PAPERS FROM THE EIGHTH
CONFERENCE ON AFRICAN LINGUISTICS

Edited by

Martin Mould
California State University at Los Angeles

Thomas J. Hinnebusch
University of California, Los Angeles

Supplement 7
Studies in African Linguistics
Department of Linguistics
University of California, Los Angeles

December 1977
FOREWORD

This volume presents a selection of papers read at the 8th Conference on African Linguistics, held April 1-3, 1977 at UCLA and sponsored jointly by the UCLA Department of Linguistics and the African Studies Center. The success of the Conference can be attested by the large number of papers submitted; we are gratified by that response and regret that due to restrictions on volume size, we were not able to accommodate in one volume all those who submitted papers.

The Conference was organized into sessions on: Bantu Syntax, Tone, West Africa, Chadic, and Phonetics and Phonology, with two sessions on miscellaneous topics. In addition there were Working Groups where papers were presented and discussions held on several topics: Bantu syntax, tone, language planning and Afroasiatic. Papers that developed from these sessions will appear in special sections of volume 9 of Studies in African Linguistics throughout 1978.

We wish to express our appreciation to all those who made the Conference a success by contributing their time and organizational skills. We especially want to thank Professor Vicki Fromkin for her support and encouragement in developing this volume, Prof. Russ Schuh for his assistance and advice along the way, Linda Arvanites for her able and valuable editorial assistance, and the African Studies Center for its support. Without the help of each of these, this volume would not have appeared.

Martin Mould

Thomas J. Hinnebusch
# TABLE OF CONTENTS

Saeed Ali and Yero Sylla, PERCEPTUAL TRANSPARENCY AND RELATIVIZATION: A CASE STUDY IN FULA ............................................. 1

M. Lionel Bender, THE SURMA LANGUAGE GROUP: A PRELIMINARY REPORT ................................................................. 11

Linda Dresel, SOME PHONOLOGICAL ASPECTS OF THE ACQUISITION OF HAUSA ............................................................ 23

Karen H. Ebert, SOME ASPECTS OF THE KERA VERBAL SYSTEM. ................................................................. 33

S. A. Ekundayo, LEXICAL NOMINALIZABILITY RESTRICTIONS IN YORUBA ............................................................... 43

Ben Ohi Elugbe, SOME IMPLICATIONS OF LOW TONE RAISING IN SOUTHWESTERN EDO .......................................................... 53

István Fodor, THE USE OF L. MAGYAR'S RECORDS (1859) FOR THE HISTORY OF UMBUNDU ............................................................. 63

Zygmunt Frajzyngier, ON THE INTRANSITIVE COPY PRONOUNS IN CHADIC ........................................................................ 73

Judith Olmsted Gary, IMPLICATIONS FOR UNIVERSAL GRAMMAR OF OBJECT-CREATING RULES IN LUYIA AND MASHI ......................................................... 85

Joseph H. Greenberg, NIGER-CONGO NOUN CLASS MARKERS: PREFIXES, SUFFIXES, BOTH OR NEITHER. ............................................................... 97

Robert K. Herbert, PREFIX RESTRUCTURING, LEXICAL REPRESENTATION, AND THE BANTU NOUN ......................................................... 105

Kathryn Speed Hodges, CAUSATIVES, TRANSITIVITY AND OBJECTHOOD IN KIMERU .............................................................. 113

Leon C. Jacobson, PHONETIC ASPECTS OF DHOLUO VOWELS .................................................................................. 127

William R. Leben, LENGTH AND SYLLABLE STRUCTURE IN HAUSA ................................................................. 137

Carol Lord, HOW IGBO GOT FROM SOV SERIALIZING TO SVO COMPOUNDING ............................................................ 145

Lynell Marchese, SUBORDINATE CLAUSES AS TOPICS IN GODIE ............................................................... 157
Ellen Contini Morava, WHAT IS A "NEGATIVE EQUIVALENT"? DATA FROM THE SWAHILI NEGATIVE TENSES . . . . . . . . . . . . . . . . . . . 165

Martin Mould, ON THE PRODUCTIVITY OF DERIVATIONAL MORPHOLOGY AND LEXICAL REPRESENTATION: MANNER ADVERBS IN LUGANDA . . . . 175

Philip A. Noss, COMPOUNDING IN TO: THE DYNAMICS OF A CLOSED PIDGIN . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 185

Carol Myers Scotton, LINGUISTIC PERFORMANCES AS SUBJECTIVE MEASURES--SOME FINDINGS AND IMPLICATIONS . . . . . . . . . . . . 199

Philip Sedlak, MIGRATION THEORY, THE NORTHEASTERN COASTAL BANTU AND THE SHUNGWAYA HYPOTHESIS . . . . . . . . . . . . 211

Mirjana Trifković, TONE SPLITTING: LENDU . . . . . . . . . . . . . . . . . . . 223
1. Introduction

In this paper we shall discuss Relative Clause Formation (RCF) in Fula to verify certain hypotheses advanced by Keenan and others. A succinct account of this hypothesis is in the following statement:

...The applicability of a syntactic process across languages is proportional to its perceptual transparency. That is, the harder it is, perceptually speaking, to retrieve the immediately underlying structure from the surface form, the more constrained will be the application across languages of the transformations that generate that surface form. [Keenan and Bimson 1975]

Keenan [1972] tested this hypothesis on Relative Clause Formation in various languages. He reports that:

i. "RCF strategies which present pronouns in the position relativized represent their underlying structure more explicitly than RCF strategies with no resumptive pronouns. For example, if this view is correct then (1) represents the underlying structure more explicitly than (2) since (1) retains a pronoun in the place of the relativized NP.

(1) ha -isha she -yon natan la et ha -sefer (Hebrew)
the woman that John gave to her the book
'The woman that John gave the book to.'

(2) The woman that John gave the book to (English)

ii. "Furthermore, pronoun-retaining languages presented a systematically larger set of RCF possibilities than pronoun-deleting ones."

This general statement can be confirmed from Table 1, which summarizes the acceptability vs. unacceptability of relativizing on various NPs, which are generally considered difficult to relativize due to their syntactic environment (see Keenan & Bimson [1975]).

As can be seen from a perusal of Table 1, the most "generous" of the pronoun-deleting languages, English, relativizes fewer NPs than
Table 1: Relativizability in Type A vs Type B Languages

A. Non-Pronoun-Retaining Languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Co-NP</th>
<th>VP-S</th>
<th>NP-S</th>
<th>IND-Q</th>
<th>RC</th>
<th>Co-S</th>
<th>Obl</th>
<th>Gen/Poss</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>no</td>
<td>✓</td>
<td>no</td>
<td>✓ ?</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Russian</td>
<td>no</td>
<td>✓</td>
<td>no</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Finnish</td>
<td>no</td>
<td>✓</td>
<td>no</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Malagasy</td>
<td>no</td>
<td>✓</td>
<td>no</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tagalog</td>
<td>no</td>
<td>✓</td>
<td>no</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sinhalese</td>
<td>no</td>
<td>✓</td>
<td>no</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

B. Pronoun-Retaining Languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Co-NP</th>
<th>VP-S</th>
<th>NP-S</th>
<th>IND-Q</th>
<th>RC</th>
<th>Co-S</th>
<th>Obl</th>
<th>Gen/Poss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>✓</td>
<td>✓</td>
<td>no</td>
<td>✓ ?</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Czech</td>
<td>no</td>
<td>✓</td>
<td>no</td>
<td>✓ ?</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Gilbertese</td>
<td>no</td>
<td>✓</td>
<td>no</td>
<td>✓ ?</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hebrew</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Persian</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Welsh</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
<td>✓ ?</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Zurich</td>
<td>no ?</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 2: Comparison of Types A and B

<table>
<thead>
<tr>
<th>Language</th>
<th>Co-NP</th>
<th>VP-S</th>
<th>NP-S</th>
<th>IND.-Q</th>
<th>RC</th>
<th>Conj.</th>
<th>Obl</th>
<th>Poss-NP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A = English</td>
<td>no</td>
<td>✓</td>
<td>no</td>
<td>✓ ?</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Type B = Fula</td>
<td>no</td>
<td>✓</td>
<td>***1</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

** symbolizes that the example, and the underlying structure, do not occur.

RESULT

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>Not Possible</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>Fula</td>
<td>3</td>
<td>4</td>
<td>-</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>
the least generous of the pronoun-retaining languages, Welsh.\(^1\) It is then reasonable to offer the following prediction:

...if a particular syntactic process, e.g. Relative Clause Formation...does not disturb the underlying syntactic structure much, then that process will be applicable in a great variety of syntactic context. The reason is that such processes present in surface structure more of what we need to know to understand the meaning of the derived structure than do processes which destroy the underlying structure...[Keenan and Bimson 1975:254]

In our investigation of RCF in Fula we shall see that this prediction is not borne out.

2. Relative Clause Formation in Fula

2.1 The importance of grammatical relations. The use of a specific strategy in Fula depends on the grammatical relation of the NP to the verb at the point in the derivation that the relative clause is formed.

(3) a. gorko o fiy-ii suka o
   man the hit-tense boy the
   'the man hit the boy'

   b. suka (mo) gorko o fi
   boy (REL) man the hit
   'the boy who the man hit'

(4) a. gorko o fiy-ii suka o (=3a))
   man the hit-tense boy the
   'the man hit the boy'

   b. suka o fiy-aama
   boy the hit-PASSIVE
   'the boy is hit'

   c. suka fiy-aa -do o
   boy hit-PASS-Pro. the
   'the boy who is hit'

(3a) is a sentence in the active voice. (3b) shows the result of applying RCF to the object of (3a), suka 'boy'. (4a) is in the active voice and (4b) is the result of applying PASSIVE to (4a). In (4c) we show the result of relativizing the semantic object which is now the grammatical subject. If we compare (3b) and (4c) we notice that the NP relativized, suka 'boy' is the semantic direct object of the verb fiy-'hit'. However, the actual

\(^1\)This table is extracted from a more complete listing in Keenan and Bimson [1975].
processes used to relativize this NP are different in (3b) and (4c). In (3b), 'boy' precedes the subject 'man', and is itself immediately followed by a relative pronoun. The verb does not acquire any marking. In (4c), however, the same strategy is not used, as can be seen from (5):

(5) *suka mo fiy-aa o
    boy REL hit-PASS the
    'the boy who is hit'

One can reasonably argue that (5) is bad because 'boy' is no longer the object of the verb and is thus not amenable to the same strategy that was used in (3b). Thus Fula can indeed be shown to rely on the subject/object distinction at least in the applicability of the RCF rules.

2.2 The Strategies

2.2.1 Subjects. The strategy used for subjects of affirmative sentences\(^2\) essentially attaches a nominal suffix to the verb. This suffix agrees with the head noun for the noun class (Fula has an extensive noun class system). We illustrate this by the following pair:

(6) a. suka o yeh-ii -no dodel
    boy the go -past-preterit Dodel
    'the boy had gone to Dodel'

b. suka jah-noo -do dodel
    boy go -pret.-REL Dodel
    'the boy who had gone to Dodel'

2.2.2 Non-subjects. The strategy used for non-subject NPs essentially results in the appearance of the head noun at the beginning of the clause (whether this is a result of a deletion or a movement is not important here) followed immediately by an optional relative pronoun agreeing in noun class with the relativized, or head noun. The rest of the grammatical constituents preserve their order.

(7) a. gorko o war -ii sonndu
    man the kill-tense bird
    'the man killed the bird'

b. sonndu (ndu) gorko o war -i
    bird (REL) man the kill-tense
    'the bird which the man killed'

As can be seen from the English glosses for the Fula sentences, RCF is quite similar to the strategy used in English in that a pronoun is not retained in the place of the NP relativized (cf. (2)). While this is

\(^2\)This caveat is necessary, since Fula uses the object strategy for relativizing the subjects of negative sentences.
indeed true for the example in (7), as a general statement regarding non-subject relativization in Fula, this would be misleading: in (8) we show that certain NPs can be relativized only if a pronoun is retained (similar to the Hebrew example in (1)).

(8) a. Pennda faw-at mburu e dow taabal
Pennda put-tense bread on top table
'Pennda is putting the bread on top of the table.'

b. *taabal (ngal) Pennda faw-ata mburu e dow

As the contrast between the grammatical (8c) and the ungrammatical (8b) shows, Fula does retain a pronoun form when it relativizes certain NPs. In this case it was a locative NP which was the object of a preposition. However, we must note that the retention of the pronoun does not affect the basic RCP strategy for non-subjects, i.e. if we compare (8c) to (7b) we see that, except for the pronoun retained in place of the relativized NP sonndu 'bird', (8c) is presumably the result of the same strategy which yielded (7b).

Keeping this similarity in mind, we shall call the non-pronoun-retaining strategy the OBJECT 1 strategy and the pronoun-retaining strategy the OBJECT 2 strategy.

2.3 The Accessibility Hierarchy and Relativization in Fula. Before going on to specific examples we should point out that Relativization in Fula supports the following generalization stated as an "Accessibility Hierarchy" [Keenan and Comrie 1972]:


b. if X > Y and Y dominates Z then X > Z

i.e. if in a language L an NP in the Hierarchy can be relativized, then every NP to the left of that NP in the Hierarchy can be relativized. This is indeed true for Fula, as can be seen in the following examples where (a) sentences show the result of applying OBJECT 1 and (b) sentences of OBJECT 2.

---

3We have excluded the possibility of relativizing the Object of Comparison, since Fula does not have an equivalent to the English -er. Therefore, the status of this NP in the Hierarchy is moot.
(10) **Direct Object**

a. suka (mo) gorko o fi
   child (REL) man the hit
   'the child who the man hit'

b. *suka₁ (mo) gorko o fi o₁
   child₁ Pro₁

(11) **Indirect Object**

a. hobbe (be) gorko o rokk-ata maaro
   guests (REL) man the give-tense rice
   'the guests to whom the man gave rice'

b. *hobbe₁ (be) gorko o rokk-ata be₁ maaro
   guests₁ Pro₁

(12) **Benefactive**

a. sukaabe (be) Pennda wupp-an-ta comci
   children (REL) Pennda wash-BEN-tense clothes
   'the children for whom Pennda washes the clothes'

b. *sukaabe₁ (be) Pennda wupp-an-ta be₁ comci
   children₁ Pro₁

(13) **Instrumental**

a. paaka (ka) gorko o tay-ir-ta hudo ka
   knife (REL) man the cut-INST-tense grass the
   'the knife with which the man cuts grass'

b. *paaka₁ (ka) gorko o tay-ir-ta ka₁ hudo
   knife₁ Pro₁

(14) **Time**

a. aset (mo) gorko o umm-i-noo do
   Saturday (REL) man the leave-tense here
   'Saturday (on) which the man left here'

b. *aset₁ (mo) gorko o umm-i-noo do o₁

(15) **Location**

a. taabal (ngal) gorko o faw-ata mburu
   table (REL) man the put-tense bread
   'table (on) which the man put bread'

b. *taabal₁ (ngal) gorko o faw-ata mburu mum₁
(16) **Location (object of a Preposition)**

a. *taaba\_1 (nga\_1) gorko o faw-ata mburu e dow table (REL) man the put-tense bread on top
b. taaba\_1 (nga\_1) gorko o faw-ata mburu e dow mum\_1 table (REL) man the put-tense bread on top PRO 'table on top (of) which the man put bread'

(17) **Possessive/Genitive**

a. *debbo (mo) gorko o wujj -u-no deftere woman (REL) man the steal-tense book
b. debbo\_1 (mo) gorko o wujj -u-no deftere muudum\_1 woman (REL) man the steal-tense book PRO-Poss. 'woman whose book the man stole'

(18) **Purpose**

a. *suka\_1\_be (be) gorko o nan liggo no -feewi ha mbaawa children (REL) man the cop. work very-much so modal naatde eko enter school
b. *suka\_1\_be (be) gorko o nan liggo no -feewi ha be children\_1 (REL) man the cop. work very-much so PRO\_1 'children who the man works hard so (that) they can
mbawa naatde eko modal enter school enter school'

(19) **Goal** (see Purpose)

(20) **VP-S**

a. *gorko (mo) Demba sikk \_i ko mari fi man (REL) Demba think-tense that Mary hit
b. gorko\_1 (mo) Demba sikk \_i ko mari fi dum\_1 man (REL) Demba think-tense that Mary hit PRO 'the man, who Demba thinks that Mary hit him'

(21) **NP-S**

a. *suka (mo) gorko o jab \_i kabaaru ko debbo o fi child (REL) man the believes-tens news that woman the hit 'child who the man believes the news that the woman hit'

b. *suka\_1 (mo) gorko o jab\_i kabaaru ko debbo o fi mum\_1
These examples also show that OBJECT 1 and OBJECT 2 have the following domain:

OBJECT 1 : D.O./I.O./Oblique (not the object of a preposition)
OBJECT 2 : Oblique (object of a preposition)/VP-S

Furthermore, they show that, even though Fula has a pronoun-retaining strategy, the accessibility of difficult NPs to relativization is not superior to the accessibility to relativization of English (a non-pronoun-retaining language) NPs. See Table 2 for a Fula/English comparison.

2.4 The Transparency Principle. Keenan and Bimson claim that pronoun-retaining languages represent their underlying structures more explicitly than non-pronoun-retaining ones. In this section we want to show that, at least in Fula, Transparency (in the sense used by Keenan and Bimson) can be assured by word-order and verb extensions.

2.4.1 Word-Order. Fula word-order unambiguously marks the grammatical roles of NPs.
The surface order of these sentences tells us that gorko 'man' is an Indirect Object in (a) and a Direct Object in (b). Thus from the surface string, the underlying order can be determined. When Relative Clause Formation applies the NP will be fronted to the beginning of the clause and leave a gap in the surface string as in (27).

The extensions in (28) assure that the surface structure unambiguously marks the role of the relativized NPs, i.e. sukaabe 'children' (BENEFACTIVE NP) and paaka 'knife' (INSTRUMENTAL NP).

Therefore, we suggest that word-order and verbal extensions serve the same purpose that Keenan and Bimson claim for pronouns--i.e. they assure the transparency of the surface string.

3. Conclusion

In our work we have shown that Keenan and Bimson are wrong in asserting that "...pronoun-retaining languages present a systematically larger set of RCF possibilities than the pronoun-deleting ones."
pronoun-deleting language like English. Furthermore, we propose that Keenan and Bimson's specific formulation, requiring that the presence of a pronoun in the position relativized represent underlying structures more explicitly than the non-presence of a pronoun, be reviewed, at least for some languages (e.g. in Fula, and more generally, in Bantu languages, the marking of the relativized NP in some overt fashion (word-order and verb extensions) also allows a transparent representation of underlying structure.

REFERENCES


THE SURMA LANGUAGE GROUP:  
A PRELIMINARY REPORT

M. Lionel Bender  
Southern Illinois University, Carbondale

1. Introduction

The Nilo-Saharan super-family is one of the four great African language phyla identified by Greenberg in his successful attempt to bring order out of the chaos of African linguistic classification (see especially [Greenberg 1966, 1971]). In this paper, I will use "Sahelian" as an alternative name for "Nilo-Saharan", since it is nearly equivalent in a geographic sense and a bit more convenient. According to my reclassification [Bender 1976], Sahelian consists of nine families: Songay (Songhai), Saharan, Maba, Fur, East Sudanic, Central Sudanic, Berta, Kunama, and Koman.

East Sudanic is the most complex family, having in turn ten groups: Nubian, Surma (Didinga-Murle), Tabi (Ingessana), Nera, Nyimang, Temein, Tama, Daju, Nilotic, and Ngangea (Teuso).

The name "Didinga-Murle" is about as misleading for the second group as "Hindi-Urdu" would be for the Indo-European languages of India, since Didinga and Murle are one language, as are Hindi and Urdu. In fact, there are at least six languages in the group, and "Didinga-Murle" is far from capturing the diversity within the group, either geographically or linguistically.

Conti Rossini (referred to by Tucker and Bryan [1956:91, note 7], suggests "Surma" as a collective name for several tribes in southwest Ethiopia, extending into the Sudan. He noted similarities of names such as Suri, Shuro, Tirma. Muldrow [1976:605] refers to "Surma" as once having included Suri, Tirma, Mursi, Tid or Chai, Me'en (Tishena-Bodi), and elsewhere [personal communication] as also including Bale (Zilmamu). The Dizi (Maji) refer to the Me'en as "surbm". All-in-all, "Surma" seems to me a suitable name to be extended to the entire group, since it includes the geographical and linguistic core of the family.

A survey of the membership of the group at the present state of knowledge follows. Languages are given in a west to east geographical order.

1. Sudan: Didinga (self name: ḍọọ ƙi D\o\'na, 'word of Didinga'), Boya or Longarim ( ḍọọ ƙi l\o\'n\o\'), Murle ( ḍọọ m\u\'r\u\'le ). The Sudanese Murle consists of two main groups: Pibor ( ƙi c\i l\o\'t\i\l\a, 'people of
Lotilla'), and Boma Plateau (ći ci bom). Another group is the Irenge (iřeŋe) or Tenget (tęŋet). Finally, the Ngalam (ŋalám, 'the people without cattle') are located on the Ethiopian border. The Didinga-Boya number a few thousand, the Murle total may be 40,000. All the above peoples speak one language with fairly minor local variations (but see Olam immediately below).

2. Ethiopia-Sudan border: There is some question as to whether the Ngalam may be the Olam (and thus not part of the Murle dialect cluster after all). Otherwise, small samples of data on Olam provided by Harvey Hoekstra\(^1\) [personal communication], Zilmamu (from Jack Strauer via Harold Fleming, personal communication), and Bale (collected by me in a village two hours north of the Surma American Presbyterian Mission Station in December 1974), indicate that Olam-Zilmamu-Bale is an independent dialect cluster, if not a language cluster. The people probably do not exceed 5000 in number. The "Suri" reported by Lyth [1947] is not the same Suri to be dealt with next below. For the present, it must be considered as a possible distinct Surma language. The people number about 2000.\(^2\)

\(^1\)I would like to express my appreciation to Harvey Hoekstra for his invaluable support and aid in my work on Surma peoples and languages.

\(^2\)Lyth's Suri [Lyth 1947] presents a problem. He locates the people at "Koma", at Zilmamu, ten miles northeast of Zilmamu, and some still further north in Ethiopia, and a bit to the northwest on the Boma plateau in Sudan. They are said to number about 2000. He says the language is about 30-40% like Tirma in "radical connections", and very much the same items are also shared by Murle (Murle-Tirma 25%). The people seem very similar culturally to the "other Suri" further south. They are said to have cattle [op. cit. 106, 112], practice cicatrizaton, and wearing of lip-plates (both round and triangular--I noted triangular ones among the "other Suri", but Turton did not see them among the Mursi), body-painting and much ornamentation [111]. Stick-fighting is frequent [112]. Age-sets exist [110]. None of this is inconsistent with either the "other Suri" or the Bale, except for keeping of cattle--not found among the Bale. The photographs of people [113, 115] show no obvious differences either with "other Suri" or Bale.

With regards to the language, in addition to the comments above, Lyth's only useful further remarks are that the k-prefix in the first person of verbs is found (see under discussion of isomorphs below); initial a- is omitted to form imperatives, as in Murle, but that pronouns, plurals, etc. are different. The further likening of Suri to a "mutilated Murle" [113-114] similar to American as a "cacaphonous" English is less than useless. Lexically, the few items found in Tucker and Bryan [1966] show items similar to all other Surma languages, with no clear trend discernible. For the present one must consider Lyth's Suri as still another Surma language until more data is available.
Suri is a dialect cluster which includes rather homogeneous local varieties: Chai, Tirma, Tid (all on the Sudan border southwest of Maji) and Suri proper (of the mission station area at Lemu). The self-name is tuga-suri 'mouth-of Suri' and the people number 15-20,000.

3. Forest zone: Majang, known to outsiders as Mesengo. Self-name of the people is majanj (pl. majanjir) and of the language ato-majañero-ŋonj 'mouth-Majangir-of'. About 20,000 people scattered through the high forest belt from Dembidolo to the Erbu River in western Ethiopia.

4. Omo River: The Mursi, numbering 5-6,000, are an eastern outlier of the Suri, living in the enclave between the Omo and Mago Rivers. The Bodi, to the north of the Mursi, and the Tishena, west of Bodi-Mursi, make up the Me'en (self-name: tuk-tc-me'enən 'mouth of Me'en'), totalling perhaps 40,000. The Kwegu are scattered in small settlements along the Omo River. One group south of the Mursi is known as Muguji; all seem to use the self-name toko-kwegoi, or toko kwoygu 'mouth of Kwegu'. They are known to outsiders as Yidinit or Nyidi, and total a few hundred. Sometimes refer to Kwegu-Muguji as "Omo caste peoples" because they are segregated by neighbors as "unclean" for eating hippo flesh, and for other reasons. Finally, the Omo Murle- -mandarəc, ŋandərəc, aiba murle--are a few hundred individuals living among the Nyangatom on the lower Omo. The language (small sample provided by Ivo Strecker, personal communication, 1974) seems rather divergent from Sudanese Murle, but there can be little doubt that the Omo Murle are emigrants from Sudan.

Culturally, the Surma-speaking peoples are classed by Murdock [1959: 172, 329] as Nilotes (Didinga, Murle, Suri, Mursi, Me'en, Zilmamu), and Pre-Nilotes (Majang, Olam). This corresponds mainly to a division between cattle-keepers (Didinga, Murle--except Ngalam, Suri, Mursi, Bodi, Omo Murle) and others (Bale, Majang, Tishena, and Kwegu-Muguji). I am not sure about Olam and Zilmamu. All are hoe agriculturalists, and hunting, gathering, and fishing are important supplements. The Suri (including Mursi) claim stick-fighting as a distinctive cultural trait, e.g. separating them from the Bodi. Most or all remove the lower incisors, and the Bale, Mursi, Suri, and Me'en women wear lip-plates.

The historical movement of the Surma-speaking peoples has been from the Nile valley upward into the foothills of the Ethiopian plateau. For example, the Mursi and Omo Murle clearly represent relatively recent intrusions (based on relative linguistic homogeneity with the main bodies of Suri and Murle to the west). The Majang probably moved into their forest zone from the south, i.e. the Boma Plateau, now Murle territory [Stauder 1971:1].

The "Kerre", considered by Tucker and Bryan [1956:91] as possibly being Surma-speakers, are in reality the Kara, an offshoot of the Omotic-speaking Hamer, speaking a dialect of Hamer.

There have been persistent reports of a people called "Mekeyir",
living among the Majang near Gecha, but speaking a different language. Stauder [1970:109] refers to "Mikair" clans among the Majang, said to have been absorbed from the Sheko. Harvey Hoekstra provided a small sample of the language of the Mekeyir, living in a settlement near Gecha in Ilubabor Province [personal communication, January 1977]. Although Mekeyir shows about 22% commonality in basic lexicon with Majang, it shows no more than 11%, against any other Surma language, and up to 16% against Omotic languages. The remaining word-stock seems to be independent of Omotic. Stauder says that the "Mikair" are noted by the Majang for being nomadic and preferring hunting to agriculture. In view of their anomalous language, they may indeed represent survivors of a former hunting-gathering population of the area. As such, they may provide important clues to the ethnohistory of southwest Ethiopia.

2. Phonology

The consonantal system of Surma is relatively simple. The scarcity of fricatives is striking. The following may be taken as basic:

(1) p t c k (?)

b d j g

B D

f

m n n η

l, r

w v y

In Murle, fricatives v and δ occur but ʃ does not. Voiceless allophones f and θ occur. According to Hostetter, [ms.] θ and f generally occur before voiceless suffixes. Similarly x and y occur as allophones of k and g intervocally. Tucker and Bryan [1966:371] state that ? occurs only finally and sporadically. Although Tucker and Bryan list dental t, d, and alveolar t, d, and William Welmers [personal communication] reports that Hostetter recorded the four-way contrast also, (plus a dental η !) Hostetter [ms.] does not mention it. Tucker and Bryan also give s, z and h, but these are not reported by other sources, including myself.

In Mursi, in addition to the basic consonants above, fricative s occurs in free variation with θ [Turton and Bender 1976:538].

Majang has the basic set except ʃ. No fricative occurs distinctively, but the phones s, ʃ, s̄, c are in free alternation. Intervocally, p is sometimes represented by fricative φ. Cerulli [1948] gives also p' (probably B'), f, s, ʃ', but none of the latter are phonemic.

Ricci [1975] gives the basic pattern for Bodi plus t, s, z, bω, gω, nd, ng, h, and p (the latter only intersyllabic), except that B and D
are missing. My own records indicate that B and D do occur; also s, z, and h. I analyze b\textsuperscript{w} and g\textsuperscript{w} as bw and gw respectively (and similarly mw, dw, Bw, etc.; perhaps bwi- is to be analyzed as bui-) and g\textsuperscript{Y} and k\textsuperscript{Y} as gi- and ki- respectively. Similarly, nd and ng are sequences. I recorded no ts/s contrast, but did find ejectives p', t', c', k'; these may be due to Amharic influence. Double consonants do occur. Some processes are s → θ (rare), d → δ, b → β, p → ϕ (all three intervocally).

