonetically or underlying [sic].'" The sonorants have been eliminated by this neutralization rule in favor of voiceless stops, which "will naturally be subject to the same alternations as any other instance" of voiceless stops. That is, there is another possible explanation for the changes at issue, one which does not entail the existence of inverse rules.

2.1.3. Discussion. There can be little question that Leben's account is on the face of it at least as plausible as that of Schuh. It is possible, of course, that there could be data from Kanakuru which would be counterexamples to Leben's analysis, e.g. there could be etymological sonorants which alternate with voiceless stops which are in other than word-final position. (Note in this regard that if there are in fact no data of this kind, Leben's account would appear to be supported, since the lack of stops occurring in other kinds of environments would appear a priori to be quite unlikely, unless perhaps some facts about the structure of Kanakuru preclude such data.) However, such data clearly do exist, even among the examples discussed by Leben, although he is correct that the examples cited by Schuh in his first argument contain no data of this type. Thus, we find *guwɪ* 'to forge' and *a gup-ro dɪyɪ* 'he forged a hoe for her' illustrating the w/p alternation (cf. Schuh, p. 385 and Leben, p. 268), where the *p* is clearly neither in a devoicing environment nor in word-final position. Therefore, since the alternating consonant comes from etymological **ɓ* (cf. Schuh, p. 385), Leben's analysis cannot be maintained. He thus has not

shown that there is an alternative explanation for Schuh's facts.

2.2. Schwa-epenthesis.

2.2.1. Schuh's arguments. Schuh first presents (p. 386) the data given in (1):

- (1) a. a wupə-ro 'he sold (it) to her' [cf. wupe 'to sell']
 b. a gup-ro diɣii 'he forged a hoe for her' [cf. guwi 'to forge']
 c. ʃi kukə-mai 'he is learning it' [cf. kuke 'to learn']
 d. ʃi duŋ-ŋai 'he is beating it' [cf. duɣi 'to beat']
 [cf. also a duk-ro 'he beat (it) for her']

He argues (pp. 386-7) that "if we were to take stops as underlying in all cases and derive the sonorants from them, there would be no way to distinguish the medial consonant in the verb root in [1a] from that in [1b] and the medial consonant in the verb root in [1c] from that in [1d] for the purposes of epenthetic ə insertion.... Likewise, by not distinguishing k and ɣ underlyingly, we would have no way to predict which words have velars which assimilate to the following nasal, as in [1d]."

Before proceeding further with this argument, it will be helpful to have a clearer understanding of the rules involved, since neither Schuh nor Leben gives an explicit account of the rules in question which is in accord with the data and rules given by Newman. First of all, the Schwa-epenthesis rule is actually somewhat different from either Schuh's or Leben's formulation: sequences of two consonants are subject to epenthesis if the first is voiceless or prenasalized; the second may be any consonant, not just a sonorant as stated by Schuh. The sequence *dr* is also subject to epenthesis as are all triconsonantal clusters (cf. Newman [1974:3]). The exact statement of the epenthesis rule is not crucial to the present concern. Secondly, the weakening (or strengthening) "rule" must apparently be stated synchronically as a set of at least four rule schemata (cf. Newman [1974:4-7], Frajzyngier [1976:207-8]). Since Newman's rules involve "archiphonemes", thus rendering them inappropriate for present purposes, I give below Frajzyngier's "translation" of them into a weakening version:

- (2) a. $C \rightarrow [+cont] / V_v^2$
 b. $\begin{bmatrix} C \\ <-lab> \\ acon \end{bmatrix} \rightarrow [+son] / \begin{bmatrix} C \\ <-acon> \end{bmatrix} \text{---}^3$
 c. $\begin{bmatrix} C \\ +con \end{bmatrix} \rightarrow [+son] / \text{---} \begin{matrix} C \\ \{ [-con] \\ [+con] \\ [+son] \} \end{matrix}$
 d. $\begin{bmatrix} C \\ -ant \\ -con \end{bmatrix} \rightarrow [+son] / \text{---} \begin{bmatrix} C \\ +son \end{bmatrix}$

That is, weakening occurs intervocalically for all consonants (but cf. note 2), labials weaken after any consonant, velars after dentals and before sonorants, and dentals before and after labials and velars and before *r*.

The corresponding strengthening version would be:

- (3) a. $C \rightarrow [-son] / \text{---}\#$

²The "[+cont]" here is apparently a misprint, and should actually be "[+son]", since Newman's rules refer to the latter feature (as do the rest of those of Frajzyngier). The environment will undoubtedly also have to be complicated, since weakening does not occur when the second vowel is schwa or between a short vowel and *e*. It could be not implausibly maintained that all schwas are epenthetic and that epenthesis follows weakening (thus explaining why weakening does not occur before schwa), but Frajzyngier's attempt to account for the lack of weakening in the second of the above environments by positing underlying geminates in all and only such cases is ad hoc from a synchronic perspective (although geminates probably were present phonetically at an earlier period in at least some of these cases). An analysis which entails such massive "absolute neutralization" (Kiparsky [1973]) is almost certainly untenable. The actual form which (2a) would have to take, given these considerations, is:

$$(i) C \rightarrow [+son] / \begin{bmatrix} V \\ <-long> \end{bmatrix} \text{---} \left\{ \begin{matrix} +high \\ +back \end{matrix} \right\}$$

i.e. weakening occurs intervocalically except between a short vowel and *e*. It is worth pointing out also that Frajzyngier's abstract analysis does not even attempt to account for the failure of stops in synchronic stop-sonorant alternations to correspond to their etymological counterparts, which is of course one of the main arguments for rule inversion.

³I have supplied the angled brackets here. Without them, labials would incorrectly never (rather than always—cf. Newman [1974]) be weakened after a consonant.

- b. $\begin{bmatrix} C \\ <-lab> \\ \text{acor} \end{bmatrix} \rightarrow [-son] / \begin{bmatrix} C \\ <-acor> \end{bmatrix} \text{---}$
- c. $\begin{bmatrix} C \\ +cor \end{bmatrix} \rightarrow [-son] / \text{---} \begin{bmatrix} C \\ +cor \\ -son \end{bmatrix}$
- d. $\begin{bmatrix} C \\ -cor \\ <-ant> \end{bmatrix} \rightarrow [-son] / \text{---} \begin{bmatrix} C \\ <-son> \end{bmatrix}$

That is, all consonants are strengthened word-finally, labials strengthen before any consonant, velars after labials and velars and before obstruents, and dentals after dentals and before dentals other than *r*.

Some simplification of these rules may be possible, but it is apparently an inescapable fact that the synchronic situation is not a simple one. It is worth pointing out in this respect that the environment for the synchronic rule in a weakening account is not the same as the historical environment and that for a strengthening account it is not "the complement of the former weakening environments" (Leben [1974:269]), nor for that matter, "that subset of [the complement of the historical environments] in which [the stops and sonorants] still alternate" (Vennemann [1972:211]). This may have important implications concerning the nature of rule inversion (but cf. the discussion in section 4). In any event, some additional changes must have taken place in the history of Kanakuru.

Let us now return to Schuh's argument. He apparently intends that the underlying form of the verb stem for the above forms be the same as the surface form of the infinitive; after a rule which deletes final *-i* in verbs everywhere except pre-pausally has applied, the epenthesis rule applies, and then a rule which assimilates velars to a following nasal (see (1d) above) and the inverted version of weakening applies to produce the stops in the left column of (1). Sample derivations for (1a,b) are given in (4):

(4)	/wupe-ro/	/guwi-ro/
i- deletion	---	guw-ro
epenthesis	wupe-ro ⁴	---

⁴Leben [1974:269] suggests that "Epenthesis" also converts stem-final *-e* in verbs to *ə* between a stop and a sonorant consonant, thus treating the change here as part of the epenthesis rule. It is not clear that the phenome-

(assimilation)	---	---
strengthening	---	gup-ro

That is, unless there has been rule inversion, the only way of telling whether epenthesis takes place for a given form is assigning an ad hoc marking to each lexical item.

2.2.2. Leben's reply. Leben argues (p. 270) that it is possible to account for the varying susceptibility of stop-sonorant clusters to epenthesis without an inverse rule. He makes use of the same rules as those mentioned in connection with Schuh's argument, except that a rule of weakening replaces Schuh's strengthening. Recall (cf. fn.2) that this process does not affect stops followed by ə or preceded by a short vowel and followed by e . These rules result in derivations such as those in (5):

(5)	/wupe-ro/	/gupi-ro/
l- deletion and epenthesis	wupə-ro	gup-ro
(assimilation)	---	---
weakening	---	---

The isolation form of /gupi/ weakens to guwi, but that of wupe (as in all other forms with stops between a short vowel and e) does not. That is, Schuh's account of the reasons for the behavior of schwa-epenthesis is not the only plausible one.

2.2.3. Discussion. Again the issue of which of these accounts is closer to the truth can be decided by examining the empirical data provided by the phonetic forms of Kanakuru. Though Schuh's and Leben's analyses generate the forms discussed by Schuh, they make different predictions about the behavior of other possible forms. Leben's analysis essentially claims that all verbs with stem-final $-\text{e}$ or with a final consonant exhibit "epenthesis", while Schuh's predicts that verbs with etymological sonorants (which now alternate

na in question can actually be treated as a single rule, however, since there are cases where $-\text{e}$ alternates with \emptyset rather than with ə (cf. fn. 6). A rule of "e-deletion", which may or may not be formally distinct from that of l-deletion, will probably be necessary at this stage, in addition to that of epenthesis.

with stops because of the analogical changes mentioned by Schuh) will not. That is, it is possible that, in addition to verbs with stops inhibited from alternating by a preceding short vowel and following *-e*, there are verbs in final *-e* with etymological sonorants which alternate with stops. Leben's analysis predicts "epenthesis", since the *e* would be between a stop and a sonorant at the point in the derivation at which this rule is applicable, but Schuh's analysis predicts none since at the corresponding point in the derivation *e* would be between two sonorants (see below for an example). The two analyses also make different predictions concerning the behavior of verb stems in final *-e* but with a long vowel preceding the pre *-e* consonant: Leben's implies epenthesis, but Schuh's implies none since the sonorant would be underlying for Schuh, but not for Leben.

Again there are synchronic data from Kanakuru which indicate that Schuh's account is to be preferred over that of Leben. For example, Newman [1974:9] gives the pair *a dowe* 'he tied it' (where the *w* is presumably an etymological *w*, since it is in a phonological environment which prevented weakening) vs. *a dop-taru* 'he (went and) tied it'. Leben's account predicts that the *p-t* cluster should be broken up by epenthesis, but it is not. Schuh's account, on the other hand, predicts no epenthesis, in accord with the Kanakuru facts. Moreover, Newman specifically states (p. 4) that "the invariant voiceless stops [i.e. those never in a weakening environment] ... are ... subject to [epenthetic schwa insertion], while the still unspecified archiphonemes are not." (Archiphonemes are used by Newman to represent the alternating consonants.) That is, etymological sonorants (archiphonemes for Newman) which alternate with voiceless stops will not exhibit epenthesis even in words with final *-e*, contrary to Leben's analysis, but in accord with that of Schuh.

Schuh also suggests (pp. 387-9) that what he terms (following Newman) "plural hardening" provides evidence for rule inversion in Kanakuru. I will not discuss this matter here, since Leben is apparently willing to concede (p. 270) the possibility that morphologized rules such as this one can be inverted.

3. Other Possible Analyses

I have shown that Leben's proposed analysis of Kanakuru is incorrect. This does not imply, of course, that there is no analysis of Kanakuru which does not involve inverse rules and is not contraindicated by the Kanakuru facts. In this section, I will examine the possibility of accounting for the Kanakuru facts within several other recently proposed theories of phonology, most extensively concerning the "'upside-down' phonology" of Leben and Robinson [1977] and the version of "Natural Generative Phonology" advocated in Hudson [1974, 1975, 1980] and Hooper [1976]. I will argue that neither of these theories can provide an adequate account of these facts. I will focus here only on the facts concerning epenthesis in the case of upside-down phonology, since they appear to present the best case against this theory.

3.1. Upside-down phonology. Leben and Robinson [1977] have proposed that phonological rules, contrary to the traditional view, serve only an "interpretive" function, relating phonologically words which are (putatively) morphologically related. Within this theory of "upside-down phonology", words are entered in the lexicon in essentially their surface form,⁵ and rules of the traditional type are "undone" until the words in question are relatable by a morphological rule or rules, subject to the following conditions (cf. Leben and Robinson [1977:2]):

- a. If, in a conventional generative treatment, a form is derived by three rules A, B, C, applying in that order, they apply in our account in the reverse order, C, B, A, except as provided below.
- b. A rule of the form $X \rightarrow [-F]/Y_Z$ is undone by replacing $[-F]$ with $[+F]$ on segment X in the environment Y_Z . Analogously, a rule of the form $\emptyset \rightarrow X/Y_Z$ is undone by deleting X from the context Y_Z .
- c. A rule is blocked if undoing it would not increase the compatibility of forms A and B with respect to Word-Formation Rule R.

Let us now consider how the Kanakuru data might be treated within such a

⁵Leben [1979] has proposed that the level of lexical representation in upside-down phonology should actually be somewhat more abstract, so that it corresponds to that of "natural phonology" (cf. Stampe [1973], Donegan and Stampe [1979]). The difference between this proposal and the earlier one does not appear to be relevant to the present discussion.

theory; given the rules proposed by Leben [1974], let us attempt to relate the problematic forms of section 2.2.3 above in an upside-down fashion. Such an attempt is illustrated in (6):

(6) Lexical Representations	d ^h owe	d ^h op-t ^h eru	Morphology
(a) weakening	---	---	-t ^h eru affixation
(b) (assimilation)	---	---	"
(c) i- del. and epenthesis	---	---	"

Note that weakening cannot be undone at stage (6a) since it is not applicable in the environment in question, i.e. between a short vowel and e. Thus, these two forms cannot be related using these rules within the theory of upside-down phonology.

There remains the question whether it would be possible to account for these data in an upside-down framework using rules other than those just considered. Such an account is indeed possible using Schuh's rules,⁶ as illustrated in the derivations in (7):

(7) Lexical Representation	d ^h owe	d ^h op-t ^h eru	Morphology
(a) strengthening	---	d ^h ow-t ^h eru	-t ^h eru affixation
(b) (assimilation)	---	---	"
(c) i- del. and epenthesis	---	d ^h owe-t ^h eru	"

This account, however, makes use of an inverse rule, namely that of "strengthening" (cf. (7a)), and of course Leben's main point is that it is possible to do without such rules.

It might be suggested that a modification of the weakening rule could allow for the desired relating of the forms in question. In fact, within the theory of upside-down phonology, it appears that it would indeed be possible to account for these data without recourse to inverse rules by making the "weakening" rule context-free, i.e. stops are weakened to the corresponding

⁶A change in or addition to the rules used in stage (7c) will be necessary, so that there would be "deletion" of non-final e. Such an alteration would be required in a Schuh-type account as well, however, so this problem is not unique to an upside-down theory. Given this, of course, it would also be possible to restore the e in (6c), but the forms still could not be related.

sonorants in any phonological context. Such a version of this rule seems extremely counter-intuitive (though this is apparently formally irrelevant for the theory—cf. Churma [1981b]). In fact, Leben [1979] has argued, if I understand him correctly, that a context-free (upside-down) rule would be objectionable in a case of this type.⁷

Even if an analysis of this nature were permitted by the theory, moreover, there are other issues which must be considered. In particular, why should a change from the original rule to the context-free version occur? A possible answer to this question is that this is just an instance of rule simplification by elimination of contextual restrictions. If the rule in fact has been simplified, however, then it would be unexpected that the etymological stops which were not caused to alternate with sonorants due to the weakening rule should still show no alternation. What *would* be expected, assuming that the reason for the change which resulted in the bringing in of the historical sonorants to the alternation was the simplification of the weakening rule,⁸ is the complete disappearance of stops in favor of sonorants. This, of course, is not what actually occurred.

A perhaps somewhat more reasonable alteration of the weakening rule would restrict application to *intervocalic* environments. This would allow weakening to be undone at stage (6a) above, and the two forms in question could eventually be related (cf. fn. 6). But this approach would encounter precisely the same type of problem which the previous one did. In this case, it would be only those etymologically intervocalic stops which should change, but again the expected changes do not occur: formerly non-alternating stops are not brought into the alternation, but sonorants are.

Any other alternations in the weakening rule, it seems to me, would result in corresponding difficulties—the alternation is extended only in the

⁷For further discussion of why such rules might be undesirable in upside-down phonology, see Churma [1981b].

⁸This assumption is in accord with the upside-down approach to "abductive change" (cf. Andersen [1973]) proposed in Robinson [ms.], and I can conceive of no reasonable alternative explanation for the extension of the alternation to etymological sonorants within the framework of upside-down phonology.

case of etymological sonorants, and never in that of historical stops which did not originally alternate. Thus, it appears, upside-down phonology cannot provide a reasonable account of the Kanakuru changes unless inverse rules are permitted, since the directionality of the analogical changes cannot be explained.

3.2. Natural Generative Phonology. The term "Natural Generative Phonology" appears to have been used to refer to three quite different theories of phonology. One of these is that advocated by Vennemann in his papers of the early 1970's, e.g. [1972, 1974a], one which is not radically different from "standard" generative phonology, except for rather severe restrictions on abstractness and such matters, and a corresponding preference for considering "restructuring" (cf. Vennemann [1974a]) to have occurred relatively early in historical change. Of particular importance here is the relatively frequent (and controversial) treatment of synchronic phonological systems as involving inverse rules; in this respect, the present paper can be considered as an argument in favor of at least this aspect of this theory.

The second version of "Natural Generative Phonology" to be considered here was also advocated by Vennemann (cf. Vennemann [1974b]). Here, what is proposed (p. 353) is "adopting the hypothesis that the lexicon contains words ..., but no items below the complexity of words, in particular, no roots, stems, or affixes." Rules in this theory (p. 349) "function entirely as redundancy rules for forms already registered in the lexicon, and as generative rules only when unknown words are adapted to the lexicon, or new words are created by the speaker" It is difficult to evaluate this theory with respect to the data at issue, since Vennemann gives no examples of rules within this theory, but assuming that the "basic forms of paradigms" can in fact be identified by the "strategies" referred to by Vennemann (p. 369), and assuming also that the basic forms in Kanakuru contain sonorants under this approach, then it is not clear, as Vennemann himself suggests (p. 349), that this position is empirically distinct from the previous one. Insofar as no such "strategies" can be found, however, it appears that this theory could not explain the directionality of the analogical changes, as was shown above to be the case with respect to upside-down phonology.

The final version of "Natural Generative Phonology" to be considered here has been proposed by Hudson [1974, 1975, 1980] and advocated also in Hooper [1976]. Here each lexical item which is involved in a non-allophonic alternation is marked in the lexicon in some way to indicate that this is the case.

I will first give a simple illustration of the use of this framework in accounting for the alternation in the form of the English indefinite article, and then proceed to an examination of the Kanakuru case. The lexical representation for this morpheme, under this approach, would be $\left\{ \begin{smallmatrix} \text{an} \\ \text{a} \end{smallmatrix} \right\}$. To account for the alternation, rule (8) would be employed:

$$(8) \quad \left\{ \begin{smallmatrix} \text{an} \\ \text{a} \end{smallmatrix} \right\} \rightarrow \left\{ \begin{smallmatrix} \text{an} / _V \\ \text{a} \quad \text{elsewhere} \end{smallmatrix} \right\}$$

In Kanakuru, we would presumably find such lexical representations as $gu \left\{ \begin{smallmatrix} p \\ w \end{smallmatrix} \right\} l$, $d\alpha \left\{ \begin{smallmatrix} p \\ w \end{smallmatrix} \right\} e$, etc. (these would actually be in feature notation but I will oversimplify here in this respect and others for purposes of exposition). "Rules of phonetic structure" (Hudson [1980:95ff]) would specify the distribution of the segments enclosed in braces in the above lexical representations. Presumably, these rules would be analogous to those in one of the sets given in section 2.2.1, but it is not clear to me which set would be employed within this approach, since both sets of rules are "surface-true" and hence violate no principles of the theory (at least, if the 'weakening' rules are altered to include the schwa complication—cf. fn. 2). I will assume here that analogues to the "strengthening" rules would be adopted, but nothing of importance appears to hinge on this assumption; in the cases at hand, p would occur word-finally and before a consonant, and w elsewhere.

Let us now consider the picture of the historical development of these forms suggested by this account. Recall that at one stage $d\alpha$ did not show a stop-sonorant alternation, which would imply that its lexical representation did not have any segments in braces. But with the extension of the alternation to etymological sonorants, the lexical representation changes to $d\alpha \left\{ \begin{smallmatrix} p \\ w \end{smallmatrix} \right\} e$. Thus, in this system, there is a formal increase in complexity in this and other similar lexical representations, despite the fact that the change pretty clearly represented a simplification in the grammar of Kanakuru. Since Hudson [1974] claims that the treatment of diachronic simplifications

as formal simplifications in the grammar is a virtue of his system, it can only be concluded that the failure to give such a treatment in cases like this one constitutes a serious problem for the theory.⁹ It should be clear, then, that the historical developments which have taken place in Kanakuru cannot be given a reasonable account within a Hudsonian version of Natural Generative Phonology—at least, not without incorporating (the equivalent of) inverse rules.

4. Conclusion

I have argued in this paper that certain historical changes in the phonological system of Kanakuru can be explained only if "rule inversion" is a possible mechanism of change in grammars of natural languages. In particular, I have argued that it is not possible to give a reasonable account of these changes within the theory of "standard" generative phonology, that of "upside-down phonology", and those versions of Natural Generative Phonology which do not allow inverse rules. It seems quite likely to me, moreover, that no theory which does not allow for (the notational equivalent of) inverse rules can provide such an account.

What I have not done so far is suggest an explanation for why rule inversion has occurred in Kanakuru, while it apparently has not in other superficially similar cases. This is an important question, since without such an explanation, the account of these historical developments is in some sense circular: if we have no independent reasons for believing that rule inversion did in fact occur, then attributing these developments to rule inversion would appear to be ad hoc. From a synchronic point of view (which is not really that different from the diachronic point of view just mentioned), this is essentially a question of explanatory adequacy, in the sense of Chomsky [1965]; one would like to be able to predict, given a reasonable cor-

⁹Note that *any* extension of an alternation (not necessarily ones involving rule inversion) would present such a problem, since the relevant lexical representations would have to increase in complexity over time. This is not at all uncommon occurrence, as Hudson himself is apparently aware, since he notes (Hudson [1980:121]) that alternations can be "introduced in new lexical items" (although he also states (p.115) that "the fact is that alternations are eventually leveled").

pus, the system which a child will unconsciously posit to account for this corpus. In this case, what kind of corpus will cause a child to come up with a system which entails a rule inversion, as opposed to the kind which will not? It is conceivable that it is impossible to answer this question, i.e. that Chomskyan explanatory adequacy is not in principle achievable (perhaps because different children encounter different corpora, etc.). But given the lack of any evidence that this is in fact the case, this question clearly deserves some consideration.

Unfortunately, there is very little evidence which bears on this issue. Very few putative rule inversions have been described in the literature (and at least one of these is questionable—cf. Klausenburger [1974, 1977, 1978], Churma [1977]), but some of the factors in question seem reasonably clear, and Vennemann [1972, 1974a] has given some attention to them. As Vennemann [1974a:139] points out, his principles cannot always predict rule inversion (since, for example, they may be in conflict), but it seems likely that such factors do play a role in effecting rule inversion. One factor which may have played a big role in the Kanakuru case is mentioned by Vennemann [1974a:139]: this is "the relative predictability of the alternants from each other." Let us briefly look at the Kanakuru case in terms of this factor.

Let us assume, first of all, that the historical change responsible for the synchronic alternations did not involve all of the complications discussed in section 2.2.1 (cf. Newman [1970:43ff] for reason to believe that this is in fact the case). That is, the change weakened non-nasal stops intervocalically, except possibly when the first vowel was short and the second was *e* (cf. fn. 2). Formally, this change would be analogous to rule (2a). However, constraints on abstractness such as those proposed in Kiparsky [1973] would disallow (2a) and the associated abstract geminates as a synchronic analysis for Kanakuru learners as soon as surface geminates had disappeared; the only possible "weakening" analysis would involve the version given in fn. 2. Why was this rule not adopted, i.e. why was there inversion? Note that the environment is fairly complex, and requires the use of both angled brackets and braces.¹⁰ Consider now the form which would be taken by the required

¹⁰It would be possible to do without the braces by employing "class com-

rule if the sonorants are underlying, given in (9):

$$(9) \quad C \rightarrow [-\text{cont}] / \left\{ \begin{array}{c} \overline{C} \\ \overline{C} \\ \overline{\#} \end{array} \right\}$$

The environment in this case seems intuitively to be considerably simpler than in the former case; this is reflected in the formalism, as well, and further formal simplifications are possible if a "mirror image" convention (cf. Bach [1968]) is permitted. That is, it is easier to describe where stops are found than it is to describe the environment for sonorants. Of course, it is not so easy to say *which* stop (if any—some sonorants do not alternate) will be found: the only way to do so is by lexical markings. This suggests a refinement of the principle in question to the effect that the *environment* for changes in synchronic rules has considerable importance as far as rule inversion is concerned. The semantic basicness of the forms in which the sonorants are found was also undoubtedly a factor in this case (cf. Vennemann [1972:237], Hooper [1979]; cf. also Schuh's remarks quoted in section 2.1.1), and it is not unlikely that relative frequency (cf. Vennemann [1972:236]) played a role in determining which particular stop ended up being represented in the alternations.¹¹

Clearly, such discussion does not fully answer the question at issue; we are undoubtedly a long way from an explanatorily adequate theory of (morpho) phonology. This is perhaps not too surprising, given the relatively recent recognition of the possibility of rule inversion and the small amount of attention given to this possibility. What is more, Hudson's [1975, 1980] dis-

plement" notation (cf. Zwicky [1970]), which in this case would yield something like $\vee \left[\begin{array}{c} -\text{hi} \\ -\text{back} \end{array} \right]$ instead of the brace expression. It is not clear to me this is in any obvious sense an improvement, and in any case two notational conventions would still be required, at least one of which is questionable.

¹¹It is worth pointing out that many of the considerations which appear to be relevant as far as predicting rule inversion is concerned do not appear to lend themselves to being characterized in terms of an evaluation measure of the type generally envisioned by generative phonologists. This should not seem particularly surprising, since the necessity of including markedness considerations in such a measure indicates that, if it in fact exists, it will not involve solely simple-minded feature counting.

cussion of the problems encountered by more or less standard generative theories which allow for the possibility of rule inversion seems to me to merit serious attention; if he is correct in his assessment of these problems, then we must be able to predict not only when rule inversion will occur, but also when a Hudsonian analysis should be adopted. But the Kanakuru facts can be seen to indicate that rule inversion is indeed possible, even in purely phonologically conditioned cases which require a stage with "conceptually anomalous" inverse rules. An explanatory adequate theory must come to grips with this possibility, and, eventually, predict when rule inversion will or will not occur.

REFERENCES

- Andersen, H. 1973. "Abductive and deductive change." *Language* 49:765-793.
- Bach, E. 1968. "Two proposals concerning the simplicity metric in phonology." *Glossa* 2:128-49.
- Chomsky, N. 1965. *Aspects of the Theory of Syntax*. Cambridge, Mass.: MIT Press.
- Churma, D. 1977. "On choosing between linguistic analyses: a reply to Klausenburger." *Lingua* 42:131-152.
- Churma, D. 1981a. "Diachronic evidence for synchronic analyses in phonology." *OSU Working Papers in Linguistics* 25:14-58.
- Churma, D. 1981b. "Some further problems for upside-down phonology." *OSU Working Papers in Linguistics* 25:67-106.
- Donegan, P. and D. Stampe. 1979. "The study of natural phonology." In D. Dinnsen (ed.), *Current Approaches to Phonological Theory*, pp. 126-173. Bloomington, IN: Indiana University Press.
- Frajzyngier, Z. 1976. "Rule inversion in Chadic: an explanation." *Studies in African Linguistics* 7:195-210.
- Hooper, J. 1976. *Introduction to Natural Generative Phonology*. New York: Academic Press.
- Hooper, J. 1979. "Substantive principles in Natural Generative Phonology." In D. Dinnsen (ed.), *Current Approaches to Phonological Theory*, pp. 106-125. Bloomington, IN: Indiana University Press.
- Hudson, G. 1974. "The representation of non-productive alternations." In

- J. Anderson and C. Jones (eds.), *Proceedings of the First International Conference on Historical Linguistics*, Vol. 2, pp. 203-229. Amsterdam: North Holland.
- Hudson, G. 1975. "Suppletion in the representation of alternations." Unpublished Ph.D. dissertation, UCLA.
- Hudson, G. 1980. "Automatic alternations in non-transformational phonology." *Language* 56:94-125.
- Klausenburger, J. 1974. "Rule inversion, opacity, conspiracies: French liaison and elision." *Lingua* 34:167-179.
- Klausenburger, J. 1977. "Deletion vs. epenthesis: intra- vs. inter-paradigmatic arguments in linguistics." *Lingua* 42:153-60.
- Klausenburger, J. 1978. "Liaison 1977: the case for epenthesis." *Studies in French Linguistics* 1,2:1-20.
- Leben, W. 1974. "Rule inversion in Chadic: a reply." *Studies in African Linguistics* 5:265-278.
- Leben, W. 1979. "The phonological component as a parsing device." In D. Dinnsen (ed.), *Current Approaches to Phonological Theory*, pp. 174-201. Bloomington, IN: Indiana University Press.
- Leben, W. and O. Robinson. 1977. "Upside-down phonology." *Language* 53:1-20.
- Newman, P. 1970. "Historical sound laws in Hausa and in Dera (Kanakuru)." *Journal of West African Languages* 7:39-51.
- Newman, P. 1974. *The Kanakuru Language*. West African Monographs, 9. Leeds: University of Leeds Department of Modern Languages.
- Robinson, O.W. ms. "Abductive change in a parsing model of phonology."
- Schuh, R.G. 1972. "Rule inversion in Chadic." *Studies in African Linguistics* 3:379-97.
- Schuh, R.G. 1974. "A comment on 'Rule inversion in Chadic: a reply'." *Studies in African Linguistics* 5:279-280.
- Stampe, D. 1973. "A dissertation on natural phonology." Unpublished Ph.D. dissertation, University of Chicago.
- Vennemann, T. 1972. "Rule inversion." *Lingua* 29:209-242.
- Vennemann, T. 1974a. "Restructuring." *Lingua* 33:137-56.
- Vennemann, T. 1974b. "Words and syllables in natural generative grammar." In A. Bruck, et al, (eds.), *Papers from the Parasession on Natural Phonology*, pp. 346-374. Chicago: Chicago Linguistic Society.
- Zwicky, A. 1970. "Class complements in phonology." *Linguistic Inquiry* 1: 262-4.

DIRECT AND REPORTED SPEECH IN TIKAR NARRATIVE TEXTS

Carol Stanley
Société Internationale de Linguistique

In Tikar speech the only participant who must be overtly referred to in one way or another is the speaker. The addressee is frequently omitted. There is an obligatory use of a speech-introducing particle, except in the case where the speaker is simply identified by an anaphoric particle. As for the pronominal reference system, the set used in direct speech is the same as that used in non-speech narrative. In reported speech, there is a set of logophoric pronouns, separate and distinct from the anaphoric pronouns.

The purpose of this paper is to examine two of the various types of speech in Tikar¹ narrative texts: direct and reported. We will look at the participants involved, the speech introducers used (both verbs and particles), and the system of pronominal reference. The conclusions presented in this paper are based on a study of fourteen narrative texts, recorded, transcribed and translated between 1975-1979. Examples are drawn from these texts, the specific text in each case is identified by number. The texts are enumerated by title at the end, in Appendix 1. A representative text, "The Hare and the Rooster", has been included, in Appendix 2.

1. Participants

There are normally two participants involved in a speech interchange. I

¹Tikar is a Benue-Congo language spoken by some 15-20,000 people in the west-central region of Cameroon. The dialect from which the texts and examples for this paper were taken is that spoken in Bankim, in the subdivision of Banyo. The data for this paper was gathered by the author during various stays in Bankim from 1975-1979. The first draft was prepared during a workshop held under the auspices of SIL in Yaoundé, Cameroon, March-May 1979, under the direction of Ursula Wiesemann. Tikar has 26 consonant phonemes: p, b, b̃, t, d, d̃, k, g, kp, gb, p̃ (ɛ̃), v, s, z, ʃ (ʃ), ʒ (ʒ), x, g (ɣ), m, n, ny (ɲ), ŋ, w, l, r, y; and 8 vowel phonemes: i, e, ɛ, ə, a, u, o, ɔ. There are four phonemic tones: high, low, rising, falling.

have chosen to refer to them as *speaker* and *addressee* (as opposed to Longacre's [1976:350] terminology, sender/receiver).

1.1. Identification of the speaker. The speaker is obligatorily mentioned, either overtly by a noun or pronoun, or covertly by an anaphoric particle, which may or may not be part of an appositional phrase. The set of anaphoric particles which serve to identify the speaker are homophonous with the set of subject pronouns which occur in dependent clauses and with the set of object pronouns (cf. 5.1). The anaphoric particle refers back to a person or animal (or, in other contexts, an object which is personified) already mentioned. Its form depends upon the noun class to which the previously-mentioned item belongs. There is a different anaphoric particle for each noun class. These anaphoric particles are used very frequently in everyday conversation as well as in narrative texts. In the latter they appear to be a means of moving the story along at a more rapid pace by reducing the speech-introducing clause to a bare minimum and then simply reporting the speech.

This obligatory identification of the speaker does not, however, necessitate the presence of a speech-introducing verb. Often there is no overt verb used to introduce either direct or reported speech. Examples:

Text 7

à ʒè lè myón lé ...
he say to wife-his that

'he said to his wife that...'

tyí ʒè kú' lè myí nwè òyón lé ...
hare say also to wife friend his that

'the hare also said to his friend's wife that...'