Muguji is recorded only in notes taken by Ivo Strecker and me in 1973, and extensive data collected for me by Jean Lydall in 1974. Besides the consonants of the chart in (1), we recorded t', c', k', G, z, and h. Notice the asymmetry in the fricatives: z and j occur (5 is found only in loan words). Lydall also records x, but this may be an allophone of k intervocally.

The five-vowel system (i, e, a, o, u) seems to be basic.

Tucker and Bryan [1966:370] state that Lyth transcribes only five vowels for Murle, but Lyth [1971] uses eight—adding ā = ø and ē, ō—though it is unclear whether he means them to be phonemic. Tucker also adds ŏ and ō, but is uncertain of the status of the ten vowels. Hostetter has seven vowels; all but one occur short and long, ø being always long. Tucker and Bryan say length is of little significance; Lyth frequently records long vowels for Tucker's short ones. My own notes represent a bare beginning. I have a maximal system of eight vowels (the usual seven plus ø) and distinctive length, but this is probably too etic. Diphthongs ai, au, oi, oi, ei, occur, the last two being problematic.

Mursi is analyzed by Turton and Bender as having only five vowels and no distinctive length: length seems to be correlated with tone and stress.

Majang has an asymmetrical six-vowel system with ō lacking—no convincing example of o/ɔ contrast could be found. The symmetry could be restored if ε is considered as corresponding to Murle ø. Length in vowels is important: minimal or near-minimal pairs are found for all contrasts. Cerulli [1948] gives five vowels only and states that he has no examples of intermediate vowels.

For Bodi, Ricci [1975] gives five vowels. My notes seem to support this, although more study needs to be done on the possibility of ø/ε and o/ɔ contrasts. Length seems not to be distinctive.

Muguji presents a similar picture: my and also Lydall's notes indicate a likely five-vowel system with residual doubts about tense/lax in mid vowels.

Regarding tone, Tucker and Bryan [1966:371] mention three levels plus falling and rising for Murle. Turton and Bender have three levels plus
falling in Mursi. It is doubtful that all of these are significant in either case. In both cases, if tone exists, it would seem to function grammatically and not lexically. I could find no convincing examples of lexical or grammatical tone in Majang. If tone exists, it appears to be correlated with stress and/or length. The same remark applies to Bodi and Muguji. For Bodi, Ricci [1975] shows examples of contrastive "accent", e.g. siso 'bee', sisò 'wasp'. Length {"gemination") of consonants seems to be correlated with stress in Murle [Tucker and Bryan 1966:371]. I found no examples of convincing contrasts in Majang, though a few lexical items seem to have inherent geminates, and geminates also arise mor-phophonemically.

In summary, Surma has a relatively simple phonological pattern. The consonant system is very much like that of Nilotic, except for the lack of a dental/alveolar contrast and the presence of implosive stops B, D, and perhaps G. The absence of fricatives in both groups is striking--except as noted: \'} most widespread in Surma. The vowel system of Surma is much simpler than that of Nilotic: five basic vowels occur throughout, plus lax ε, ς and perhaps θ in some cases. This contrasts with Nilotic's plentitude of quality contrasts and the important dichotomy labelled variously as lax-tense, breathy-hard, etc. (The phonetic nature of this contrast is still being investigated; see Tucker and Bryan [1966:403ff.], Lydall [1976:397ff.], Jacobson [this volume]). Whereas both lexical and grammatical tone are pervasive in Nilotic, only grammatical tone seems to be found in Surma, and it is not so functionally crucial as in Nilotic. Vowel length is found in both Nilotic and Surma, but once again, Nilotic has it more clearly and carrying greater functional load.

In terms of sub-grouping, phonological systems provide little help at this point. Majang and Mursi seem to form one set (Majang has no \}, Mursi has both \} and s, Majang has an extra vowel ε ), Bodi and Muguji another (both have z and h, Bodi has s, Muguji has \}, both probably have five-vowel systems and both may have ejectives), and Murle is separate (having fricatives v and θ ).

(2)

Majang  Mursi  Murle  Bodi  Muguji

3. Grammar

With much better documentation of Majang, the grammatical findings of Bender [1976] need considerable revisions (and some other corrections are required). Space limitations preclude presenting these changes here. A summary of proposed Surma isomorphs follows.

I counted a "grammeme" (grammatical feature) as an isomorph if it occurred in three or more of my sample Surma languages (Mursi, Murle, Bodi, Muguji, Majang--covering all significant varieties except the poorly-
attested Olam-Bale-Zilmamu cluster) and in no more than two other Sahelian families or groups as isomorphs (i.e. isolated occurrences in a family are o.k., but not in a majority of the languages of a family).

It happens that with the changes, one isomorph of Bender [1976] is lost (no. 3: possessive in -u, now attested only for Murle and a trace in Bodi), while another is strengthened (no.89 below).

14. n feminine, found in Majang (-ŋaik), Mursi (-ŋapha), Bodi (-ŋunto), and Muguji (-haŋŋ). Also found in Didinga, E. 7 Merarit, E. 9 Nuer, and in F Bagirmi, and I Gumuz.

15. m masculine, found in Majang (-moik), Mursi (-amai), Bodi (-maco), and Muguji (-jumo). Also in E. 8 Daju, B. Kanuri, C Berta, and I Gumuz.

52. 'when?' having m...n or w...n, found in Murle (waŋa, for past actions), Mursi (mfaŋŋ), Bodi (minŋ). Also in Didinga, and in E. 9 Anywa, G Berta.

66. Verbal noun in -Vn, found in all five sample languages (omitted from chart on p. 446 for Majang, although counted in the statement on p. 468). Also in C Maba, E. 6 Temein, E. 9 Nuer.

89. Negative in n, found in all sample languages (-n in Majang, ḥan in Murle, ḥa in Mursi, ane in Bodi, kana 'not yet' in Muguji). Also in C Maba, H Kunama, E. 6 Temein, E. 9 Nuer.

In the above, the numerals such as E. 4 refer to groups under E: East Sudanic (see the first page of this article). F, G, H and I refer to other families (Central Sudanic, Berta, Kunama, Koman).

Note that on p. 471 a seventh isomorph is added as follows:

kV- in verb conjugation first person singular and plural, occurs in Mursi, Murle, Bodi (and Chai, Tirma, Tishena, Didinga), but not as far as known in Muguji. The k- particle of the Majang verb conjugation, occurring in all persons except third, might be related to this kV (from my own unpublished grammatical notes).

Mursi and Bodi show up on all six isomorphs, the others on four each.

Some striking similarities show up in syntax and need investigation, e.g. the plethora of relatives and their parallel uses in Majang and Murle (and I suspect in Bodi also).

Finally, turning to Table 2 of Bender [1976], and counting how many grammemes are shared by pairs of Surma languages, we find that Murle-Mursi-Bodi share about 18 (actually 17 Murle-Mursi, Murle-Bodi, 19 Mursi-Bodi), Majang-Muguji has 10, and both Majang and Muguji have about 10 against the
other three (7, Mj.-Mrs., 9 Mrl.-Mug., 10 Mrs.-Mug., Mj.-Bo., 12 Bo.-Mug., Mj.-Mrl.). This suggests a grouping:

(3)

Majang

Muguji

Murle

Bodi

Mursi

For further details and examples of grammatical features in Surma languages, see Bender forthcoming.

4. Lexicon

A preliminary lexicostatistical study of the Surma languages was carried out, using Majang, Murle, Omo Murle, Mursi, Bale, Zilmamu, Olam, Kwegu, Muguji, and Bodi. In addition, Mekeyir was included on the assumption that it is a Surma language. Only Murle was chosen from Murle-Didinga-Boya, only Bodi from Tishena-Bodi, and only Mursi from Mursi-Suri-Tirma-Chai in view of these previously obtained figures: Didinga-Boya 96%, Murle-Didinga 81%, Tishena-Bodi 84%, Mursi-Suri 87%, Mursi-Chai 92%, Tirma-Suri 91%.

(4) TABLE: percents of presumed cognates: Surma group plus Mekeyir

<table>
<thead>
<tr>
<th>Language</th>
<th>Mekeyir</th>
<th>Murle</th>
<th>Omo Murle</th>
<th>Mursi</th>
<th>Bale</th>
<th>Zilmamu</th>
<th>Olam</th>
<th>Kwegu</th>
<th>Muguji</th>
<th>Bodi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mekeyir</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Murle</td>
<td>26</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Omo Murle</td>
<td>24</td>
<td>11</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mursi</td>
<td>19</td>
<td>6</td>
<td>41</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bale</td>
<td>25</td>
<td>10</td>
<td>56</td>
<td>45</td>
<td>44</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zilmamu</td>
<td>29</td>
<td>5</td>
<td>53</td>
<td>44</td>
<td>36</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olam</td>
<td>30</td>
<td>6</td>
<td>55</td>
<td>53</td>
<td>34</td>
<td>46</td>
<td>63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kwegu</td>
<td>16</td>
<td>2</td>
<td>24</td>
<td>19</td>
<td>43</td>
<td>26</td>
<td>27</td>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muguji</td>
<td>13</td>
<td>5</td>
<td>19</td>
<td>19</td>
<td>32</td>
<td>22</td>
<td>24</td>
<td>22</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>Bodi</td>
<td>15</td>
<td>3</td>
<td>31</td>
<td>25</td>
<td>53</td>
<td>31</td>
<td>29</td>
<td>33</td>
<td>37</td>
<td>32</td>
</tr>
</tbody>
</table>

All of these figures were based on at least 71 comparisons (and usually more than 90) except for Olam, for which data is minimal (30-33 comparisons possible). As noted earlier, Mekeyir presents a problem. It looks like a case of borrowing up to the level of "hybridization" with Majang, and this is further reinforced by the Omotic appearance of the grammar as mentioned above.

The grouping which emerges is as follows:

(5)

This result is not significantly different from the earlier one I obtained in Bender [1971:192]. Majang is still most divergent. Murle-Zilmamam (all I then had for that branch) is coordinate with the rest. The rest is the same (with Muguji now added).

5. **Surma Isoglosses**

In the following, reference will be made to the nine branches of Sahelian identified on the first page. In addition, two branches of Afro-Asiatic will be mentioned: Cushitic and Omotic (the latter still called by the diehards "West Cushitic"). For details of the classification, see Bender [(ed.) 1976], especially pages 3 through 4, and Chapters 1, 4, and 13, the Overviews of Families.

The very best isoglosses are:

25. **eye** occurs as *kEber or *kErb in 9 of 10 sample languages (languages used in lexicostatistics) and nowhere in other Sahelian or Cushitic-Omotic languages.

(E represents front vowel; Majang has ta'ma 'eye').

28. **fire** occurs as *g0 in 9 of 10 sample languages and nowhere else in Sahelian or controls

(O is back vowel; Majang has ma·D, perhaps a loan from Nilotic *ma·c)

Also very good are:

19. **dog** *orVs in 7 of 10 sample languages; not found elsewhere

(V an unknown vowel; Majang has warr, Kwegu has boho, Muguji, kiyane, this last a loan from Omotic *kana).

79. **stone** *Be, *be, found in 8 of 10 Surma languages, but also Undu (Berta) has bile, Omotic has forms like melo, palo (Majang has giDe, Olam item is not known).

Also quite good are the following (summarized):

4. **belly** *kieŋ 8/10; not in Sahelian, hi·na, ka·ni in Omoto.

9. **blood** *Bej 4/10; *nab 4/10; Komo has baf; weak similarities in Cushitic and Omotic.

18. **die** *er, Majang rer, 8/10; not in Sahelian; Afar-Saho, Highland East Cushitic re, le

36. **hair** *Em 5/10; *CVR(Vs) 4/10; not in Sahelian, weak similarities in Dasenech, (Cushitic), Dizi (Omotic).
42. I *anEtV 9/10; found in E. 4, E. 9 as a'n, note ane·c in Burun (E. 9); Ari ita, Sheko neta (both Omotic).

59. nose *Vη, 5/10; *giroŋ, *jiroŋ 4/10; weak similarities in E. 4, none in Cushitic or Omotic.

85. thou *inE(ta) 9/10; anta in B Tubu, E. 1 and E. 9 have *in; Cushitic *ati, Ari anna.

87. tongue *(a)Ka(t) 9/10; E. 1, 4, 9, G, I have forms with kal-; not found in controls.

90. two *ram(an) 6/10; not found in other Sahelian; widespread *Nama in Cushitic and Omotic.

It is disturbing that Majang is deviant on all four best isoglosses and also on 'belly, blood, two', but it agrees on the other six. Majang is clearly the most divergent Surma language lexically.

Of the four strongest isoglosses proposed in Bender [1976:471], only one survives: 'tongue'. The others are found too widespread in Nilo-Saharan. On the other hand, four which were lacking in Majang have now been reinstated: 'eye, fire, road, stone'. Of seven other near-misses, four have been added: 'breast, die, tail, woman' and three rejected: 'black, hear, tree'. (Not all of these are given above--some are rather weak.)

For a fuller discussion, including loan words, see Bender [forthcoming].

REFERENCES


Lyth, R. E. 1971. The Murle Language: Grammar and Vocabulary (Linguistic Monograph Series No. 7). Khartoum University: Sudan Research Unit, Faculty of Arts.


SOME PHONOLOGICAL ASPECTS OF THE ACQUISITION OF HAUSA

Linda Dresel
University of Wisconsin

1. Introduction

This paper will describe the order, manner, and length of time in which Hausa children acquire the liquids /ɻ, ɻ, ɻ/ and the glottalized consonants /g, d, R, ts, 'y/. It will also discuss how this acquisition process relates to other child language data, and to linguistic, particularly diachronic linguistic, theory. The children whose speech is reported in this paper were observed over a one and one-half year period in Birnin Kudu, Kano State, Northern Nigeria. About twelve children from six months to fifteen years were observed from time to time during that period. Two children who were about two and two-and-one-half when the study was started were observed at least three times a week.

2. The Acquisition of Liquids and Glottalized Consonants in Hausa

2.1. Liquids. The acquisition of the Hausa liquid phonemes is a long process spanning the years from about two to thirteen and involving about six different stages. At the early stages of language acquisition, before the phoneme inventory is complete (and corresponding roughly to an age of about two years) the palatal glide /y/ substitutes for all liquid phonemes.

In (1) are examples of words with each of the liquid phonemes as found in adult speech. These should be compared with the same lexical items as represented at various stages of acquisition in (2)-(5).

---

1The data for this paper was collected while working as a Research Fellow for the Centre for the Study of Nigerian Languages, Kano, Nigeria, from 1974-1976. I am very grateful for the support given to me by my colleagues there. I especially thank the children of Birnin Kudu (Kano State) who served as my informants. I would also like to thank Patrick Bennett, Karen Kvakik, A. Neil Skinner, and Jan Sterk for their comments on an earlier draft of this paper.
(1) LIQUID PHONEMES IN ADULT SPEECH

<table>
<thead>
<tr>
<th>Initial</th>
<th>Intervocalic</th>
<th>Preconsonantal</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>/l/</td>
<td>laima</td>
<td>ko lo</td>
<td>al kak</td>
</tr>
<tr>
<td></td>
<td>'umbrella'</td>
<td>'dog'</td>
<td>'wheat cake'</td>
</tr>
<tr>
<td>/r/</td>
<td>riga</td>
<td>biri</td>
<td>sarki</td>
</tr>
<tr>
<td></td>
<td>'gown'</td>
<td>'monkey'</td>
<td>'emir'</td>
</tr>
<tr>
<td>/ř/</td>
<td>řybūtu</td>
<td>beña</td>
<td>bārkono</td>
</tr>
<tr>
<td></td>
<td>'writing'</td>
<td>'rat'</td>
<td>'pepper'</td>
</tr>
</tbody>
</table>

At a later stage (anywhere from two to three years of age) an /l/ phoneme appears. It is used for adult /l/ (except in consonant clusters) and for /r/ and /ř/ in initial and intervocalic positions. The phoneme /y/ continues to appear for /ř/ in word final position.

(2) Stage I (2 years) /y/

<table>
<thead>
<tr>
<th>Initial</th>
<th>Intervocalic</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>/l/</td>
<td>yemä</td>
<td>ko yo</td>
</tr>
<tr>
<td>/r/</td>
<td>yiga</td>
<td>bıyi</td>
</tr>
<tr>
<td>/ř/</td>
<td>řybūtu</td>
<td>bęya</td>
</tr>
</tbody>
</table>

(3) Stage II (2-3 years) /l/ /y/

<table>
<thead>
<tr>
<th>Initial</th>
<th>Intervocalic</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>/l/</td>
<td>laimä</td>
<td>ko lo</td>
</tr>
<tr>
<td>/r/</td>
<td>liga</td>
<td>bilî</td>
</tr>
<tr>
<td>/ř/</td>
<td>řybūtu</td>
<td>bęla</td>
</tr>
</tbody>
</table>

2 The symbol r represents the flapped r, ř represents the rolled or trilled r. Vowel length is indicated by a cedilla under short vowels in open syllables, no mark for long ones. Vowels in closed syllables are all short. Tone is marked by the use of a grave accent for low tone, circumflex for falling, and no mark for high tone. Otherwise, the Hausa examples, including those of child language, are in standard Hausa orthography. The examples of children's speech illustrate only the point under discussion, not necessarily all phonological deviations.

3 The distribution illustrated here is not complete. I have only given examples for velar point of articulation in consonant clusters since all liquid phonemes occur in this position. I have not given all the environments because the difficulties children have with consonant clusters interfere with or override the difficulties with the liquid phonemes.

4 Consonant clusters are acquired rather late by children. Either they are simplified by omitting the first member, or /y/ is used in place of the first member.
At the next stage there seems to be a regression in some environments to Stage I. The phoneme /γ/ is used again in initial position, but only for /r/ and /ɾ/.

(4) Stage III (3 1/2 years) /l/ /γ/
   /l/  laimà  kolo  àaykakì  ful_
   /r/  yɪga  bìli  sayki  ---
   /ɾ/  yùbùtu  bèla  bàykkòno  bìyay

At Stages II and III the child seems to be trying out a type of distribution where /l/ is separate from another group of sounds which he pronounces as /γ/. At Stage IV (around four years of age) the first r phoneme, the trilled /ɾ/ appears, and there is a redistribution of phonemes. Part of the former /γ/ is /ɾ/ and the other part merges with /l/.

(5) Stage IV (4 years) /l/ /ɾ/
   /l/  laimà  kolo  àlkkakì  ful_
   /r/  lìga  bìli  salki  ---
   /ɾ/  ŋùbùtu  bèña  bàňkkòno  bìyař

By Stage V, the child has acquired the three adult phonemes /l/, /r/, and /ɾ/, but not the intricacies of their distribution and use. At this stage, there are still a lot of "mistakes" especially between the two r sounds, which again seem to be grouped together. This stage lasts a very long time, from approximately the age of four to thirteen years. The final stage, Stage VI, is the achievement of a "match" with the adult phonemes, distribution, and use.

The following is a diagram of the six stages in the acquisition of the liquid phonemes:

---

5 The kind of mistake found at this stage is mainly overuse of /ɾ/.

For example:

 práña  for  rana  'sun'
 geño  for  ġero  'millet'
 saɾkì  for  sarkì  'emir'
 tàbaɾma  for  tābarma  'mat'
2.2. *Glottalized consonants.* The acquisition of the glottalized consonants similarly involves a series of stages although not as many years. Starting from the stage when the child has mastered at least the plain consonants, the child first substitutes the non-glottalized for the glottalized consonants.

(7) **GLOTTALIZED CONSONANTS IN ADULT SPEECH**

| /ɓ/  | jaba    | 'shrew' |
| /ɗ/  | dan --  | 'son of --', 'little --' |
| /ƙ/  | kosai   | 'bean cake' |
| /ts/ | dutse   | 'stone' |
| /ɬ/  | 'yaŋ --' | 'daughter of --', 'little --' |

(8) **Stage I (3 years)**

| /ɓ/  | jaba    |
| /ɗ/  | dan --  |
| /ƙ/  | kosai   |
| /ts/ | dutse   |
| /ɬ/  | 'yaŋ --' |

Later the child uses a glottal stop, which is sometimes followed by a glide, in place of the consonant.

---

6 This seems to occur only in initial position:

| tsagè | ʔagè | 'split' |
| dinkà | ʔinkà | 'sew' |
At the third stage, the child acquires the ability to produce the glottalized consonants and in fact tends to use them even in place of the non-glottalized ones.

The final stage, at about four or five is a match with the adult system.

3. The Acquisition of Liquids and Glottalized Consonants in Other Languages

3.1. Liquids. The data on the acquisition of the Hausa phonemes seems to be consistent with child language data from other languages. A number of authors have reported on the acquisition of liquids. Slobin [1967:102] and his colleagues worked out a pattern of generalizations and expectations for their field manual, among them, that in order of development liquids follow stops and nasals, and that in systems with both vibrants and laterals, the lateral precedes. Smith [1973] found that his son at times deleted r and ɾ; sometimes neutralized r and ɾ as l, d or w; and sometimes had r and ɾ in free variation, especially for adult words beginning with r. A very interesting observation about English has been made by Kornfeld [1971:462] who found that although r and ɾ (and w) are often collapsed as w, the resulting w is spectrographically different from a "real" w.

3.2. Glottalized consonants. While I have not been able to find references to the acquisition of glottalized consonants specifically, the stages of the substitution of a different sound, acquisition, overuse, and adult use are consistent with the acquisition of a number of sounds, and even some grammatical processes. The fact that they are acquired rather late would seem expected given their phonetic nature, and the apparent analysis into component parts by the child is similarly reported for affricates in other languages. Weir [1962] reports j, ź, dz, dy, and y as variants of adult /j/. Jakobson [1968] notes that adult affricate /ts/ is pronounced
as either t or s by the child.

4. Linguistics and Child Language

4.1. Overgeneralization. The data on Hausa child language acquisition is interesting in relation to linguistics and language in general. If one is trying to show that language is a form of rule governed behavior, data from child language makes a very strong argument. It is clear that what we often perceive as children's mistakes are really the result of the incorrect, usually overgeneralized, formulation of a rule. Thus, children do not use bâtùràï as the plural of bâtùrà 'European' (standard plural tûràwa) because they have heard it from an adult, but because at that stage their rule for plural formation says add the suffix -æi, a common plural suffix.

4.2. Perception and production. Data from child language often points out certain differences between perception and production. That children perceive certain differences before they can produce them can be easily demonstrated by eliciting the child's annoyance at an adult's intentional mispronunciation. As I mentioned earlier, however, recent work by Kornfeld indicates that children often do pronounce different sounds, and it is the adult who perceives them as being the same. There is one aspect of the acquisition of Hausa liquids which does not seem to conform to other acquisition data. It has been reported that "when a child learns to pronounce a new sound or combination of sounds he immediately utilizes it correctly in all the relevant words, rather than adding it piecemeal to each word as he re-hears it after his new found ability" [Smith 1973:138]. In Hausa, it appears that even after the child is able to produce both flapped and trilled r, he uses them incorrectly. One would think that, having made the distinction, the child could reproduce the appropriate r for each new word learned. It may be, especially since the acoustic difference between the two r sounds is small, that the child learns to make the distinction before he can consistently hear it.

4.3. Diachronic change. A number of recent papers have dealt with whether or not evidence from child language acquisition can be used to justify hypotheses, particularly concerning diachronic linguistics. For example, Churma [1975] reviews data in Vennemann [1972] and Klausenberger [1974], in which a decision between deletion and insertion rules is made on the basis of child language. For example, the fact that a child may say 'a apple' but never 'an pear' is said to support a as the underlying form of the article. Baron [1976] looks at certain causative constructions in English and claims that "children, in the natural course of learning their native language, may have helped initiate or spread various new periphrastic causative constructions in the history of English" (p. 88). Dressler [1974] on the other hand, mentions several discrepancies which he says "induce me

\[7\] In one sample of the speech of a child aged seven (approximately) I found [ı] being used for /r/, but it sounded distinct from the [ı] used for /l/.
to doubt the appropriateness of comparing directly processes in child language acquisition and in diachrony" (p. 99). One of these discrepancies is that "children regularly replace fricatives with stops, whereas the opposite context free process doesn't seem to occur. In diachronic change, however, a context free development of fricatives to stops is extremely rare (excluding loan word phonology). 'f' never changes to 'p', but stops frequently change into fricatives" (pp. 97-98).

4.3.1. Historical processes in Hausa. It is worthwhile to look at some historical processes in Hausa and their relationship to child language acquisition. Newman [to appear] has surveyed the two 'r' phonemes in Hausa. With respect to their historical relationship there is a common assumption that 'r' and 'f' were allophones of the same phoneme until the introduction of Arabic loan words, consistently with 'f', led to the two being considered separate phonemes. Newman points out, however, that before the introduction of Arabic loanwords, the allophonic relationship of 'f' was with alveolar obstruents, and only rarely with 'r'; and that, in fact, 'r' and 'f' contrasted with each other. "Thus the close association that now exists between /r/ and /f/ is psychological/phonetic, not etymological" (p. 20). We have seen that in the child's process of acquisition, 'r' and 'f' are in contrast at one of the stages, where 'r' and 'l' pattern together as opposed to 'f'. This can also be seen in some dialects of Hausa where 'l' occurs in place of the flapped 'r'.

(11) zalɓè zarɓè 'grey heron'

One would not, however, want to try to find the historical origin of 'r' or 'f' in children's speech, or try to attribute the dialect variation to children's speech. The acquisition of the liquids of any language is one of the latest, longest, and most complex areas of the acquisition of phonology. The liquid phonemes of adult speech in many languages are very much subject to dialect variation and change. There is no correlation between these two facts as such. Their relationship comes when they are viewed as converging contributions to phonological theories concerning liquids.

With regard to the history of the glottalized consonants in Hausa, Newman and Ma [1966] establish *ɓ and *ɗ as Proto-Chadic consonants. They say, "We believe that Proto-Chadic probably also had some kind of glottalized velar (perhaps *'w) ..." (p. 223). Skinner [1971] discusses the history of 'ts, 'k, and 'y and concludes among other things, that they result from "a number of different processes, mostly involving merger (or fusion) ..." (p. 309). The merger in question is of /k/ and an abutting consonant. Children also achieve something like a merger, trying out first a plain consonant, then a glottal stop, and finally the glottalized version. Both early stages of the child's development of glottalized consonants are reflected in dialect variation. There is quite a lot of variation in Hausa, especially in loan words, between the glottalized and non-glottalized versions, usually of R/k:

(12) wàtəkilà wàtəkilà 'perhaps'
    kàŋkàrà kàŋkàrà 'ice'
    àlkàli àlkàli 'judge'
On the other hand, there are some dialects, notably Azare (East Hausa) in which a glottal stop is used in place of a glottalized consonant:

\[(13) \quad \begin{array}{ll}
\text{?ofâ} & \hat{\text{ofâ}} \\
\text{?ôshj} & \hat{\text{ôshj}} \\
\text{?èbe} & \hat{\text{èbe}}
\end{array} \quad \begin{array}{l}
\text{'door'} \\
\text{'replete'} \\
\text{'draw (out)'}
\end{array}\]

[Abraham 1946]

Here again, the parallels between historical and dialectal variation and the developmental process of the child are not to be taken as justification of each other, but rather as related pieces of evidence within a broader study of phonology.

5. Conclusions

In conclusion, the first observation to be made is that while the process of acquisition is one of constant change, children are not the initiators of language change. The data on the liquids shows this very clearly, in the struggle of the child, up to puberty, to perfect his phonological system. Dressler [1974] has made a similar observation. He says child language studies "generally conclude with the happy end of the child having finally mastered the adult phonological system. This might be a happy end for a speech therapist, but it is not for a historical linguist. He would prefer to read the case history of a child obstinately refusing to adopt the adult system and spreading his innovation in peer-groups" (p. 99).

The second observation is that there are certain parallels between historical processes and child language acquisition. This observation is not at all new. There are, however, certain differences to take into consideration. Although both processes involve change, child language moves in the direction of conformity, while diachronic change involves innovations. Furthermore, our perception and interpretation of the child's system does not necessarily match his own perception of its organization. Thus, while both kinds of processes contribute to our knowledge of phonology, it is not necessarily accurate to look to one as support for the other.


1. Kera Tenses

In this section I present a short summary of Kera tenses in order to give a framework for discussion of three topics relevant to comparative research in the Chadic verbal system: final vowel classes (2.1), tone classes (2.2), and aspects (2.3).

Kera has four tense formations derived from the stem of the verb (cf. (1) below):

Basic aspect: stem + {e / i} + Hₐ

Hₐ = a high tone realized on the last syllable if there is
(a) no pronominal suffix,
(b) a 3rd person pronominal suffix functioning as a direct object
Mid tone of the stem is assimilated to a following high tone, e.g. fal- + è --> félé ;
a high suffix is assimilated to a low stem if preceded by a sonorant, e.g. hâm- è --> hàmè.

Past: stem + /n/ (+ pronom suffix) + Hₐ

/n/ = n in final position, n elsewhere. Tone patterns are the same as in the basic aspect.

Perfective: stem + /n/ (+ pronom suffix) + né

/n/ is realized as in the past tense.

Optative: stem (+ pronom suffix) + /1a/

*Kera is a Chadic language of the Eastern subbranch, spoken in the region of Fianga in Southern Chad. My work on Kera was supported by the Deutsche Forschungsgemeinschaft as part of the project "Erforschung der tschadohamitischen Sprachen in der Republik Tschad" under the direction of H. Jungraithmayr.

1 By stem I understand a hypothetical underlying form from which all tenses can be derived.

2 For details of vowel and tone assimilation as well as for tense formation see Ebert [in preparation].
/la/ takes the tone of a directly preceding stem. Following a definite marker, /la/ is mid; following an object without a definite marker, /la/ is high.

The rest of the tenses are composed of these four with the help of particles. I shall not go into details here, as these forms have no relevance for the following discussion (see Ebert [in preparation]). For the formation of the progressive and the verbal noun, see 2.3.

<table>
<thead>
<tr>
<th></th>
<th>Tone pattern 1</th>
<th>2a</th>
<th>2b</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEM</td>
<td>fal- 'find'</td>
<td>gús- 'buy'</td>
<td>hàm- 'eat'</td>
</tr>
<tr>
<td>CITATION FORM</td>
<td>félé</td>
<td>gúsí</td>
<td>hàmè</td>
</tr>
<tr>
<td>BASIC ASPECT</td>
<td>félé</td>
<td>gúsí</td>
<td>hàmè</td>
</tr>
<tr>
<td>PAST</td>
<td>féláŋ</td>
<td>gúsúŋ</td>
<td>hàmáŋ</td>
</tr>
<tr>
<td>PERFECTIVE</td>
<td>félam-ne</td>
<td>gúsəm-ne</td>
<td>hàməm-ne</td>
</tr>
<tr>
<td>OPTATIVE</td>
<td>fél-la</td>
<td>gús-lá</td>
<td>hàm-lá</td>
</tr>
<tr>
<td>PAST II</td>
<td>á féláŋ</td>
<td>á gúsúŋ</td>
<td>á hàmáŋ</td>
</tr>
<tr>
<td>PERFECTIVE II</td>
<td>á fél-án</td>
<td>á gúsúñ-né</td>
<td>á hàmáñ-né</td>
</tr>
<tr>
<td>OPTATIVE II</td>
<td>á fél-la/</td>
<td>á gús-łá/</td>
<td>á hàm-łá/</td>
</tr>
<tr>
<td>NEG. OPTATIVE</td>
<td>á fél bà</td>
<td>á gús(í) bà</td>
<td>á hàm bà</td>
</tr>
<tr>
<td>SUBJUNCTIVE</td>
<td>(á) sá félé</td>
<td>(á) sá gúsí</td>
<td>(á) sá hàmè</td>
</tr>
<tr>
<td>FUTURE</td>
<td>bà félé/</td>
<td>bà gúsí/</td>
<td>bà hàmè/</td>
</tr>
<tr>
<td>PROGRESSIVE</td>
<td>bà félé</td>
<td>bà gúsí</td>
<td>bà hàmè</td>
</tr>
<tr>
<td>VERBAL NOUN</td>
<td>félé</td>
<td>gúsí</td>
<td>hàmè</td>
</tr>
</tbody>
</table>
2. **Kera Verbs and the Proto-Chadic Verbal System**

Newman [1975:66] makes the following claims concerning the Proto-Chadic verbal system:

- "All verbs contained a final vowel as an integral, lexically determined component. ..."
- "Polysyllabic verbs occurred with two and only two final vowels, these being -a and -e."
- "Verb tone was also lexically specific and not grammatical or derivative."

Newman shows how these traits are reflected in the verbal system of present day languages of the Biu-Mandara and Plateau-Sahel branches. No evidence has been adduced so far from the Eastern subbranch of Chadic to support Newman's hypothesis.

I shall first look at final vowels in Kera and then at tone patterns.

2.1. **Final vowels.** Kera has two final vowels in the basic aspect and citation form, but contrary to the languages described by Newman they are predictable as illustrated in (2):

(2) Stem vowels e, a, o take final vowel e  
    beer- béere 'hun't  
    hâm- hâmè 'eat'  
    kol- kolé 'change'

Stem vowels i, ə, u take final vowel i  
    mirg- mirgí 'greet'  
    hârg- hârgí 'dance'  
    gús- gúsí 'buy'

The predictability holds for monosyllabic verbs, too, where the stem vowel is replaced by e/i:

(3) hàa- hè 'take'  
    saa- sé 'drink'  
    ðee- ðé 'go'  
    kuú- kí 'burn'  
    bòø- bì 'come'

/e/ can be assumed to be the underlying final vowel; the vowel harmony rule changes a non-high vowel to high in the environment of a high vowel.

There are thus no final vowel classes in present-day Kera. This does not, however, contradict Newman's hypothesis. Kera e/i may have developed from Proto-Chadic a/ə. In fact some arguments can be given in favor of such an explanation.
(a) If e/i goes back to Proto-Chadic a/o, the stem vowel must have been assimilated to the final vowel at some stage of the development. Regressive assimilation to final vowels is still traceable in part of the system:

(4) \( fal - + é \rightarrow félé \) 'find'
    \( bâl - + é \rightarrow bèlè \) 'love'

(5) \( něd - + í \rightarrow nřdři \) 'change'
    \( běŋ - + í \rightarrow břŋři \) 'open'

(6) \( jò? - + é \rightarrow jò?é/jè?é \) 'sow'
    \( bù? - + í \rightarrow bù?f/bì?f \) 'spoil'

In an open syllable, a is assimilated to final e except after h and ?; ø in an open syllable is regularly assimilated to final i; o and u optionally assimilate to final e and i respectively before ?.

(b) Regressive assimilation is common elsewhere in the verbal system. The vowel harmony rule changes any non-high vowel to high in the environment of a high vowel.

(7) \( fal - + ú \rightarrow félu \) 'finds him'
(8) \( něd - + i \rightarrow nřdi \) 'changes you (f)'
(9) \( hěrd - + í \rightarrow hřrdři \) 'eats them (uncooked things)'

(c) Final vowels in Kera have—as is supposed for Proto-Chadic—no semantic correlate; they are not determined by syllable structure, as final vowels of nominals are.

It is not unlikely that Kera final vowels e/i, although now completely predictable from the stem vowel, developed from Proto-Chadic a/o with assimilation of the stem vowel. But as we lack comparative material from closely related languages, no more can be said at the moment.

2.2. Tone patterns. Most languages of the Eastern Chadic group seem to distinguish—like the languages studied by Newman—two tonal verb classes. Kera verbs exhibit the following tone patterns (for examples, see (1)):

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>MM</td>
<td>LL</td>
</tr>
<tr>
<td>B</td>
<td>HH</td>
<td>LH</td>
</tr>
<tr>
<td>C</td>
<td>HH</td>
<td>LH</td>
</tr>
</tbody>
</table>
The A-forms are basic; high tones in B and C-forms are due to suffixes.

B-forms: basic aspect and past 1. without pronominal suffix
2. with a 3rd person pronominal suffix in the function of a direct object.

C-forms: verbal noun and progressive

A-forms: all others.

The tone pattern which a verb follows is to a large extent predictable from initial consonants:

\[
C_1 = \begin{cases} 
[-\text{voice}] & \text{pattern 1} \\
[+\text{sonorant}] & 
\end{cases}
\]

\[
C_1 = \begin{cases} 
[+\text{voice}] \quad \text{pattern 2b} \\
[-\text{sonorant}] \quad \text{pattern 2a} \\
\text{C} \quad \text{not predictable} 
\end{cases}
\]

Examples:

(10) pattern 1

\begin{align*}
\text{dég} & \quad \text{dégí} & \quad '\text{think}' & \quad \text{dégán} & \quad '\text{thought}' \\
yáak & \quad \text{yáaké} & \quad '\text{let}' & \quad \text{yékünú} & \quad '\text{let him}' \\
təə & \quad \text{təərè} & \quad '\text{assemble}' & \quad \text{təəríñí} & \quad '\text{assembled them'}
\end{align*}

(11) pattern 2b

\begin{align*}
\text{gun} & \quad \text{gunl} & \quad '\text{wake up}' & \quad \text{gunúñ} & \quad '\text{woke up}' \\
bəl & \quad \text{bèlè} & \quad '\text{love}' & \quad \text{bèlnú} & \quad '\text{loved him}' \\
dər & \quad \text{dèrè} & \quad '\text{put on}' & \quad \text{dèrn} & \quad '\text{put them on}'
\end{align*}

(12) pattern 2a

\begin{align*}
\text{jèbr} & \quad \text{jèbré} & \quad '\text{listen}' & \quad \text{jèbréñ} & \quad '\text{listened}' \\
dəf & \quad \text{dèfè} & \quad '\text{prepare sauce}' & \quad \text{dèfnú} & \quad '\text{prepared it}' \\
gls & \quad \text{glsí} & \quad '\text{shut}' & \quad \text{glsñí} & \quad '\text{shut them'}
\end{align*}

(13) initial h-

\begin{align*}
\text{hom} & \quad \text{hóñé} & \quad '\text{repeat}' & \quad \text{(pattern 1)} \\
hàm & \quad \text{hàmè} & \quad '\text{eat}' & \quad \text{(pattern 2b)} \\
hèd & \quad \text{hèdè} & \quad '\text{cut straw}' & \quad \text{(pattern 2a)}
\end{align*}

Kera verbs can thus be described in a 2-tone system:
+/H/ always realized high
/-H/ realized low after initial voiced C, mid elsewhere

Exceptions occur in a few low tone verbs with initial s and f, which can be diachronically explained as the result of the devoicing of fricatives. Initial h in low tone verbs seems to have developed from a voiced consonant, too (cf. hàmè 'eat', where the Chadic root is reconstructed by Newman and Ma [1966] as *z-m-, e.g. Tera zəmə, Kotoko zimi). All verbs in Kera are /-H/; the feature [+L] is assigned to verbs with initial voiced consonant. For verbs with initial h- and the exceptions with initial s and f the feature [+L] has to be marked in the lexicon.

Thus, there are no lexical tone classes of verbs in Kera. Predictability of verb tone has also been noticed in neighboring languages from the Masa group such as Zime and Lame as well as for Ngizim and Bade from the Plateau-Sahel group. The widespread predictability of verbal tone indicates that verbal tone classes are not a common Chadic phenomenon and that the reconstruction of Proto-Chadic tone classes has to be reconsidered.

2.3. Aspects. It has been demonstrated by Jungraithmayr in several publications that a great number of Chadic languages distinguish an imperfective and a perfective aspect stem. The imperfective, usually describing incompletely or durative action,3 is marked by apophony or at a later stage of development by vowel suffixation (stage II) or by tone (stage III) (see, for example, Jungraithmayr [1974b]). In Kera there is no aspectual dichotomy, but rather a trichotomy:

(a) Past and perfect tenses have the feature [+completed action].
(b) Progressive tenses have the feature [-completed action].
(c) Basic aspect and optative are unmarked in regard to this feature.

The /n/ of past and perfective tenses can easily be identified as a completed action marker. It relates, however, in no way to Jungraithmayr's aspect marking, where it is the imperfective that is marked vs. the perfective.

The progressive, an imperfective tense in the true sense, is a nominal construction. Together with the verbal noun, the progressive exhibits an irregularity in the tone pattern 2b. As the low tone verbs of 2b have medial sonorants, which are tone permeable, no high tone should occur in the second syllable, as in hàmè, bà hàmè (cf. C-forms). There are two possible sources for these high tones:

3Jungraithmayr's perfective/imperfective distinction is intended as a morphologic rather than a semantic dichotomy. Within each "aspect" there may be several "tenses", which indicate such features as time reference, habitualness, etc. The same tense may occur on the perfective side in one language and on the imperfective in another.
(a) Verbal noun and progressive, but not basic aspect and citation forms, are marked by a non-segmental high tone realized on the final vowel. With the assumption that tone assimilation rules do not apply twice we get \( \text{hâm} - + \text{é} + \) \( \rightarrow \) hâmè 'eating' as opposed to \( \text{hâm} - + \text{é} \) \( \rightarrow \) hâmè 'eat, eats'. The high tone could morphologically represent Jungraithmayr's third stage, i.e. aspect marking by tone as found in Zime, Tumak, Ron and some other languages [Jungraithmayr 1974b].

(b) For the progressive forms with a pronominal suffix, however, the locative marker is more likely to be the source of high tones: the locative suffix /a/ is mid after a definite marker, high elsewhere; after a vowel only the tone is realized. The marker goes after a nominal object. The following examples show the structural identity of progressive and locative constructions:

**Progressive**

(14) \( \text{we bê hâmâmá} \)
    'he is eating you (m)'
    cf. \( \text{we hâmâm} \)
    'he eats you (m)'

(15) \( \text{we bê hâmú (hâmú)} \)
    'he is eating it'
    cf. \( \text{we hêmû} \)
    'he eats it'

(16) \( \text{we bê hârsf kulf (kuli + á)} \)
    'he is constructing a hut'

(17) \( \text{we bê hârsf kulfná (kuliń + a)} \)
    'he is constructing the hut'

(18) \( \text{we bê gòl hùlùmé} \)
    'he is watching a man'

(19) \( \text{we bê gòl hùlùma (hùlùm + a)} \)
    'he is watching the man'

**Locative**

(20) \( \text{gídömá} \)
    'inside you (m)'
    cf. \( \text{glidiłm} \)
    'your stomach'

(21) \( \text{gídú (gídû)} \)
    'inside him'
    cf. \( \text{glidû} \)
    'his stomach'

---

4 As tonal patterns are different for verbal and nominal forms we might also assume that the rules of tonal assimilation are blocked by a category change.

5 A rising variant is possible if lengthening of the final vowel is optional.
Although *bè* is not used as a locative preposition elsewhere, I take the progressive to be a locative construction, as it is in a number of other Chadic languages. The final high tones in the progressive forms can then be attributed to the locative marker. Note that there is no final high tone if the locative marker is mid, due to a preceding definite marker.

How then—provided that we want to derive the progressive from the verbal noun—do we explain the high tone used as a verbal noun marker? If we assume the verbal noun to be the verb form used in the progressive construction we will have to apply final vowel elision before a pronominal suffix as in the basic aspect. The high tone of the verbal noun will then be elided together with the final vowel that carries it.

Although it would be simpler to derive the progressive from the basic aspect by the simple schema $bè + \text{basic aspect} + \elloc$ rather than $bè + \{\text{VN} - \text{final vowel + pronominal suffix + } [H]_a + \elloc\}$, it seems more plausible that it should be based on the nominal form. We have, however, no definite criterion for deciding whether the final high tone in the progressive without a pronominal suffix is a locative marker or a verbal noun marker (and thereby possibly an old aspect marker) or both. But whatever the source of the high tone may be, the progressive is regularly derivable from the same verb stem as all other tenses. There is thus no need to distinguish different aspect stems in a synchronic description of Kera.

3. Summary

Kera, like other Chadic languages, has two final vowels with certain verb forms and two verbal tone patterns. Both, however, are predictable such that there is no need to establish final vowel classes and tone classes. Whereas the final vowels $e/i$ may be related to Proto-Chadic $a/e$ as reconstructed by Newman, Kera tone patterns seem to indicate, together with

---

6 This situation seems to be not untypical for Chadic in general. Schuh [1976:11] shows that throughout much of Chadic the imperfective aspect and the locative construction have fallen together.
similar evidence from a number of other Chadic languages, that verbal tone classes are not a common Chadic phenomenon and that the reconstruction of Proto-Chadic tone classes has to be reconsidered. As for aspects, Kera has a trichotomic rather than a dichotomic system. There is no justification for distinguishing two aspect stems, as all verb forms are derivable from one stem. The semantic notion of imperfectivity is expressed by a locative construction with the help of the verbal noun.

REFERENCES


LEXICAL NOMINALIZABILITY RESTRICTIONS
IN YORUBA*

S. A. Ẹkundayọ
University of Ifẹ

1. Introduction

A close examination of Yoruba nominalizations will reveal that most nominalizations (i.e. the lexical nominals) derive single lexical items from simple or more complex stems, as in (1); whereas for some nominalizations (i.e. the non-lexical nominals) like those in (2), the complex stems, usually made up of several words, do not all merge with nominalization affixes into single lexical items. Examples of lexical nominals include:

(1) a. ọfìyèdènù [ì+fi-iyè-dè-inù] 'thoughtfulness'
b. ọdọrebàniji [a+ri-ire-bá-ẹnị-jë] 'fair-weather friend'
c. ọålọ̀bàkàhọ̀raraẹiníjani [àl+má-lè-kọ-aporaraẹni-nf-i-jani] 'inability to control one's tongue'

Some of the stems in (1) are complex VP structures containing even as many as three verbal elements like ri 'see', bá 'do something together with', and je 'eat' in (lb), or as many as eight different words, as evidenced in (lc). But they still merge into a single complex word.

On the other hand, not all the lexical items forming the equivalent of a complex (VP) stem for the nominalizations in (2) merge into a single lexical item, with the nominalization formatives:

(2) a. ọdí mìlù (NF-ọdị to-crown of-lion) 'the crowning of the lion OR to crown the lion'¹

b. ọålérán ọkọ ọdí aya 'not loving both husband and wife'

*This is a considerably abridged and reworked version of the paper presented at the 8th Conference on African Linguistics at UCLA in April 1977. Some sections have been removed, but the paper still contains the main points of the earlier one.

¹Our Yoruba examples are normally followed by word-for-word English glosses in parentheses, and actual translations in single quotation marks.
Derived nouns from complex word groups like those in (1) are lexical nominals (LN), while the examples in (2), where most of the words fail to merge into single nouns with their nominalization formatives are non-lexical nominals (N-LN). As demonstrated in Ekwndayo [1976a:247], there is no length limit to LN's, so that length is not the factor preventing the lexical nominalizability of (2b), but allowing it for (1c). Hence, there must exist other factors recognizable as the lexical nominalizability restrictions in Yoruba.

The task of this paper is to indicate that Yoruba lexical nominalizability restrictions are statable as general rules and that the distinctions between LN's and N-LN's are psychologically real, although, theoretically, Yoruba grammarians hardly notice such distinctions which they even recognize in practice. For example, neither Ward [1952:179] nor Bamgbose mentioned or examined the distinction, although, in practice, Bamgbose had LN's like alomatagbère 'one who leaves without saying goodbye' from his "two imperative clauses: lọ/má. dá gbère (go/not bid goodbye)" [1966:103], as well as N-LN's like ati lọ sì lúū wa 'to go to our town', from lọ sì lúū wa 'go to our town' [1966:104].

When several English words correspond to one Yoruba word in the word-for-word gloss, the English words are connected with a hyphen, though the word-for-word glosses are not always given. NF is the nominalization formative which may or may not be a prefix. A nominalization prefix is connected to what follows it with a [+] , while the hyphen is sometimes used as in (1) to separate the different Yoruba words that merge into a lexical nominal.

In the representation of examples, two tones are indicated: the high tone ['] and the low tone ['], above the appropriate vowel. The mid tone is not represented. The underdot is used to distinguish e = [e], o = [o], s = [s], from e = [ɛ], o = [ɔ], and s = [ʃ], respectively.

The orthographic representation of derived nominals is actually not a guide to whether such are LN's or N-LN's, since the important factor is the syntactic distinction. For LN's, representational practices vary as some grammarians tend to use the hyphen to separate all the words that merge into one with the nominalization prefix so that (1b), for instance, will only be represented in the form included in square brackets, and not like our representation before it. But the same grammarian is even usually inconsistent in his representation. For instance, there is no syntactic explanation for Awoyale's (LN) representation i-dárí-f-jì 'forgiveness', (p.409) vis-à-vis his other representations: adójórn 'one who causes troubles', ódáròm 'a criminal', both from the separate words dá óròrn [Awoyale 1974]. If he intends to use the hyphen as an internal boundary marker, this should apply also to his ódáròm etc., as well as to the dárf of ń-dárí-f-jì which consists of dá and orf.
Nevertheless, theoretical recognition must be given to the distinction, since LN's and N-LN's are syntactically distinct. The former can be characterized by the following: they (i) take the syntactic and semantic features of single nouns (i.e., features like [±Abstract] or [±Animate]); (ii) come out as single-word items--though this is less significant than the preceding characteristic; and (iii) can be qualified as a whole unit by adjectives, articles, demonstratives, restrictive relatives and other nouns or pronouns in the genitive. However, the latter operate generally as noun phrases rather than in noun structural positions (except when they function as elements in partitive structures), do not come out as single word items, and cannot be qualified as a unit since different parts of a N-LN are normally separately qualified by adjectives and other relevant syntactic categories.

Owing to lack of space, only the qualification distinction will be illustrated. So, we have (3) for LN's but (4) for N-LN's, where the compared and qualified nominals are underlined:

(3) \lmotaraenin\lkan \re \ bur\uk\u y\en \ gan \ n\da \ ni \ \o \ k\u \\
selfishness your bad that very the is it remain
'the only remaining blemish is that very bad selfish habit of yours'

(4) \lm\o \ ti \ ara \ gbogbo \ aw\on \ ok\un\rin \ pupa \ \di \ mo \ \rf \ n\i \ il\e \ \w\o \ny\en \\
idea of self all they man red who I see at house those
nikan ni won r\o \ pe \ \o \ \t\o \\
alone is they think that it right
'they imagined that only the ideas of all those light skinned men whom I saw at home are right'

While each of the five qualifiers before \ni 'is', in (3) modifies the underlined LN, in (4), pupa 'red', or 'light-skinned' and its following relative clause modify ok\un\rin 'man', while nikan 'alone' modifies \lm\o 'idea' or 'knowledge', but nothing modifies the whole underlined N-LN as a whole. This qualification pattern may then be used generally as a test for lexical versus non-lexical nominalizability in Yoruba in cases of disagreement among native speakers on what is acceptable realization.3

Other reasons for studying Yoruba lexical nominalizability restrictions might include the relevance of the effects of such studies on the

---

3The qualification pattern solution will easily resolve the problem which made Oyelaran object to the starring of some examples in the paper as presented at the 8th Conference. Total qualification of N-LN by definite and specific syntactic categories (see section 3 below) is not normal, since N-LN's would easily incorporate all such qualifiers internally.
number of lexical nominals available to discussions on mandatory lexical insertion (see Œkundayọ [1976a:243-249]), the association of the observed restrictions with restrictions in other parts of Yoruba grammar (see the coordination restriction in section 3 below), and the merits or demerits of postulating for transformational grammar an autonomous morphological component, which will inevitably duplicate several syntactic rules in the composition of complex lexical nominal outputs of syntactic transformations.

2. Nominalization Source Restrictions

Restrictions against lexical nominalizability can arise from the nominalization process itself or from the internal structure of the nominalized expression. The first type, called nominalization source restrictions, will be examined in this section.

One nominalization class leads only to LN's. This class never involves any reference to the VP in its statement. Three members of the class are described by Bamgbose [1966:103-104] as 'Prefix + Nominal Group', 'Reduplicated Noun + Ìnìfìkọ' and 'Reduplicated Noun' for our respective representations: onfrìkìfì 'conspirator' (from onf 'conspiracy'), ìlékìlé 'any house' (< ìlè 'house'), and ẹgbẹgbẹ 'society by society' (< ẹgbẹ 'society'). They are only indirectly relevant to observations on lexical nominalizability restrictions since through them, we note that reference to the VP in the statement of a nominalization rule provides favorable conditions for non-lexical nominalizability. Since the relevance of non-VP-based nominalizations to lexical nominalizability restrictions is indirect, the relevant but indirect rule in this case need not be stated.

For VP-based nominalizations, three restrictions are observable, and these are related to either the types of nouns derivable from the nominalization process (giving two restrictive rules) or the intrinsic structure of the main verb itself. Three types of observations based on the nominalization process can be made on lexical nominalizability.

First, it is observable that nominalizations that derive agentive nouns invariably (though not exclusively) lead to LN's only. Hence, although à + VP for àtète'mù-ôle = à + tete-mù-ôle 'not arresting the thief in time' and a + VP for asè = a + sé 'strainer' or 'sieve' derive non-agentive nouns, the same operation with others similarly derive the agentive in (5):

(5) a. àlàkè = à + làkè Survive pet 'one who survives and we pet' (female personal name)

b. abẹlẹjáyán = a + bá- élẹja- yan-àn Help fish-seller fry it 'caretaker' (cf. arírebáníjẹ in (1b))
The class of VP prefixes illustrated here (including the VP doubling of (5d) derives only LN's.

Second, two nominalization processes through which no agentive noun is obtainable can derive both LN's and N-LN's, e.g. ǎl + VP for the corresponding LN/N-LN pair in (1c) and (2b), and ǐ + VP. These two nominalization processes are, however, particularly relevant to the structural restrictions examined later in section 3, since their conditions for lexical or non-lexical derivations depend on the internal structures of the nominalized VP's.

Third, nominalization formatives, which, in addition to inability to procure agentive nouns, are polysyllabic, and non-NEG, e.g. the ǎti of (2a) and láti for láti máa fi ilé jóna 'to cultivate the habit of burning houses', are not prefixed to other words and derive only N-LN's.

Two restrictions can now be stated on the class exemplified in (5) and the one mentioned in this paragraph. So, we have the two rules (6) and (7):

(6) Rule 1. Given the rule NZ → NF + VP, if agentive nouns are not derivable from NZ, then this NZ is a possible source for non-lexical nominalizations.

(7) Rule 2. Given the rule NZ → NF + VP, if NF is polysyllabic and non-NEG, and agentive nouns are not obtainable from NZ, then the NZ derives only non-lexical nominals.

In (6) and (7) and in subsequent rules, NZ = nominalization, NF = nominalization formative, while X and Y will later stand for variables. Conditions favorable to non-lexical derivations are established in (6). This covers cases like (7), where only N-LN derivations are possible, and those for ǐ + VP and ǎl + VP, which need the structural restrictions of section 3 to determine when either LN or N-LN is possible.

The last source restriction is the indivisible verb restriction. An indivisible verb is a polysyllabic verb which cannot be divided into two parts by an inserted object, e.g. puró in (8), whereas the rule for other polysyllabic verbs, like bàjé in (9) is that an object splits the verb into two:

(8) a. े yé puró 'please stop lying'
b. wón puró mó ọrẹ mi 'they lied against my friend'

(9) a. inú wa bàjé mind our spoil
b. े ba inú ọrẹ mi jé you spoil mind friend my spoil
'my friend sad'
'you make my friend sad'
The restriction on indivisible verbs is that once they occur after an NF, all other words after them retain their individuality by failing to merge into a single lexical item. This restriction, partly responsible for the N-LN realization of (2b), can be stated as (10):

(10) Rule 3. Given the rule NZ → NF + VP, if NP → X V Y, such that V is an indivisible verb, X may be null but Y is non-null, then NZ = NF + X + V # Y.

The condition that Y is non-null is needed before the boundary symbol can be introduced, but if Y is null, then we have a LN and the restriction does not apply.

Indivisible verbs look more nominal than verbal phonologically, since no Yoruba noun or attributive adjective is monosyllabic, and it appears that one reason for this restriction is that such verbs use their apparently nominal character to terminate lexical nominalizability.

3. Structural Restrictions

The only three structural restrictions to be examined here are the definiteness/specificness, the coordination, and the group numeral amalgamation restrictions. They deal with the exclusion of LN derivations caused by the internal structure patterns of nominalizations.

The definiteness/specificness restriction forbids the merging of constituents of a nominalization together to form one lexical item provided some of the constituents are definite or specific syntactic categories like náà 'the'. This restriction can be illustrated from abstract noun derivations. The putative subject of any abstract noun derived from VP's must not be definite or specific. For instance, when ífé 'love', ígbóràn 'obedience', ígbàgbọ 'belief' as well as their negations--áífé 'lack of love' àígbóràn 'disobedience' and àígbàgbọ 'disbelief'--are respectively derived from the VP's fé 'to love' gbọ ọràn 'hear matters' and gbà a gbọ (take it listen) 'receive and accept it', using the 1 + VP and ál + VP rules, the putative subject of any of the VP's nominalized may be eni kan (person one) 'someone' but nothing specific or definite like ọkùnrìn burúkú náà 'the bad man', or proper nouns.

From this observation, it is clear that as long as no definite or specific item occurs within the domain of a nominalization operation (e.g. within the eight words connected with hyphens in (lc), or even within nominalized VP's which are products of syntactic transformations, as in (lc), where ara 'self', is introduced into the nominalized VP through the Yoruba reflexive transformation), lexical nominalizability is possible. This restriction also applies to the underlined N-LN in (4), where gbogbo àwọn ọkùnrìn 'all the men' is specific. The restriction can then be stated as (11):
Rule 4. If LN is a lexical nominal, and \( X \) is a specific or definite syntactic category which is also a possible qualifier of the whole LN, then \( X \) is not a member of LN.