Text 1

nún nún kén gwòm̀nì
ANA he go hide

'that one (says) he is going to hide'

Text 5

tyí nún nún d̀wò' lé sòn ké nwúm
hare ANA he throw thus it LOC mouth

'the hare (said) thus he is going to throw it into his mouth'

Text 2

bón ooo h̄yám mbò' ní d̄wá bón d̄yě
 they oh animal one FOC throw them today
 'they (said), "Oh, an animal died today"'

1.2. Identification of the addressee. The addressee may be overtly identified by a noun or pronoun, or he may be omitted completely. To a certain extent this depends upon the verb which is used in introducing the speech, i.e. the speech-introducing verbs. In Tikar, among the speech-introducing verbs, in addition to the usual speech-oriented verbs šè 'say', tyíbfí 'ask', and p̄yònzí 'reply', there are also certain thought-process verbs such as l̄immì 'know', p̄òkà 'think', and yílfí 'agree', as well as emotion-oriented ones such as kún 'cry out' which belong to the paradigm. The verb šífb 'sing' also may be classed among the speech-introducing verbs.

After speech-oriented verbs there is an optional reference to the addressee. With the other speech-introducing verbs, normally the addressee is not mentioned. Examples:

OPTIONAL REFERENCE TO ADDRESSEE

Text 1

tyí šè lè myón lé nyí ní tyí h̄kán
 hare say to wife-his that ANA FOC make wine
 'the hare told his wife to make wine'

Text 7

wú šè nún lé mún kènnâ mè h̄yòn
 you say him that I go PL walk
 'you tell him that I have gone for a walk'

Text 13

tyí h̄yòn šè lé nún tyí h̄l̄immì nún làn tyí d̄ewà
 the one walk say that he the one know he pass the one book
 'the walker said that he, the one who has knowledge, is smarter than the one who has been to school'

Text 4

à šè lé nyí ní šélfí lé bá bón jí
 he say that ANA FOC take thus so that they eat
 'he said that she should take it thus so that they could eat'

Text 8

mwô' míf b ní kà cíf bíf / nún mǎi ìm ní tá b é k é p é n nún
 child woman FOC ASP ask / ANA marabout FOC ASP is LOC where in
 'that girl asked, she (said), "Where is that marabout?"'

NO ADDRESSEE

Text 2

tyí ìmmì l é nyí ní ywì kán
 hare know that ANA FOC die NEG

'the hare knew that he wasn't dead'

à tǎ kún l é bón b í kwè nì ywí hwùm
 she ASP cry out that they FOC cry death Hwum

'she cried out that they should mourn the death of Hwum'

Text 10

à pòkà' l é nún kènmé tì b í d w ɪ
 he think that LOG go again checkers throw

'he thought he was going to play checkers again'

In the instances where the speaker is referred to simply by an anaphoric particle (cf. 1), the addressee is never overtly identified. This may be due to the fact that the verb is also deleted in constructions of this kind (cf. 2). Examples:

Text 14

m v í l í nún nyí m ó k í
 medicine ANA ANA be quiet

'the medicine, that one, (told) her to be quiet'

nún bón ywímé k é tyì d y é
 ANA they FUT work do today

'that one (said) they are going to work today'

Text 9

d w u l u nún nún ywó á
 baboon ANA LOG understand

'the baboon, that one (said) he understood'

2. Speech-introducing Clause²

The fully expanded speech-introducing clause has the following formula:

+ speaker + verb + |è 'to' + addressee + |é 'that' (+ speech)

Various components of this formula may be absent, the most reduced possibility being:

+ speaker + speech

Examples:

+ speaker	± verb	± è 'to'	± addressee	± é 'that'	+ speech
<u>Text 1</u>					
1. tyí hare	ʒè say	è to	nyón wife-his	é that	nyí ní tyí òkán ANA FOC make wine
<u>Text 1</u>					
2. híwí' dog	ʒè say		nún him	é that	nún yí lá LOG agree
<u>Text 12</u>					
3. ówí' we	ʒé say			le that	pyù lwú è mwé tã laugh good with the one ASP pyù óé nyè laugh after back
<u>Text 1</u>					
4. pòrò nún hyena ANA					nún ywímé bèn LOG FUT come

1. 'the hare told his wife to make wine'
2. 'the dog told him he agreed'
3. 'we say that he who laughs last laughs best'
4. 'the hyena, that one, (said) he would come'

There are, however, certain restrictions. When the speaker is identified only by an anaphoric particle (cf. 1.1), the verb is omitted, as is the

²Koontz [1977:115] refers to speech-introducing clauses as the quote margin.

speech introducer *lé* 'that' (cf. 3). Since *lè* 'to' is linked to the addressee, if the addressee is absent, it follows that *lè* 'to' will be deleted. However, as example 2 shows, the presence of an addressee does not force the narrator to use a *lè*.

3. Speech-introducing Particle *lé* 'that'

The speech-introducing particle *lé* 'that' is obligatory, except when the speaker is identified by an anaphoric particle (cf. 1.1). It occurs following all types of verbs which may occur in the speech-introducing clause (cf. 2). Examples:

Text 11

à šè lè ážwí' lé wù ní m̀b̀on híyè níwén
 he say to dog that you are watch house good
 'he said to the dog, "You are a good watchdog"'

Text 4

à l̀mmá lé m̀vón yè ð̀n ǒé lè péń
 he know that mother-in-law FUT come after with corn fufou
 'he knew that his mother-in-law was going to come afterwards with corn fufou'

à tyíbfí lè ńwè híyón lé ší sí lánńzí lé tyí gwén
 he ask to friend his that ANA FOC pass how place hunt
 'he asked his friend how the hunt went'

Text 2

à tá kún lé ǒón kwénl ywí hwùm
 she ASP cry that they cry death Hwum
 'she cried out that they should mourn the death of Hwum'

kpúlú d̀nńmí šífb ... lé ... nyí ní ywó'
 turtle begin sing that ANA FOC understand
 'the turtle begins to sing that he understands...'

Text 7

ǒá wù yííí lé à yíńndì m̀n
 NEG you agree that he touch me
 'don't agree that he touch me'

à pyònnzì nún lé ...
 she reply him that
 'she replied to him that ...'

4. Responses

There are very few verbal responses to requests or commands in Tikar narrative texts. The same is true, however, in everyday speech, where, often, the only response to a request or command is a murmured *ɛn*, signifying affirmation, or *ayi* or *ban*, indicating a negative response. Both in text material and in everyday speech, in the instances where a complete clause is uttered, it most often involves the verb *yííí* 'accept, agree'. Examples:

Text 1

ńẗwí' ẗè nún lè nún yííá
dog say him that LOG accept

'the dog told him he accepted' (after the hare has invited the dog to come to drink wine with him)

ɣwéb nún nún ɣwímé ɓèn
panther ANA LOG FUT come

'the panther (said) he would come' (after the hare has invited the panther to come drink wine with him)

Text 9

(Here there is both a reported non-verbal response as well as a verbal one.)

ńẗwí' yííí / ǎ kà ẗè nún lè mún yííá
dog agree he ASP say him that I agree

'the dog agreed; he told him, "I accept"' (after the baboon has asked the dog to go with him to visit his fiancée)

Although verbal responses are relatively rare, reported non-verbal ones occur frequently. Again, it is often the verb *yííí* 'agree, accept' which is used, but it is also possible to find *ɣwó'* 'understand'. A report of the subsequent action of the addressee often follows. Examples:

Text 5

gbú ẗè lè tyí lè ɓán nyí wù ɗám / tyí yííí / à ɗám nyí
snail say to hare that catch hen you prepare / hare accept / he prepare hen

'The snail said to the hare, "Catch a hen and prepare (it)." The hare agreed. He prepared the hen.'

gbú nún nyí ní ɓwé' tì ɓé lè nún ní ɣé pyí wín nún / tyí
snail ANA ANA FOC taste again after and LOG FOC FUT fall fire in / hare

ɣwó' / à mókí nún
understand / he be quiet REF

'The snail said that if he (= addressee) tasted the food again, he (= snail) would fall into the fire. The hare understood. He kept quiet.'

Often, however, when a request is made or a command is given, the addressee simply carries it out. Longacre [1976:178] points out that "reported re-partee can involve reporting of non-verbal resolution. As we all know, in real life situations very often the response to a proposal is non-verbal, i.e. someone is told to do something and he gets up and does it and this is the answer rather than verbal activity on the part of the second person."

This is frequently the case in Tikar narrative texts. Examples:

Text 1

tyí šè lè myón lé nyí ní tyí òkán ... / myón swì òkán ké
hare say to wife-his that ANA FOC make wine ... / wife-his pour wine LOC
mlá' nún
water in

'The hare told his wife to make corn wine ... His wife poured the wine into the water.'

Text 2

nyám mbò' kà šé lè myón lé nyí ní kén mé mwù mbò' lè nyí
animal one ASP say to wife-his that ANA FOC go PL head forest and ANA
ní tǎ kún lé hwùm ní ywá dyé ... / kwán sé myón kén ké mé
FOC ASP cry that Hwum FOC die today ... / time that wife-his go LOC PL
mwù mbò' à dúnmí kún lé hwùm ní ówííá dyé
head forest she begin cry that Hwum FOC be lost today

'An animal told his wife to go to the top of the forest and to cry out that Hwum died today... When his wife went to the top of the forest, she began to cry out that Hwum died today.'

In the case of questions, the answer is normally reported verbally, either with or without the formal speech-introducing verb *pyònnzí* 'reply'.

Examples:

Text 7

ǎ kà tyíbí nún ... myí tyí kà pyònnzí nún lé ...
he ASP ask her ... wife hare ASP reply him that ...

'He asked her ... The hare's wife replied that ...'

Text 4

ǎ kà tyfɓf lè ɲwè ɲyón lé ʒí sɪ lánzɪ lé tyɪ gwém / ɓwé'
 he ASP ask to friend his that ANA FOC pass how place hunt / nighthawk

kà ʒé lè nún lé nún nɪ yén ɲzáná' ...
 ASP say to him that LOG FOC see antelope ...

'He asked his friend how it went with the hunt ... The nighthawk told him that he saw an antelope ...'

In summary then, questions require a verbal reported response, while requests and commands most often have simply a reported non-verbal one.

5. Pronominal Reference

5.1. Pronominal reference in non-speech narrative. As a background to the study of pronominal reference in direct and reported speech, we will first look at the forms found in non-speech narrative.³ The following chart shows the forms used for pronominal reference in ordinary, non-speech narrative. The vertical columns indicate the forms used in subject and object functions; and the horizontal rows, the first, second, and third person forms. Within each cell, the singular and plural forms are indicated. As to the third person forms, in subject function, normally à , ɓé occur in independent clauses and nún , ɓón in dependent ones. The third person forms, in both subject and object functions, are used as representative forms, since there are variants depending upon the noun class of the noun they replace. For the complete set of forms, refer to the chart at the end of 5.2.

		Subject	Object
1	sg.	mún	
	pl.	ɓwí'	
2	sg.	wù	
	pl.	ɓyfn	
3	sg.	à / nún	nún
	pl.	ɓé / ɓón	ɓón

³A preliminary listing of the pronouns in Tikar (though incomplete) was done by Hagege [1969:40].

5.2. Pronominal reference in direct and reported speech. The system of pronominal reference in speech is more complicated than that used in non-speech narrative. The first and second person pronouns remain the same, but in the case of the third person forms, there is an additional distinction made between logophoric⁴ and anaphoric pronouns, logophoric being that which the speaker uses in referring to himself in reported speech, while anaphoric is that which refers either to the addressee or to a third person. Examples:

LOGOPHORIC

pól ʒè lè jân lé nún kènnâ lwùmwù
Paul say to John that he go market

'Paul told John that he (= Paul) went to the market'

ANAPHORIC

Reported speech:

pól ʒè lè jân lé nyĩ ní kèn lwùmwù
Paul say to John that he FOC go market

'Paul told John that he (= John) should go to the market'

pól ʒè lè jân lé nyĩ ní kènnâ lwùmwù
Paul say to John that he FOC go market

'Paul told John that he (= neither Paul nor John) went to the market'

Direct speech:

pól ʒè lè jân lé à kènnâ lwùmwù
Paul say to John that he go market

'Paul said to John, "He (neither Paul nor John) went to the market"'

The following chart shows the third person logophoric and anaphoric pronouns which occur in direct and reported speech. All of these forms are given as representative forms, since there are variants according to the noun class of the noun they refer to, as is illustrated by the following examples (for a complete list of the various forms, refer to the chart at the end of this section):

⁴The term *logophoric* was proposed by Hagege [1974:284] to designate a particular category of pronouns which refer to the speaker or to the one whose thoughts are recorded.

à ʒŷ lè myón lé nyŷ ní kén
 he say to wife-his that she FOC go
 'he told his wife to go'

à ʒŷ lè zán mǔfǐf lé ʒf sí kén
 he say to package medicine that it FOC go
 'he told the package of medicine to go'

à ʒŷ lè hswàb lé yf yf kén
 he say to spirit that it FOC go
 'he told the spirit to go'

		Logophoric	Anaphoric
Direct speech	Sg.	—	à
	Pl.	—	ǒé
Reported speech	Sg.	nún	nyŷ
	Pl.	ǒón	ǒyf

As in the case of the pronouns used in non-speech narrative, here again there is a dichotomy of forms used in independent vs. dependent clauses, since in direct speech à functions as the subject of an independent clause, while in reported speech nún/nyŷ function as the subject of a dependent one.

A further phenomenon in reported speech involving an anaphoric pronominal reference is the fact that, not only is there a special form for the subject of the dependent clause, but also for any object pronouns and possessive adjectives within the clause. Examples:

NON-SPEECH NARRATIVE

à ʒé!â dá' ǒón à kén lè són ndém
 she take cutlass her she go with it field
 'she took her cutlass and went to the field with it'

REPORTED SPEECH

à ʒŷ lè myón lé nyŷ ní kén dá' nyŷ ʒf nyŷ ní kén lè ʒf ndém
 he say to wife-his that she FOC go cutlass her take she FOC go with it field
 'he told his wife to go take her cutlass and go to the field with it'

In non-speech narrative, the choice of possessive adjective depends upon

the noun class of the noun it modifies, as in the first example above: dá' šón 'her cutlass'. The noun dá' 'cutlass' is a sɛ class noun and the concord-ing possessive adjective is šón. In reported speech, however, the form of the possessive adjective depends upon the noun class of the possessor, as in the second example above: dá' nyí 'her cutlass'. Here, myón 'his wife' is a nɛ class noun, and the concord-ing anaphoric pronoun, which functions in reported speech as possessive adjective as well as subject and object, is nyí. The following chart shows the complete set of anaphoric pronouns used in non-speech narrative and in reported speech. The forms used in direct speech are the same as those used in non-speech narrative. The horizontal columns distinguish the various functions of the anaphoric forms. The vertical columns labelled nɛ, sɛ, yɛ, etc. indicate the various noun classes in Tikar.

	Non-speech narrative				Reported speech			
	nɛ	sɛ	yɛ	ʃɛ	nɛ	sɛ	yɛ	ʃɛ
Subject pronouns	nún	són	yón	ʃón	nyí	ʃí	yí	ʃyí
Object pronouns	nún	són	yón	ʃón	nyí	ʃí	yí	ʃyí
Possessive pronouns	nyón	šón	yón	ʃyón	nyí	ʃí	yí	ʃyí

APPENDIX 1: Texts examined

1. The hare and his wife
2. The panther and the animals
3. The hare and the bitter calabashes
4. The hare and the nighthawk
5. The hare and the snail
6. Why the bat doesn't look at the sun
7. The hare and the rooster
8. Story of a marabout
9. The dog and the baboon
10. The worker and the lazy man
11. The story of the dog, a former wild animal
12. Two children
13. Two brothers
14. Package of remedies

APPENDIX 2: The Hare and the Rooster

The text is charted according to clauses, each numbered line indicating a separate clause. Sentences are indicated by numbers (1, 2, 3, etc.); clauses within sentences by letters (2a, 4a, 4b, etc.). Underneath each Tikar word there is an English translation. Hyphens indicate where two English words = one Tikar word. At the end of the charted text, there is a free translation, with numbering corresponding to the charted text. The text is charted in four columns:

1. Conjunction = subordinate and coordinate conjunctions which are used to introduce a clause or to link two clauses within a sentence.
2. Subject = all forms which function in the subject slot of a clause.
3. Verb = all verb forms. It should be noted that ... before a verb form (see line 3) indicates that it is part of a verb complex, and that the two parts of the complex are separated by something in the other column, e.g. sentence 3: à bé súkú' dým nyì lón lé dýmí nwè híón . Here, the two verbal parts bé suku' and lón are separated by the direct object dým nyì , hence the ... before lón in the chart.
4. Other = all constituents which can occur between the two parts of a verb complex, as well as all expansions which follow the verb.