Restrictive rule 4 is also relatable to the qualification pattern discussed earlier, while differentiating LN's from N-LN's.

The coordination restriction forbids the merging of constituents of VP's containing conjunctions, e.g. àti 'and', tábí 'or', sì 'and' (sentential), into a single lexical item. This constraint and the invisible verb restriction apply to (2b): àfèràn ọkọ àti aya 'not loving both husband and wife'. There is an alternative method of nominalizing VP's dominating conjoined NP's through a transformational deletion of the conjunction and a repetition of the verb. A suitable VP for this constraint is provided in (12b), its impossible nominalization with the \( a + VP \) rule in (12b), and the alternative nominalization in (12c):

(12) a. fé ọmọ àti łyá
   marry child and mother 'marry both the daughter and her mother'

   b. *afọmọàtìlyá

   c. afọmọàtìlyá 'one who marries the daughter and her mother'

One possible reason for this restriction is that Yoruba verbs and VP's are never conjoined. Hence there are no sentences like:

(13) a. *mo jeun àti sùn
   'I ate and slept'

   b. *mo ra ìwè àti ta aṣọ
   'I bought books and sold clothes'

because each non-serial main verb or VP must have its subject realized, and when this happens the sentence conjunction formative sì 'and' is used. This shows that some lexical nominalizability restrictions are relatable to other restrictions in grammar. Using the terms and variables of the predicate calculus, the conjunction restriction is statable as:

(15) Rule 5. \( (\forall x) (\exists y)(\exists y) (yL \& (x=y)) \)

   i.e., for all \( X \) if \( X \) is a conjunction then there exists no \( y \), such that \( y \) is a lexical nominal and \( X \) is a proper subset of \( y \).

The group numeral amalgamation restriction deals with a syntactic expansion rule for numerals. Yoruba uses one NP expansion rule: NP \( \Rightarrow \) NP S for numerals like ègbèrùn ó ìfín mèta (one thousand, it decreases-by three) '997' and most of the other numerals. But for some numerals below ègbèrù '2,000' a transformational rule optionally applies to the NP S expansion of the numeral, reversing the normal order (e.g. changing 20-5 to -5+20) and introducing the formative ní (interpretable as 'from', i.e. 'below', or 'over' another numeral). Then, once this rule applies (cf. (15a & b)), the numeral becomes a LN:
(15) a. ogún o dín márun
twenty it decrease-by five 'fifteen'

b. márundínógún = márun dín ní ogún
five less from twenty 'fifteen'

The conditions under which the T-rule introducing ní applies, consequently triggering off lexical nominalizability, are stated in Ekundayo [1972 ch. IV]. Since this optional rule does not apply to the majority of numerals using the NP + NP S rule, N-LN representations are commonplace for numerals, and non-applicability of the said T-rule is a sufficient condition for non-lexical nominalizability. The restriction is stated as:

(16) Rule 6. Any numeral M obtained through an application of the categorial expansion rule NP + NP S must be a N-LN unless and until the optional numeral reversal rule introducing the formative ní transformationally applies.

4. Conclusion

From the lexical nominalizability restrictions observed, it is obvious that not all verb phrases nominalizable in Yoruba lead to single lexical nouns in structure. Hence, not all VP's obtained after transformational operations will eventually lead, after nominalization, to the lexical insertion problem that necessitated the suggestion in Ekundayo [1976b] for the abrogation of the condition that lexical insertion transformations are mandatory on all lexical items. As suggested in Ekundayo [1976a and 1976b], complex nouns, obtained from a nominalization of the VP outputs of the true syntactic transformations of the standard theory of transformational grammar, cannot possibly have been inserted with non-complex nouns before any of the rules of the transformational subcomponent apply. Nevertheless, the earlier lexical insertion problem still exists, although, owing to the six restrictions now stated, we find that the theoretical problem arising from lexical nominalizability does not now affect all possible Yoruba VP’s.

REFERENCES


SOME IMPLICATIONS OF LOW TONE RAISING IN SOUTHWESTERN EDO

Ben Ohi Elugbe
University of Ibadan

1. Introduction

There are five Edo languages called Southwestern Edo. They are Eruwa, Isoko, Okpe, Urhobo, and Uvbié. The Edo languages are mostly spoken in Benel State, though there are some spoken in the Rivers and Ondo States. Greenberg [1966:9] classifies Edo as a Kwa subgroup: e; Elugbe [1973] classifies Southwestern Edo with Delta Edo (the Edo languages of the Rivers State) as co-ordinate branches of a South Edo branch of Edo.

Isoko and Urhobo are the best known of the Southwestern Edo languages, while the other three are often spoken of as dialects of these two: Eruwa, as a dialect of Isoko (a fact strengthened by the political and economic dominance of Isoko); Okpe and Uvbié (also called Evhron in the literature) as dialects of Urhobo. As a matter of fact, these people refer to themselves as Urhobo and invariably also speak Urhobo, which is taught in the schools and used as a lingua franca in the Urhobo Divisions. The following discussion will be based on the Uzere dialect of Isoko and the Agbarho dialect of Urhobo.

All these languages, none of which has extensive literature and little or none on tone, exhibit (with the exception of Eruwa, to judge by Odumosu [1973]) a phenomenon of final low tone raising.

2. Low Tone Raising

As there are different kinds of low tone raising mentioned in the literature 2, I will start by explaining what I mean here by low tone raising. By low tone raising, I refer to a process whereby all final low tones

---

1 The following conventions should be noted: 1 = [i], e = [e], o = [o], y = [ɔ], th = [t], dh = [d]. In Urhobo, [y] contrasts with [ŋ], so that yNn → [ŋN], as in ñyên 'his' → [ŋyɛn], as well as nyN → [ŋyN], as in ñyọọ 'honey' → [ŋyọọ] [ŋy].

2 Cf. Hyman and Schuh [1972], Leben [1971].
are raised. In general, the languages exhibiting this process are found to be without key lowering or downdrift. The downglide often associated with low tones in a downdrift system (cf. Stewart [1971], Amayo [1976]) is absent. As is well-known, such a downglide is most noticeable in final position where low tones are terminated on a low-falling pitch. But while low tones in a downdrift system are basically low-falling (the fall or downglide is not realized except in final position, though its effect is noticeable in the lowering of post-low highs), the low tones of Isoko and Urhobo lack any such downglide. In final position, rather than terminate on a falling pitch, low tones are raised. Instead of (1) we get (2):

(1) LHL > \[\_\_\_\_\] < /\_\_\_\_\_/ (key lowering)
(2) LHL > \[\_\_\_\_\] < /\_\_\_\_/ (final low raising)

It thus appears that in (1) the downglide pulls down the high tone; in (2) there is no downglide to cause any such effect. Besides, the final low tone is raised.

In dealing with Isoko and Urhobo as tone systems, therefore, it is not the lowering effect of downdrift that one has to deal with but the absence of this lowering and the presence of final low raising. Like downdrift, however, final low raising may be treated as an intonation feature of statements, since it is subject to interference or blockage by a change of intonation, for example, from statement to question.\(^3\)

3. **Final Low Raising in Isoko and Urhobo**

Mafeni [1969] called Isoko a "two tones plus downstep" system, claiming that there was terracing or downdrift. My own investigation has revealed that although there is a third level (mid), it is totally predictable: occurring only in final position, having no variants (as might have been expected of a downstep), and conditioned by the phenomenon of final low raising.

In Isoko, all final lows are raised to mid in statements and citation forms; that is, questions and exclamations do not exhibit this feature.\(^4\)

---

\(^3\)Cf. the question forms of example (3a,d):

3aQ. Ọ̀gbù'  →  Ọ̀gbù' \[\_\_] 'native doctor?'

3dQ. Ọ̀gbá'  →  Ọ̀gbá \[\_\_] 'warrior?'

In Isoko, as in Urhobo, questions are not subject to final low raising. In addition, they are characterized by a final floating low which causes highs to fall but merges with low.

\(^4\)Cf. footnote 3.
From (3) we note that two complications exist in the surface realization of tones in Isoko statements: glides, occasioned by vowel assimilation and deletion/contraction (3c,e,f), and mid tones brought about by final low raising (3a-c,e-f). Non-final lows are not raised and there is no limit to the number of final lows that may be raised.

As mentioned above, there is no downdrift so that the successive highs in (4) are not downdrifted:

(4) ò tá' kè ìmé n'è ìmé dé̀f [è] ò tá kùmè nùmè dé̀f [è]  
'he told me to buy it'

In Urhobo as in Isoko, all final lows in statements (including citation forms) are raised. However, Urhobo differs from Isoko in that final lows are not raised to the level of mid, and the mid level in Urhobo is a significant one, contrasting with high and low, as seen in (5):

(5) a. ọ̀bọ̀ (LL)  →  ọ̀bọ̀  'native doctor'  
    c. ọ̀nyọ̀ (HM)  →  ọ̀nyọ̀  'bee, honey'  
    b. ọ̀mọ̀ (HH)  →  ọ̀mọ̀  'child'  
    d. ẹ̀nwù (HL)  →  ẹ̀nwù  'shirt'  
    e. ọ̀bọ̀ ọ̀nànà ọ̀ dè̀ ọ̀nyọ̀  →  ọ̀bọ̀nànà (ọ̀) ọ̀nyọ̀  
      'this doctor he bought honey'  
    f. ọ̀bọ̀ ọ̀nànà ọ̀ dè̀ ẹ̀nwù  →  ọ̀bọ̀nànà (ọ̀) ẹ̀nwù  
      'this doctor he bought a shirt'
It is seen from (5a-f) that in final position, in spite of low raising, there is a contrast between high, mid, and low. The mid tone, however, is not as widely distributed as are high and low: it occurs only after a high; after low, the contrast between mid and high is neutralized. Even so, it can be demonstrated that this is not a downstep. First, it cannot be shown to be derived from a lost low tone. In (6), we see that a surface tone sequence reminiscent of a classical downstep language is non-occurring:

(6) ḏ xe ꙭe_vertexe → * ḏ xe_vertexe [ _ _ ] 'he killed a goat'

Rather, we find the following:

(7) ḏ xe ꙭe_vertexe → ḏ xe_vertexe [ _ _ ] 'he killed a goat'

Secondly, there are cases where movement from mid to high occurs as in the following:

(8) a. ḏ ka de → ḏ kā de [ _ _ ]
   he will buy
b. ḏtō + r̥̣̪ + ọcē → ḏtōרōcē [ _ _ _ ]
   ground assoc. pot
   ‘bottom of pot’
c. ḏtō + r̥̣̪ + ọyēn → ḏtōrọyēn [ _ _ _ ]
   ‘his piece of land’
d. ịnwù + r̥̣̪ + ạyēn → ịnwụrọyēn [ _ _ _ ]
   ‘their shirts’
e. ḏnyọ + r̥̣̪ + ạyēn → ḏnyọrọyēn [ _ _ _ ]
   ‘their honey’

In view of the analysis of Urhobo just presented, two brief discussions of Urhobo by Welmers [1969] and Elugbe [1973], are of interest. Welmers, writing on the Eku dialect, said that it was only at the end of an utterance--and then only after high--that a third level was heard as mid. According to him, "...the phenomenon of terracing or downstep within a phrase is not found...Up to the last syllable of any given utterance, all tones can be described in terms of a two-tone system..." (p.88). Welmers also notes that high-low nouns (in contrast with high-mid) were very few and that, in any case, this contrast was always lost in non-final position.

Elugbe [1973], writing on the Agbarho dialect, confirmed that there was no terracing or downdrift, but claimed there was a third, downstep, level (albeit a very restricted one) in addition to the low and high levels. It is now clear that the third level in the Agbarho dialect lacks the distributional restrictions that one would have expected of a downstep and is to be regarded as a mid tone.
4. Isoko and Urhobo Compared

From the above, it appears that the main difference between Isoko and Urhobo as tone systems is in the merging of mid and low in Isoko. A comparison of nouns in both languages shows the loss of a mid versus low contrast in final position in Isoko:

<table>
<thead>
<tr>
<th></th>
<th>Urhobo</th>
<th>Isoko</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ọbọ</td>
<td>LL</td>
<td>Ọbụ</td>
<td>LL</td>
</tr>
<tr>
<td>Ọcẹ</td>
<td>LH</td>
<td>Ọthẹ</td>
<td>LH</td>
</tr>
<tr>
<td>Ọkà</td>
<td>HL [− -]</td>
<td>Ọkà</td>
<td>HL [− -]</td>
</tr>
<tr>
<td>Ìsọn</td>
<td>HM [− -]</td>
<td>Ìsọ</td>
<td>HL [− -]</td>
</tr>
<tr>
<td>Ìrhọ</td>
<td>HH</td>
<td>Ìzọ</td>
<td>HH</td>
</tr>
</tbody>
</table>

The evidence (which can be expanded as in the appendix) suggests that Urhobo is the older system and that final low tone raising has caused a merger of mid and low in Isoko. This has not happened in Urhobo where, in spite of final low raising, mid and raised low are still kept distinct. However, if the raising of final low were to reach a stage that merged it with mid in final position, this merger could be extended automatically to non-final, thus reducing a three level tone system with final low raising to a two-level system with final low raising. Already, in Urhobo, high-low nouns are very rare while high-mid are common.

If we were to assume the opposite, namely the splitting of a non-high tone into two (mid and low) tones, there would be no plausible motivation or explanation.

The analysis of the Ëku dialect of Urhobo as given by Welmers would suggest that the merging of low and mid in final position did not necessarily precede a merger of mid and low in non-final position. I have not checked this myself, but consideration of the Ëku dialect would mean that we have three systems to compare:

1. Urhobo (Agbarho): three tones plus final low raising (no merger anywhere between low and mid).
2. Urhobo (Ëku) : three tones (plus final low raising?) and complete merger of low and mid in non-final position.
3. Isoko : two tones plus final low raising

---

5Nouns fall into lexical tone groups but not verbs, which, given the same number of syllables, invariably have identical tones. The various tone realizations of the verb in Southwestern Èdo are determined by context.
It is to be assumed that a merger of low and mid will take place in final position in Eku, which would then make it clearly a two-tone language. I cannot base too much on Eku since I have no data on it myself; but for the purposes of my arguments below, the near complete merger of low and mid in that dialect is encouraging support.

5. Historical Implications

The kind of tone system just discussed is not common. The tone systems most often associated with Kwa languages are:

a. three levels and no "key lowering" or downdrift. Stewart [1971] cites Ewe as an example of this, but this is apparently controversial. Idoma [Armstrong, personal communication] and Ghotuq [Elugbe 1973] are better examples.

b. three tones plus downdrift. Yoruba and Yala Ikom are examples of this, although they differ in their operation of this phenomenon. In Yoruba, only low may lower non-low tones. In Yala Ikom, both low and mid have a lowering effect on high while mid is in turn lowered by low.

c. two tones plus downdrift. Examples of this abound--Twi, Igbo (the classical cases) and Èdo (Bini) are interesting examples.

There are, at the moment, two views of the relationship between these types. Stewart speculates that the proto-type of these three types was an (a) type, discrete level system. Somehow, key lowering set in, resulting in type (b), a rather complex kind of system. Simplification of this (b) system through a merger of mid and low resulted in type (c) [1971:196].

Maddieson [1974] summarizes the other view, which is essentially a splitting hypothesis. Maddieson shows that splitting models advanced by those who think that the proto-type of the Niger-Congo tone systems was a two-level tone language include a downdrift model, a sandhi model and a 'phonation type' model. He rejects all these and proposes to explain the development of Yoruba-type mids in terms of a tensity feature of consonants which "has acted historically as a depressor of tone".

In view of the facts of Isoko and Urhobo outlined above, I would think that Stewart's [1971] position on the three-level proto-type is quite plausible. However, it appears that if a merger of low and mid took place

6 The proponents of the splitting hypotheses are rarely as definite and straightforward as Stewart [1971] in what they believe. However, see Maddieson for an interesting reference list, to which one may add Schachter and Promkin [1968].
it was not always necessarily through a downdrift model. Some languages may not develop downdrift, but some other feature—final low raising, for example—which leads to a merger of mid and low as in Isoko.

After studying Edo (Bini), a classical "two tones plus downdrift" language and Eku, a dialect of Urhobo without downdrift and with a dying mid-low contrast, Welmers [1973:113] suggested that "it would obviously be interesting to study the tonal systems of other Urhobo dialects, and other languages of the Edo group". Nothing could be more welcome! It may be premature for us to line up on either side of a splitting-merging match.

What is important from the historical point of view is that we have here a merging of low and mid which is clearly not achieved through down­drift or downstep. Key lowering is not the only model of merging possible among Kwa languages. And splitting is not the incontrovertible process of tone change in Kwa.

REFERENCES


APPENDIX: More Urhobo-Isoko comparative noun series

<table>
<thead>
<tr>
<th>Urhobo</th>
<th>Isoko</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) LL(L) items:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ṟtòn [ - - ]</td>
<td>ḟtụ́ [- - ]</td>
<td>hair</td>
</tr>
<tr>
<td>ôbọ́</td>
<td>ùbọ́</td>
<td>hand</td>
</tr>
<tr>
<td>ôwọ́</td>
<td>ùwọ́</td>
<td>leg</td>
</tr>
<tr>
<td>ômạ́</td>
<td>ùmạ́</td>
<td>body</td>
</tr>
<tr>
<td>ेvhe</td>
<td>ेvb́l</td>
<td>kola nut</td>
</tr>
<tr>
<td>ôbẹ́</td>
<td>ùbĺ</td>
<td>leaf, book</td>
</tr>
<tr>
<td>ेrèvbẹ́n</td>
<td>ेrọ́ụ́</td>
<td>tongue</td>
</tr>
<tr>
<td>ेràvbẹ́r</td>
<td>ेràụ́ụ́</td>
<td>meat, animal</td>
</tr>
<tr>
<td>ेrhàrẹ́n</td>
<td>ेrrà́i</td>
<td>fire</td>
</tr>
<tr>
<td>ùyọvbin</td>
<td>ùzọ́ụ́</td>
<td>head</td>
</tr>
<tr>
<td>(b) LH items:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ôcẹ́</td>
<td>ôthẹ́</td>
<td>waterpot</td>
</tr>
<tr>
<td>ेvbé</td>
<td>ेvb́l</td>
<td>goat</td>
</tr>
<tr>
<td>ेrhúẹ́n</td>
<td>ेrrúẹ́</td>
<td>cow (zebu)</td>
</tr>
<tr>
<td>ạján</td>
<td>ạdhá</td>
<td>bat</td>
</tr>
<tr>
<td>ôhwọ́</td>
<td>òhụ́ọ́</td>
<td>person</td>
</tr>
<tr>
<td>(c) H...L items:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ọkà [ - - ]</td>
<td>ọkà [ - - ]</td>
<td>maize</td>
</tr>
<tr>
<td>ọshùẹ́</td>
<td>ọzúẹ́</td>
<td>spear</td>
</tr>
<tr>
<td>íkù</td>
<td>íkù</td>
<td>story</td>
</tr>
<tr>
<td>̀vbìrhń́n</td>
<td>̀vbìrhń́l</td>
<td>smoke</td>
</tr>
<tr>
<td>útábá</td>
<td>útábá</td>
<td>tobacco</td>
</tr>
<tr>
<td>ọshàrẹ́</td>
<td>ọzàl</td>
<td>man, male</td>
</tr>
<tr>
<td>ômọ́tẹ́</td>
<td>ômọ́tẹ́</td>
<td>girl, daughter</td>
</tr>
<tr>
<td>Yoruba</td>
<td>Isoko</td>
<td>Gloss</td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>ìson [− −]</td>
<td>ìsọ [− −]</td>
<td>faeces</td>
</tr>
<tr>
<td>ótọ</td>
<td>útọ</td>
<td>ground</td>
</tr>
<tr>
<td>ëbi</td>
<td>ëbi</td>
<td>seed</td>
</tr>
<tr>
<td>ónyọ</td>
<td>ónyọ</td>
<td>bee, honey</td>
</tr>
<tr>
<td>òṣẹ</td>
<td>òṣẹ</td>
<td>father</td>
</tr>
<tr>
<td>óni</td>
<td>ónl</td>
<td>mother</td>
</tr>
<tr>
<td>ésìo</td>
<td>ésì</td>
<td>star</td>
</tr>
<tr>
<td>úfi</td>
<td>úfl</td>
<td>rope</td>
</tr>
<tr>
<td>ãgbẹhẹn</td>
<td>ãgbẹhẹ</td>
<td>wall</td>
</tr>
<tr>
<td>(e) HH items:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>órhó</td>
<td>òzhọ</td>
<td>ear</td>
</tr>
<tr>
<td>òshọ</td>
<td>òshọ</td>
<td>penis</td>
</tr>
<tr>
<td>ãrhé</td>
<td>ãrré</td>
<td>tree</td>
</tr>
<tr>
<td>ãkẹn</td>
<td>éké</td>
<td>egg</td>
</tr>
<tr>
<td>ãnwé</td>
<td>ãnwé</td>
<td>mosquito</td>
</tr>
</tbody>
</table>
1. Introduction

After an adventurous life as a sailor, László Magyar (born in 1818) lived from 1848 to his death in 1864 in the Western part of Central Africa. He settled in Bié, married the daughter of the Umbundu king, and through his marriage obtained a bigger escort, rendering it possible for him to visit a large part of Angola as one of the first explorers of these regions. His narrative was published in 1859 in Hungarian, and in the same year the volume was translated into German.

In his reports, Magyar also published linguistic records, mostly on Umbundu (R.11 of M. Guthrie's classification), which he mastered well, it being the idiom of communication with his family and entourage. The German edition of his narrative, which has become known among Africanists, contains only some dozens of animal names, some minor texts and the numerals. In the Hungarian original, on the other hand, the entire material is published: a grammatical sketch, a vocabulary of 300 entries, conversation texts and proverbs. The number of all the lexical items surpasses 500.

I have been working up this material, which, together with Koelle's shorter Panglela (=Benguela) entries, in the Polyglotta Africana, is the oldest linguistic record of Umbundu. Here I shall discuss some prosodic problems.

2. The Prosodic System of Umbundu in the Middle of the 19th Century


Other scholars, however, characterize Umbundu as having tonal distinctions, or at least different tone levels. According to Hambly [1934:234-252] three tones exist--low, high and mid--which have semantic value but which shift in context, viz. (1) a high tone on the penultimate syllable tends to be carried along to the last one; (2) a definite stress lies on the last syllable, while (3) a light stress is pronounced on the penulti-
mate one. Length as a prosodic feature is not mentioned by Hambly at all.

Guthrie, who generally did not indicate his sources, wrote in his classification of the Bantu languages [1948:66]:

Tonal data are only available for Mbundu (11), where there is an alternance of tone on radicals, so that -ku|- 'plant' and -ku|- 'tie up' have different tonal behaviour. There is, however, no tonal alternance on nominal suffixes, with the result that nominals have only two possible tone-patterns. Those with disyllabic stems are represented by the typical words onjila (- - -) 'path' and onjila (- - -) 'bird'.

It is interesting that Valente [1946:27] and Le Guennec-Valente [1972: XVIII] refer to the same example, explaining the semantic difference by the quantity of vowels: the former being short, the latter long.

As for vowel length, no clear picture can be inferred from the more recent grammars and dictionaries, owing to the short and weak phonetic observations in them. In any case, the difference between short and long vowels is mentioned as sometimes important.

2.1 Diacritics used by Magyar. From the point of view of stress, quantity and tone, the diacritical signs and the double letters of Magyar's data are significant.

In Hungarian, diacritic symbols denote the quality or quantity of vowels, but never stress or tone, because stress always falls on the first syllable and there is no lexical tone. Dots, diaereses mean short vowels--í, Ö, Ú--and (double) acute accents indicate length--í, ö, ú. The lack of any symbol also means short vowels--ó, ú, a. Between a and á, vs. e and é, the contrast manifests itself in a qualitative difference too--ó ~ a: vs. é ~ é.

Double consonant letters mostly denote long consonants (geminates) in Hungarian, while double vowel letters have no special phonetic value, although they sometimes occur in morpheme junctions.

The question is what the letters with diacritic symbols and double letters may denote in Magyar's Umbundu text. Let us examine each way of writing in detail:
(1) Vowels with acute accent(s)

<table>
<thead>
<tr>
<th>Magyar</th>
<th>Modern Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>kám-bambi</td>
<td>'gazelle'</td>
</tr>
<tr>
<td>o-mbambi</td>
<td>Alves</td>
</tr>
<tr>
<td>inyányi</td>
<td>'buffalo'</td>
</tr>
<tr>
<td>o-ñani</td>
<td>&quot;</td>
</tr>
<tr>
<td>julámbó</td>
<td>'vulture'</td>
</tr>
<tr>
<td>yulombo</td>
<td>&quot;</td>
</tr>
<tr>
<td>ándála</td>
<td>'rattlesnake'</td>
</tr>
<tr>
<td>o-ndala</td>
<td>&quot;</td>
</tr>
<tr>
<td>szúkú</td>
<td>'God'</td>
</tr>
<tr>
<td>suku</td>
<td>&quot;</td>
</tr>
<tr>
<td>ámbákká</td>
<td>'caravan'</td>
</tr>
<tr>
<td>ombaka</td>
<td>Le Guennec-Valente</td>
</tr>
<tr>
<td>hélá</td>
<td>'tomorrow'</td>
</tr>
<tr>
<td>hela</td>
<td>Alves</td>
</tr>
</tbody>
</table>

It is conspicuous that several words possess more than one diacritical symbol, e.g. ámbákká.

(2) Double vowel letters

<table>
<thead>
<tr>
<th>Magyar</th>
<th>Modern Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>váári</td>
<td>'two'</td>
</tr>
<tr>
<td>o-mbambi</td>
<td>Alves</td>
</tr>
<tr>
<td>tástú</td>
<td>'three'</td>
</tr>
<tr>
<td>tatu</td>
<td>&quot;</td>
</tr>
<tr>
<td>pandonváári</td>
<td>'seven'</td>
</tr>
<tr>
<td>epandu</td>
<td>vali</td>
</tr>
<tr>
<td>tunhwa</td>
<td>Valente [1964:121]</td>
</tr>
<tr>
<td>tündyuyá</td>
<td>'I drink'</td>
</tr>
<tr>
<td>o-ndala</td>
<td>&quot;</td>
</tr>
<tr>
<td>(properly: 'we drink')</td>
<td></td>
</tr>
</tbody>
</table>

(3) Double consonant letters

<table>
<thead>
<tr>
<th>Magyar</th>
<th>Modern Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>enganna</td>
<td>'Mr.', 'Sir'</td>
</tr>
<tr>
<td>o-ñala</td>
<td>Alves</td>
</tr>
<tr>
<td>houssi</td>
<td>'lion'</td>
</tr>
<tr>
<td>hosi</td>
<td>&quot;</td>
</tr>
<tr>
<td>ejje</td>
<td>'he/she/it'</td>
</tr>
<tr>
<td>eye</td>
<td>Valente [1964:177]</td>
</tr>
<tr>
<td>poinnette</td>
<td>'breath'</td>
</tr>
<tr>
<td>o-ñete</td>
<td>Alves</td>
</tr>
<tr>
<td>kuffá</td>
<td>'death'</td>
</tr>
<tr>
<td>-fa</td>
<td>'to die'</td>
</tr>
<tr>
<td>inakullu</td>
<td>Alves</td>
</tr>
<tr>
<td>inakulu</td>
<td>Le Guennec-Valente</td>
</tr>
<tr>
<td>ámbákká</td>
<td>'caravan'</td>
</tr>
<tr>
<td>ombaka</td>
<td>&quot;</td>
</tr>
</tbody>
</table>

Disregarding the doubtful cases of jj --being no true consonant-- the following types occur together in 25 tokens: kk, tt, ff, ss (long ʃ), ssz (long s), nn, ll.

2.2 Duration in the dialect recorded by Magyar. We cannot come to any other conclusion but to assume that vowel letters with acute accent denote long vowels, as opposed to simple vowel letters (short ones). This also involves á and é, denoting a: vs. e:. The double consonant letters must stand for geminates, since Magyar would not have written them for the denotation of any other phonetic feature. The question is, however, whether the geminates represented a phonemic distinction of that epoch, or only an accessory feature, conspicuous enough to be denoted by Magyar.
2.3 Stress in the dialect recorded by Magyar. He could not find any means for denoting stress, since in Hungarian this feature is not marked. My argument is evidenced by the fact that long diacritical signs occur, not only once in a word, but often two or three vowels of the same entry are so marked, and that vowels are not marked as long in the first syllable only.

2.4. Tone in the dialect recorded by Magyar.

Most probably, double vowel letters are intended to stand for tone, since they could not have marked either duration or accent, nor yet morphemic junctions, the latter being rare in Umbundu. Almost all these clusters have long marks. But if tone is to be presumed at all, it follows that two or more pitches must have existed. Thus the various types of writings deviating both from Hungarian and Umbundu structures—interwoven with other prosodemes like stress and length—could enable us to construct the tone system of Umbundu of that epoch.

Surveying the conspicuous writing features of Magyar, four types can be set apart: Č, ĊČ, VČČ and VČC. The fifth type manifests itself in the opposition of these four types to the unmarked vowel letters: V. Our hypothesis is complemented and indirectly corroborated by Koelle's Panglea, and Serpa Pinto's Hambundo, data.

As it is stated, Koelle did not recognize tones. He merely denoted stress—with an acute accent—and vowel length—marked by a dash over the letter. Unfortunately, the transcription system used by the "Studies Devoted to Koelle's Polyglotta" (in: [Sierra Leone Language Review 1964(3): 58]) omit the acute accents and by this we are deprived of the possibility of investigating the prosodic system of his records. I do not deny that his system is deficient, nevertheless, some useful hints on the nature of the prosodemes can be obtained by a thorough analysis of this record.

The first observation is that no uniform penultimate stress can be established. Furthermore, several words longer than two syllables display two acute accents:

(4) ĉtīmba 'skin' p. 53  ŝkuĉnye 'dry season' p. 91
    ɔshǒnde 'blood' p. 55  ěkŏndambŏlo 'cock' p. 127
    ʒeqhōpa 'navel' p. 49

As for vowel length, Koelle denotes short and long vowels so frequently and independently of the accent that a long-short opposition seems to be extant:

(5) ɔhōmba 'goat' p. 121  ŋandjampi 'God' p. 75
    ŝtēke 'night' p. 89  ɔwâwa 'water' p. 79
Regrettably, most identifiable data of Koelle and Magyar disagree with respect to the position of diacritical signs—Magyar ukáí 'woman', p. 437, 441; Koelle õkái, p. 17—only a few equivalents can be found. The later Portuguese sources, Serpa Pinto and Capello-Ivens, also display diacritical symbols taken from the Portuguese orthography, but they do so less frequently than Koelle or even Magyar. In a few cases, however, the diacritical sign is on the same syllable in Magyar, Koelle and Serpa Pinto, e.g.:

(6) Magyar okuvála 'sickness' p. 441; táátu 'three' p. 444
Koelle õwëra 'sick' p. 149; tatu " p. 3
Serpa Pinto ocuvëra 'sick' p. 368; tato " p. 375

The divergences of denotation can also reflect dialectal differences between the Bié data of Magyar and the Pangela of Koelle, not to mention the problems of defective observation and orthographic inadequacies. Unfortunately, the diacritical symbols of the Portuguese sources do not admit of differentiation according to prosodic categories: do they stand for accent, duration or tone? Koelle's data, on the other hand, collated with those of Magyar, indicate with more certainty the existence of vowel length and stress. The presence of acute accents on more than one syllable of several words in Magyar, and the simultaneous occurrence of different diacritical signs in Koelle, corroborate the supposition of tone. It is not likely that Koelle's repeated diacritical marks exclusively denote main and secondary stress: on the contrary, it is likely that he wanted to denote tonal differences as well as stress.

Let me sketch the hypothetical system of prosodemes of Umbundu in the epoch of the early sources:

(7) Tone A: high long, marked in Magyar VV
Tone B: low long, " " " V (i)
Tone C: high short " " " VCC (ii)
Tone D: low short " " " V

It is not, however, impossible that type B(ii)—VCC—stood for high long vowels, together with type A—VV(C). Moreover, type B(i)—V—may also have marked high long syllables in several cases, as Magyar's transcription system was anything but consistent. But by all means acute accents must be considered as denoting long vowels in contrast to the unmarked short ones.

This pitch and duration system reminds us of the Serbo-Croatian prosodic structure: long rising, long falling, short rising and short falling.

To sum up, we can assume that accent was a concomitant prosodic feature, next to length and tone, in the middle of the 19th century. Tone was less
bound than in modern Umbundu—if it exists—but polytony and duration were intertwined.

3. **Prosody in Proto-Bantu and in the Other Bantu Languages**

3.1 **Quantity.** No mention is made in the works on Proto-Bantu concerning consonant length, though in some Bantu idioms a phonological opposition is extant between long and short ones. Westermann and Ward [1957:118-119] refer to Ganda and Chagga as instances of this, but surely there are more such languages. However, length of consonants is an infrequent prosodic feature and therefore I do not evaluate Magyar's double consonant letters as evidence for geminated phonemes, but rather as variants or indirect symbols, together with the preceding vowel, for a type of tone. However, if later investigations show that gemination is more frequent within the Bantu idioms, and that it also occurs in other Zone R languages, then Magyar's double consonantal letters will have to be evaluated as geminated phonemes. In that case, the surmized tone system of Umbundu sketched above will have to be modified, since then only three tonemes will be differentiated: \( V, \overline{V} \) and \( \overline{VV} \). However, it is likely that the double consonant letters of Magyar did denote geminates—whose length was a secondary feature, depending on the length of the preceding vowel. Le Guennec-Valente [1972:XVIII] affirm essentially the same thesis, concerning some roots being homonymous with variants having short penultimate syllables. The authors list only examples of the form \([NC]\)——ombambi 'gazelle' vs. 'cold'—while in Magyar's records we have \([CC]\) or \([NN]\), but not \([NC]\): houssi 'lion', enganna 'Mr., Sir', as examples of reduplication.

As for vowel length, this feature is not typical among the Bantu languages, and few display it as a phonemic opposition, e.g. Ganda (cf. [Westermann-Ward 1957:116-117]). Guthrie [1948] mentions two vowel quantities in several languages, but from his examples it is not always clear whether length is phonetic or phonemic in character. In Mfinu and Horohoro it seems to be distinctive, but in the other instances mentioned by Guthrie this is not probable. In his compendium, Guthrie [1967(1):45,61,68] surmises a vowel length distinction in Proto-Bantu, and in a topogram he puts Umbundu—and Zone R—among those idioms which preserve the original distinction.

Meeussen [1954] tried to reconstruct quantitative differences of vowels in Proto-Bantu, mainly on the basis of several Congo languages, but the author emphasized that no phonemic opposition was verifiable.

Möhlig [1967:55, 106-109] compared Meeussen's hypothetical stems with his Dciriku data and Herero words, but could not state any sure correspondences among them. Concerning Dciriku, the author included the quantitative differences of the vowels as a feature in the structure of the distinctive prosodemes—besides tonemes and stress—although no minimal pairs were shown.

Supported by the above theoretical hints and practical observations,
we can assume an uninterrupted preservation of the original quantitative differences of vowels in Umbundu, which has not always been phonemic in all dialects, but which was linked with tonal opposition in the epoch of Magyar's and Koelle's records.

3.2 Stress. The investigation of dynamic accent has been thrust upon us by recognition of the category "tone" in the Bantu languages. According to Westermann and Ward [1957:113-115], in African languages stress does not exist in the form peculiar to European idioms. But the important role of dynamic accent was evidenced in Dciriku [Mölig 1967:66-100], where several types of main and secondary stress occur, together with other distinctive components.

In view of the lack of preliminary studies, we cannot trace stress back to Proto-Bantu. It is likely, however, that accent always has had a more important role in Umbundu than generally recognized, but it is less probable that it was a phonemic distinction. In the middle of the 19th century, in the dialect of Benguela, stress was perhaps more prominent than in the idiom recorded by Magyar.

3.3 Tone. Since the discovery of the distinctive function of pitch, it has become the general opinion that Proto-Bantu possessed several tonemes, or a tonal opposition, though no evidence has been given for this hypothesis. Meinhof [1910:37], Meinhof and Warmelo [1932:39] speak about polytony as a general feature of the Bantu idioms, in which the types of tones are resistant to linguistic changes, although this prosodic category ceased to exist in Swahili and in many other languages.

Guthrie [1967(1):45, 61] considers it necessary to differentiate Common Bantu stems from the point of view of tones. He delineates the synchronic situation in a toponym [p. 69], where the languages of the Congo--Zones H, K and L--and in Angola--R--are classed among those having "partial reduction of tonal distinction". Carter [1973] in commenting on Guthrie's tonal typology, sets up more types of the modern Bantu idioms, where Umbundu, together with Herero (both divided into two geographic areas), is ranged among the "partly distinctive" languages. Greenberg [1948] presupposes two tonemes in Proto-Bantu, high and low, tracing back this distinction from the synchronic data of modern polytone idioms. Mölig [1967:101-109] collated the tonemes in Dciriku (spoken in the surroundings of the Okavango River) with Greenberg's categories, where some correspondences could be stated between each pattern, while the deviating forms still require an explanation.

4. Conclusions

The historical and comparative data, although scanty in number and uneven in value, lead to a picture of the prosodemes of mid-19th Century Umbundu similar to that which I inferred from Magyar's denotation, supported by the data of the other sources. And this hypothesis can be well fitted into the prosodic process, from Proto-Bantu having tonal distinction to
several contemporary Bantu idioms where this opposition has disappeared or waned.

There is no doubt, however, that the tonal situation of Umbundu in our time has not yet been satisfactorily revealed, and we can surmise that some dialects, directly or indirectly investigated by Guthrie as sources for his Classification of the Bantu Languages, have indeed preserved tonemes. Alves [1951:6], Le Guennec and Valente [1972:XVIII] also recognize that some kinds of tone—"ton de altura"—exist in isolated roots, but comment that in speech they "disappear", or follow each other "in such a subtle way that European ears hardly perceive them".

Thus we arrive at the conclusion that the history of several African languages like Umbundu, as well as comparative Bantu studies, can only be based on the philological elaboration of the extant written records. Structural hypotheses fitted together by the method of internal reconstruction can be the next step, but these may not take precedence over the evidence of the written records.

REFERENCES


ON THE INTRANSITIVE COPY PRONOUNS IN CHADIC

Zygmunt Frajzyngier
University of Colorado

1. Introduction

The purpose of this paper is an analysis of the rules that govern the derivation of ICPs in some Chadic languages. The specific goal of this paper is to explain the function of the ICPs in the verbal system of the Chadic languages and to show the relationship between this type of suffix and some other formatives with which it forms a system.

The term "intransitive copy pronouns" (proposed by Newman [1971]) designates pronouns suffixed to a verb, and having the same features for number, gender, and person as the subject of the sentence, e.g. in Kanakuru

(1) Basha à ga-to mana 'Basha entered the house' [Newman 1974:23]
    enter-ICP house

where -to, 3.p.f pronoun agrees with Basha, a feminine proper name.

Newman [1971:189] postulates a rule which states that in certain tenses, viz. perfective, relative perfective, subjunctive, and imperative, when the construction is intransitive, the ICP is obligatorily suffixed to the verb. This rule is retained in Newman [1974:23], and the class of intransitive sentences is specified as containing simple intransitives with motion verbs, and agentless sentences with objective as subject. Newman stresses that the notions "transitive" and "intransitive" apply to sentence types and not to classes of verb roots. The above rule for Kanakuru appears to add a redundant feature to sentences that are fully specified by some other means. Thus, the rule describes what happens in Kanakuru but does not explain why it happens.

---

1 Work on this paper has been partially supported by a grant from the Council on Research and Creative Work, University of Colorado, for the study on passives. I would like to thank David Rood and the participants in my seminar on passives for the comments they made on this paper. Special thanks are due to Russell Schuh, who read the previous version of this paper, provided important information on Bolanci and Ngizim and comments on the rest of the paper. Any errors and mistakes are my sole responsibility.
In Pero, a related language belonging to the same branch of Chadic, the ICPs occur as well. But the rule that has been postulated for Kanakuru is not valid for Pero; specifically, Pero verbs of motion do not require an ICP, e.g.

(2) mákúl-kò 'he has wandered about' < mákkúlò 'wander about'
    Perf.
    but not *mákúl-k-ee -nì
    Perf. ICP

(3) nè-cúg-ínà 'I have fallen down' < cúgà 'fall down'
    Perf. Vent.
    but not *nè-cúg-ín-ee-nò
    ICP

Sentences with motion verbs are not the only intransitive constructions in which the ICPs do not occur, e.g.

(4) nè-cín-kò 'I slept'
    Ip. Perf.

Thus, in Pero an intransitive construction does not automatically require an ICP suffix.

2. Analysis of the ICPs in Pero

2.1. ICP with intransitive verb. From the data collected, it appears that the ICPs occur only when the sentence consists of V and only one NP (locative, time, and instrumental NPs are not taken into consideration). All the examples in this section will serve to illustrate this point. The above observation is of course true for Kanakuru also. In Pero it constitutes the first condition for the occurrence of an ICP suffix.

2.2. No ICP with objective. If the verb has the inherent property of occurring in the syntactic frame \( [A,O] \), i.e. is inherently transitive, then, if it occurs with an objective only the second condition for the occurrence of an ICP is met, e.g.

(5) a. pèngúrò 'get something back, retrieve something'
    b. pìngèr-g-ée-nì
    Perf. ICP

(6) a. nè bèlò-kò jìrè vúrò-l 'I broke the branch off the tree'
    I break-Perf. branch tree-Def.
    b. jòk bèl-k-ée-tò 'the chair got broken'
    chair Perf. ICP (3f)

(7) a. tùkkò jàndè 'hide the yam'
    b. tuk-t-ée-ji hide-vent. ICP (2f)
However, not all sentences that are intransitive and contain an inherently transitive verb require an ICP. Consider the following examples, all of them containing a transitive verb:

(8) dúè ḍù-áahí 'the bird is caught' < ḍù 'catch' 
    bird stative
(9) mín-ì wúll-áñì 'the beer is brewed'
    beer-Def. brew-stative
    cf. tà-wúllò mín 'he will brew beer'

Note that in the above examples, the meaning of the verbs is stative. The following is therefore postulated as the third necessary condition for the suffixation of ICPs in Pero.

2.3. ICP with change of state. The ICP in Pero will occur only when the meaning of the sentence involves a change of state. It will not occur in stative sentences such as (8) and (9). The difference between sentences (10) and (11) is the one between stative and inchoative meaning.

(10) yé ḍígè ícc-áañì 'the pot is dry'
    inside pot stative
(11) yé-ḍígè íccé-k-éé-tò 'the pot dried'
    Perf.ICP (3f)
(12) ní-tà-íccò ḍígè 'I will dry the pot'
    [ndèékccò ḍígè]

2.4. ICP gives inchoative meaning. It appears that there is yet another function of the ICP suffixes in Pero, related to the one described in 2.3. If the verb is inherently stative, then by adding an ICP suffix, one obtains the meaning of entering the state, i.e. it has an inchoative meaning. An example of this distinction in English may be the pair 'to be seated' and 'sit down'. The following is an example from Pero:

(13) ní-dí-íñà tù gbandum 'I lived in Gwandum' (no ICP)
    Perf. Loc.
(14) ní-dí-fí jì tù gbandum 'I live in Gwandum' (no ICP)
    cont.
(15) ní-wàn -ñà ńřsa ní-nd-éé-ñù 'I came to Filiya and settled'
    come Perf. ñ conj. ICP

2.5. The stative suffix -áñì. Sentences (8)-(10) illustrate one of the functions of this suffix, which can be described as adding the stative meaning to the non-stative verbs. The meaning of this type of sentence is 'X is in the state Y', where Y consists of the semantic components of the verb. A few more examples of this type of sentence:

(16) yá ọwè núdd-áñì 'the gruel is stirred'.
There are a few other functions of this suffix in Pero, some of them related to its stative meaning, but they do not have a bearing on the system which is described in this paper.

2.6. "Causative" suffix -n. If the verb has an inherent property of occurring with objective NP only, then, if it has to occur in the syntactic frame [A,O], a morpheme -n "causative" is suffixed to the verb and the object of the verb may be introduced by the preposition ka, e.g.

(19) cékkú-tò-n dòè 'lose everything' < cékò 'to be lost'  
cf. kúrbè tà jígú-tù 'the money will be lost' (vent.)  
money fut.

(20) íllo-n kà né 'get me up' < íllo 'get up'  
with me  
pétò-kò-n bírà 'he took it out'  
cf. pétò kò bírà 'he went out'

etc. This suffix has some other functions in Pero but they do not pertain to the system under consideration.

2.7. Summary of the system in Pero. It appears that the crucial information for the operation of the ICP suffixes as well as the stative and the causative suffixes in Pero are the inherent semantic and syntactic properties of verbs. Among the syntactic properties, the only important information is whether the verb occurs with one argument or with two arguments, V (NP,NP). The only semantic information that is important is whether the verb is inherently stative or not. Thus, one can postulate the following types of verbs in Pero:

<table>
<thead>
<tr>
<th>Type</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stative</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>V (NP)</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>V (NP,NP)</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

Note that if a verb is [+stative] it will be [+V (NP)]. Some examples to illustrate various types of verbs.

Type I: cékò 'be lost'; dì 'be seated'; cíñà 'sleep'; cétò 'stand'; etc.

Type II: ámbò 'climb'; pétò 'go out'; wálu 'go, walk'; wállò 'wander about'; etc.

Type III: vúndò 'cook'; pilù 'sell'; cúbù 'show'; etc.
Use of any of the above verbs in the syntactic frame different from its inherent frame or in the semantic frame different for the feature stative from its inherent frame requires addition of a suffix. Thus, if the verb is of the type I, its use in the semantic frame of type II will require addition of an ICP. If the verb is of type II, its use in the syntactic frame of type III will require an addition of the suffix -n. The same rule operates when a verb of type I has to occur in the syntactic frame of type III. If the verb of type III has to occur in the frame of type I, the suffix -ani is added. It appears that Pero, unlike English, cannot have a situation in which a verb of type II occurs in the frame of type I. Thus, the pair 'to go' and 'gone' does not have an equivalent in Pero.

There are several verbs in Pero that appear to have the property of belonging to more than one type, and it appears that because of this, the speakers sometimes apply to them the rules outlined above and sometimes not. The following are a few examples of such verbs: íccò 'to dry' was said to belong to type III (cf. sentences (10)-(12)). However, there are sentences that indicate that this verb may be treated as belonging to type II, e.g.

(22) dígè íccò-kò  'the pot dried' (no ICP, no stative suffix)

Interestingly, along with two different syntactic classifications goes a semantic distinction. Sentences (10)-(12) indicate a pot which had had water in it, while (22) indicates a freshly made clay pot.

3. Analysis of Other Chadic Languages

The following analysis has a twofold purpose: it aims to find out whether the system proposed for Pero has equivalents in other Chadic languages, and second, to determine the functions of the ICPs in other languages. The data are from some twenty languages from the West, Biu-Mandara, and East Branches of Chadic, arranged according to the classification of Newman [1977]. My conclusions have to be treated as very tentative for several reasons. First, I did not have adequate data for the languages from the East Branch, and none for Masa, which Newman [1977] considers to be the fourth branch of Chadic. Second, sources for other languages, excellent otherwise, were sometimes not very helpful as far as the ICPs are concerned. Several writers admitted that they did not understand the meaning and function of the ICPs, or stated that the use of the ICPs is redundant.

3.1. West Branch, Subbranch A. Hausa: Hausa preserves only traces of the ICPs, used only with the verbs je 'go' and zo and ya 'come' (cf. Newman [1971:194]). Newman claims that "at a not too distant period in the past, Hausa intransitives in Aux 1 were regularly and systematically marked by a fully operative icp agreement system." I will return to this hypothesis la-

---

2 Sources for particular languages are mentioned in the text. I have followed the system of transcription as used in the sources cited. For Pero, I have been using my own field notes.
ter in this paper. For the time being, it is important to find out which verbal forms have taken over the function or functions that used to be indicated by the ICPs. The reason that one is seeking an answer to this question is not only the fact that there are some traces of the ICPs, but also the fact that Hausa has the other elements of the system described earlier in this paper. Thus, it has a causative suffix -as (grade V in Parsons' classification), which, among other functions, changes an inherently intransitive verb into a transitive. There are at least three forms available in Hausa to indicate stative: one of them is the verbal form ending in -u (Parsons' grade VII), e.g. tàarù 'collect, assemble', jèerù 'line up', ràbú 'part', etc. [Parsons 1960/61:25]. Another is the use of so-called participial forms of the type dàffìì 'cooked' as predicates and finally the use of deverbal stative nouns (Parsons' VANS) as in the following sentence:

(23)  sû nàa kaamé då  Bàràayìì 'they have the thieves under arrest'
     they Prog. arrest assoc. thieves

[Parsons 1961:121]

It seems that the prime candidate to complete the system is the verbal form ending in -a and having the tonal structure for the bisyllabic verb LH (Parsons' grade III). A perusal of the grade III forms in Parsons [1960/61] and Parsons [1971/72] did not turn up a verb in this grade that would have stative meaning.

Kanakuru: The main function of the ICPs in Kanakuru appears to be that of changing inherently transitive verbs into intransitive verbs. Compare the following examples:

(24)  nà por panda  'I took out the mat'
(25)  nà poro-no  'I went out'

But since the ICPs have to be added to all intransitive constructions, it appears that their usage has been expanded and they are not perceived as intransitivizing suffixes only. Thus, all the intransitive verbs of motion have this suffix, e.g.

(26)  à do-to  'she came'

When such a verb is used in a transitive construction, the ICP is retained, e.g.

(27)  à do-to-nu  'she brought it'

Stative in Kanakuru is formed by suffixation to the verb stem of the nominalizing suffix -ma and a pronoun which differs from the ICP, e.g.

(28)  wo-nàa til-mo-nò u  'I am not burnt'
(29)  shìjì jaŋ-ŋa-jì  'you (f) are cured'
Newman [1974:34] provides several arguments for not equating ICPs with the pronoun set occurring in stative constructions. Although I am not going to deal with this problem in this paper, it should be noted that the phenomenon of suffixing the pronouns to the adjectives is frequent. It occurs in at least two branches of Chadic, having been noted in Ngizim, Margi, and Kapsiki, to mention just a few languages.

Bolanci: In Bolanci a structure of the form verb + jii + possessive (body) pronoun changes a transitive verb into an intransitive, e.g.

(30) bol-áá-jíi-ní 'it will break'

Lukas [1971:12] has noted that the same type of construction is used with intransitive verbs, and he considers the ICPs in this usage to be redundant, e.g.

(31) pet-é-jíi-tò 'she went out'\(^3\)

Bolanci has another construction in which an inherently transitive verb occurs with only one NP, e.g.

(32) 'ŋ-gówú-wo 'I was hit'
(33) 'ŋ-gowá 'I will be hit'
(34) 'ŋ-gówú-woo-yíi 'I have hit it'

Lukas [1970-72:132] states that the lack of morpheme yíi with transitive verbs is a marker of passive. We will come across similar constructions in other languages later on.

The stative in Bolanci is formed by suffixing possessive pronouns to the verbal noun, e.g.

(35) motá-ní 'he is dead'
    bolá-ní 'it is broken'
    miy’ya ganda-su 'the people are lying down'

Bolanci has also a transitizer -t-, used with inherently intransitive verbs, which apparently is restricted to only a few verbs (Russell Schuh, personal communication).

Unfortunately, I was not able to determine from Lukas [1970-72] and Lukas [1971] the difference between the so-called passives of the structure NP Vtr and the intransitive constructions of the type NP Vtr + jii + ICP. Since

\(^3\)Russell Schuh [personal communication] indicated that the gloss here should be 'she will go out'.
Bolanci has a construction specifically indicating stative, it would seem that the difference between NP Vtr and NP Vtr + jii + ICP cannot be the one between non-stative and stative. However, there is still another possibility. If the stative construction in Bolanci is limited to the present tense only (or, which is more likely, if it is tenseless), then the difference between the so-called passive and the stative construction will be only one of tense, i.e. the passive construction would replace the stative in all tenses but the present. The difference between the "passive" and the construction with the ICP might be the one between stative and non-stative. Although the data in Lukas [1970-72] do not contradict this hypothesis, nevertheless, it should be checked on a larger body of data.

**Ron languages:** In Fyer, the object suffixes are often attached to intransitive verbs, and Jungraithmayr [1970:50] describes their function as "reflexive medial", which implies, in my understanding, an inchoative meaning.

Bokkos has remnants of an intransitive marker -at, e.g. bukàt 'trip', hatat 'turn (intr)', sunat 'dream'. That the suffix -at is not productive is indicated by the fact that verbs which have this suffix do not have counterparts without it. In monosyllabic verbs, ICPs have a [-stative] meaning. Compare the following examples [Jungraithmayr 1970:118]:

(36) tì -i fòt -a yá
Tns. lp. lose 2p. completely
'I have lost you'

(37) tì-i fòt-un
lp.sg.
'I hid myself'

(38) tì-i fòt
'I am lost' (stative)

Note that in Bokkos, as in Bolanci, the lack of any overt object marker with transitive verbs is an indicator of an intransitive construction. In the case of Bokkos, this construction has a stative meaning, judging from the examples given by Jungraithmayr [1970].

3.2. West Chadic, Subbranch B. Ngizim: Schuh [1972:28] considers ICPs as the allomorphs of the totality extension which are suffixed to intransitive verbs, so it would appear that the only thing that the ICPs in Ngizim have in common with the ICPs in languages described so far is the fact that they occur in intransitive constructions. But their function appears to be different. However, Ngizim does have other elements of the system. Thus, if verbs that are inherently intransitive (Schuh calls them "basic intransitives") are used in a transitive construction, a transitivizing suffix -nàa or -dù is added.

Stative predicates can be derived from verbs by adding a prefix dá to the verbal noun, e.g.

(39) akàraucin da-jiba
'the thieves are caught'
Schuh [1972:80] states that statives derived from intransitive verbs may take the totality extension, i.e. ICP, e.g.

(40)  
\[ \begin{array}{ll}
\text{ii dar’yi-gaa} & \text{I} \\
& \text{ICP}
\end{array} \]
'I am standing'

The usage of ICPs with such verbs as 'to stand', 'to sit', and 'to lie down' is a convincing indicator that the function of the ICPs here was not that of totality, but rather inchoative, similar to the function of ICPs in several other languages. That this function is not primary anymore is indicated by the fact that ICPs are preserved in the stative construction.

Finally, verbs that are inherently transitive may either be used in intransitive constructions without any markers of intransitivity or the ICP may be added to them as to any other intransitive verb.

3.3. Biu-Mandara Branch, Subbranch A. Tera: The stative marker in Tera is -an, similar to the stative in Pero. That this is not an accidental similarity is shown by the fact that the same form that indicates stative in both languages indicates $\varnothing$ anaphora as well, e.g.

(41)  
\[ \begin{array}{ll}
mban xε$-an & \text{'the belly is swollen'} \, \text{(stative)}
\end{array} \]

(42)  
\[ \begin{array}{ll}
tem $ýośt-an & \text{'we are dyeing (them)'} \, \text{($\varnothing$ anaphora)}
\end{array} \]

There is an OV construction in Tera, similar to Bokkos, e.g.

(43) a. woy-a wà ruba  
\[ \begin{array}{ll}
\text{boy} & \text{injure}
\end{array} \]
\[ \begin{array}{ll}
\text{'the boy was injured'}
\end{array} \]

b. $\varnothing$u-a ká zurε  
\[ \begin{array}{ll}
\text{in}
\end{array} \]
\[ \begin{array}{ll}
\text{the meat will be fried'}
\end{array} \]

Intransitive verbs in Tera may take an ICP, e.g.

(44)  
\[ \begin{array}{ll}
koro-a wà xa varan xa & \text{'the donkey sat himself down'}
\end{array} \]
\[ \begin{array}{ll}
\text{donkey-the prf sat himself down}
\end{array} \]

Newman [1970:49] says, "I am unclear about the semantic difference between [this] sentence and [(45)]."

(45)  
\[ \begin{array}{ll}
koro-a wà xa ya & \text{'the donkey sat down'}
\end{array} \]

As a possible explanation, one could perhaps postulate that the verb xa 'to sit' is inherently stative, and therefore the inchoative is realized by an ICP suffix. Thus, the only function of the ICP in Tera would be that of changing a stative verb into a non-stative. There is, however, an obstacle for the proposed analysis of Tera: Newman [1970:61] gives the sentence

(46)  
\[ \begin{array}{ll}
Ali xar-an ya & \text{'Ali is seated'} \, \text{(stative)}
\end{array} \]

which would at the first sight contradict the hypothesis that the verb xa
is inherently stative. In order to resolve the problem, I would like to know if there are sentences similar to (46) in other tenses, e.g. in the past or future. If there are not, then (46) does not contradict the hypothesis. The system of grammatical relations in Tera would include the ICP to indicate inchoative and passive to indicate intransitive and stative. Stative and passive would supplement each other in the system of tenses, in which stative is not marked for any tense.

**Margi:** The ICPs in Margi are suffixed to the intransitive verb followed by a possessive linker. Hoffmann [1963:209] states that they are frequently suffixed to the verbs of motion. The fact that they are suffixed to the verbs meaning 'lie' and 'sit' indicates that they might have had an inchoative meaning. Compare the following example quoted by Hoffmann [1963:209]:

(47) dé ísháɗy gà ɗà írá mádiàmá gándà gà pìda gándà

'and the squirrel went in under his shelter and lay down'

(ICPs are underlined)

The causative suffix -ani has, as in most other Chadic languages, two functions: one Hoffmann describes as "cause person or thing to do (the action of the verb)" and the other is clearly transitivizing, e.g.