The following abbreviations are used in the English translations:

PL	plural	IMP	impersonal subject	FOC	focus
NEG	negative	ASP	aspect	FUT	future
LOC	locative	ANA	anaphoric	LOG	logophoric

	<u>Conj.</u>	<u>Subject</u>	<u>Verb</u>	<u>Other</u>
1.		tyí bón lè dým nyì hare them with male hen	bé were	mè nwè PL friend
2.		tyí hare	bé kán llymmì was NEG know	
2a.	lé	nyàm ndó' ní that animal another FOC	làn pass	nún pé hígyô' wán him here earth world lè kón with wisdom
3.		à he	bé súkú'...lón was only call	dým nyì lé dýmí male hen with fool nwè híón friend his

Conj.	Subject	Verb	Other
4.	á IMP	ḃèn come	nywó ḃdó' day another
4a.	ḃyím nyí male hen	ṣè say	lè tyí with hare
4b. lè that	nyí ní ANA FOC	kyín...hwáṣí come greet	nún him ké ḃsòṅ yón ké nyè LOC village his LOC back ḃgyín lè days 3
5.	tyí hare	yííí accept	
6.	ḃgyín lè yí days 3 FOC	wóíí suffice	
6a.	tyí hare	wá' kèn get up leave	
7.	à he	kèn ḃèn go come	ké ḃsòṅ ḃwè ḃyón LOC village friend his ḃyím nyí male hen
7a. lè and	ḃyím nyí male hen	pòséá prepare	mbyí lwén before well
8.	à he	dónnzí leave	myón ké pyá' wife-his LOC hand
9.	à he	ṣè say	lè myón to wife-his
10. lè that	kwán sé time that	ḃwè ḃyém tyí friend my hare	ywímé ḃèn FUT come
10a.	wù you	ḃàn welcome	ḃé after nún lwén him well
10b.	wù you	pé give	nún ṣí lè ywúm nwí him food with things drink
11. (if)	nún he	tyíbí ask	mún me
11a.	wù you	ṣè say	nún him

	<u>Conj.</u>	<u>Subject</u>	<u>Verb</u>	<u>Other</u>
11b.	lé that	mùn I	kènná go	mè hÿòn l'àbbí ñdó' ké PL walk long another LOC ñdémñdém nún dream in
12.		mùn I	ywímé tòn FUT stay	ké mbán áží LOC corn loft under
13.		mùn I	dúnnzí make go in	mwù ké kwéb áží head LOC wing under
14.	kwán sé time that	nún he	ywímé ðën FUT come	
14a.		mùn I	ðá...púnnzí NEG move	nywí body
15.		wù you	ywímé...l'séa FUT show	nún mùn him me
15a.	són but	ðá wù NEG you	yííí accept	
15b.	lé that	à he	yínnđí touch	mùn me
16.		đyím nyí male hen	kèn go	mbán áží corn loft under
17.		à he	dúnnzí make go in	mwù ké kwéb áží head LOC wing under
18.		à he	mókí keep quiet	nún him
19.	(when)	tyí hare	ðën come	
19a.		myí đyím nyí wife male hen	yè greet	nún lwén him well
20.		à she	pé give	tyí ží lwén hare food good
21.		tyí hare	ží eat	lwén well
22.		à he	đyím satisfy oneself	
23.		à he	kònnđí nwí add drink	
24.		à he	đyím satisfy oneself	lwén well
25.		á he	kà tyíbí ASP ask	nún her

	<u>Conj.</u>	<u>Subject</u>	<u>Verb</u>	<u>Other</u>
26.		ɲwè ɲyón friend his ɖyím nyì ní male hen FOC	kènnâ go	pén nún where in
27.		myí nyí wife hen	šé say	nún him
27a.	wě šě as	ywón husband-her	šyí say	nún her
28.		à she	kèn...lìsea go show	tyí ɖyím nyì place male hen ké mbán ńží LOC corn loft under
29.		tyí hare	yén see	ɲwè ɲyón friend his
30.		ǎ he	yén kán see NEG	mwù head
31.		yí fear	kwén hurt	tyí hare
32.		tyí hare	šè kú' say also	lè myí ɲwè ɲyón to wife friend his
32a.	lé kwán that time sé that	ɲwè ɲyém friend my	ywímé pyònní FUT return	
32b.		wù you	šè say	nún him
32c.	lé that	à he	kyín kú'... come also yénní see	mùn me ké ńsòn yém ké LOC village my LOC ńgyín lè nún days 3 in
33.		myí ɲwè ɲyón wife friend his	yííí accept	
34.		tyí hare	wá' kèn get up go	
35.		à he	đún enter	ńbó' nún đín forest in for no reason
36.		ɖyím nyì male hen	kwó' crow	bé ńsòn yón after village his

Conj.	Subject	Verb	Other
37.	tyí nún nún hare ANA LOG	bà tí pyònnì NEG again return	bé ké nsòn dým nyì behind LOC village male hen
38.	tyí hare	běn arrive	nsòn yón village his
39.	à he	dúnmí kú' pòsà' begin also prepare	
39a. wěšě as	dým nyì male hen	tyě do	
40.	à he	hwìn buy	mè bà' PL wine
41.	myón wife-his	dám prepare	ží food
42.	hgyìn lé days 3	wólí suffice	
42a.	tyí hare	lìmmâ know	
42b. lé that	hwè hýón friend his	dým nyì ní male hen FOC	ywímé...kyìn yénní nún dýé FUT come see him today
43.	à he	šè say	lè myón to wife-his
43a. lé that kwán sé time that	hwè hýèm friend my	ywímé bēn FUT arrive	
43b.	wù you	gàn welcome	nún lwén him well
43c.	wù you	pé give	nún ží' him food
43d. (when)	nún he	žímé eat	
43e.	wù you	pé tí kú' give again also	nún bà' sé him wine that
43f.	mùn I	hwínnâ buy	
44. (if)	nún he	tyíbí ask	mŭn me

	<u>Conj.</u>	<u>Subject</u>	<u>Verb</u>	<u>Other</u>
44a.		wù you	šè say	nún him
44b.	lè that	mùn I	kènná go	mè hýǒn lǎbbí hódó' kè PL walk long another LOC hédémhédém nún dream in
45.		mùn I	ywímé tòn FUT stay	ké pé mbán hǎí LOC here corn loft under
46.	(when)	nún he	yé...kyǐn yénní FUT come see	mùn me
46a.		mùn I	bǎ...púnanzí NEG move	nywí body
46b.	són but	bá wù NEG you	yííí accept	
46c.	lè that	à he	yínndí touch	mùn me
47.		myón wife-his	yííí accept	
48.		tyí hare	dún enter	nám house
49.		à he	šáíí take	dá' són lè mgbón hǎá' cutlass his and piece wood
50.		à he	nòn lay down	
51.		à he	kè put	mwù ké mgbón hǎá' zwém head LOC piece wood on
52.		tyí nún hare ANA		
52a.		myón ní wife-his FOC	gbéé cut	nún hǎún him neck
52b.		nyí ní ANA FOC	kèn...gwùmní go hide	mwù head
53.	kwán sé time that	hùwè hýón ní friend his FOC	yé...kyǐn yénní FUT come see	nún him
53a.		mwù head	yí bǎn is NEG	
53b.		nyí ní ANA FOC	yé...yí FUT fear	nún him

Conj.	Subject	Verb	Other
54.	tyí hare	límme kán know NEG	
54a. Ié that	ɲwè ɲyón d̥yím nyí kě friend his male hen put		mwù ké kwéb ɲíí head LOC wing under
55.	à he	pòkà' think	làn yón part his
55a. Ié that	nyí ní ANA FOC	gbèbé cut	mwù nùn head himself
56.	tyí hare	kèn tòn go stay	ké mbán ɲíí ké LOC corn loft under LOC tyí ɲwè ɲyón yé nún place friend his FUT him kyín yénní come see
57.	myón wife-his	šéìì take	dá' cutlass
58.	à she	gbèb cut	nún ɲgún him neck
59.	à she	kèn...gwùmní go hide	mwù head
60.	tyí hare	d̥únmí pàtì begin move	ḡé mbán ɲíí behind corn loft under
61.	ɲváb yón blood his	šéìì gush	ké ɲíím mbán LOC heart corn loft
62.	myón wife-his	kyín...tòn come stay	nún ḡé nām ? behind house
63.	á IMP	làn pass	kpém kwá' time little
64.	d̥yím nyí male hen	kwáin leave	
65.	nyí tyí wife hare	d̥únmí...gànní begin welcome	nún lwén him well
66.	à she	pé give	nún ší lè ywúm nwí him food with things drink
67.	d̥yím nyí male hen	šá eat	
68.	à he	nwí drink	lwén well

	<u>Conj.</u>	<u>Subject</u>	<u>Verb</u>	<u>Other</u>
69.		à he	ɓyɪm satisfy oneself	
70.		ǎ he	kà tyɪbɪ ASP ask	nún her
70a.		ɣwè ɣyón friend his	nɪ kú' is also	ɓén nún where in
71.		nyɪ tyɪ wife hare	kà ɓyònnzɪ ASP answer	nún him
71a.	lè that	nyɪ nɪ ANA FOC	kènnà go	mè ɣyón lǎbbɪ ɳdɔ' PL walk long another
72.		ɗyɪm nyɪ male hen	lɪmmɪ know	
72a.		nun nyɪ nɪ ANA ANA FOC	ywà die	
73.		à he	kɛn bèn go arrive	
74.		à he	yén...žéɪà see gush	mɪváb blood
75.		à he	dúnmɪ...ywáɪf begin flap	mè kwéb PL wing
75a.	lè and	à he	tǎ kwé ASP cry	
76.		nún ɓé ɓɪ ANA they FOC	tà ká ɓànɪ ASP NEG be rivals	lè lwɪkwǎn with neighbor
76a.		nún LOG	kě put	nún mwù ké kwéb ɳžɪ himself head LOC wing under
76b.		nyɪ nɪ ANA FOC	wúà kill	nyɪ né' ɗyè himself today
77.		à he	ɓyònnɪ return	nún ɓé kwàbbɪ ké himself behind evening LOC ɳsòn yón village his
77a.	lè and	ɓé they	gwúmmá bury	tyɪ hare
78.		kón tyɪ intelligence hare	pókéa fool	nún kǎmmɪ màzwùm nún him time in question in
79.		kón intelligence	sú' kán only NEG	zwúm mwúm ɳbɔ' stomach person one

	<u>Conj.</u>	<u>Subject</u>	<u>Verb</u>	<u>Other</u>
80.		tyf hare	wúá kill	nún né' himself

Free translation

1) The hare and the rooster were friends. 2) The hare didn't know 2a) any animal in the world who was more intelligent than he. 3) The only person he considered his friend was the rooster. 4) One day 4a) the rooster told the hare 4b) to come to visit him in his village in three days' time. 5) The hare agreed. 6) When the three days had passed, 6a) the hare left. 7) He arrived in the village of his friend, the rooster 4a) and the rooster had everything ready. 8) He had left it all in his wife's hands. 9) He said to his wife 10) When my friend, the hare arrives, 10a) welcome him well, 10b) give him some food and something to drink. 11) If he asks where I am, 11a) tell him 11b) that I have gone for a long walk in dreamland. 12) I am going to stay under the corn loft. 13) I am going to put my head under my wing. 14) When he arrives I'm not going to budge. 15) You are going to show me to him, 15a) but don't let 15b) him touch me. 16) The rooster went under the corn loft. 17) He put his head under his wing. 18) He kept quiet. 19) When the hare arrived 19a) the rooster's wife welcomed him warmly. 20) She gave him food. 21) The hare ate well. 22) He was full. 23) He also drank. 24) His thirst was quenched. 25) He asked her 26) where his friend, the rooster, was. 27) The rooster's wife told him 27a) what her husband had told her to. 28) She went to show him where the rooster was under the corn loft. 29) The hare saw his friend. 30) He didn't see any head. 31) He was afraid. 32) The hare said to his friend's wife 32a) When my friend comes back, tell him that he is to come to see me in my village in three days' time. 33) His friend's wife agreed. 34) The hare left. 35) He went into the forest. 36) The rooster crowed back in his village. 37) The hare said to himself that he was never again going back to the rooster's village. 38) When the hare arrived in his village 39) he began to prepare 39a) as the rooster had done. 40) He bought wine. 41) His wife prepared food. 42) When three days had passed, 42a) the hare knew 42b) that his friend, the rooster, was going to come to see him today. 43) He said to his wife 43a) When my friend arrives 43b) welcome him well, 43c) give him food. 43d) When he has eaten 43e) give him also the wine that 43f) I bought. 44) If he asks for me 44a) tell him 44b) that I have gone for a long walk in dreamland. 45) I am going to stay here under the corn loft. 46) When he comes to see me 46a) I won't budge, 46b) but don't let 46c) him touch me. 47) His wife agreed. 48) The hare went into the house. 49) He took his cutlass and a piece of wood. 50) He lay down. 51) He put his head on the wood. 52) The hare said 52a) that his wife should cut his neck, 52b) and she should go hide his head. 53) When his friend came to see him 53a) and there was no head, 53b) he would be afraid. 54) The hare didn't know 54a) his friend, the rooster, had put his head under his wing. 55) He thought 55a) that he had cut off his head. 56) The hare went under the corn loft in the place where his friend would come to see him. 57) His wife took the cutlass. 58) She cut his neck. 59) She went to hide his head. 60) The hare began to flounder around under the

corn loft. 61) His blood spurted out in the loft. 62) His wife returned to the house. 63) A short time later 64) the rooster arrived. 65) The hare's wife welcomed him warmly. 66) She gave him food and something to drink. 67) The rooster ate. 68) He drank a lot. 69) He was full. 70) He asked her 70a) where his friend was. 71) The hare's wife answered 71a) that he had gone for a long walk. 72) The rooster knew 72a) that he had died. 73) He went (to the corn loft). 74) He saw the blood that had gushed out. 75) He began to flap his wings 75a) and to cry. 76) He said that there had been no rivalry between him and his friend, 76a) he had put his head under his wing, 76b) the other one had killed himself today. 77) He went home to his village that evening 77a) and they buried the hare. 78) The hare's intelligence fooled him that time. 79) Intelligence is not limited to only one person. 80) The hare killed himself.

REFERENCES

- Hagege, Claude. 1969. *Esquisse linguistique du tikar (Cameroun)*. Paris: SELAF.
- Hagege, Claude. 1974. "Les pronoms logophoriques." *Bulletin de la Société Linguistique de Paris* 69:287-310.
- Koontz, Carol. 1977. "Features of dialogue within narrative discourse in Teribe." In R.E. Longacre (ed.), *Discourse Grammar*, pp. 111-132. Texas: SIL.
- Longacre, R.E. 1976. *An Anatomy of Speech Notions*. Lisse: The Peter de Ridder Press.
- Stanley, Carol. "Description phonologique morpho-syntaxique de la langue tikar." Ms.

AN INTEGRATED ANALYSIS OF
SWAHILI AUGMENTATIVE-DIMINUTIVES*

Kenneth N. Shepardson
Indiana University
Air University

Incongruities in the distribution of Swahili augmentative-diminutives have either been neglected or misinterpreted in the Swahili literature. The present paper will first remedy this situation by describing in considerable detail the structural and semantic facts pertaining to the augmentative-diminutive prefixal system. It will then offer a generative analysis of the facts, focusing on a specific problem for semantic interpretation which is a consequence of extensive homophony between noun class and augmentative-diminutive prefixes. Due to the dominance of the former over the latter, paradigmatic gaps occur disrupting the regularity which otherwise holds between the syntactic and semantic components. The solution which is adopted appeals to a split in the traditional notion of noun class between the lexicon and the syntax, and resolves the discrepancy in the form to meaning relation by means of an interpretive rule.

1. Introduction to Nominal Classification

Swahili has seven major nominal categories which are generally marked by a distinct pair of singular and plural prefixes. An essential part of the noun class system is the *endocentric* [Stockwell 1977:9] concordial pattern whereby agreement with a head noun is displayed by an elaborate set of prefixes. Given any noun which falls into a particular noun class, it will always take the same concordial pattern as any other noun in the same class. It is not, however, with this dependency relationship that I am concerned, but simply with membership of nouns in their respective classes. In some cases class membership is more or less semantically predictable while in others it is totally arbitrary. Modern Swahili grammars introduce each noun

*This is an expanded version of a paper presented at the 1979 annual meeting of the Linguistic Society of America held in Los Angeles, California.

class with an account of the semantic bond which supposedly gives cohesion to the lexical items of which it is comprised. Brain's [196?:18] somewhat circular account of the Ki-Vi class is typical:

This very easy class is often called the 'Things Class' since many small and concrete things are in it, and indeed the word which represents the class - KITU - means a thing, plural VITU .

Perrot [1974:10] gives the following account of the M-Mi class:

The class we are now to consider is, like the Ki-Vi class, a class of non-living things, but it includes also trees and other plants. It may be called the MITI (tree) class.

There are, however, just as many nouns in a given class which fall outside these semantic parameters. For instance ki-pimo (Ki-Vi) 'a measure' is not concrete and it isn't necessarily small either. The M-Mi class is indeed primarily a class of non-living things, but such a general definition fails to exclude nouns from the other classes (with the exception of the M-Wa "class of humans").

The noun classes are illustrated in the table below:

<u>Ki-Vi</u>		
<u>singular</u>	<u>gloss</u>	<u>plural</u>
ki-ti	'chair'	vi-ti
ki-tanda	'bed'	vi-tanda
ch-umba*	'room'	vy-umba**
ki-su	'knife'	vi-su
ki-ko	'pipe'	vi-ko
* ki → ch by phonological rule		
** vi → vy " " "		

<u>M-Mi</u>		
m-ti	'tree'	mi-ti
m-kebe	'tin can'	mi-kebe
m-nazi	'coconut palm tree'	mi-nazi
m-keka	'mat'	mi-keka
m-lima	'mountain'	mi-lima

Ø/Ji-Ma

<u>singular</u>	<u>gloss</u>	<u>plural</u>
Ø-sanduku	'suitcase'	ma-sanduku
ji-cho	'eye'	ma-cho
ji-no	'tooth'	me-no*
Ø-gari	'vehicle'	ma-gari
Ø-kabati	'cupboard'	ma-kabati

*ma → me by phonological rule

N

kalamu	'pen'	kalamu
meza	'table'	meza
pua	'nose'	pua
kofia	'hat'	kofia
siagi	'butter'	siagi

Pa

mahali	'place'	mahali
--------	---------	--------

U

u-fagio	'broom'	Ø-fagio
u-fa	'crack'	nyu-fa
u-toto	'childhood'	---
u-funguo	'key'	Ø-funguo
u-llimi	'tongue'	n-dimi

Class of Animates

m-toto	'child'	wa-toto
ki-boko	'hippopotamus'	vi-boko
m-bwa	'dog'	m-bwa
ki-pofu	'blind person'	vi-pofu
Ø-karani	'clerk'	ma-karani

In the coastal dialects where aspiration is phonemic a further distinction exists between the Ø/Ji-Ma and N classes above. Word initial voiceless stops are aspirated for members of the N class while they are unaspirated for

members of the \emptyset /Ji-Ma class [Polomé 1967:68; Ashton 1944:297]. The data presented above is Standard Swahili. The noun classes are essentially the same for all Swahili dialects, e.g. Kiamu has a Ki-Zi class in place of the Ki-Vi class. The data that will be presented showing augmentative and diminutive patterns is taken from the Kimvita dialect, spoken on Mambasa (Mombasa, Kenya) island. Forms drawn from other dialects will be noted. The implications of this study are the same for all Swahili dialects.

Returning now to the noun classes, note that most of the classes are identifiable by their unique singular-plural prefix patterns. The U class and the "Class of Animates" would thus appear to be incongruous. However, recall that each class is identified exclusively by its concordial pattern, not by its singular-plural prefix pattern (although this holds in most cases). As for the U class, it consists of several sets of singular-plural patterns. The Class of Animates draws its members from nouns that would appear to belong to the other classes, that is, if class membership were determined by the singular-plural prefix pattern. But it is not. Just like the other classes, the U class and the Class of Animates are defined by their respective concordial patterns.

The classification above is my own. The traditional classification of Swahili nominals places nouns in their respective classes on the basis of prefix shape alone, e.g. Brain [196?], Ashton [1944]. Thus animates are exceptional in that they take a distinct concordial pattern in spite of considerable variability in their prefixes. As will be seen, this kind of analysis may be justified on diachronic grounds, but is incompatible with the synchronic facts.

1.1. Augmentatives and diminutives. Augmentative and diminutive forms are also nouns and are also marked by a set of singular and plural prefixes. Interestingly, all of the augmentative-diminutive (hereafter aug-dim) prefixes are identical in shape to certain noun class prefixes. These are the ki-/vi- prefixes which mark diminution and the \emptyset -/ji-/ma- and m-/mi- prefixes that mark augmentation. That the noun class marking and aug-dim marking functions are independent can be readily shown. Diminutive size is not an inherent property of the Ki-Vi noun class. Note for example ki-boko 'a hippopot-

amus', ki-tu 'a thing'. Neither is increasing magnitude intrinsic to the Ø/Ji-Ma and M-Mi classes, e.g. ji-no 'a tooth', ji-cho (Standard) 'an eye', m-shipi 'fishing line', m-shumaa 'a candle'. For a given noun, normal size is associated with the noun class to which it in some sense belongs. And it is not found outside its member class unless emphasis is on either augmentation or diminution. In structural terms, aug-dims are formed by replacing the class prefix with an appropriate aug-dim prefix which has the effect of moving that noun into another class.¹

There are as many as seven levels of augmentation and diminution for those nouns which have access to the entire aug-dim scale. This is illustrated below for k'hapu 'a basket', which is marked as a member of the N class by word initial aspiration.

Table 1: Levels of Augmentation and Diminution

<u>Aug-Dim Level</u>	<u>Swahili</u>	<u>Gloss</u>
2	ki-ji-kapu (vi-)	'tiny basket'
1	ki-kapu (vi-)	'small basket'
0	k'hapu (Ø-)	'normal basket'
1	kapu (ma-)	'large basket'
2	ji-kapu (ma-)	'larger basket'
3	m-kapu (mi-)	'very large basket'
4	m-ji-kapu (mi-)	'huge basket'

In one sense the levels of augmentation and diminution are relative, but in another sense more important to the linguistic analysis, they are absolute. An analogy can be drawn with the color spectrum. For instance, the point at which English speakers draw the line between what is red and what is pink may

¹The same prefixes are also used figuratively as in scathing reference to a person of a specified nationality:

Ki-ji-hindi 'a little (lowly) Asian'
 Ji-hindi 'a big (bad) Asian'

Similarly, ji-vi 'a big thief' (normally mwivi, M-Wa class) is used in the figurative sense. Augmentatives are also used in a collective sense: ma-paka mengi 'many cats'.

vary from person to person. But we all agree that red and pink are distinct (though closely related) colors, and for the most part we would agree as to what is red and what is pink. Similarly, where Swahili speakers draw the line on the aug-dim scale between one level and another may vary from speaker to speaker. The same large basket might be called *m-ji-kapu* by one speaker and *ji-kapu* by another because the former individual considers it larger relative to the norm than the latter, or because the former simply wants to place more emphasis on its large size than the latter as a matter of style rather than absolute divergence from the norm. This is the relative aspect to which I referred above and which I consider to be trivial since I am concerned with the linguistic system, particularly the relation between form and meaning, not individual speaker variability. It is the absolute interpretation of these levels that is relevant to the analysis of the data. All speakers agree to the distribution of levels shown above. All agree, for example, that *m-ji-kapu* refers to a larger basket than *ji-kapu*, just as they agree that *ki-ji-kapu* is a smaller basket than *ki-kapu*. Thus, just as in the color spectrum there are grey areas between colors, the levels of the aug-dim scale also blend into one another, but they are no less distinct linguistic entities on account of their blending.

It should be noted that the normal class to which a given noun belongs may vary across dialects, although the consequences for the analysis are the same. For instance, *k^hapu* 'a basket' in most coastal dialects is *ki-kapu* in Upcountry and Standard Swahili. At the coast, *ki-kapu* is 'a small basket', while *ki-ji-kapu* is 'a very small basket'. In Upcountry and Standard Swahili, *ki-ji-kapu* is only 'a small basket'. Similarly, *m-guu* is 'a foot/leg' in Upcountry and Standard Swahili while \emptyset -*guu* is the norm in most coastal dialects. For speakers of the latter, *m-guu* would be a 'huge foot/leg'.

1.2. Aug-Dim and noun class interaction. Up to this point we have discussed aug-dim and noun class prefixes as distinct entities. Let us now turn to the facts pertaining to their interaction. The interplay between the two is an obvious consequence of the fact that all of the aug-dim prefixes overlap, i.e. are homophonous, with certain noun class prefixes. Playing a crucial role in the combinatory possibilities is the fact that aug-dim and noun class prefix-

es never co-occur as prefixes on a given nominal stem. Hence the following forms are ungrammatical:

- (1) a. *ki - m - kebe
 dim NC tin can
 b. *ji - ki - tanda
 aug NC bed
 c. *ji - ji - cho
 aug NC eye
 d. *ki - k^hapu
 dim basket (where aspiration marks NC)

Note however that ji- may follow an initial aug-dim prefix (although that initial prefix cannot also be ji-). In (2), ⁺rel is an abbreviation for *relative intensifier* which will be defined later.

- (2) a. ki - ji - sanduku
 dim ⁺rel suitcase
 b. *ji - ji - sanduku
 aug ⁺rel suitcase

Furthermore, when the appropriate aug-dim is homophonous with the noun class prefix of a given nominal stem, only the noun class prefix interpretation occurs. In other words, that level of augmentation or diminution for that particular nominal is rendered non-existent. Observe m-*lima* 'a mountain', for which the m- prefix marks it as a member of the singular M-Mi class. As shown in the table, there is also an m- prefix that marks level 3 of augmentation. However, m- cannot serve the latter function for m-*lima* due to its homophony with the class prefix. The same is true for all such homophonous pairs.

The potential for ambiguity between such homophonous pairs is resolved by the dominance of noun class over augmentation and diminution. If homophonous aug-dim and noun class prefixes were both allowed, speakers would surely be aware of their intentions, but hearers would be hard pressed to disambiguate the two, which fact is illustrated in (3). The symbol = represents well-formedness, and ≠ represents ill-formedness.

- (3) a. =angalia m - kebe ule 'look at that tin can'
 look at NC tin can that

- b. #angalia m - kebe ule 'look at that huge tin can'
look at aug tin can that

There is no contextual information which would assist the hearer in making sense of such a dichotomy. Thus, by rule the aug-dim function is disallowed where potential ambiguity occurs.

It would appear to follow from the facts pertaining to this dominance relation that gaps would occur along the augmentative-diminutive scale. As seen above, sanduku lacks a level 1 augmentative just as ki-tabu lacks a level 1 diminutive and m-lima lacks a level 3 augmentative, etc. Observe below the respective paradigms that would be assumed for these three lexical items.

Table 2: "Gaps" Resulting from Noun Class Dominance

Aug-Dim Scale	ki-tabu 'book'	∅-sanduku 'box'	m-lima 'mountain'
2	ki-ji-tabu (vi-)	ki-ji-sanduku (vi-)	ki-ji-lima (vi-)
1	X	ki-sanduku (vi-)	ki-lima (vi-)
0	ki-tabu (vi-)	∅-sanduku (ma-)	m-lima (mi-)
1	∅-tabu (ma-)	X	∅-lima (ma-)
2	ji-tabu (ma-)	ji-sanduku (ma-)	ji-lima (ma-)
3	m-tabu (mi-)	m-sanduku (mi-)	X
4	m-ji-tabu (mi-)	m-ji-sanduku (mi-)	m-ji-lima (mi-)

(X = gap assumed to exist)

That such gaps do not occur, but are instead filled by the merger of an adjacent aug-dim, specifically the one at the next higher level on the scale, is the analytical problem for which this paper will offer an explanation and analysis.

Merger is now illustrated for the same three lexical items, in Table 3 on the following page. The evidence for merger is simply the fact that semantic gaps corresponding to the morpheme gaps do not exist. If they did, then for ki-tabu (see Table 2) there would have to be a middle ground of diminution between levels 0 and 2 which is inexpressible by means of a diminutive prefix. An adjective such as k'idogo 'small', might serve to fill in the gap. However, speakers show no hesitation in using the 2nd level diminutive.

Table 3: Merger of Adjacent Aug-Dims

Aug-Dim Scale	<u>ki-tabu</u> 'book'	<u>Ø-sanduku</u> 'box'	<u>m-lima</u> 'mountain'
2	ki-ji-tabu (vi-)	ki-ji-sanduku (vi-)	ki-ji-lima (vi-)
1	† †	ki-sanduku (vi-)	ki-lima (vi-)
0	ki-tabu (vi-)	Ø-sanduku (ma-)	m-lima (mi-)
1	Ø-tabu (ma-)	† †	Ø-lima (ma-)
2	ji-tabu (ma-)	ji-sanduku (ma-)	ji-lima (ma-)
3	m-tabu (mi-)	m-sanduku (mi-)	† †
4	m-ji-tabu (mi-)	m-ji-sanduku (mi-)	m-ji-lima (mi-)

tive to express even slight diminution from the norm. The same argument can be made with respect to any supposed gap which is a consequence of potentially ambiguous noun class and aug-dim prefixes.

Thus nouns differ with respect to the nature of aug-dim expression as a function of noun class membership. In other words, the combined prefixes *ki-ji-* express a degree of diminution which is different for a noun where potential ambiguity exists than that expressed for a noun where it does not. More specifically, the *ki-ji-* prefixes of *ki-ji-tabu* cover both levels 1 and 2 of diminution, whereas the prefixes *ki-ji-* as in *ki-ji-sanduku* 'a very small suitcase', cover only level 2. Level 1 for the latter nominal is expressed as *ki-sanduku* 'a small suitcase'. A parallel situation exists in all cases where the potential for ambiguity occurs. Thus it is seen that the extent of access to the various degrees of aug-dim expression varies with the class to which a given noun belongs.

2. Traditional Accounts

Up to this point strictly empirical claims have been made in describing the structural and semantic facts relevant to the interaction between aug-dim and noun class prefixal systems. Nevertheless, these simple facts constitute no less than a revelation in terms of simple structural description. Modern Swahili grammars—not only those which are purely pedagogical, but those with some degree of linguistic sophistication as well—have either failed or neglected to account for the facts.

Most grammars simply ignore the implications of the interaction between augmentative-diminutive and noun class prefix systems. Ashton [1944:295] presents diminutives and augmentatives in a chapter separate from her discussion of noun class indicating the two are distinct entities, yet she offers no explanation as to why, for instance *ji - ki - tabu is disallowed, or why *ki - tabu, meaning 'a little book', does not occur. According to Ashton, "Where the root is monosyllabic or begins with a vowel, ji- is inserted." The root -tabu is neither monosyllabic nor does it begin with a vowel, yet its diminutive is formed by inserting ji-.² Ironically, Ashton illustrates her claim with a monosyllabic member of the Ki-Vi class, ki-chwa 'a head'. She is apparently unaware that all members of the Ki-Vi Class form their diminutives by inserting ji- in the same manner. Ashton does at least recognize "the additional diminutive idea of ji-," citing m-toto 'a child', ki-toto 'an infant', ki-ji-toto 'a very small infant'. However, she fails to acknowledge the glaring fact that ji- brings about level 2 of diminution in some cases but not in others.

Loogman [1965:33] acknowledges the interaction between the two prefixal systems by stating that diminutives are formed by "transfer" to the Ki-Vi class. He claims that we are not dealing with two prefixal systems, but with one. At the same time he recognizes the fact that the noun class ki- prefix is not primarily diminutive in spite of its diminutive function when

²Even for nominals which are not potentially ambiguous, the number of syllables has nothing to do with diminution. Note ki-taa 'a little light' is the diminutive of taa 'a light' and ki-guu 'a little foot' is the diminutive of m-guu 'a foot'. Any number of exceptions to Ashton's rule could be cited. Her list of words which are claimed to follow the rule that ji- is inserted when the root is monosyllabic is rather a list of idiosyncratic lexical items. For instance, the diminutive of m-tu is ki-ji-tu instead of ki-tu for the simple reason that *ki-tu meaning 'little person' is ungrammatical. This is an idiosyncratic fact of the lexicon which requires no further explanation. I might, however, hypothesize that *ki-tu as the diminutive of m-tu is disallowed due to homophony with a distinct lexical item, ki-tu 'a thing'. Thus it is seen that gaps may result as a consequence of idiosyncratic ungrammaticality as well as potential ambiguity. I have chosen not to deal with this problem in the text since merger would be accounted for in the same manner as for potentially ambiguous nominals.

"transfer" occurs. Thus in some respects, Loogman correctly concludes that aug-dims are identical to noun class prefixes, while in other respects they differ.

Polomé [1967:95-100] states that a given nominal stem allows a restricted "range" of prefixes including the augmentative and diminutive forms. After much elaboration on the remnants attesting the semantic basis of Bantu nominal classification, he refers to two distinct functions of *ji-* as a noun class marker and as an aug-dim. Polomé explains this is "due to the fact that the prefix *ji-* indicating size is actually different from the prefix of class 5 (Ji-Ma) and reflects proto-Bantu **gi-*, which is the regular augmentative class prefix (of Class 21), "He gives an identical account of the discrepancy between the diminutive and class marking functions of *ki-* : "... the function of the proto-Bantu diminutive prefix **ka-* was taken over by *ki-* after the loss of *ka-* in Swahili" (p. 100).

As the present study is synchronic, the historical source of a particular prefix is of little intrinsic value though it may have some insight to offer. It is unclear whether Polomé intends these diachronic facts to have synchronic implications, but it appears that he would posit historically distinct aug-dim and noun class prefixes that have at least partially collapsed into a single synchronic form.