(48) hyà 'to rise, to stand up' hyànì 'to raise, to wake up (tr)'

mdžù 'to spoil (intr)' mdžànì 'to spoil (tr)'

The participle, formed through reduplication, may be used as a predicate. From the examples provided by Hoffmann [1963:165], it appears that if a verb is inherently [-stative], the participle will be [+stative], e.g.

(49) ηwìvù 'to become thin, lean' ηwìwìvù 'emaciated, lean, meagre'

'ùl 'to dry (intr)' 'ùl'ùl 'dried, dry'

ŋgyũ 'to burn (intr)' ŋgyìŋgũ 'burnt'

A transitive verb may occur with only one HP, without any marker of intransitivity.

4. **Summary**

4.1. **The functions of the ICP.** There appear to be differences between the functions of the ICPs in the West and Biu-Mandara branches. In the West branch, ICPs have both intransitivizing and inchoative functions. They can be added to inherently transitive verbs, changing them into intransitive and probably inchoative, and they can be added to intransitive stative verbs, changing them into inchoative. In the Biu-Mandara branch, they can be added to intransitive verbs only, changing them into inchoative in those languages in which the system is productive.

The claim that intransitives in Hausa were at one time marked by a fully
operative ICP agreement system cannot be defended in the light of the data from Pero and other languages. If Hausa had a system of ICP agreement, its function might have been either to indicate inchoative or intransitive or both, but it was not a system to mark redundantly every intransitive construction. The situation in Kanakuru seems to be unique among Chadic languages in that the ICPs are obligatorily added to every intransitive sentence.

There seems to be yet another function of ICPs in Chadic. In a number of languages from both the West and the Biu-Mandara branches, a set of pronouns is added to predicatively used adjectives. This set of pronouns differs from the ICP set if a language has one. I am not able now to say whether there is any relationship between these two phenomena.

4.2. Grammatical/semantic functions marked in proto-Chadic. It appears that proto-Chadic had a system to indicate the following grammatical and/or semantic functions in a sentence:

   a. transitivity      b. stative
   c. intransitive      d. inchoative

These elements are realized by various means in different languages, but regardless of the means, one can still detect the existence of the system. ICPs realized the inchoative and the intransitive functions; stative was realized by several means including a morpheme of the form -an(V). Inherently intransitive verbs could be made transitive with a "causative" morpheme which can be found in most of the present languages.

REFERENCES


IMPLICATIONS FOR UNIVERSAL GRAMMAR  
OF OBJECT-CREATING RULES IN LUYIA AND MASHI* 

Judith Olmsted Gary  
University of California at Los Angeles

1. Background and Purpose

The purpose of this paper is to examine on the basis of comparative data from several Bantu languages hypotheses made in prior papers by Gary [1975] and Gary and Keenan [1976, 1977] concerning the Relational Hierarchy (RH) in universal grammar:

RH: Subject (Su) > Direct Object (DO) > Indirect Object (IO) > Oblique Object (OO)

Gary and Keenan have outlined two contrasting views concerning the relation between the Relational Hierarchy and grammars of particular languages: the Comparative View proposed by Gary and Keenan, and the Generative View as attributed to Perlmutter and Postal [1974]. In the Generative View, the Relational Hierarchy categories refer to grammatical relations NPs bear to their verbs and are considered among the primitives of generative grammars. Su, DO, and IO NPs are said to bear 'grammatical relations' to their verbs and are called terms. Relations such as Instrument and Locative which Oblique NPs bear to their verbs are not considered to be grammatical relations; these NPs are called nonterms. Transformations generating complex structures from simpler ones make specific reference to these relations; it is claimed that syntactic generalizations are more adequately captured by transformations specifically referring to these categories than by rules based on relations of dominance and linear order (see Chung [1976], Keenan [1976], Johnson [1974a,b]). Assumptions underlying the Generative View of the Relational Hierarchy which appear to distinguish it from the Comparative View of the

*I would like to thank Lee Trithart for reading this paper for me at the 8th Conference on African Linguistics at UCLA, April 1977, while I was in Egypt. I would also like to extend my thanks to Sally Kosgei (my Luyia consultant), Chizungu Rudahindwa (my Mashi consultant), and Alexandre Kimenyi (my Kinyarwanda consultant), for their patience, diligence, and useful insights. I am grateful to Ed Keenan for his suggestions concerning this analysis and for his ever-present enthusiasm and encouragement, and to the UCLA Linguistics Department for helping to support this research.
Relational Hierarchy are (1) that no more than one NP in any given sentence can bear a particular grammatical relation to a given verb, and (2) that in each language the grammar distinguishes all three grammatical relations: Su, DO, IO. Detailed analyses of Kinyarwanda [Gary and Keenan 1976, 1977], [Kimenyi 1976] have indicated that the Generative View is in fact incorrect, at least for Kinyarwanda. It was concluded that revisions could be made in the Generative View to make it compatible with the Kinyarwanda data and yet still permit the kind of strong predictions the Generative View makes about the nature of human language. In particular the Comparative View reinterpreted the Relational Hierarchy in its Metalinguistic Assumption as merely specifying an ordered set of possible grammatical distinctions which languages may make but need not, and in its Nonuniqueness Assumption as being able to manifest more than one NP per simple sentence in a given slot on the RH. It was noted that this revision of the Perlmutter and Postal analysis preserved at least three apparently otherwise well-motivated constraints on the form of natural language. These include:

1. **The Cyclicity Law** (CL): Operations which create or destroy termhood are cyclical.
2. **The Relational Annihilation Law** (RAL): An NP whose grammatical relations have been taken over by another ceases to bear any grammatical relations to its verb. It is demoted to non-term status and is referred to as a chômeur. It no longer can exhibit coding and behavioral properties normally restricted to terms.
3. **The Advancee Tenure Law** (ATL): A term derived by an advancement rule (e.g. Passive) can not be demoted by another advancement rule on the same cycle.

The Kinyarwanda data suggested that a weaker formulation of the RAL was necessary to prevent it from being merely a vacuous statement with no predictive power—given the Comparative View of the Relational Hierarchy. A weaker version of the RAL [Gary and Keenan 1977, slightly reworded] was proposed:

WRAL: If in a given language L, application of a promotion-to-X rule (where X = a term) causes the valence of X in L to be exceeded, then one of the X's is demoted to nonterm status.

Valence is defined as the maximum number of NPs which can simultaneously bear the relation X to a given verb in a relationally primitive sentence, i.e. one to which no termhood-changing rules have applied. E.g. if a language maximally allows two DOs in a relationally primitive sentence, then the WRAL predicts that if a third NP is promoted to DO, one of the former DOs will be demoted to nonterm status.

In Kinyarwanda it can be shown that, contrary to Gary and Keenan's original assumption of a maximum of two primitive DOs in relationally primitive sentences, Kinyarwanda can have as many as three NPs primitively bearing the DO-relationship to the verb, as in (1). Kimenyi [1976:119] has shown that when an advancement-to-DO rule adds a third DO to two under-
lying DOs, as in (2), there is no demotion. The existence of such sentences supports the validity of the WRAL for Kinyarwanda. We have previously argued that in Kinyarwanda the Recipient (R) and the Benefactive (B) NP bear a DO grammatical relation to the verb as well as the Patient NP. E.g. the R/B cannot normally be marked by a preposition (prep), and it exhibits all the syntactic characteristics normally restricted to Kinyarwanda DOs. The Instrument intoki 'hands' bearing a DO relation to the verb in (2) is assumed to be derived by an Instrument advancement-to-DO rule from the 00 phrase na intoki 'with hands' in a sentence where the verb is yasabye (A = Aspect, Inst = Instrument):

(1) ya-sab-i-ye umugore umwaana ibiryo
   he-ask-B-A woman child food
   'He asked the woman for food for the child.'

(2) umwaana ya-sab-lish-ije umugore ibiryo intoki
    child he-ask-Inst-A woman food hands
    'He asked...with his hands.'

In this paper two other Bantu languages, Mashi and the Maragoli dialect of Luyia, were analyzed to determine whether or not the RAL was violated as in Kinyarwanda--and if so, whether its weaker counterpart, the WRAL, together with the Gary and Keenan-proposed reinterpretation of the RH, could be considered as tenable hypotheses. If the WRAL were to be disconfirmed by such comparative data, it would imply there is perhaps no universal way to predict demotion possibilities, a basic universal claim of Relational Grammar which is inextricably related to a number of other generalizations concerning the role of the RH in universal grammar--as previously demonstrated by Gary and Keenan [1977]--including the above ATL and CL.

2. DO Properties Compared with OO Properties

The following examples of coding and behavioral properties distinguish DOs from OOs in Mashi and Luyia. In both languages there is Optional Verb Agreement (OVA) with DOs; OOs cannot have OVA, seen in (3) and (4). DO is post-verbal and is not prep-case marked. Although R/B Objects can precede the DO, the reverse order is the norm. In Object-Pronoun-Incorporation (OPI) DOs are pronominalized by an infix which precedes the verb root, agreeing in noun class with its controller. In (5) and (6) we see that OOs do not undergo OPI. In Mashi/Luyia, DOs Reflexivize (Reflex), as in (7), but OOs do not, seen in (6). In DO Passivization (Pass) the former DO assumes the Su preverbal position and triggers Su agreement, the verb assuming a Pass nonfinal suffix -w-. The old Su is demoted--and preferably deleted. OOs do not normally Pass, as seen in (9)-(10).

(3) M: * a-bu ganir-a abana endibi na obusime (OVA)
    she-it -told -A children stories with happiness
    (happiness)
(4) L: * ya-i -handik-ir-a John ibalwa na ikalamu
     she-ît -wrote -B -A John letter with pen
     (pen)

(5) M: * a-bu -ganir-a abana endibi na
     she-ît -told -A children stories with
     (happiness)

(6) L: * ya-i -handik-ir-a John ibalwa ni
     she-ît -wrote -R -A John letter with
     (pen)

(7) M: omulume a-chi -bon-a
     man he-self-saw-A
     (7) L: John ya-ji -lol-a
     he-self-saw-A
     (Reflex)

(8) M: * a-chi -hir-a ebiry o muli
     he-self-put-A food in
     (OPI)
     L: *ya-ji -t -a chukuria mu
     he-self-put-A food in
     (Reflex)

(9) M: * akalamu ku-yandik-w -a amaruba na
     pen it-wrote-Pass(P) -A letter with
     (Pass)

(10) L: * ikalamu ya-handik-w-a na
     pen it-wrote -P-A with

DOs Relativize (Rel) by a copying and deleting process. Tone changes
occur on the verb in the sentence relativized into and/or a Rel pronoun
is required, as in (11) and (12). OOs cannot Rel in the manner of DOs; in
fact they usually cannot Rel at all, as in (13) and (14), not even by the
strategy of leaving a resumptive pronoun in place of the copied NP (which
I henceforth refer to as the "Resumptive Pronoun Strategy" or RPS):

(11) M: na-bona amaruba omukazi á -rhûm-îr-âgà omulume
     I -saw letter woman she-sent-R -A man
     (Rel)

(12) L: nda-ola ibalwa ya John ya-tûm -îr-â Mary
     I -saw letter that John he-sent-R -A Mary
     (Rel)

(13) M: * na-yumv -a ohurhe omulume a-der -aga na
     I -heard-A anger man he-talked-A with
     (Rel)

(14) L: * nda-ola ikalamu ya John ya-handik-a ibalwa na
     I -saw pen that John he-wrote -A letter with
     (Rel)

In Mashi and Luyia Clefting (Cleft) and Pseudo-Clefting (P-Cleft) reflect
the general strategies reflected for DO Rel. Mashi and Luyia OOs cannot
Cleft and P-Cleft in the manner of DOs. DOs—but not OOs—can also undergo
Left-Topicalization (Topic). For a detailed description and relevant ex­
amples of two Cleft rules, P-Cleft, and Tipic in Mashi and Luyia, see Gary
[1977b].

3. The Categories Indirect Object and Benefactive

In Mashi those surface NPs one would expect to be IOs or Bs present
properties characteristic of DOs as described above and are not normally capable of being prep-marked. The paradigm case of IOs, in those languages which distinguish IO, we assume to be exemplified by the Recipient (R) NP in active sentences with main verbs like show or tell. The term R is used to designate the semantic relation such NPs bear to the verb; the term Benefactive (B) is used to designate the semantic relation for-NPs bear to the verb. The presence of an -ir- on the verb when Bs are present in Mashi can be argued to be a kind of underlying semantic case-marking rule, as was also argued for Kinyarwanda by Gary and Keenan. Arguments against the Mashi R/B DO-like objects being derived from an IO include: (1) Both Rs and Bs cannot normally be marked by a prep. Therefore, the major motivation for such a rule does not exist; there are not two sentences to relate by such a rule. (2) The -ir- affix is present regardless of the grammatical role of the R/B, as when it becomes Su by Pass. (3) Such a semantic case-marking rule can be shown to be a natural rule of grammar, present in many languages; e.g. see Gary and Keenan [1977]. (4) The order of the DOs and R/Bs seems freely interchangeable, with ambiguities arising as to the role of the NPs (R/B or DO) if both have similar semantic features (e.g. [± human]). (5) Mashi R/Bs always exhibit DO syntactic characteristics.

In Luyia, with the exception of a limited class of dative verbs which allow two objects with no prep markers, R/Bs are case-marked by the prep ku and normally follow DOs, though both orders are possible. When IO is promoted to DO, the verb assumes an -ir- affix, the prep is deleted, and the IO optionally moves to immediate post-verbal position, as in (15):

(15) John ya-tum -ir-a Mary ibalwa (ibalwa Mary)
    John he+past-send-R -A Mary letter

No demotion of the old DO occurs. Only after promotion to DO can the former IO participate in OPI, Reflex, OVA, Pass, and Topic. In contrast to OO, however, IOs will Rel, Cleft, and P-Cleft in the manner of DOs (by an NP copying and deletion process) before promotion-to-DO, stranding their prepositions (The RPS is not possible here).

4. Relationally Primitive Sentences in Mashi and Luyia

From the data examined it appears that the maximum number of DO-like objects allowed in Luyia in relationally primitive sentences is two, as in (16). At least three are possible in Mashi, as illustrated in (17).

(16) L: mukana ya-ha vana amavuyu
    girl she-gave children eggs
    'The girl gave eggs to the children.'

(17) M: a-yerek -er -a John omwana ensanamu
    he-showed-R/B-A John child picture
    'He showed the picture to the child for John.'

None of the objects in (16) and (17) can be marked with a preposition.
5. **Object-Creating Rules**

As well as the IO-to-DO rule discussed above for Luyia, Instrument OOs (18), two types of **Manner** (Man) OOs [+ abstract] (19-20), and Accompaniment (Acp) [+ culinary] and [+ human] OOs (21-22) can all be advanced to DO by prep deletion, optional movement to post-verbal position, and verb assumption of an -ir- affix. In neither Mashi nor Luyia can the Locative NP be normally promoted to DO (see 23-24), though it can advance to Su. There are two Possessor-Promotion-to DO (Poss) rules in Luyia: Inalienable, as in (25), and Alienable, as in (26). In Luyia Causativization (Caus), both the embedded 'Su and 'DO assume basic DO characteristics, the verb assuming an -iz- affix, as in (27). None of these rules cause demotions.

(18) L: ya-handik-ir -a ikalamu ibalwa
he-wrote -Inst-A pen letter

(19) L: ya-z -ir -a virenge
he-went-Man-A foot

(20) L: y-imb -ir -a vuyanzi zinyimbo
she-sang-Man-A joy songs

(21) L: ya-l -ir -a buchima inyama
she-ate-Acp-A porridge meat

(22) L: mukami ya-malom -er -a mundu
woman she-talked-Acp-A someone

(23) L: *ya-lola-mo lilitisha mwana
he-saw -Loc window child

(24) M: * a-yirha -mo omuzirhu ecihumbu
he-killed-Loc forest hyena

(25) L: ya-vunaka mwana mukono/mukono mwana
he-broke child arm /arm child

(26) L: ya-gur -ir -a Sally mudoka/mudoka Sally
he-bought-Poss-A Sally car /car Sally

(27) L: ya-lih-iz -ir-a mukali vana engoko (va-lya engoko ku mukali = he-eat-Caus-B -A woman children chicken 'They ate chicken...')

In Mashi, Instrument OOs cannot be promoted to DO, as seen in (28a), though they can be promoted directly to Su, as in (28b), Mashi [+cultural] Acp and [+abstract] Manner OOs can be advanced to DO, utilizing the same strategies as Luyia. As noted in (24), Mashi Loc OOs cannot normally be advanced to DO. (24) illustrates a transitive verb; in (29) we see that the Loc bearing an Oo relation to an intransitive verb also can not be advanced to DO, though Loc OOs can advance directly to Su as in (30). However, there is a small subclass of Mashi Locs which can be promoted to DO. These Locs must be both [+ definite] and [+ proper name], as seen when contrasting (31a,b) with (29). (31b) shows they do not have to be [+animate]. As in
Luyia, there are two Poss-Promotion-to-DO rules which utilize strategies similar to Luyia's. However, Rule 1, applying to inalienable possessors also applies to unauthorized possessors in sentences with verbs such as steal. In both languages, as in Kinyarwanda, alienable possessors of Loc OOs can ascend to DO, as in deriving (32b) from (32a)—in violation of the Relational Succession Law (RSL) [Perlmutter and Postal 1974]: "An NP promoted by an ascension rule assumes the Grammatical Relation of the host out of which it ascends." Finally, Mashi Caus promotes both the embedded 'Su and 'Do to matrix sentence DO status, as in Luyia Causativization. The verb assumes an -(i,e)s- affix. None of these rules result in demotion.

(28) a. M: *a-yandik-a akalamu amaruba
   he-wrote -Loc pen letter
   'with pen'

   b. M: akalamu ka-yandik-w -a-mo amaruba
   pen it-wrote -Pass-A-Inst letter
   (by John)

(29) M: *a-tamala-ko chirhi
   he-sat -Loc chair
   (00 = oku chirhi
   'on the chair')

(30) M: omuzirhu gwa-yirh -w -a-mo ecihumbu
    it-killed-Pass-A-Loc hyena
    (na John)
    forest
    (00 = omu omuzirhu
    'in the forest')

(31) a. M: a-tamala-ko John
    she-sat -Loc John
    (00 = kuli John 'on John')

   b. M: a-yirha -mo UCLA omulume
    he-killed-Loc UCLA man
    (00 = muni UCLA 'at/in UCLA')

(32) a. M: omukazi a-tamala oku chirhi cha Rudy
    woman she-sat on chair of Rudy
    'The woman sat on Rudy's chair.'

   b. M: omukazi a-tamal-ir -a Rudy oku chirhu
    woman she-sat -Poss-A Rudy on chair
    'The woman sat on Rudy's chair.'

6. Three DO Sentences Formed by Object-Creating Rules

We said when two DO sentences are created in Mashi and Luyia by promotion-to-DO rules, there are no demotions. We will show in the following discussion and illustrative examples that even when three DO sentences are derived by promotion-to-object rules, no demotion occurs. In both languages, the RAL is obviously violated. Furthermore, the Luyia examples indicate violation of the WRAL. As we noted above, Luyia appears to maximally allow only two NPs to bear the DO relation to the verb in relationally primitive sentences. The WRAL would predict a demotion of a former DO when a third DO was created by a promotion-to-object rule. Our examples below are confined to OVA, OPI, and Pass of each of the three DOs in a three DO Mashi and Luyia sentence created by promotion-to-object rules—partly for reasons of economy and partly because these tests provide strong empirical support
for the DO-like nature of all three NPs. I.e., we have shown above that these tests, along with Reflex and Topic, appear to exclusively discriminate DOs from IOs, as well as from OOs (in those languages which distinguish IOs). See Gary [1977a,b] for further examples.

(33) is a three DO sentence in Mashi derived from advancement of Man-to-DO. None of the objects are case marked by a prep, and they can freely exchange positions. OVA is possible with any of the three NPs, as in (34a, b,c). All can undergo OPI, as in (35a,b,c), and Pass, as in (36a,b,c), as DOs. All will also Rel, Cleft, P-Cleft, and Topic in the manner of DOs.

(33) M: a-ganir-ir -a obusime abana endibi  
   she-told -Man-A happiness children stories  
   (00 = na obusime 'with happiness')

(34) a. M: a-bu-ganir-ir -a obusime abana endibi  
   she-it-told -Man-A happiness children stories (OVA)

b. M: a-ba -ganir-ir -a abana endibi obusime  
   she-them-told -Man-A children stories happiness (OVA)

c. M: a-zi -ganir-ir -a obusime abana endibi  
   she-them-told -Man-A happiness children stories (OVA)

(35) a. M: a-ba -ganir-ir -a obusime endibi  
   she-them-told -Man-A happiness stories (ba = 'children')

b. M: a-bu-ganir-ir -a abana endibi  
   she-it-told -Man-A children stories (bu = 'happiness')

c. M: a-zi -ganir-ir -a abana obusime  
   she-them-told -Man-A children happiness (zi = 'stories')

(36) a. M: obusime bwa-ganir-ir -w -a-mo abana endibi (Pass)  
   happiness it -told -Man-Pass-A-Man children stories

b. M: abana ba-ganir-ir -w -a obusime endibi (Pass)  
   children they-told -Man-Pass-A happiness stories

c. M: endibi za-ganir-ir -w -a abana obusime (Pass)  
   stories they-told -Man-Pass-A children happiness

(37) is a three DO sentence in Luyia derived by advancement of R and Inst to DO, as indicated by prep deletion, the -ir- verb affix, and the fact that all three NPs exhibit DO-like characteristics. All can freely exchange position. Each can participate in OVA, as in (38a,b,c), in OPI, as in (39a,b,c), and Pass in the manner of DOs, as in (40a,b,c). Each can also Rel, Cleft, P-Cleft, and Topic in the manner of DOs, as described in 2.

(37) L: ya-handik-ir -a ikalamu Mary ibalwa  
   he-wrote -I/R-A pen Mary letter  
   (00 = ku Mary ni ikalamu 'to Mary with a pen')
Note that I/R in the above examples signifies the advancement of both an Inst and an R 00. I.e. one -ir- affix can mark two advancements. There are also examples in Luyia of the verb assuming two -ir- affixes (see Gary [1977b]).

7. Conclusion

The facts cited above support the assumptions of the Gary and Keenan Comparative View of the RH [1977]. Our Nonuniqueness Assumption that a language may have more than one NP bear the same grammatical relation to a given verb is supported by examples from both Mashi and Luyia. I.e. we have shown that more than one NP can simultaneously bear the DO relation to its verb in a given Mashi and Luyia sentence. Our Metalinguistic Assumption that the RH stipulates a possible rather than an obligatory set of grammatical relations from which a language may choose is supported by the arguments for collapsing the Mashi DO and IO categories into DO.

We have also clearly demonstrated that the RAL is violated in both Mashi and Luyia, as it was in Kinyarwanda. Further evidence of the inadequacy of the RAL--and thus of the Generative View of the RH--is data from other Bantu languages, e.g. Chichewa [Trithart 1975, 1976] and Haya [Duranti, personal communication].

While the WRAL is supported by the Mashi data, it has been shown to be inadequate with respect to Luyia. A major implication of this finding with respect to the RH in universal grammar is that there may be no general way to predict demotions. Perhaps they will have to be stated on a language-
particular and on a rule-particular basis. E.g. while it appears that Subject-formation rules such as Pass obligatorily demote former Subjects across languages, the possibility of Object-creating rules demoting former DOs appears to vary both across and within languages. Object-formation rules appear to always result in demotion of former DOs in some languages (e.g. see Chung [1976]); in other languages such as Kinyarwanda, only a few Object-creating rules result in demotion; in others such as Mashi and Luyia, no Object-creating rules looked at seem to result in demotion of former DOs.

However, in spite of the variation noted within and across languages with respect to the demotion-creating possibilities of promotion-to-DO rules, demotion does seem to be a fairly general condition on termhood changing rules—one that we would not want to abandon lightly, particularly given the fact that it is inextricably linked with a number of otherwise apparently well-motivated generalizations about the form of natural human language, as previously noted. If the WRAL is inadequate, as this research suggests, then perhaps with further research we will be able to formulate a more satisfactory alternative to the RAL than the WRAL. This research suggests that in general—not just with respect to the RAL and the WRAL—'Laws' of universal grammar, i.e. constraints referencing the RH categories, need to be more sensitive to subclasses within the RH categories than they have been to date (see Gary [1977 a,b] for further substantiation of this claim). For example, they must be more sensitive to both the inherent semantic features and the semantic relations to the verb of NPs within a particular RH category.

REFERENCES


1. **Introduction**

The common grammatical feature of Niger-Congo and, one may add, Niger-Kordofanian, which is most obvious and has attracted the most attention, is the noun class system. The specific phonetic and semantic agreement in regard to the individual classes is so widespread that there is now general acceptance of the notion that this system existed in both Proto-Niger-Congo and Proto-Niger-Kordofanian, and that its basic outlines can be reconstructed. Languages without noun class systems are presumed to have once possessed it and indeed, in many instances, plausible survivals of formerly functioning markers can be found. While, however, the basic phonetic shape and meanings can to a large extent be reconstructed, the same elements are found in prefixed form in some languages, in suffixed form in others and in a few instances both prefixed and suffixed. As far as prefixing and suffixing is concerned, the distribution agrees broadly with major subgroupings. The West-Atlantic, Kwa and Benue-Congo branches are prefixing. The Voltaic languages and the Adamawa subgroup of Adamawa-Eastern are suffixing. The Eastern languages of Adamawa-Eastern require further investigation in regard to this question. The Mba group has class suffixes, while many of the other languages exhibit apparent survivals of a prefixing system. The Mande branch of Niger-Congo, the most divergent genetically, has no sure indications of a noun class system. The distantly related Kordofanian branch is clearly prefixing. Finally, almost every branch of Niger-Congo, except of course Mande, has some languages which are simultaneously prefixing and suffixing. That is, the nouns have double affixes. How is this diversity to be explained and what was the situation in Proto-Niger-Congo and Proto-Niger-Kordofanian? A recent suggestion is that the small number of languages which have both prefixes and suffixes are the ones that maintain the original Proto-Niger-Congo situation, while elsewhere languages lost either their prefixes or their suffixes. [Welmers

---

However, a detailed examination of languages with both prefixes and suffixes suggests a different hypothesis.

2. "Simultaneous" Prefixes and Suffixes: their origin

Our initial example will be the Gurma subgroup of Voltaic. These languages, and in particular Gurma proper, are often cited in the literature as typical instances of Niger-Congo languages with simultaneous prefixes and suffixes. The grammar of Chantoux, Gontier and Prost [1968] shows, however, that the status of the prefixes and suffixes is not the same. Whereas the suffix is always present, the prefix need not be. The prefix is, in fact, quite similar in its uses to the definite article of European languages. Thus, niti-ba is 'men', and ba niti-ba 'the men'. The authors of our grammar indeed write the suffix as part of the word, and the prefix as a separate word, and call the prefix a preposed article.

Gurma is but one language of the Gurma subgroup of Voltaic languages. In reference to the typological criterion of prefixing and suffixing noun class markers, the languages of this subgroup can be classified into four types. Moba shows only suffixes and is, in this respect, like the mass of Voltaic languages. A second type is represented by Gurma itself, in which, as we have seen, the prefix functions as a definite article. A third type is represented by Gangam. Like Gurma, the nouns are suffixing and there is a prefixed class marker which is not always present. However, this prefix is used much more extensively than the Gurma preposed article. It combines, roughly speaking, the functions of both a definite and an indefinite article and is thus found with nouns in a large majority of their textual occurrences. It is, however, excluded from certain constructions which correspond in a general way to constructions without any article in languages like English, and even more closely, to the zero article of French. I shall call this a Stage II article, as against a Stage I, or ordinary definite article. Stage II articles, while much rarer than Stage I articles, are found in other Niger-Congo languages, in other language families in Africa, and sporadically elsewhere in the world. A brief discussion of this interesting and generally neglected typological phenomenon will be undertaken in a later section of this paper.

We have seen then, up to now, three types of Gurma languages in relation to the prefixing and suffixing of class markers: 1) no prefixing (Moba); 2) Stage I article (Gurma); 3) Stage II article (Gangam). A fourth type is represented by Akasele and Tobote-Basari. In these languages, there is no contrast between prefixing and non-prefixing forms of the same nouns. With a few exceptions to be discussed later, nouns have both prefixes and suffixes and this pair of markers function in essentially the same way as prefixes in Bantu languages or suffixes in a language without double markers. The prefix is thus part of a complex class marker, and has no syntactic function of its own.
3. **Stages in Definite Article Development into Class Marker**

These four subtypes in the Gurma subgroup can be reasonably hypothesized to represent so many stages by which a preposed definite article agreeing in class with the noun eventually became a prefixed class marker renewing and supplementing an earlier system of suffixes. The four stages are, then: 1) no article; 2) Stage I article; 3) Stage II article; 4) class marker.

There are a number of indications that this is the order of development. On comparative grounds the suffixes must be old, because they are found throughout Voltaic and can be reconstructed for Proto-Voltaic. In the Gurma subgroup, as elsewhere, the suffixes show numerous phonetic alternations and are sometimes reduced to tonal modifications or zero. On the other hand, the prefixes are transparent and are in fact the same set as the verb subject pronouns, which agree with the noun subject in class. It is moreover a completely unlikely turn of events that a functional prefix should detach itself from the noun, become restricted to use as a definite article, and then disappear. Manessy, the well-known Voltaic specialist, in an article which discusses this phenomenon, comes to the same conclusion as that presented here. "Thus Tamari and Ngangam appear to mark an intermediate stage in the development of a process comparable to that by which the Latin demonstrative became the French article, a process whose commencement can be discovered in Gurma and of which Akasele illustrates the highest stage of development." [Manessy 1965:175]. Tamari is here mentioned along with Gangam as illustrating the intermediate (i.e. Stage II article) type. In subsequent publications, however, Tamari is correctly excluded by Manessy from the Gurma subgroup of Voltaic.

If we turn to other Niger-Congo languages with double affixes, we find either that the prefixes, as in the case of the Gurma languages we have just considered, are historically secondary, or that the suffixes are secondary.

3.1 **West-Atlantic evidence.** A mirror image of the development just outlined for Voltaic is found in the northern West-Atlantic languages, with the prefixes functioning like Gurma suffixes and the suffixes corresponding to Gurma prefixes. The West-Atlantic languages are, as noted earlier, generally prefixing. Within the northern subgroup of West-Atlantic, Dyola represents the definite article stage corresponding to that of Gurma proper within the Gurma group. Nouns have two forms, the usual prefixed form and, in addition, a form with a class suffix which functions as a definite article e.g. Dyola fu-nak 'day'; fu-nak-af 'the day' [Sapir 1965]. Wolof also illustrates this stage. Here the prefixes have been reduced to initial consonant alternations found only in a few marginal and obsolescent cases e.g. pan 'day', fan 'days'. There are also other survivals in that, for example, members of the liquid or mass noun class corresponding to Bantu Class 6 have a nasal initial. The system has, however, been renewed by a set of particles which can still be separated
from the noun and function as a definite article e.g. _ndox_ 'water'; _ndox mi_ 'the water', Serer-Non has a Stage II suffixed article while Fula represents the last stage. Here the former prefixes have been reduced to consonant initial alternations, while the class suffixes are still relatively transparent and occur on almost all nouns. This suffix is essentially the same as the verb subject pronoun and the relative pronoun, e.g. _rawāndu_ 'dog'; _rawāndu n’du doggi_ 'the dog (it) ran'.

In Southern West-Atlantic, while no language has developed suffixed class markers, Limba is clearly a language with a Stage I suffixed article.

3.2 Kwa, Benue-Congo evidence. In the Kwa group, which is also basically prefixing, there are two languages in the Togo remnant group of Western Kwa which have developed suffixes. One of these, Avatime, has class suffixes which function as a definite article. Kebu represents the last stage in that the suffix is a normal part of the word and has become part of a complex class marker.

Benue-Congo, which seems to have a special relationship to Kwa within Niger-Congo, is also basically prefixing. Tiv, which is closely related to Bantu, has both prefixes and suffixes, but only in the classes with consonantal markers, e.g. _m-gerěm_ 'water'. This is the normal form of the noun. However, most nouns with a consonantal suffix have also a form called prepositional by Abraham [1940a], since it is found chiefly after a few prepositions which are basically locative in meaning, e.g. _șá mgěr_ 'in the water'. Nouns in classes without consonantal markers show tonal variations in this construction which parallel those of the classes with consonant markers. These nouns also have two distinct forms, one corresponding to the non-suffixed and the other to the suffixed form. Abraham notes "one other construction in which the non-suffixed form occurs, namely as the second member of compounds of the type, child..." with diminutive meaning. A perusal of Abraham's [1940b] dictionary shows a few other survivals as second member of compounds or in adverbial uses, for example 'earth' in the sense of 'down' (cf. French à terre). On the basis of our general theses we will then interpret Abraham's relatively rare suffixeless "prepositional" form as the earlier one and the common suffixed form as a late form of a Stage II article.

Within wide Bantu, the Nkom group has suffixes in addition to its inherited prefixes. I have not investigated this case in detail. 2

---

2It appears that there is only one suffix here, _-si_ in class 10. In this instance a marker of demonstrative-pronominal origin was utilized to mark the plural of class 9, which was no longer tonally distinct in Bantu from the singular and had no other differences. Compare class 10 _li-n_- in Narrow Bantu as against class 9 _n_.

In the Mba subgroup of Eastern Niger-Congo which is suffixing there is one language Mondunga which has a single pair of classes which has prefixes in addition to suffixes. These are singular *1i-, plural *ma-.

These forms are so specifically like Bantu Class 5 and 6 markers that, in view of other evidences of the influence of neighboring Bantu languages, these prefixes are probably borrowed. If so, the speakers have evinced an uncanny flair for comparative linguistics in that they are affixed to the classes which historically correspond to Bantu Classes 5 and 6.

3.3 Problems. One recalcitrant case of simultaneous prefixing and suffixing remains, namely, that of Cola, a language of the southern West-Atlantic group, in which, on the basis of Westermann's description, a noun may occur in four forms involving not easily specifiable but increasing degrees of determination as one moves from a form without any affixes to one with either a prefix without a suffix, or a suffix without a prefix and finally forms with both prefix and suffix. While this case falls into a line insofar as the class markers are connected with determination, there is no convincing internal evidence that the suffixes are, as would be expected on a comparative base, more recent historically than the prefixes.

In the examples we have considered either old suffixes have been renewed by prefixes (e.g. Gurma) or old prefixes by suffixes (e.g. West Atlantic). There would seem to be no reason why prefixes could not be renewed by prefixes or suffixes by suffixes. I know of examples of the former process in Niger-Congo languages but not of the latter.

In most dialects of Temne, a Southern West-Atlantic language, the inherited prefixed class markers have an additional prefix, which functions as a definite article. Wilson [1961:13] has observed that in the Konike dialect "the nouns in all contexts are in what looks like the definite form". From this, it appears that in Konike it has passed into the final stage in which it is part of the noun class marker. The most important case of prefixes renewed by additional prefix is, however, the well-known pre-prefix of many Bantu languages. In most languages where it occurs it is a typical Stage II article. In one instance, Dzamba, it seems to function as a definite article. In Southwestern Bantu languages such as Herero and Ovambo, it has become a normal part of the noun but forms without the prefixed vowels survive in a single construction, the vocative.

We need not be deterred by the fact that the pre-prefix is normally a vowel only e.g. a-ka- rather than *ka-ka-. In Niger-Congo generally, it appears that there were variant forms with and without initial consonant in the classes with consonant-initial markers. For example, throughout Niger-Congo a appears as a variant for ba in Class 2, and in Bantu itself for Class 5 it appears that we should reconstruct *i-, rather than *1i-, except for a few vowel-initial roots, e.g. 'eye', 'tooth'.
4. Source of the Definite Article

We are now in a position to answer the question posed at the beginning of this paper. However, we have to consider one additional stage in the process sketched earlier by which a definite article becomes a noun-class marker, namely an initial one. The normal source of the definite or Stage I article is known from numerous well-documented cases to be a demonstrative, particularly one which refers to location near the third person rather than the first or second. The example of Latin "ille" which was such a demonstrative and became a definite article in the Romance languages was mentioned by Manessy in a citation earlier in this paper. The example turns out not only to be both wider in its relevance than to the Gurma subgroup which he discusses, but also pertinent in several other ways. Latin "ille" is both the source of the Western Romance article which precedes the noun and the Rumanian suffixed article in Eastern Romance. In Latin itself, "ille" was quite free in its order in relation to the noun. In this respect, Latin is far from being idiosyncratic, in that in many languages demonstratives show variability in regard to position before or after the noun. If we assume that such a situation existed in Proto-Niger-Congo and indeed in Proto-Niger-Kordofanian, then by a process similar to that in the Romance languages, in some groups it became fixed before the noun, and in others after. We may note also the synchronic fact that articles never have the same freedom of word order possessed by demonstratives.

5. The Proto-Niger-Kordofanian Situation

Our answer, then, to the question posed in the title of this paper is that the class marker was neither a prefix nor a suffix but varied in its order and became fixed as it developed into an article, just as in the Romance languages. The Latin example is suggestive for another reason. It was noted earlier that the article which renewed the class marker in the languages like Gurma is generally synchronically considered either identical with, or obviously related to, the pronominal subject markers of the verb. In the Romance languages, the article is similar to, or identical with, verb subject or object pronouns, but not with the present demonstratives, e.g. French "je la vois; la table". But historically both the article and the pronoun have a common origin in the Latin demonstrative. In its original demonstrative use, however, it is replaced by new forms derived from the older demonstratives strengthened by additional deictic elements e.g. Italian "quello" 'that', from "ecce" 'behold' + "illum" 'that one' (acc. masc.), with corresponding forms for feminine and plural.

Space permits only a summary statement of the interesting Stage II article. Its characteristics allow us to explain certain features of noun class systems in general. Most of the instances in which this article is not used belong to two different types which are at exactly the opposite ends on a scale of determination. In some instances, the article does not appear because the noun is inherently determined, and hence does not acquire an article during Stage I. On the other end of the determination
spectrum are certain generic uses in which languages almost never acquire articles because of an inherent absence of determination. In the former class belong the absence of articles with proper names, vocative constructions and instances in which the noun is determined by other elements in the construction, e.g. with possessive pronouns. Hence the Stage II article often does not occur with kinship terms which in many languages never occur except in possessed form. These considerations help us to understand the reason for the existence in Bantu and Niger-Kordofanian generally, of Class Ia, which typically contains proper names and kinship terms and which has no class affix.

The opposite factor, that of the absence of an article because of the generic nature of the referent can be divided into four main types: 1) in negative statements, particularly as direct object; 2) as a nominal predicate; 3) in adverbial and in particular locative and temporal expressions; 4) as generic verb object or as a generic dependent genitive. These last two are related uses in which we are often dealing with compounds, e.g. English "baby-sit", "goat horn". In regard to adverbial expression, these often involve body parts, e.g. "on foot", "by hand", or the use of body parts or other expressions as locative prepositions, e.g. "in back of the house". Where the Stage II article is far advanced towards being a mere class marker, the most typical survivals without the article are proper names, kin terms and adverbial expressions.

It should be further noted that the same process involving the four stages: demonstrative, Stage I article, Stage II article, and finally marker, can take place whether the original demonstrative involves gender classification or not. If it does not, it will end up as a mark of mere nominality, being found on all nouns except in the few contexts in which the unarticulated form tends to survive. In the Southwestern Mande languages a suffixed -i without number or gender variation is a Stage I article in some of the languages (e.g. Loma), whereas in Mande it is a stage II article which appears in most constructions. Where there is no gender classification and a language has reached the final stage of mere marker, the case is an especially intriguing one because we do not have the guide of gender agreement. An interesting case is Hausa, which is of course a Chadic, and not a Niger-Congo, language. Virtually all nouns end in long vowels. However, instances of short vowel finals are found basically in two synchronically disparate categories. One is that of proper names, and the other certain adverbial expressions often involving body parts, e.g. hánnú 'hand', ʔá hánnú 'in the hand'. But these are, as has been seen, prominent among the survivals of non-articulated forms. Hence we conclude that the final vowel length of Hausa is the residue of a former definite article which went through the stages enumerated earlier.

6. Implications

In addition to the concrete problems to which this paper addresses itself, it is also intended as an illustration of a diachronic process approach. It should be evident, for example, that a purely synchronic statement cannot
give a unified account of short vowels in Hausa substantives nor can it explain such apparently idiosyncratic yet widespread phenomena as Class la in Niger-Kordofanian languages. Any approach to linguistic theory which has no place for generalizations based on the comparative study of linguistic change must fail to account for many phenomena which are not impervious to explanatory theory based on a process approach.

REFERENCES


1. Introduction

The so-called "nasal class" (Class 9/10) of Bantu nouns is interesting for a number of reasons. First, although the strict correlation between noun class membership and semantic import reconstructed for the proto-language has been lost, this class contains the names of most animals. It is thus one of the two or three classes in most languages which can be used to argue for the synchronic reality of a semantic system of noun classification although there are various problems in this regard, including the assignment of loan words, regardless of semantic content, to this class. Morphologically, this is the only noun class in which singular and plural prefixes are identical in many, if not most, languages, (V)N-/N-, although historically, and in some languages synchronically, they are differentiated by the presence of an "extra" prefix in the plural. Finally, this class is interesting phonologically since, by the loss of a prefix-final /i-/ at a late stage in the proto-language, a nasal consonant came to be in contact with the complete range of stem-initial consonants. In addition to position assimilation of the nasal, this abutment results in a series of changes in the oral consonants in various languages, including hardening, voicing, development of aspiration, etc.

There is another interesting theoretical issue which arises in an analysis of this class, which has never been treated effectively in the literature. In all other noun class pairs, it is easy for the linguist, and presumably language learner as well, to separate prefix from stem in singular/plural alternations such as:

---

This paper represents an abridged version of the oral paper presented to the Conference. An expanded version, including a more complete treatment of proposals for lexical representation and an extensive bibliography, will appear elsewhere. I am grateful to Robert J. Jeffers for comments on an early draft and to Hazel Carter, István Fodor, and Joseph Greenberg for their comments at the Conference. Naturally, all oversights and analytical errors are my own responsibility.
(1) **Kikuyu**

műndū andū 'person(s)'  kīhembe ihembe 'drum(s)'
mütī mūtī 'tree(s)'  gūtū matū 'ear(s)'

or to separate the prefix and determine its (morpho)phonological effects:

(2) **Tswana**

løleme liteme 'tongue(s)'  lore linthe 'rod(s)'
lobaka lipaka 'time(s)'  letjɔɔ  mabɔɔ  'arm(s)'

or at least to discern the effect of a certain class membership when there is no separable surface prefix:

(3) **Swahili** upanga phanga 'sword(s)'
**Yaka** lusala tsala 'feather(s)'
**Venda** lura lhe 'wire(s)'
**Ganda** ffumu mafumu 'spear(s)'
**Shona** rukuni huni 'firewood'

But with 9/10 nouns there is some real question as to how the non-alternating singular/plural pairs are represented in the lexicon of a native speaker. Although it is possible to demonstrate exactly what the development from the time of /*ni + STEM/ has been, and to write rules for that development, there is a great deal of evidence, some of which is reviewed below, which suggests that non-alternating forms should be represented at the underlying level in their surface forms. Thus, one might claim that the underlying forms for the Kikuyu singular/plural pairs in (4) are identical to their surface forms, e.g. /ø + ndegwa/, /ø + nŋombe/, etc.¹

(4) **Kikuyu**

ndegwa nṭombe 'ox(en)'  ngia ngia 'pauper(s)'
 ṇombe ṇombe 'cow(s)'  mbori mbori 'goat(s)'

¹This issue is quite distinct from that of whether it is necessary to recognize the existence of a nasal consonant within a synchronic 9/10 prefix. That is, it is possible to argue that there is no nasal prefix in many languages and that the effect of 9/10 membership is merely to elicit various morphophonological changes to the stem-initial consonant, e.g. affrication, aspiration, etc. The concern here is with recognizing the existence of any synchronic prefix in some languages. It is important to note that zero prefixes in these forms are the result, not of sound change, but of a morphological restructuring of stem and prefix due to the non-alternating nature of singular/plural pairs. This point is discussed further in Section 3.
2. Traditional Evidence

There are several types of alternations which are traditionally cited in favor of positing a synchronically real nasal prefix. First, when Class 9/10 nouns appear in their diminutive and augmentative forms, these prefixes (a) replace the 9/10 prefix and (b) "undo" its effect:

(5) a. Kikuyu (mborí) kaborí 'small goat'
    Swahili (mbuzi) kibuzi 'small goat'
    b. (phaka) lipaka 'kitten'
    Shona (mhuka) buka 'large beast'
    Ganda (ndiga) kaliga 'small sheep'
    Runyankore (empene) akahene 'small goat'

However, in many languages the diminutive and augmentative prefixes are additive rather than replacive:

(6) Shona (mhuka) kamhuka 'small animal'
    (mbudzi) kambudzi 'small goat'
    (tsoka) mazitsoka 'great big feet'
    Tumbuka (mbuzi) kambuzi 'small goat'
    Hungu (mtuba) kamtuba 'small basket'

In these latter cases it is only the added prefix which determines concord. Further, a good case can be made for treating the forms in (5) as suppletives which are not synchronically derived by rule from the normal noun class forms.²

A second type of alternation cited to defend an analysis with a synchronic nasal prefix for 9/10 nouns is that found in adjectives which modify these nouns. Corresponding to the base form in which they appear with other noun classes, there are found the following forms:

(7) Shona | base | 9/10 form
- - - - - - - - - - - - - - -
    -refu | ndefu | 'high, tall'
    -kuru | huru | 'large'
    -penyu | mhenyu | 'alive'
    -diki | ndiki | 'small'
    -tete | nhete | 'thin, lean'

²Hudson [1974] has argued explicitly that certain types of alternation are most satisfactorily represented within the lexical entry itself, i.e. that both segments in alternation are entered as part of the underlying form of an alternating item. Thus, following Hudson, the suggested form of the lexical entries for forms such as those in (5) are:

(5c) Shona [mn,mhuka] 'animal'

with the appropriate form supplied by morphological selection rules.
Apart from an appeal to the suppletive status of adjective forms, which we feel to be circular and unconvincing, there is some evidence which points to the non-identity of noun and adjective prefixes and the rules affecting them. For example, in giTonga [Lanham 1958], there is a fully functioning process of "M-nasalization" which occurs when the Class 1 or 3 prefix /m-/ (*/mu-/) is added to a noun stem. This prefix is realized as (i) mu- before monosyllabic stems, (ii) mw- before vowel-initial stems, (iii) ø before /r/, (iv) ø before /h/, which is realized as wh, (v) η- before /y/, which is realized as g, and (vi) as nasalization of /l, β/, e.g. nipi 'liar' (cf. βa-lipi 'liars'). However, the corresponding adjective prefix is simply (i) mu- before monosyllabic stems and (ii) ø elsewhere.

A third type of alternation which could be cited as relevant evidence in favor of a synchronic 9/10 prefix comes from nouns of the Class 11/10, in which the plural forms are identical with the plural of Class 9 nouns, but the singular shows a non-nasal prefix (< */lu-/(9)). Examples of this alternation are cited in (8) below: ³

(8) Venda

luhuni khuni 'firewood' luselo tselho 'winnow basket(s)'
lurale thałe 'wire(s)' lubombo mbombo 'bridge(s) of nose' lulebvu ndebvu 'beard(s)' luzambo ndzambo 'shouting'

The argument here is that since Class 10b demands a synchronic (nasal) prefix which conditions certain alternations, then we are justified in analyzing 9/10a forms similarly. This argument is more compelling than in the cases above, precisely because all the prefixes are nominal prefixes of non-derived nouns, i.e. there is functional as well as formal identity.

3. Restructuring in Makonde

If, as was suggested in Section 1, it is possible for a language to restructure non-alternating Class 9/10a forms so that underlying representation is identical with surface facts, we might expect that Class 10a and 10b should develop differently in some language. There is no compelling evidence in this regard, but the following data from Makonde, a language of the Yao cluster, suggest that such a restructuring has occurred:

(9) Class 9/10a

a. imbau (/i + N + bau/) dimbau (/di + N + bau/) 'board(s)'
imbidi dimbidi 'boa(s)'
indila dindila 'road(s)'
inguo dinguo 'cloth(s)'

³Hereafter, the plural of Class 9 will be referred to as Class 10a and the plural of Class 11 as Class 10b in order to distinguish them in discussion.
Thus, Makonde has a rule which deletes a voiceless stop after a nasal consonant: \( N\gamma \rightarrow N \). Sequences of nasal and voiced stop, however, are realized as unit prenasalized stops. The forms of interest at present are those in \((10a)\), which show stem-initial voiced stops. The presence of a nasal as part of the prefix or stem is historically unjustified and unexpected in the singular forms. (Cf. Mawiha luwawo/dimbawo ‘rib(s)’.) The nasal cannot be attributed to a restructured Class 11 prefix, */luN-/, for several reasons. Most importantly, if this were possible then we should expect that stem-initial voiceless consonants would be deleted as in \((9b)\), i.e. *lumapa, *lunavi, *lu\(\)uni, which they are not.

Our analysis of the Makonde data is as follows. At some point in its history, after the rule \( N\gamma \rightarrow N \) was firmly established, a restructuring occurred due to the misperception of morphemic boundaries whereby the nasal and its morphophonological effects were analyzed as part of the noun stem. Thus the Class 9/10a prefixes became /i-, di-/.

Sometime later, the treatment of voiced stops was extended by analogy, to Class 10b forms so that the prenasalized consonants of the plural were interpreted as the stem-initial consonants. This resulted in the extension of the prenasalized consonant into Class 11 singulars, which is historically unexpected. However, \( N\gamma \rightarrow N \) continues to be a productive rule in the Class 10b. Since this rule no longer affects Class 9/10a forms, the Makonde data provide some evidence that Class 10a and 10b may be formally distinct in certain languages.

---

\(^4\)Cf. Makua thepo.

\(^5\)The treatment of loan words supports such an analysis:

- ibandela dibandela ‘flag’ (< Port. bandeira)
- igalapa digalapa ‘bottle’ (< Port. garrafa)
- ikamiyola dikamiyola ‘vest’ (< Port. camisola)

That is, a nasal does not appear before voiced stops and the voiceless stops are not subject to deletion.
The last issue to be discussed in this brief treatment has wider theoretical implications and is deserving of more extensive treatment elsewhere. It has to do with the role which the fact that Class 9/10 prefixes, or part of them, do not have independent surface segmental status may play in restructuring. That is, in many languages the prefix is realized only as prenasalization, i.e. nasal onset, of initial consonants or the prefix merely effects the voicing, hardening, etc., of initial consonants. There might be, then, a tendency to perceive the effect of the prefix as part of the stem and therefore to restructure the forms. This would explain, for example, why in some languages where diminutive/augmentative formation is variably by prefix addition or substitution, addition is the rule for Class 9/10a nouns.

Jeffers [1977:18] has pointed out that in situations of reanalysis where phonetic material is not lost, it is important to note that any generalization appears to represent an arbitrary development "unless some perceptual motivation for the original reanalysis can be motivated." In the case of Makonde, we have claimed that morphological reanalysis is due to a misperception of the placement of morphemic boundaries, which may in part be attributed to the non-fully segmental status of morphological information, i.e. the morpheme boundary falls within a single surface segment.

4. Conclusion

Although it has not been demonstrated that synchronic Class 9/10a prefixes are not to be found in Bantu, we have suggested that this may be the case in certain languages. In other languages which show 9/10a prefixes, we suggested that part of the historical prefixes now figure as part of the noun stem. The implications of this analysis are clear. First, we need to reexamine the synchronic status of the nasal prefixes in these same noun classes where they are superficially identical. Second, even in cases where the surface facts are ambiguous, the Makonde data, the facts of prefix addition in the diminutive/augmentative, the treatment of loan words, etc., suggest that prefix restructuring may be a fairly common phenomenon. The difference between additive and replacive prefixes may represent the difference between derived and suppletive forms synchronically. This raises the general question of whether all of the singular/plural noun classes might be suppletive in any language. These questions represent interesting directions for future research.

---

6 It is important to note that this use of the term suppletive, following Hudson, contrasts with its traditional use where it indicates etymologically unrelated forms which come to be associated within a particular paradigm, e.g. English go/went.
REFERENCES


CAUSATIVES, TRANSITIVITY AND OBJECTHOOD IN KIMERU

Kathryn Speed Hodges
University of Illinois

1. Introduction

Causative and applied verbs are formed in Kimeru by adding derivational suffixes to basic verbs. The derived forms which result can be followed by up to two unmarked NPs. First, the problems involved in assigning direct object status to one of these NPs are investigated. Hypotheses associated with Relational Grammar claim that languages may have only one of each grammatical relation. However, there is evidence that the two NPs following causative as well as applied, causative-applied and inherently two-object verbs in Kimeru both possess direct object characteristics. Second, the problem of the appearance and disappearance of the causee is considered. The clause union hypothesis associated with Relational Grammar is found to be valuable in predicting the distribution of the causee, once two direct objects are allowed. Third, the effect of competition on the appearance of objects is considered. A ranking of potential direct objects which reflects the preference afforded them in competition is proposed. Finally, levels of transitivity in verbs are investigated and shown to be relevant to the appearance of the causee and the ranking of objects.

2. Causative Verbs

Normally, intransitive verbs cannot be followed by unmarked objects, as in (1a). But when suffixed by the causative iθ...i, an object may follow, as in (1b).

---

1 This research was supported by NSF Grant SOC 75-00244 and by the Research Board of the University of Illinois. I would like to thank my consultant, Mr. Cornelius Muthuri for his invaluable assistance. He is a native speaker of Kimeru, speaking a dialect from the Central District of Kenya. I would also like to thank Charles W. Kisseberth, Jerry L. Morgan and Eyamba G. Bokamba of the University of Illinois for their suggestions. Any errors, of course, are my own.

2 Many more examples of all constructions discussed in this paper are available in the handout which accompanied the conference talk. They have been deleted here to meet space limitations. In this paper, high vowels are indicated by i, v; while i and u indicate mid vowels.
Transitive verbs, which normally allow only one object, may have two objects in their causative form, as in (2a) and (2b).

In short, the causative extension increases by one the number of objects that may follow the verb. No more than two objects, however, are permitted, even in causatives combined with inherently two-object verbs, as illustrated in (3a,b).

If causatives are analyzed as deriving from a bi-sentential source, then the number of NPs after the causative verb follows from the number of NPs involved in the lower sentence. The causative of an intransitive (as in (1b)), would derive from a structure with a verb of causation in the higher sentence, and an intransitive verb in the lower sentence. After clause union, which raises the lower verb and joins it to the higher causative verb, the lower sentence subject (LS) appears as the surface object of the causative verb. The causative of a transitive verb (as in (2b)) would derive from a structure with a transitive verb and object in the lower sentence. After clause union, both the LS and lower sentence object (LDO) appear as objects following the causative verb. The "extra" object, in this approach, results from an underlying subject which is dispossessed of its subject status during clause union.

The problem to be considered here is the relationship between the LS and LDO. Clause union combined with the accessibility hierarchy found in relational grammar claims that the LS, when displaced by clause union, takes the next available grammatical relation. Thus the LS becomes a

---

DO (direct object) when "bumped" from subject position. If the sentence already has a DO (as with transitive causatives), the LS is further bumped, becoming an IO (indirect object) or oblique object (object of preposition lower in hierarchy than IO). On the other hand, the LS may simply vanish if the IO or oblique alternatives are not allowed. The point is that the dislodged subject falls until it finds an empty position.

This explanation predicts that the two NPs following the transitive causative in (2b) are not of the same status. The LS should be lower in rank than the LDO, since it should have fallen past DO in its search for an empty grammatical relation. The following evidence will show that both NPs following KiMeru causatives are able to undergo the rule of passive and be pronominalized as object prefixes (OPs) on the verb, both operations normally associated with DOs in Bantu languages, and both operations unavailable to non-DOs in KiMeru.

The OP in KiMeru represents a pronominalization process; the pronominalized NP cannot co-occur with the OP. The example in (4a) indicates that the OP -mi- can refer to the LDO. In (4b), the OP -mu- is understood as referring to the LS.

(4) a. Ni-a -ku-mi-rug -jth-ag-j-a muka
   Ag-T -OP-cook-C -T -C woman
   'He was making the woman cook it (i.e., an animal).'

b. MunTu ni-a -ku-mu-rug -jth-ag-j-a nyama
   person Ag-T -OP-cook-C -T -C meat
   'The person was making him/her cook meat.'

Both NPs possess the property of controlling the OP. Either NP can be promoted to subject position by passive, as shown in (5). In (5a) the LS has been promoted to subject of the higher clause, while in (5b), the LDO has been promoted.

(5) a. Ni-ba-k-yng -jth-ag-y-a mwere ni munTu
   Ag-T-weed-C -T -Pass millet by person
   'They were made to weed millet by the person.'

b. Ni-ju-k-yng -jth-ag-y-a muka ni munTu
   Ag-T-weed-C -T -Pass woman by person
   'It (i.e., millet) was made to be weeded by the woman by the person.'

Non-direct objects cannot be marked as OPs and do not undergo passive. Examples (6a) and (6b) indicate that an OP cannot refer to the object of a preposition.