In several respects the modern grammars fall short of providing an adequate description of the facts. They do not account for the variable access to the various aug-dim prefixes which is a function of the class to which a given noun belongs. Ashton offers the only attempt, but her notion that access relates to syllabicity simply doesn't account for the facts. The grammars do recognize the fact that in some respects the two prefixal systems are identical, while in others they serve distinct grammatical functions. But they fail to account for the non-occurrence of aug-dims where the potential for ambiguity exists. Finally, they fail to account for the levels of augmentation and diminution. Ashton only recognizes the existence of a second level of diminution but fails to account for its distribution and offers no explanation why *ji-* covers levels 1 and 2 of diminution in some cases, but only level 2 in others.

3. Analysis

3.1. Independent analysis of ji- . The present paper will offer an explicit account of the facts within the framework of generative grammar. The facts themselves already suggest that, the ultimate resolution of the incongruities between otherwise identical prefixal systems may relate to the recognition of the two systems as identical at one level of analysis but distinct at another. There is, however, one more factual detail that needs clarification before an analysis can be posited.

The semantics of the prefix *ji-* are somewhat elusive on grounds independent of the interaction between the two prefixal systems. When *ji-* occurs word initially as in *ji-sanduku* 'a big suitcase', it means 'big'. When it occurs after the 3rd level augmentative *m-* it shifts the lexical item to which it is attached to the 4th level meaning "bigger than the level of the initial prefix". When attached to the 1st level diminutive *ki-* it similarly brings about a shift to the next level on the scale, i.e. level 2 of diminution, meaning "smaller than the level of the initial prefix". Therefore, in the lexicon the aug-dim *ji-* is defined as a *relative intensifier*. That is, *ji-* enhances the magnitude of a lexical item a single level on the scale. It thus has an augmentative effect when it occurs word initially. When it follows a word initial prefix it intensifies magnitude one level along the scale either augmentatively or diminutively as determined by the initial prefix.

3.2. On the lexicon. A line must be drawn between those facts to be stored in the lexicon and those to be attributed to other components of the grammar. It is generally recognized that the lexicon is the repository of idiosyncratic properties of words, e.g. Jacobs and Rosenbaum [1968:59]. Presumably this definition is not intended as a denial of the ostensibly contrary claim that certain regularities are attributable to the lexicon [Wasow 1977:330-331]. I believe the intent of the definition is that lexical properties are judged idiosyncratic relative to the complete productivity and complete regularity characteristic of syntax and its relation to meaning.

It is a principle of generative grammar that the meaning of a given string is a compositional function of its formatives and thus relegates to the lexi-

con the task of combining elements (or "morphemes" as defined by Aronoff [1974:15]) whose meaning as a whole is indeterminate as a function of the parts [Dowty 1978:120]. The principle says nothing about the extent of productivity and semantic regularity permissible in the lexicon, and it is my view that nothing further need be said (contrary to the claims of Dowty [1978:20] and Wasow [1977:331]). The fact is that the regularities of the lexicon are sub-regularities. That is, they are subsumed under some syntactic or semantic marker that is compositionally indeterminate and thus can only be attributed to the lexicon irrespective of the extent of their productivity and semantic regularity.³

It is generally true that lexical processes are less productive and less semantically regular than syntactic processes, but this is a descriptive rather than explanatory fact and has no crucial bearing on the assignment of a given rule to a particular component. As will be seen, some of the processes involved in the determination of noun class in Swahili are both productive and semantically regular, yet they must be relegated to the lexicon.

3.2.1. Specifics of the lexicon. It has already been intimated that noun class membership will be assigned in the lexicon. To establish this, it need only be shown that noun class prefixes are compositionally indeterminate when they are attached to nominal stems. Of course, it must also be shown that the noun class prefix is a justifiable entity.

The evidence for positing a category NC (noun class) is the fact that a given meaning which is associated with a given noun is uniquely manifested by the association between a specific class prefix and a specific nominal stem, e.g. *ki-tabu* 'a book'. If a different class prefix is attached to that stem, the result is either ungrammaticality, e.g. **u-tabu*, or a change in meaning, e.g. *ji-tabu* 'a big book'.

The association of a particular aug-dim prefix with a particular nominal stem yields a compositionally determinate, i.e. predictable, level of augmen-

³Thus I do not subscribe to the strong lexicalist hypothesis of Jackendoff [1972] which excludes all morphological phenomena from the syntax. It is my view that in terms of the theory this amounts to an arbitrary division between the lexicon and the syntax.

tation or diminution for that nominal as a function of its parts. (The facts pertaining to merger constitute a minor exception and will be dealt with by rule.) The various aug-dim prefixes are thus assigned lexical entries as follows:

		ki-	diminutive; level 1; singular
		vi-	" " plural
Aug-		∅-	augmentative; level 1; singular
Dim		ma-	" " plural
		m-	augmentative; level 3; singular
		mi-	" " plural
Rel		ji-	relative intensifier; singular/plural

(The preceding scheme is not identical to, but is compatible with the "normal form for a dictionary entry" as in Katz and Postal [1964:14] and Katz and Fodor [1964].)

These entries will be lexically inserted into the nodes aug-dim and rel which will be generated in the Base by the Phrase Structure Rules.

On the other hand, compositional determinacy cannot be claimed in the assignment of noun class membership. The point was made at the outset that although there are a number of themes found in the various classes, there exists no semantic bond which ties together all the members of a given noun class. Since there is no compositionally determinate predictability involved in the association between noun class prefix and nominal stem, the relation that holds between the two must be assigned in the lexicon.

As stressed earlier, the incidental occurrence of subregularities in the lexicon has no bearing on this determination. There are, in fact, numerous processes of varying degrees of productivity that determine noun class membership. According to Polomé [1967:96], various shifts and innovations have blurred in many ways the "original" semantic basis of Bantu nominal classification. For instance, the original function of the Ji- class was to indicate one of a pair of objects such as body parts which come in pairs. In synchronic Swahili, ji- has also become the singular counterpart of the Ma- class which expresses groups of things or totality. In addition, the proto-Bantu augmentative *gi- has coalesced with this class.

The consequence of diachronic changes such as those discussed by Polomé

is that little remains of the semantic regularity claimed for proto-Bantu. Whereas for proto-Bantu Polomé might claim a single rule by which membership in each noun class was determined, in synchronic Swahili a number of word formation rules [Aronoff 1976] must be posited to account for class membership. For instance, plants and trees are still generally assigned to the M-Mi class in word formation. Human beings are often assigned an *m-wa* prefix forming a subclass within the Class of Animates, although humans may be assigned other prefixes. Ki-Vi class membership is often assigned to "an implement directly connected with the processes expressed by the verb". (See Polomé [1967:96-103] for a discussion of other processes, but bear in mind that many of them are diachronic rules no longer productive in the language.)

Confirmation of the lexical versus syntactic⁴ aspect of class membership comes from the fact that certain aug-dims have been lexicalized. Note for instance the relation between *sahani* 'a plate' and *ki-sahani* 'a saucer'. The latter form is a lexicalized diminutive of the former. The productive diminutive of *sahani*, i.e. *ki-sahani* 'a small plate', is in this case identical to the lexicalized diminutive. Carrying this a step further, it can be seen that *sahani* has access to two levels of diminution, i.e. *ki-sahani* and *ki-ji-sahani*. On the other, lexicalized *ki-sahani* 'a saucer' has access to a single level of diminution in *ki-ji-sahani*. Speakers confirm the ambiguity of *ki-ji-sahani* between 'a very small plate' and 'a small saucer'.

A process by which many loanwords are assimilated into the respective noun classes is syntactically rather than semantically motivated. The coincidental identity or similarity of the word initial shape of a given loanword,

⁴The "syntactic aspect of class membership" again refers to the workings of a given concordial agreement which is identical for all members of a given class, whether membership is lexically or syntactically determined. The Ki-Vi class singular agreement pattern is illustrated below for the diminutive *ki-kalamu* 'a little pen' and the normal member *ki-tabu* 'a book'.

ki-le ki-tabu ch-ake ki-zuri ki - me - anguka
that book his good it perf fall

'that good book of his has fallen'

" *ki-kalamu* " " " " "

'that little pen of his has fallen'

rather than its semantic compatibility with some noun class, may determine the class into which that lexical item is assimilated. Thus, Ki-sasi 'revenge' from Arabic *qaṣāṣ* has become a member of the Ki-Vi class in spite of the notion that this class is primarily composed of physical objects. Similarly, m-sumari 'a nail' from Arabic *mīsmār* has been assimilated into the M-Mi class and given a plural *mī-* prefix as well, even though its meaning has no relation to the respective semantically motivated word formation rules that assign nominals to this class. This finding shows that the grammatical aspect of noun class has come to play a role in lexicalization. The purely structural nature of concordial agreement with a head noun of specified prefixal shape is thus a model for loanword assimilation along similar non-semantic lines.

In spite of all the complexities involved in the determination of lexical noun class, the various processes discussed above have equal relevance to the interaction between noun class and the aug-dim prefixal system. They all have the effect of assigning to a given lexical item a neutral or 0 rating with respect to the aug-dim scale.

3.2.2. A condition placed on selection restrictions. Returning to the specifics of the problem at hand, one additional fact must be treated in the lexicon in order to avoid the generation of an ungrammatical Base. The non-occurrence of aug-dims where the potential for ambiguity exists will be accounted for in terms of a condition placed on the lexical selection restrictions for aug-dims. A *selection restriction* is defined by Katz and Postal [1964:15] as "a formally expressed necessary and sufficient condition for that reading to combine with others." Although Katz and Postal discuss selection restrictions which are formulated as functions of semantic markers, they acknowledge that such restrictions may also be formulated as functions of syntactic markers.

Thus in the lexical entry for aug-dims, it is stated that they may combine with any nominal stem except for an adjacent stem whose noun class prefix is homophonous with that particular aug-dim.

SELECTION RESTRICTION	[aug-dim - stem]	condition:	1 ≠ 2 (where =
	N NC N		represents
	1 2		homophony)

Note that the condition does not apply when *ji-* intervenes between *aug-dim* and stem. Apparently the presence of the relative intensifier serves to disambiguate the initial prefix as *aug-dim* rather than *NC*. This is transparent because the relative intensifier never intervenes between the noun class prefix and the nominal stem.

3.2.3. Conclusions on the lexicon. Now it can be understood why Modern Swahili grammars present a confused notion of noun class. There are two distinct linguistic entities, either of which may be justifiably labeled "noun class". On the one hand, there is the syntactic entity on which the operation of concordial agreement is dependent and which is determined by the identity of prefix shape alone. On the other, there is the nonpredictable entity which, due to the lack of semantic regularity, must be assigned in the lexicon.

Although the rules assigned to the lexicon are, like generative rules, in some sense synchronic, evidence that they are distinct on empirical grounds from other processes would support their exclusion from the syntactic component. It would be particularly gratifying if it could be shown that the lexical rules are non-generative, since generative grammar claims the syntactic component to be the generative source in the grammar. Halle [1973], Aronoff [1976], and Dowty [1978] have observed that word formation rules are "once only rules", although this has not been stated as a basic tenet of the theory. Nevertheless, it is claimed that these rules are "very different from the rules of the syntax and the phonology which must apply in the derivation of every sentence" [Aronoff 1976:22].

Dowty [1978:120] appeals to native speaker intuitions as evidence that the productivity of the lexicon is different in kind from that of the generative components:

I believe speakers are potentially capable of remembering that they have heard a newly derived word for the first time, in a way that they very rarely recall hearing a sentence for the first time. A consequence of this is that speakers are able to distinguish between actual and merely possible sentences. These facts suggest to me—as they have to many other linguists—that a crucial fact about lexically derived expressions is that they are (or always can be) learned individually, whereas syntactically derived expressions are not. If they are learned individually, then there must always be, at any one stage of a person's linguistic

knowledge, a fixed finite number of them, though this number may grow from time to time.

In other words, the productivity of the lexicon is necessary to account for the ever-growing nature of the lexicon, not the infinite capacity of native speakers to produce and understand wholly novel structures. Dowty concludes that "the semantic principles behind lexical rules merely enable speakers to know the *approximate* meaning of a new word upon first hearing it."

A recent addition to the Swahili lexicon is the M-Wa (class of human beings) entry, m-benzi 'one who owns a Mercedes Benz'. By lexical rule the borrowed nominal stem -benzi is assigned to the class of human beings and given a new meaning. But just as Dowty argues, this is an approximate meaning. There is nothing to prevent m-benzi from instead meaning a Mercedes Benz mechanic/dealer, etc., but it does not. The fact that it means 'a Mercedes Benz owner' must be remembered. Facts such as these thus offer empirical support for the relegation of word formation rules to the lexicon, and also lend credence to the theoretical device which draws the line between the lexicon and generative components.

3.3. The syntactic base. The following Phrase Structure (PS) rule constitutes the Base of the syntactic component:

$$N \rightarrow \begin{pmatrix} \text{aug} \\ \text{dim} \end{pmatrix} (\text{ji}) \text{ stem}$$

As argued previously, noun class must be associated with the stem in the lexicon. The class of a stem will be marked by means of a feature specification on the stem, e.g. [ki-] for ki-tabu 'a book', formally stated as follows:

LEXICAL ENTRY
-tabu
[ki-]

The alternative of supplying the prefix plus stem, i.e. ki-tabu, to the Base is discounted since it would necessitate the positing of numerous ad hoc morphophonological rules. This is illustrated with a sample derivation for ji-tabu 'a very large book':

Base: ji - ki - tabu
 aug NC stem
 Morphophonological Rule: " \emptyset "
 Surface: ji-tabu

Hence a rule of the following sort would be posited:

$ki \rightarrow \emptyset / ji_ _$ [restricted to nominal prefixation]

In order to account for the facts, many rules of the same type totally lacking in motivation would have to be written.

3.3.1. An obligatory transformation. The PS rule $N \rightarrow (\text{aug-dim}) (ji) \text{ stem}$ alone does not capture the generalization that the nominal stem never occurs in isolation. Rather, this is handled by the operation of an obligatory transformation which segments out the lexical NC feature when neither aug-dim nor ji- precedes the stem. Thus ki-tabu is derived as follows:

```

      N
      |
      stem
      |
      -tabu
      [ki-]
  
```

T-Rule #1 (Obligatory): Adjoin to the left of the stem a segment labeled for lexical noun class if no other constituent occurs in that position.

```

      N
     / \
    ki-  stem
         |
        -tabu
  
```

The augmentative m-ji-kapu 'a huge basket' is readily derived.

```

      N
     / | \
    aug-dim rel stem
     |     |   |
     m-   ji- -kapu
           [N]
  
```

T-Rule #1 does not apply since its structural description is not met. A morphophonemic rule would erase any feature not segmented out by T-Rule #1.

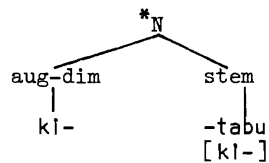
Hence the derivation is compatible with the fact that the lexical noun class

to which *-kapu* belongs, i.e. N, is not revealed on the surface. An explanation of the non-occurrence of *aug-dim + NC* is also offered. For example, #*ji - ki - tabu* cannot be derived also because the structural description of *aug NC stem* T-Rule #1 is not met.

3.3.2. Circumlocution. At the outset it was explained that the potential exists for gaps on the *aug-dim* scale. The occurrence (in theory) of missing levels is accounted for in the lexicon by means of the previously stated condition placed on the selection restrictions for *aug-dims*.

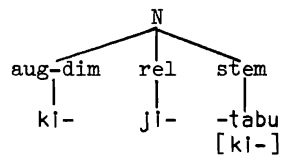
When potential gaps occur, speakers circumlocute to a grammatical Base, namely the next higher level on the *aug-dim* scale.

Ungrammatical Base:



(Not generated due to condition placed on selection restriction.)

Grammatical Base:



The only fact that remains unexplained is semantic merger. A viable analysis must account for the fact that *aug-dims* formed by circumlocution cover semantic ground distinct from that of identical *aug-dims* where the condition placed on selection restrictions is not met. Recall that *ki-ji-tabu* (by circumlocution) covers levels 1 and 2 of diminution, whereas *ki-ji-kalamu* 'a very little pen' only covers level 2.

3.4. Semantic interpretation. The problem posed by merger is resolved by means of an interpretive rule which plays a role in semantic interpretation. As argued in Katz and Postal [1964:13], since syntactic information may be required for the semantic component to assign a given sentence a semantic interpretation, the syntactic component provides the input to the semantic compo-

ment.

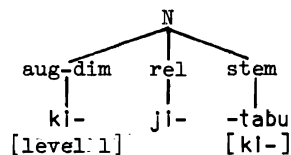
The interpretive rule I propose is triggered by the fact that circumlocution has taken place, which in turn is marked by the identical shape of aug-dim and NC prefixes. The rule is stated as follows:

Iff aug-dim is homophonous with NC, the meaning of the whole merges toward 0 a single level.

No doubt this could be stated more concisely in a formal logic, but this rendering will suffice for our purposes.

In other words, when a strategy of circumlocution is adopted to replace a Base which is prohibited by the non-identity condition in the lexicon, the aug-dim level of the nominal in question merges toward 0 a single level on the aug-dim scale, thus filling in the semantic gap created by ungrammaticality. This rule has the following effects on the bases of *ki-ji-tabu*, *m-ji-kebe*, and *ji-sanduku* respectively.

ki-ji-tabu:

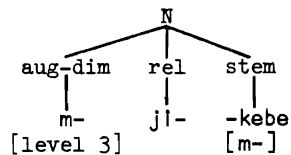


Normal interpretation: rel *ji-* enhances [level 1] *ki-* to [level 2]

Interpretive rule: homophonous aug-dim *ki-* and NC *ki-* trigger merger to [level 1]

Net effect: diminutive levels 1 and 2

m-ji-kebe:

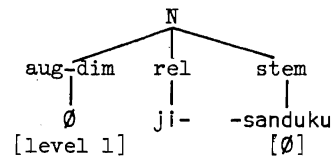


Normal interpretation: rel enhances [level 3] *m-* to [level 4]

Interpretive rule: homophonous aug-dim *m-* and NC *m-* trigger merger to [level 3]

Net effect: augmentative levels 3 and 4

Ji-sanduku:



Normal interpretation: rel ji- enhances [level 1] ∅
to [level 2]

Interpretive rule: identical aug-dim ∅ and NC ∅
trigger merger to [level 1]

Net effect: augmentative levels 1 and 2

A comparison of the results of these rule applications with the facts of merger as presented in Table 3 above shows that the correct semantic interpretation is assigned in each instance.

3.4.1. Faulty analysis of ki-ji-tabu . On the basis of merger as it applies to singular members of the Ki-Vi class such as ki-tabu , one might conclude that the semantic alteration exemplified by diminutive ki-ji-tabu is a result of the replacement of diminutive ki- by noun class prefix ki- . The argument would go as follows: Diminutive ki- attached to the nominal stem -tabu gives ungrammatical *ki-tabu ; thus, in order to form a diminutive, speakers circumlocute by inserting ji- into grammatical ki-tabu , where ki- is the noun class prefix.

Such a claim, in fact, offers an explicit account of the semantics involved. It is compatible with both the aug-dim scale as well as the independently motivated semantics of ji- . The scale claims noun class members to be neutral with respect to augmentation and diminution. Unlike diminutive prefix ki- which is given a level 1 diminutive rating, noun class prefix ki- is assigned a 0 rating. The insertion of the relative intensifier ji- would thus be predicted to have distinct semantic effects, depending on whether it was attached to the noun class prefix or the aug-dim prefix. In the case of a nominal such as ∅-sanduku 'a suitcase', diminutive ki- is attached to the form ki-sanduku (level 1) 'a small suitcase', then ji- is inserted to enhance its magnitude to level 2 forming ki-ji-sanduku 'a very small suitcase'. In the case of a potentially ambiguous nominal such as ki-tabu 'a book', the insertion of ji- would instead enhance

its 0 level noun class prefix to level 1, thereby explaining the fact that only one level of diminution exists for singular Ki-Vi Class nouns that are homophonous with the diminutive prefix *ki-*.

However, such an analysis fails to account for the semantics of certain homophonous aug-dim and noun class prefixes, e.g. aug-dim prefixes *m-/m|-* and noun class prefixes *m-/m|-* respectively. The noun class marker (0 rating) of *m-kebe* 'a tin can' would leave a gap for that particular nominal at augmentative level 3 on the scale. Thus, we would predict that the insertion of *ji-* would enhance *m-ji-kebe* to level 1. But instead it remains at level 4. More precisely, it could be said to merge with level 3 filling the gap left at that position. The important fact is that *m-ji-kebe* does not attain level 1. Speakers confirm that *m-ji-kebe* refers to a bigger tin can than either *Ø-kebe* (level 1) or *ji-kebe* (level 2).

It can only be concluded that initial prefix *m-* in *m-ji-kebe* is the level 3 augmentative and not the noun class prefix. Therefore, unless we want to assume different analyses for *m-ji-kebe* and *ki-ji-tabu*, we must also assume that *ki-* in the latter form is likewise the diminutive prefix.

4. Conclusions

A solution is proposed to account for merger that resolves the problem in terms of an integrated analysis which distributes the burden of explanation among the various components of the grammar. On empirical grounds, the traditional concept of noun class was split between the lexicon and the syntactic component. Adequate justification was likewise provided for the PS rule, the condition placed on aug-dim selection restrictions, the feature analysis of lexical noun class, etc. But in the final analysis there was no alternative but to attribute merger to an interpretive rule.

The justification for the rule is simply the fact that it is compatible with the analysis as a whole as well as the theory. As argued in Katz and Fodor [1964:502], questions of evaluation are to be raised about entire theories rather than parts of theories. Semantic interpretation is but one component of a linguistic theory. Thus I rest my case on the "derivative" (also Katz and Fodor) sense in which an isolated proposal may be justified. Given the fact that the other rules, lexical entries, conditions, etc. are suffi-

ciently well established, the interpretive rule offers the most explicit account of the remaining facts and is thus adopted.

REFERENCES

- Aronoff, M. 1976. *Word Formation in Generative Grammar*. Linguistic Inquiry Monograph #1. Cambridge, Mass.: MIT Press.
- Ashton, E.O. 1944. *Swahili Grammar*. Norfolk, Great Britain: Longman Group, Ltd.
- Brain, J.L. 1967. *Basic Structure of Swahili*. Syracuse, NY: Syracuse University, Program of Eastern African Studies.
- Dowty, D.R. 1978. "Applying Montague's views on linguistic metatheory to the structure of the lexicon." In Farkas, Jacobsen, and Todrys (eds.), *Papers from the Parasession on the Lexicon*, pp. 97-137. Chicago Linguistic Society, April 14-15, 1978.
- Halle, M. 1973. "Prolegomena to a Theory of Word Formation." *Linguistic Inquiry* 4:3-16.
- Jacobs, R.A. and P.S. Rosenbaum. 1968. *English Transformational Grammar*. New York: John Wiley and Sons, Inc.
- Jackendoff, R.S. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge, Mass.: MIT Press.
- Katz, J.J. and J.A. Fodor. 1964. "The structure of a semantic theory." In J.A. Fodor and J.J. Katz (eds.), *The Structure of Language*, pp. 479-518. Englewood Cliffs, N.J.: Prentice-Hall, Inc.
- Katz, J.J. and P.M. Postal. 1964. *An Integrated Theory of Linguistic Descriptions*. Cambridge, Mass.: MIT Press.
- Loogram, A. 1965. *Swahili Grammar and Syntax*. Pittsburgh, Pa.: Duquesne University Press.
- Perrott, D.V. 1974. *Swahili*. New York: David McKay Company Inc.
- Polomé, E.C. 1967. *Swahili Language Handbook*. Washington, D.C.: Center for Applied Linguistics.
- Stockwell, R.P. 1977. *Foundations of Syntactic Theory*. Englewood Cliffs, N.J.: Prentice-Hall, Inc.
- Wasow, T. 1977. "Transformations and the lexicon." In P.W. Culicover, T. Wasow, and A. Akmajian (eds.), *Formal Syntax*, pp. 327-360. New York: Academic Press, Inc.

SYLLABLE COUNTING IN YORUBA*

Baruch Elimelech

The purpose of this paper is to argue that, in a synchronic grammar of Yoruba, it must be recognized that the distribution of the two sets of object pronouns is based solely on syllable counting. This is shown to be a viable phonological process which simply and automatically accounts for this morphological distribution. Furthermore, the analysis shows the phonological complementarity of the pronouns to be simpler than a syntactic complementary distribution as suggested by Bamgbose [1964, 1966b, 1967a].

0. Introduction

Yoruba has two sets of pronouns (given in (1)) that can occur in the surface structure as object pronouns, illustrated in (2).¹

(1)	SET A	SET B	
	mi	`mi	'me'
	e	`re	'you'
	∅	-re	'him, her, it'
	wa	-wa	'us'
	yín	-yín	'you'
	won	-won	'them'

*This paper was presented at the Ninth Annual Conference on African Linguistics, at Michigan State University, on 7-9 April 1978. I would like to thank Olu Omolayole, Richard Akanni Olarewaju, and Peter Badejo for giving me much of their valuable time as language consultants. The latter two assisted me in both Yoruba and Hausa. I would also like to thank Victoria Fromkin, Joe Emonds, and Bernard Comrie for reading and commenting on an earlier draft.

¹The symbols used in the Yoruba examples in this paper are the same as the Yoruba orthography: e = [ɛ], o = [ɔ], p = [kp], s = [ʃ], n after any vowel indicates nasalization, e.g. on = [ɔ̃]. Tone marking is as follows: V̄ = high tone, V (no mark) = mid tone, - (a dash) = mid tone over no vowel,

- (2) a. mo rí ẹ 'I saw you'
 I see you
- b. mo fẹràn rẹ 'I love you'
 I love you

Observe that the two pronoun sets are in complementary distribution with SET A occurring after one syllable words (2a) and SET B occurring after two syllable words (2b). Bamgbose [1964, 1966b, 1967a] suggests that the two pronoun sets are in syntactic complementary distribution. According to his analysis only SET A are object pronouns occurring after verbs; SET B are possessive pronouns occurring only after nouns. The word 'love' in (2b), according to Bamgbose, is a contracted surface form of a verb + noun, and he would derive all disyllabic verbs in this way. I will argue in this paper that this is an incorrect analysis and suggest instead that one can account for the distribution of the two pronoun sets phonologically, i.e. by syllable counting, rather than by syntactic category. Much discussion has been given recently to establish the syllable as a viable phonological unit, e.g. Vennemann [1972] and Hooper [1972]. It still remains unclear, nevertheless, as to where the process of syllable counting fits in. It is clear, for example, that the process involved here is not strictly a phonological one whereby a segment alternates with another after X number of syllables. Instead, what happens is that a morphological selection is made based on the phonological structure of morphemes, i.e. the number of syllables. Stephen Anderson [personal communication] points out that most processes involving syllable counting are cases of this sort.

1. How the Two Pronoun Sets Differ

One way in which SET A differs from SET B is tonal. Except for /yín/ 'you (plural)', the underlying tones of the pronouns of SET A are unspecified and are determined by the tone of the preceding verb.² If the verb has a high

∨ = low tone, √ = rising tone, ∩ = falling tone, and .V = assimilated low tone.

²This approach corresponds with Bamgbose [1964, 1966b, 1967a] and Rowlands [1969]. Courtenay [1968], on the other hand, posits an underlying high tone for all pronouns and derives the mid tone by a tonal dissimilation rule.

tone, then the object pronoun (except for /yfn/) will have a mid tone, as illustrated in (3).³

- (3) ó rí mí 'he saw me'
 he see me

The tone of the object pronoun is high after a verb with a non-high tone (mid or low), as seen in (4).

- (4) ó jọ mí 'he resembles me'
 he resemble me
 ó wò mí⁴ 'he looked at me'
 he look-at me

In conjunction with the tonal information that is determined by the tone of the verb, the segmental information of the third person singular object pronoun is determined by the vowel of the verb, i.e. it is identical with the vowel of the verb, as illustrated in (5).

- (5) mó rí í 'I saw him'
 I see him
 mó jọ ó 'I resemble him'
 I resemble him
 mó wò ó 'I looked at him'
 I look-at him

Different from SET A, the object pronouns of SET B must be specified for tone at the underlying level of representation, as seen in (6).

- (6) a. ó gbàgbé `rẹ → ó gbàgbèèrẹ
 he forget you 'he forgot you'

/yfn/. 'you (plural)' is treated as an exception to the tonal dissimilation rule.

³The object pronoun /yfn/ 'you (plural)', nevertheless, surfaces with a mid tone between it and the verb, e.g. mó rí í yfn 'I saw you'. This mid tone does not occur with /yfn/ after verbs of mid and low tone.

⁴High tone after low tone is phonetically rising, e.g. ó wò mí → ó wò mí 'he looked at me'. This is a general rule in Yoruba phonology, and it applies within and across boundaries. Consequently, it is not usually marked as a rising tone after a low tone. For further discussion concerning the tonal processes in Yoruba, see Courtenay [1968].

- b. ó tɔ́pínpín `rẹ́ → ó tɔ́pínpíǹnrẹ́
 he investigate you 'he investigated you fully'
- c. ó fẹ́rà̀n `rẹ́ → ó fẹ́rà̀ǹnrẹ́
 he love you 'he loves you'

Observe that the tones of the pronoun of 6(a-c) are not determined by the tone of the verb. That is, regardless of whether or not a verb ends in either a high (6a), a mid (6b), or a low (6c) tone, the tones of the pronoun remain low-mid. Consequently, each pronoun of SET B is assigned a sequence of tones at the underlying level of representation, as seen in (1). The initial tone of the sequence receives its segmental specification from a preceding vowel, as illustrated in (6). That is, notice that the initial low tone of /`rẹ́/ is realized on a vowel identical with the preceding vowel of the verbs. This vowel lengthening process, however, is not obligatory. Therefore, it may or may not show up at the phonetic level of representation. When vowel lengthening is not present on the surface, the same information can be conveyed by tonal alternations, as shown in (7).

- (7) ó gbàgbé .rẹ́ 'he forgot you'
 ó tɔ́pínpín .rẹ́ 'he investigated you fully'
 ó fẹ́rà̀n .rẹ́ 'he loves you'

The low tone effect shows up on the pronoun causing the mid tone to lower in pitch. The diacritic (dot) before [.rẹ́], which needs be marked only after non-low, is to indicate the assimilated low tone.⁵ The lowering in pitch produces a significant contrast after high, e.g. mo láwo 'I have a secret', mo lá.wo 'I have a plate'. The mid tone in the first example is higher than the one in the second.

SET B but not SET A can also occur on the surface as possessive pronouns, as seen in (8).

- (8) mo rí ilé `rẹ́ → mo rílé̀rẹ́ or mo rílé .rẹ́
 I see house your 'I saw your house'

⁵The assimilated low tone was proposed by Bamgbose [1966a].

2. Analyses

Since SET B can occur as possessive pronouns, some linguists (Bamgbose [1964, 1966b, 1967a] in particular, and Courtenay [1968]) claim that any occurrence of SET B as an object pronoun reflects that the verb is derived from a verb + noun combination, as illustrated in (9).

(9) mo fẹ́ + ọ̀ràn `re → mo fẹ̀rà̀nà̀nre or mo fẹ̀rà̀n.re
 I {want} {trouble} your 'I love you'
 {like} {affair}
 {love}

If we compare (8) and (9), we will notice that they are structurally the same. The verb + noun combination is formed by contraction. The process of contraction is obligatory in the case of (9) since the meaning of the uncontracted form will not be the same as that of the contracted form. Implicit in this claim is that SET B can occur only after nouns and that all surface verbs that take SET B are derived from a verb + noun combination. This argument further supports the generalization that Yoruba has only monosyllabic verbs at the lexical level of representation (a position shared by Bamgbose and Courtenay). While this might have been the case historically, I would claim that it is not valid synchronically.

In a synchronic description of Yoruba, one is immediately faced with the problem of establishing the underlying representation of verbs of the type in (10) if one attempts to derive all polysyllabic verbs from underlying verb + noun combinations.

(10)	gbàgbé	'to forget'	sokúrò	'to hang up'
	gbòòrò	'to widen'	topínpin	'to investigate fully'
	tọ̀ṣọ̀	'to beg for'	rojò	'to grumble (about)'
	bẹ̀rẹ̀	'to begin'	dàbí	'to resemble'
	rọ̀pò	'to succeed'	taarí	'to thrust violently away'

Verbs of this type take object pronouns of SET B. There is no way of recovering the phonological shape or semantics of a possible verb + noun combination as was done for /fẹ̀rà̀n/ in (9). Furthermore, Abraham [1958] mentions that the possible origin of the verb dàbí 'to resemble' is /dà/ 'to become' and /bí/ 'like'. Note that there is nothing nominal about this verb. Thus,

any compound construction of a verb + noun would be ad hoc.

A simpler approach is to recognize verbs of the type in (10) as polysyllabic verbs in their underlying form. This is not to claim that all surface polysyllabic verbs should be treated identically; some of them may be derived from verb + noun combinations, as suggested by Bamgbose. The surface disyllabic verbs—lexical or derived—can account for the complementary distribution of pronouns of SET A and SET B by a syllable counting process by the two rules stated in (11).

- (11) a. Insert pronouns of SET A after monosyllabic morphemes.
 b. Insert pronouns of SET B after polysyllabic morphemes.

These rules are stated without reference to any syntactic or morphological categories after the verb + noun contraction rules apply. Rule (a) will insert pronouns of SET A after surface monosyllabic verbs. Since all nouns are polysyllabic, rule (b) will insert pronouns of SET B after surface polysyllabic verbs, and nouns. Note that the contraction rule must leave the contracted structure as a verb.

3. Prepositions

The complementary distribution of SET A and SET B after prepositions supports the syllable counting analysis, as seen in (12).

- (12) a. mo sòrò s'í i 'I spoke to him'
 I speak to him
 b. mo sòrò nípa⁶ rẹ 'I spoke about him'
 I speak about him
 c. mo lọ pẹlú rẹ 'I went with him'
 I go with him

In (12a), SET A occurs after prepositions of one syllable; in (12b,c), SET B occurs after prepositions of two syllables. The rules of (11a,b) will insert the correct pronoun SET after prepositions with no mention of category.

⁶Abraham [1958] mentions that the possible origin of the preposition nípa 'about' is /ní/ 'at, in' and /lpa/ 'path, track'.

4. Evidence from Loan Words

Evidence from language borrowing further supports a hypothesis of syllable counting. Polysyllabic verbs borrowed into Yoruba always select pronouns of SET B. There is no evidence that such verbs are polymorphemic, verb + noun combinations.

Loan verbs from English into Yoruba illustrate this, as in (13).

(13)	English	Yoruba	
a.	to fail	mo fêlì -rè	→ mo fêlìrè
		I fail it	'I failed it'
b.	to pass	mo pàsì -rè	→ mo pàsìrè
		I pass it	'I passed it'
c.	to dupe	mo dúpù `rè	→ mo dúpùrè
		I dupe you	'I duped you'

The loan words conform with the phonological properties of Yoruba;⁷ vowels are added at the end of the verbs after a consonant to maintain the typical Yoruba CVCV structure. The vowels added are based on a front/back vowel harmony.⁸ In examples (a-b), the vowel /i/ is added after consonants preceded by a non-back vowel; in (c), the vowel /u/ is added after a consonant preceded by a back vowel. The tone contour of loan words seems to reflect the stress patterns of English; the falling contour tone can be written over one or two [+syll] segments. As a result of the process of nativization of loan verbs, all consonant final monosyllabic verbs borrowed into Yoruba from English will have two or more syllables depending on their syllabic structure.⁹ Like all other polysyllabic verbs, the English loan verbs take the pronouns of SET B as object pronouns as illustrated in (13), above.

Loan verbs from Hausa provide further support for an analysis of syllable counting. Some Hausa verbs that are borrowed into Yoruba are given in (14).

⁷See Courtenay [1968] for a detailed discussion of the phonological properties of Yoruba.

⁸For more discussion on vowel harmony in Yoruba, see Awobuluyi [1967], and Bamgbose [1967b].

⁹See Awobuluyi [1967] for a discussion on nativization of loan words into Yoruba.

- | | | | |
|------|----------|----------------|-------------|
| (14) | Hausa | Yoruba | |
| | dàamú | dámú | 'to bother' |
| | wàhá'làa | wàhá'là | 'to bother' |
| | yàrdá | yòòda or yòhda | 'to allow' |

These verbs also take pronouns of SET B, as in (15).

- | | | | | | | |
|------|-----|--------|-----|----|---------|-------------------|
| (15) | má | dámú | `mí | má | dámúúm! | 'don't bother me' |
| | neg | bother | me | | | |

William Welmers [personal communication] suggests that languages generally borrow nouns and that Yoruba might be borrowing English verbs as nouns. This suggestion is obviously not supported by English since English has borrowed verbs, adverbs, adjectives, and pronouns from other languages. Besides, these loan verbs, from English into Yoruba, behave syntactically as verbs and not as nouns. For example, they take subjects, as seen in (16).

- | | | | | |
|------|----|------|-----|---------------|
| (16) | mo | dùpù | rẹ | 'I duped you' |
| | I | dupe | you | |

They are negated like any other verb, as illustrated in (17).

- | | | | | | |
|------|----|-----|------|-----|---------------------|
| (17) | mí | kò | dùpù | rẹ | 'I didn't dupe you' |
| | I | neg | dupe | you | |

They take the progressive marker and the future tense marker like other verbs, as shown in (18).

- | | | | | | | |
|------|----|----|------|------|-----|-------------------|
| (18) | a. | mo | ń | dùpù | rẹ | 'I am duping you' |
| | | I | PROG | dupe | you | |
| | b. | mo | máa | dùpù | rẹ | 'I will dupe you' |
| | | I | FUT | dupe | you | |

They can undergo the process of reduplication to form the gerundive, as seen in (19).

- | | | | | |
|------|------|---|---------|----------|
| (19) | dùpù | → | dífdùpù | 'duping' |
|------|------|---|---------|----------|

Welmers [personal communication] has also suggested that such verbs might be treated as a contraction of verb + noun combination, but the tone pattern of such verbs suggests otherwise.

- | | | | |
|------|----|------|-----------|
| (20) | a. | dùpù | 'to dupe' |
|------|----|------|-----------|

- b. mánéjì 'to manage'
 c. rìàlálà 'to realize'

The penultimate falling tone in (20a,b,c) is clearly a reflection of the English intonation pattern. Other than English loan words, no verbs in Yoruba occur with these tone patterns. In the example of (14), the loan words from Hausa tend to reflect the tonal system of Hausa. Furthermore, the tonal pattern of (20a) cannot be derived from a verb + noun contraction (cf. *fé + òràn* → *fèràn* but not *fèràn*).

5. Possible Historical Explanation

The similarities of the phonological shapes of pronouns of SET A and SET B suggest that at one time in the history of the Yoruba language, there was only one SET. For most person-number combinations, the tone difference (as seen in (1)) is the only difference. Thus, there are overwhelming correspondences much greater than could be due to chance. Furthermore, the synchronic processes of *-r-* deletion and vowel assimilation suggest that the *-r-* of second and third person singular of the one SET of pronouns was affected historically by a deletion rule, and that the vowel of the third person was further affected by an assimilatory rule whereby it assimilated to a preceding vowel.¹⁰ Third person, consequently, became realized as a length-

¹⁰In Courtenay's [1968] discussion of the processes of *-r-* deletion and vowel assimilation, she points out that one type of vowel length in Yoruba is the consequence of *-r-* deletion and vowel assimilation or just *-r-* deletion whenever two vowels are identical, e.g.

Yorùbá	→	Yòùbá	→	Yoòbá	'Yoruba'
orúkọ	→	oúkọ	→	oókọ	'name'
koríko	→	koíko	→	koóko	'grass'
dára	→		→	dáa	'to be good'

Notice that it is the vowel of the syllable of the deleted *-r-* that assimilates. Given that the rule of *-r-* deletion affects the *-r-* of the second and third person singular of SET B as well, e.g.

orúkọ rẹ	→	oókọ ẹ	'your name'
orúkọ rẹ	→	oókọ è	'his name'

it seems plausible that historically a similar process of assimilation might

ening process of the final vowel of verbs. Although phonetically motivated, the assimilatory process interacted with other factors of the grammar. That is, it was morphological in that it happened to third person, but not second, and it was sensitive to parts of speech in that it happened after verbs, but not after nouns.

During the time of this single SET of pronouns, object pronouns were formed by placing the one SET after the verb, which was monosyllabic. To form a possessive construction with pronouns, the one SET was placed after (an) associative morpheme(s) which occurred between the noun and the pronoun. Similar pronoun behavior is attested synchronically in other Niger-Congo languages. In Bambara, for example, the same SET of pronouns is used for subject, object, possessive, reflexive, etc. The associative morpheme *ká occurs between the pronoun and the noun to form a possessive construction (cf. Welmers [1963]).

In Yoruba, the segmental information of the associative morpheme was lost. But the tonal information of this morpheme remained and became an inherent part of the pronouns, creating a new distinct SET of possessive pronouns. At that point in history, the now two SET's of pronouns were in both syntactic and phonological complementary distribution. At that time, all nouns were polysyllabic and all verbs were monosyllabic. Contraction between monosyllab-

have affected the vowel of the third person singular to create maximal distinction between second and third person object pronouns, e.g.

*mo wò	re	→	mo wò ẹ	→	mo wò ó	'I looked at him'
I	look-at		him			
*mo wò	re	→		→	mo wò ẹ̀	'I looked at you'
I	look-at		you			

Henceforth, the vowel length process became known as the third person, while unassimilated -ẹ- with no -r- preceding it became known as the second person. To support the contention of assimilation of a vowel across a boundary, a low vowel assimilates to the vowel of the second and third person after -r- deletion, e.g.

ajá re	→	ajá ẹ	→	ajé ẹ	'your dog'
ajá rẹ	→	ajá ẹ̀	→	ajé ẹ̀	'his dog'

ic and polysyllabic nouns led to the creation of a new class of verbs (namely polysyllabic). Simultaneously, SET B, which occurred as possessive pronouns of the noun of the verb + noun combination, took an additional semantic reading as object pronouns of the new class of verbs. Thus, SET B became associated with verbs of two or more syllables rather than a noun of a verb + noun combination. Consequently, SET B has been re-analyzed as object pronouns for verbs of two or more syllables irrespective of their origin. That is, it does not make any difference whether or not polysyllabic verbs are already part of the lexicon, derived from a verb + noun combination, derived from verb + verb compounding, or borrowed from another language.

6. Summary and Conclusion

It has been demonstrated that object pronoun selection is based on syllable counting. Evidence from polysyllabic verbs that must be considered lexical and from loan verbs from English and Hausa shows that pronouns of SET B have been reanalyzed as object pronouns for polysyllabic verbs, given the implausibility of such verbs consisting of a verb + noun combination underlyingly. A one time syntactic complementary distribution of the pronouns has given way to an existing phonological complementary distribution.

Implicit in this analysis is how evidence from language borrowing suggests a new synchronic analysis for the Yoruba verb, since all surface polysyllabic verbs cannot be derived from underlying verb + noun combinations. Therefore, the generalization that there is only one class of verbs at the underlying level of representation (namely monosyllabic) must be abandoned. Finally, this analysis shows "syllable counting" to be a viable phonological process which simply and automatically accounts for a morphological distribution.

REFERENCES

- Abraham, R.C. 1958. *Dictionary of Modern Yoruba*. London: University of London Press.
- Awobuluyi, A.O. 1967. "Vowel and consonant harmony in Yoruba." *Journal of West African Languages* 6(1):1-8.
- Bamgbose, A. 1964. "Verb-nominal collocations in Yoruba." *Journal of West African Languages* 1(2):27-32.
- Bamgbose, A. 1966a. "The assimilated low tone in Yoruba." *Lingua* 16:1-13.
- Bamgbose, A. 1966b. *A Grammar of Yoruba*. West African Monograph Series, 5. Cambridge: Cambridge University Press.
- Bamgbose, A. 1967a. *A Short Yoruba Grammar*. Second edition 1974, reprinted 1976. Ibadan, Nigeria: Heinemann Educational Books, Ltd.
- Bamgbose, A. 1967b. "Vowel harmony in Yoruba." *Journal of African Languages* 6:268-273.
- Courtenay, K. 1968. "A generative phonology of Yoruba." PhD Dissertation, University of California, Los Angeles.
- Hooper, J.B. 1972. "The syllable in generative phonology." *Language* 48:525-540.
- Rowlands, E.C. 1969. *Teach Yourself Yoruba*. London: The English University Press Ltd.
- Vennemann, T. 1972. "On the theory of syllabic phonology." *Linguistische Berichte* 18:1-18.
- Welmers, W.E. 1963. "Associative 'a' and 'ka' in Niger-Congo." *Language* 39:432-447.

Studies in African Linguistics
Volume 13, Number 1, April 1982

CONFERENCE ANNOUNCEMENT

The Organization of African Unity is planning a linguistic conference on the theme

"The Linguistic Liberation and Unity of Africa"

For further details, write to

Dr. J. Kalema, Acting Director
Organisation of African Unity
Inter-African Bureau of Languages
P.O. Box 7284
Kampala
UGANDA

PUBLICATIONS RECEIVED

Language and Development; an International Perspective, edited by Braj B. Kachru and Eyamba G. Bokamba, Department of Linguistics, University of Illinois. Number 2, Fall 1981. \$2.00 per issue.

The second issue of this newsletter, designed "to serve as a vehicle for the exchange of ideas, information, and research findings" on the role of language and applied linguistics, contains the following articles: Albert Valdman, "Language planning issues in Haiti"; Rudolph C. Troike, "Language problems and language planning of Spanish in the United States"; Rebecca N. Agheyisi, "Toward language planning in Nigeria"; Rasio Dunatov, "Language policies in Yugoslavia—an update"; Adam Makkai, "Observations on linguistic neo-colonialism in eastern Europe (and Africa)"; and William M. O'Barr, "Language in the courtroom". There are also several book reviews and notices.

Hunter, Linda. *Karatu! Farkonka Madaci, Karshenka Zuma*. The African Studies Program, 1454 Van Hise Hall, 1220 Linden Drive, University of Wisconsin, Madison, WI 53706. pp. vii, 87. \$4.00

An intermediate Hausa textbook meant for students with one year of university Hausa study. There are ten chapters, each consisting of a grammar section and a reading. A list of further references for the grammar at hand accompanies each chapter, and suggested exercises for each reading reinforce the grammar. The readings in Chapters 1-3 are marked for tone and vowel length, the remainder are not. They are drawn from a variety of published Hausa materials and include folktales, cultural material, and poems. The grammar sections for the ten chapters respectively are entitled: "The Grade System", "Grade II", "Indirect Object", "Causatives", "Continuative Aspect", "Relative Clauses", "Tone and Vowel Length", "Intonation", "Three Syllable Verbs", "Poetry and Song".

from the Centre National de la Recherche Scientifique (C.N.R.S)

Caprile, Jean-Pierre and Micheline Lebarbier (eds.), *Bulletin de liaison du Laboratoire de Langues et Civilisations à Tradition Orale*. LACITO-
Informations, 12. Ivry, France: CNRS, 1981.

Report of activities of LACITO for the year ending June 1981.

Bentolila, Fernand. *Grammaire fonctionnelle d'un parler berbère: Aït Seghrouchen d'Oum Jeniba (Maroc)*. Langues et Civilisations à Tradition Orale, 46. Paris: SELAF, 1981. pp. 447. No price indicated.

The author describes the Berber dialect of the Aït Seghrushen group of Um Jeniba, a douar located at the foot of Jebel Tishukt in the center

of the Moroccan Middle Atlas chain. A functional analysis is presented according to the method recommended by André Martinet. The results are arranged in three parts: classification, syntax, and "synthematic" analysis. The classification contains a list of morpheme classes defined on the basis of their combining possibilities. A separate chapter is devoted to each class, including, where necessary, a morphology (where the conditioned alternance of morpheme forms is described), and an axiology (which presents the values of the diverse units). The syntax describes the functions of the morphemes and the types of marking. The synthematic analysis describes the "synthemes", i.e., the groupings of "bound morphemes" which behave as simple morphemes (in composition, derivation, or idiomatic expressions).

from the Musée Royal de l'Afrique Centrale

B-1980 TERVUREN
BELGIQUE

Schmidt-Wrenger, Barbara. *Rituelle Frauengesänge der Tshokwe: Untersuchungen zu einem Säkularisierungsprozess in Angola und Zaïre*, Bände II-III. *Annales, Série in-8°*, Sciences Humaines, Nos. 99-100. Tervuren, Belgique: Musée Royale de l'Afrique Centrale, 1979. Band II, pp. x, 180; Band III, pp. xii, 82. No prices indicated.

Presentation of 95 women's songs of the Chokwe in Angola and Zaïre. Volume II presents an analysis of the musical and linguistic form followed by the texts and German translations. Volume III contains a complete musical transcription of each song.

Africana Linguistica VIII. *Annales, Série in-8°*, Sciences Humaines, No. 101. Tervuren, Belgique: Musée Royale de l'Afrique Centrale, 1980. pp. vi, 226. No price indicated.

A collection of papers on Bantu linguistics. The contents are as follows: Obituary for A.E. Meeussen, to whose memory the volume is dedicated; T. Arnold, "La conjugaison composée en rwanda"; A. Coupeze, "Traces de dix voyelles en protobantou"; Cl. Grégoire, "La structure sous-jacente des relatives en mandé nord"; G. Hulstaert, "Esquisse du parler des Yengé"; G. Hulstaert, "Un cas de postposition chez les Mongo"; G. Hulstaert, "Table des matières de la Syntaxe du lomongo"; R. Kerremans, "Nasale suivie de consonne sourde en proto-bantou"; and L. Stappers, "Textes kanyok".

Huysecom-Wolter, C. and A. Annaert-Bruder. *L'Emploi du Temps du Paysan Zande dans le Bassin de l'Uele en 1959-1960: Enquête de la 8ème Section du CEMUBAC de 1958 à 1961 dans le Nord-Est du Zaïre*. *Annales, Série in-8°*, Sciences Humaines, no. 102. Tervuren, Belgique: Musée Royale de l'Afrique Centrale, 1980. pp. xxiv, 372. No price indicated.

An ethnographic study of the daily life of rural Zande people in Zaire, conducted by the 8th Section of the Centre Scientifique et Médical de l'Université Libre de Bruxelles en Afrique Centrale (CEMUBAC). The research, conducted in 1958-1961, is interdisciplinary, being undertaken by a group of professors from l'Université de Bruxelles. There are numerous charts, maps, and photographs.

Gansemans, Jos. *Les Instruments de Musique Luba (Shaba, Zaïre)*. Annales, Série in-8°, Sciences Humaines, no. 103. Tervuren, Belgique: Musée Royale de l'Afrique Centrale, 1980. pp. x, 100. No price indicated.

A description of musical instruments used by the Luba. Included for each instrument is a discussion of the place of the instrument in the socio-religious life. There are photographs of most instruments and the methods of playing them.