(6) a. *MunTu ni-a -mu-tum -jth-ag-j-a baruga kiri
   person Ag-OP-send-C -T -C letter to
   'The person makes the letter be sent to him/her.'

b. *MunTu ni-a -mu-gur-jth-ag-j-a yuKy re-a
   person Ag-OP-buy-C -T -C book of/for
   'The person makes the book be bought of/for him/her.'
It might be argued that the failure of non-DOs to be marked by OPs results from a combination of constraints: a requirement that OP-marked NPs be deleted, and a restriction against stranding prepositions. Fortunately, objects and their corresponding OPs can occur together in left dislocated sentences, avoiding this conspiracy, since the preposition need not be stranded. Even so, the OP cannot refer to the prepositional object, as shown in (7a), though it can refer to the non-prepositional object in (7b).

(7) a. *Kwa/Kiri John o -re-a Wanjiru ni-a-mw-et-er-e
to Ag-that Wanjiru Ag-OP-go-T
'To (that) John, Wanjiru went to him.'

b. Aana ba-re-a, muntu ni-a -ba-tum -ag-ir-a baruga(App: applied)
people Ag-those, person Ag-OP-send-T -App letter
'Those people, the person sends them the letter.'

The sentences of (8) indicate that non-direct objects cannot be promoted by passive. Example (8a) shows that the object of the preposition cannot be moved out of the prepositional phrase, and (8b) shows that the preposition and object cannot be promoted together.

(8) a. *Muka ni-a -tum -ag-w-a baruga re-a/kiri
woman Ag-send-T -Pass letter for/to
'The woman is sent the letter for/to.'

b. *Re-a/Kiri muka ni-a -tum -ag-w-a baruga
for/to woman Ag-send-T -Pass letter
'For/to the woman is sent the letter.'

To summarize, passive and object pronominalization do not operate on non-DOs, but both unmarked NPs following the causative verb undergo these rules. Since both the LS and LDO exhibit the same characteristics of DOs in KiMeru, the claim that the LS should be lower-ranked than DO when a DO already exists does not appear to hold.

3. Applied Verbs

Another source of DOs in KiMeru is the applied extension -ir-. This extension allows a verb to have an extra object in simple sentences—the applied object (AO). Example (9a) contains an intransitive verb which is followed by an object. This sentence becomes grammatical in (9b) with the addition of the applied extension.

(9) a. *Muntu ni-a -jn -ag-a kaana
person Ag-dance-T child
'The person dances the child.'

b. Muntu ni-a -jn -ag-ir-a kaana
person Ag-dance-T -App child
'The person dances for the child.'
Similarly, transitive verbs with two objects (as in (10a)) become grammatical with the applied extension (in (10b)).

(10) a. *Muka ni-a -ku-rug -ag-a muntu nyama
   woman Ag-T -cook-T person meat
   'The woman was cooking person meat.'

   b. Muntu ni-a-ku-rug -ag-ir-a muka nyama
   person Ag-T -cook-T -App woman meat
   'The person was cooking meat for the woman.'

The theory of grammatical relations being considered here would claim that the two unmarked NPs in applied sentences were not of equal status—were not both DOs. If the AO is considered to be an underlying IO, since it carries a reading of beneficiary or recipient, it could be derived from a rule which promotes IOs to DO status, similar to Dative Movement in English. In this case, the AO should possess DO characteristics; but any underlying DO in the sentence should have been displaced by the AO and hence not possess DO properties. However, the following evidence contradicts these expectations. Both AO and underlying DO can be marked by an OP (11 a,b) and undergo passive (12 a,b).

(11) a. Ni-a -çi-rug -iir-e kuru
      Ag-OP-cook-T+App dog
      'He cooked them (i.e, animals) for the dog.'

   b. Ni-a -çi-rug -iir-e nyama
      Ag-OP-cook-T+App meat
      'He cooked meat for them (i.e., animals).'  

(12) a. Mburi ni-i -theek-or -ag-ir -w-a muka (Rev: reversive)
      goat Ag-tie -Rev-T -App-Pass woman
      'The goat is untied for the woman.'

   b. Muka ni-a -theek-or -ag-ir -w-a mburi
      woman Ag-tie -Rev-T -App-Pass goat
      'For the woman is untied the goat.'

Up to this point, it has been shown that when two unmarked NPs follow either the causative or applied verb, both NPs seem to share DO status.

4. Causative-Applied Verbs

The applied extension can be suffixed along with the causative. Since only two object slots are available following the causative verbs (see 3), this concatenation of affixes produces a traffic jam. The LS, LDO, and AO must all compete for the two available positions. Of the object combinations that could occur with transitive verbs, only AO + LDO actually appears. In the following examples, the gloss marked 'NOT' illustrates the unacceptability of an interpretation where one of the objects is taken to be the LS.
(13) a. Munțu ni-a -gur-jňh-ag-ir -i-a muka yyky
   person Ag-buy-C -T -App-C woman book
   'The person makes the book be bought for the woman.'
   (NOT: 'the person makes the woman buy the book for someone')

b. Munțu ni-a -gur-jňh-ag-ir -i-a muka
   person Ag-buy-C -T -App-C book woman
   'The person causes the woman to be bought for the book.'
   (NOT: 'the person causes the woman to buy the book for someone')

c. Ni-a -or -jňh-iir-j-e muntu arjtw
   Ag-spank-C -App-C person students
   'He caused the students to be spanked for the person.'
   (NOT: 'he caused the students to spank someone for the person')

In (13b), the potential agent appears in second position, which serves
only to create anomaly rather than allow the emergence of the LS. In
(13c), both objects are human, lending themselves to agent-beneficiary
interpretations; still, no LS appears. The LS also cannot appear in
causative-applied sentences in the guise of an OP (as in (14a)) or a pre­
positional object (as in (14b)).

(14) a. *Muntu ni-a -mu-tum -jňh-ag-ir -i-a muka baruga
   person Ag-OP-send-C -T -App-C woman letter
   'He causes him to send the letter for the woman.'

b. *Ni-a -tum -jňh-ag-ir -i-a muka ni muntu
   Ag-send-C -T -App-C woman letter by person
   'He causes the letter to be sent to the woman by the person.'

This evidence demonstrates that when competition arises among the
three possible sources of DOs, it is the LS which gives way. Both of
the remaining objects in causative-applied sentences can undergo object
pronominalization, as in (15a,b) and passive, as in (16a,b), showing
that both objects share the characteristics of DO status.

(15) a. Munțu ni-a -mi-rug -jňh-ag-ir -i-a nyama
   person Ag-OP-cook-C -T -App-C meat
   'The person makes meat be cooked for it (i.e., animal).' 

b. Munțu ni-a -çi-rug -jňh-ag-ir -i-a muka
   person Ag-OP-cook-C -T -App-C woman
   'The person makes them (i.e. animals) be cooked for the woman.'

(16) a. John a -ka-rug -jňh-ir -y-a muğere
   Ag-T -cook-C -App-Pass rice
   'For John, the rice will be made to be cooked.'

b. Muğere ju-ka-rug -jňh-ir -y-a John
   rice Ag-T -cook-C -App-Pass
   'Rice will be made to be cooked for John.'

The foregoing sentences in which the LS is lost all contain transitive
verbs. With transitives in causative-applied sentences, three potential
objects--AO, LS, LDO--are available for the two DO positions, creating
the competition which leads to the expulsion of the LS. Intransitive lower
sentences, with no LDO, should not cause competition, since the LS and AO together equal no more than two objects. Indeed, as (17) demonstrates, the LS does appear along with the AO in intransitive causative-applied sentences.

(17) Muntu ni-a -i-n -jth-ag-ir -i-à muka kaana
    person Ag-dance-C -T -App-C woman child
    'The person makes the child dance for the woman.'

The data so far presented can be explained by the clause union hypothesis in its general sense: the displaced LS takes up the next available grammatical relation. The problem arises in claiming that the next lowest position cannot be DO if a DO already exists. But if KiMeru is allowed to have two DO positions, the behavior of the LS follows from clause union. In simple causatives, the next available position for the LS is DO, even though an LDO already exists, since two DOs are allowed. In causative-applied sentences with LDOs, both available positions are filled at clause union, leaving no DO position to receive the LS. But in causative-applied sentences with intransitive lower sentences, there is again an unfilled DO position; and the LS once more surfaces. The result is that clause union operates as expected in KiMeru, in terms of the ability of the LS to appear, if two DOs are allowed.

Additional evidence showing the DO characteristics of the AO, LS and LDO was presented in Hodges [1976]. Briefly, this study showed that these objects are accessible to relativization and reflexivization, while non-DO objects may not undergo these rules.

Despite this evidence, however, it is possible to attack the two-DO analysis by pointing out that the two DOs may arise at different stages of the derivation. Thus though both objects undergo rules that operate on DOs, they may never be DOs at the same time. Following this approach, pronominalization and passive would be ordered freely with the KiMeru version of Dative movement, which creates the AO from an IO. An LDO could be marked by an OP or promoted to subject before dative movement created the AO. Thus at the time of LDO marking or promotion, only one DO would exist. A subsequent application of Dative Movement, creating an AO, would actually demote the LDO on the surface, though it still appeared in the position of passive subject or OP. Similarly, if Dative Movement applied before promotion or marking, the LDO would be demoted, and only the AO would be available to undergo these rules. The variable ordering of rules would give the appearance that both objects were accessible to DO-sensitive rules; but in reality, the LDO would never undergo any such rules after the AO was created.

I would like to thank Professor Peter Cole of University of Illinois for pointing this out to me.
This approach encounters difficulties in causative-applied sentences. After the above interactions of AO and LDO on the lower sentence, the LDO should approach clause union as a chomeur, a demoted DO. Yet the LDO can become the passive subject of the higher sentence, which might be taken to demonstrate its continued accessibility. More interestingly, the demoted LDO should present no competition to the LS at clause union, since it no longer would fill a grammatical relation. This predicts that the configuration AO-LS should occur with transitive verbs in causative-applied sentences. But this structure does not occur; neither does a combination of OP-AO-LS, where the OP would represent a demoted LDO.

5. Relative Strength of Objects

The previous discussion demonstrated that the LS lost out in competition over object position with the AO and LDO. The LS can be considered to be in some sense a less tenacious, or weaker, source of objects than the other sources of DOs. The relative strengths or the possible DOs can be further demonstrated by investigating the interpretations given to single objects in constructions that potentially can have two objects.

Taking the simple applied verb first, the sentences in (18) show that a single OP is unambiguously understood as an AO and a single passivized object is understood only as the AO—rendering the sentence a bit odd.

(18) a. Ni-a -mi-rug -ii-ir-e
   Ag-OP-cook-T+APP
   'He cooked for it (i.e., animal).'</n
b. ?Kaana ni-ka-thik-or -ag-ir -w-a
   child Ag-bury-Rev-T-App-Pass
   'For the child is unburied.'

The AO seems to be preferred over the underlying DO. Though both objects can undergo passive and pronominalization, when competition is induced by deleting one object, it is the AO which is always retained.

Causative transitive sentences can also be produced with only one object. The sentences in (19) show that the object which remains must be interpreted as an LDO rather than LS. The readings marked 'NOT' indicate the unacceptability of an interpretation where one of the objects is taken to be the LS. These readings were considered to be incomplete by the native speaker.

(19) a. rum
   thik
b. Muntu ni-a - mee+i-th-ir-i-e kaana
   person Ag-C -T-C child
   'the person caused the child to be buried/bitten/brought/captured/?drilled.'
   (NOT: 'person cause the child to bury/bite/bring/capture/drill)
As was seen previously in (1b), intransitive causatives with one object have only an LS reading for that object. This is not surprising, since there is no LDO in the underlying structure to compete with the LS.

The evidence in this section suggests a ranking among the objects which determines the outcome of competition. Though all three potential DOs are equally accessible to promotion or marking, in competition the AO is preferred over the LDO, which is in turn preferred over the LS.

6. Transitivity

The neatness of the argument in the preceding section is undermined by the presence of some causative transitive verbs which allow a single object to be interpreted as the LS, as in (20).

(20) a. Muntu ni-a -ku-rug -i’th-ag-i-a muka
    person Ag-T -cook-C -T -C woman
    'The person was causing the woman to cook/be cooked.'

b. Muntu ni-a -ku-rug -i’th-ag-i-a nyama
    person Ag-T -cook-C -T -C meat
    'The person was causing the meat to be cooked.'

c. Muntu ni-a -mw-ig -i’th-ag-i-a
    person Ag-OP-hear-C -T -C
    'The person causes him/her to hear/be heard.'

These verbs seem to strike a middle ground between intransitives which allow only an LS (as in (1b)) and the transitives which allow only an LDO (19). In fact, this division coincides with a quite general inability of certain transitives to lose objects. Thus, in simple sentences without objects, the verbs of (19) are ungrammatical, as shown in (21).

(21) a. *Muntu n-e- (eg) -ir-e mwito -ni
    b. person Ag- (gwa*) -T forest-in
    c. *reet
    'The person drilled/captured/brought in the forest.'

The verbs of (20), however, do allow object deletion, as shown in the simple sentences of (22).

(22) a. Muntu ni-a -rug -ir-e ricon -ni
    person Ag-cook-T kitchen-in
    'The person cooked in the kitchen.'

b. Muntu ni-a -ig1 -ir-e mwito -ni
    person Ag-hear-T forest-in
    'Person heard in the forest.'

Again, in the clausal sentences of (23), the verbs of (19) do not allow object deletion. In similar structures in (24), the verbs of (20) do allow object deletion.
122

(23) a. *Muntu o-re-a o-gwat -ir-e, n-e-jet-e (Rel: relative)
    person Rel Ag-capture-T Ag-come
    'The person who captured, he comes.'

    b. *Ne muntu o-tum -ir-e muka a-gwat-a
        person Ag-send-T woman Ag-capture
        'It is the person who made the woman capture.'

    c. *Muntu n-e -end -er-e Mary a-gwat-a
        person Ag-want-T Ag-capture
        'The person wanted Mary to capture.'

(24) a. Muntu o-re-a o-rug -ir-e n-e-jet-e
    person Rel- Ag-cook-T Ag-come
    'The person who cooked, he comes.'

    b. Ne muntu o-tum -ir-e muka a-rug-a
        person Ag-send-T woman Ag-cook
        'It is the person who made the woman cook.'

    c. John n-e -end -er-e Mary a-rug-a
        Ag-want-T Ag-cook
        'John wanted Mary to cook.'

The verbs of the causative sentences of (19), which allow only an
LDO reading for a single object, happen to prohibit object loss generally.
These verbs can be called strongly transitive. The verbs in the causative
sentences of (20) which allow either an LS or LDO reading for a single
object generally allow object loss. These verbs can be called moderately
transitive. The appearance of the LS only with moderately transitive
verbs corresponds to clause union predictions--when no underlying DO is
present, the LS can emerge.

The transitivity situation actually involves a hierarchy, rather than
a simple dichotomy. A subset of the strongly transitive verbs will allow
object deletion if sufficient context is present to specify the object.
The sentences of (19) with reeta 'bring', and eega 'drill' will allow
the LS reading for a single object if the sentences are spoken in the
presence of the thing being brought or drilled, or in a conversation
discussing these items. Similarly, the clauses in (25), which are un-
grammatical without objects, become grammatical if spoken in the physical
or conversational context of the objects referred to. For example, (25a)
might be uttered while pointing to a tree which has clearly been drilled.

(25) a. *Muntu o-re-a o-w-eeg -ir-e n-e -et-er-e
    person Rel Ag-drill-T Ag-go-T
    'The person who drilled went.'

    b. *Muntu o-re-a o -reet -ir-e n-e -jet-e
        person Rel Ag-bring-T Ag-come
        'Person who brought is coming.'

The other verbs of (19), however, do not allow object deletion, even
though the object is specified by the context. Another subset of transitive verbs, characterized by [ga 'hear', actually seem to prefer object deletion. Both interpretations in (20c) are acceptable, but the LS reading seems to be a little better.

It appears that transitivity cannot be treated simply as a deletion rule. It is likely that object deletion is governed by various classes of verbs whose requirements for deletion are satisfied in various contextual ways. What is interesting here for clause union, however, is that when sufficient context allows a strongly transitive verb to behave like a moderately transitive verb, the emergence of the LS also becomes possible. This is further evidence that the LS appears only under conditions that remove competition.

7. Two-Object Verbs

KiMeru has a group of verbs which prohibit the surfacing of the LS even in simple causatives followed by two objects (recall that the expected object configuration is LS-LDO). In the causatives of (26), the object nearest the verb is interpreted as though it were an AO, but no applied extension occurs. The second object must be interpreted as an LDO; an LS reading is not permitted.

(26) a. Munfu ni-a-ku-rjitan-ith-j-a muritani KiSwahili person Ag-T -teach-C -C teacher Swahili
   'The person is causing Swahili to be taught to the teacher.'
   (NOT: 'the person is causing the teacher to teach Swahili')

   b. Ni-mp-ej -ag-jth-j-a muka kaana
      Ag-give-T -C -C woman child
      'I cause the child to be given to the woman.'
      (NOT: 'I cause the woman to give to the child')

These verbs are also peculiar in noncausative sentences where two objects occur without benefit of an applied extension, as in (27).

(27) Muritani ni-a -ku-rjitan-ag-a kaana KiSwahili
    teacher Ag-T -teach-T child Swahili
    'The teacher was teaching Swahili to the child.'

That both objects are accessible to passive and pronominalization is demonstrated in (28) and (29). These show that both objects in two-object sentences formed without benefit of extensions possess characteristics of DOs.

(28) a. Muritani ni-a -ki-rjitan-ag-a kaana
    teacher Ag-OP-teach-T child
    'The teacher teaches it (i.e., Swahili) to the child.'

   b. Muritani ni-a -mu-rjitan-ag-a KiSwahili
      teacher -Ag-OP-teach-T Swahili
      'The teacher teaches Swahili to him/her.'
(29) a. KiSwahili ni-ki-rjtan-ir-w-e kaana
   Swahili    Ag-teach-T -Pass child
   'Swahili was taught to the child.'

   b. Kaana ni-a -rjtan-ir-w-e KiSwahili
      child    Ag-teach-T -Pass Swahili
      'To the child Swahili was taught.'

The failure of the LS to appear in the causative sentences of (26)
can be explained within the clause union framework if both objects in
inherently two-object sentences are considered to be DOs. Since two­
object verbs would fill both available DO positions, there is no place
for the LS to go. Since LS loses in competition with the other DO sources,
as we have seen, it cannot wrest a position; thus it does not appear.

8. Conclusion

The foregoing discussion has attempted to show that both unmarked
NPs following causative, applied, causative-applied and inherently two­
object verbs possess DO qualities. This was accomplished by demonstrating
that the AO, LDO and LS are all accessible to rules which operate on DOs
and fail to operate on non-DOs. Since no distinction is made between
these objects in their relational behavior, it is suggested that they
do in fact hold the same relational status, that of DO. This approach,
of course, weakens universal grammar in that it allows more individual
variation for languages at the most basic level of Relational Grammar--
the grammatical relations themselves. On the other hand, the clause
union hypothesis also associated with Relational Grammar was seen to be
valuable in explaining the appearance of the various potential DOs in
causatives, once two DOs were permitted.

It must also be concluded that the relation of DO is not discrete
in KiMeru. The various potential DOs can be ranked according to their
relative strength, based on preferential treatment of the AO over the LDO
over the LS. There is evidence to suggest, however, that at least part
of this ranking reflects restrictions on deletability stemming from var­
ious transitivity levels of verbs, independent of clause union.

REFERENCES

linguistic similarities and divergences." In Masayoshi Shibatani

in universal grammar." In Peter Cole and Jerrold M. Sadock (eds.),


Traditionally vowels have been phonetically classified in terms of three parameters. One of these, lip rounding, refers to the degree of rounding or spreading of the mouth during vowel production, and is clearly observable. The other two parameters, tongue height and front/back placement, have been used to characterize the position in the mouth of the highest point of the tongue during vowel production. It was thought that the highest point of the tongue defined the point of maximal constriction for vowels and could therefore be equated to "point of articulation". But unlike the lips, the shape of the tongue could not be seen. It was not until the development of X rays that we were able to get a true picture of the shape of the vocal tract during speech, and of the different tongue shapes for different vowel values. By comparing these tongue shapes with the vowel charts that we have long been familiar with in phonetics, we saw that what had been called tongue height was not really the height of the tongue at all. Instead, it was the subjective interpretation of how high the tongue was heard to be in the mouth; not an articulatory parameter, but rather an auditory or perceptual one [Ladefoged 1975].

Figure 1 shows the highest points of the tongue for the English vowels in the words heed, hid, head, had, father, good, and food. Note that the back vowels are considerably lower than the front vowels. One would expect from the traditional charts that the highest point of the tongue for the high back vowel of food (#7) would be higher and farther back than it is. Note also that the tongue shapes for vowels 1 through 5 are evenly and clearly spaced out and there is an inverse relationship between the height of the tongue and the root of the tongue.
The traditional phoneticians were very accurate in discerning the relative height of vowels—that is, vowel height—but I want to emphasize that this refers to acoustics and not to articulation. It is not tongue height, but vowel height.

Vowel height is a function of the first formant frequency, that is, the first band of harmonic overtones of the voice, and can easily be determined by sound spectrograms. The front/back dimension of the tongue can also be acoustically determined and is a function of the second formant frequency. Many phoneticians subtract the value of the first formant from that of the second formant to represent the front/back dimension, since the vowels can then be graphically aligned to look like the traditional vowel chart representation. Just such a representation for the vowels of American English is shown in figure 2, where the abscissa (the horizontal dimension) indicates front/back placement and the ordinate (the vertical dimension) indicates vowel height. The frequency values of the formants increase from high vowels to low vowels (top to bottom) and from back vowels to front vowels (right to left). The sweeping arrows represent diphthong movement in the vowel space.

The purpose of this paper is to show that the three traditional parameters of lip rounding, vowel height, and front/back placement are not sufficient for characterizing the vowels of DhoLuo. Lip rounding is redundant for back vowels and will not be discussed further.

Figure 2. A combined acoustic and auditory vowel chart for some of the vowels of American English (after Ladefoged [1975:194]).
Dholuo is principally spoken in southeastern Kenya and the contiguous area of Tanzania along the eastern shore of Lake Victoria, although there are also many speakers in the Nairobi and Mombasa urban areas of Kenya. This language, which is also known as Luo, is, according to the Greenberg African language classification, a member of the Western Nilotic subbranch of the Nilotic branch of the Eastern Sudanic division of the Chari-Nile subfamily of the Nilo-Saharan language family.

The geographic range of the Western Nilotic languages is from Renk, Sudan, south through the basin of the White Nile River and its tributaries as far as Lake Kyoga in Uganda, and at some distance to the southeast—the area of Dholuo—the eastern shore of Lake Victoria. That these languages are all closely related is well attested both linguistically and historically [Tucker and Bryan 1966, Ogot 1967, Hall et al. 1974].

The vowel systems of these languages are of considerable interest, for while they display a type of vowel harmony that has also been shown for many languages in West Africa, a type that has been called relative height harmony [Greenberg 1963] and cross-height harmony [Stewart 1971], the harmony categories are characterized by more than vowel height—they are also characterized by a distinctive opposition in the quality of the voice. Tucker [Tucker and Bryan 1966] refers to this as category harmony; in figure 3 his vowel chart for the Southern Lwo group of languages (which includes Dholuo) is shown. Note that there are two harmonic categories of vowels, specified as close and hollow versus open and hard. A member of the first category is considered to have a greater relative vowel height that that of the corresponding member of the second, as well as a different voice quality. Tucker specifies both [a] and [á] for this group of languages, but I have not been able to confirm this distinction for Dholuo.

In an attempt to verify these vowel qualities and in order to be able to measure and quantify the acoustic and articulatory parameters of vowels in Dholuo, I have done the following two studies.

The first was an acoustic study in which I measured the formant values for the stem vowels of 187 verbs in Dholuo. This involved one adult native speaker of the language speaking at a normal rate. The $F_1$ versus $F_2-F_1$ values are summarized in figure 4, where I have determined

[Figure 3. A Southern Lwo vowel chart (after Tucker and Bryan [1966:404])]
Figure 4. Vowel variability in DhoLuo

Figure 5. Vowels from two near-minimal sets in DhoLuo
for each vowel the means and standard deviations for these values. These are displayed as elliptical areas which represent one standard deviation along each axis from the mean value. Hence, each ellipse in the figure ideally represents 68% of the area over which its respective vowel occurs in the vowel space. One can see that the front vowels are reasonably separated, though there is some overlap. The back vowels, on the other hand, are much more crowded together, with considerable overlap. Note especially the situation with [ɔ], where it is nearly completely overlapped by [u] and [o]. One comment worth making at this point is that if there were another factor to characterize membership in a vowel harmony category—such as voice quality—this would largely disambiguate the confusion introduced by the overlapping height. The vowels [i] and [e], [ɪ] and [ɛ], [o] and [ɔ] might occupy discrete areas within the, now three-dimensional, vowel space. There may possibly still be some overlap between [u] and [o], however.

Because the place of articulation of neighboring segments can shift the formant frequencies of a vowel, it is altogether possible that our picture is being obscured by having an uncontrolled phonetic environment. For this reason I sought a near-minimal set from my corpus and was fortunate enough to have the two sets presented below (along with the first and second formant frequency values for the first vowel):

<table>
<thead>
<tr>
<th></th>
<th>CIRCLE SET</th>
<th></th>
<th>SQUARE SET</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F₁ (in Hz)</td>
<td>F₂ (in Hz)</td>
<td>F₁ (in Hz)</td>
<td>F₂ (in Hz)</td>
</tr>
<tr>
<td>diko</td>
<td>350</td>
<td>2225</td>
<td>rito</td>
<td>300</td>
</tr>
<tr>
<td>ndiko</td>
<td>450</td>
<td>2125</td>
<td>rido</td>
<td>400</td>
</tr>
<tr>
<td>leko</td>
<td>475</td>
<td>1800</td>
<td>teko</td>
<td>450</td>
</tr>
<tr>
<td>lego</td>
<td>475</td>
<td>1575</td>
<td>ndeto</td>
<td>550</td>
</tr>
<tr>
<td>logo</td>
<td>425</td>
<td>1025</td>
<td>woto</td>
<td>475</td>
</tr>
<tr>
<td>loko</td>
<td>450</td>
<td>1100</td>
<td>wodo</td>
<td>450</td>
</tr>
<tr>
<td>tugo</td>
<td>350</td>
<td>1100</td>
<td>luto</td>
<td>375</td>
</tr>
<tr>
<td>doogo</td>
<td>375</td>
<td>1075</td>
<td>lodo</td>
<td>400</td>
</tr>
<tr>
<td>lago</td>
<td>750</td>
<td>1325</td>
<td>dado</td>
<td>750</td>
</tr>
</tbody>
</table>

These formant frequency values are represented in figure 5 by circles and squares for the different sets showing F₁ versus F₂-F₁. The circle set has its prevocalic consonants made at an alveolar place of articulation and its postvocalic consonants made at a velar place of articulation. The square set is not so neat: the prevocalic consonants are all alveolar except for the [o]/[ɔ] distinction which has an initial glide; the postvocalic consonants are all alveolar, except for the [o]/[ɔ] distinction which is dental. The harmony categories are also distinguished in this figure as hollow or solid symbols. Note here that even controlling for our phonetic environment, we have similar results to those in figure 4. That is, the front vowels occupy essentially separate areas within the vowel space (even though vowel height may be ambiguous), but the back vowels are crowded together and overlapping. This is convincing evidence to me that the two parameters of vowel height and front/back placement are not sufficient for characterizing the vowels in this Nilotic language.
In the second study I looked at the eight vowels that are in harmony pair contrasts (/a/ was excluded). The vowels were taken from context from a set of four minimal pairs said at a normal rate of speech. The acoustic results, while showing some individual variation, do not differ appreciably from what appears in figures 4 and 5, except that there is a clearer separation between [o] and [ɔ] than was evident from the single speaker of the earlier study. The acoustic closeness of [i] and [e] and of [o] and [ɔ] was confirmed with this larger study.

Radiograms (X-ray negatives) were made of the vocal tracts of these speakers during sustained phonation of the vowels. Tracings were made of the vocal tract shapes from the radiograms for the different vowels for each of the speakers and compared. Considerable individual variation was found among the speakers. What I shall do here for illustrative purposes is to select a speaker whose vocal tract shapes clearly illustrate the points I wish to make, though it must be borne in mind that his gestures may be more exaggerated than is typical.

Figure 6. Vocal tract tracings for front vowels of DhoLuo.
Tracings from this speaker are presented for front vowels in figure 6 and for back vowels in figure 7. For the front vowels we see that tongue height corresponds to vowel height, though the highest points of the tongue are not so spaced out as we saw for English in figure 1. The two harmony categories are distinguished by hollow symbols for one and solid symbols for the other. In looking at the width of the pharynx we note that both of the "hollow" vocal tracts have a wider pharynx than either of the "solid" vocal tracts. This contrasts with what we saw for English in figure 1, and demonstrates that pharynx width in DhoLuo is independent of tongue height. Both the root of the tongue is more advanced and the larynx more depressed for one category (hollow) than for the other (solid), resulting in a considerable dilation of the entire pharyngeal cavity. The acoustic results of this are to lower the first formant frequency, which results in a greater vowel height [Lindau 1976]. A similar pattern for this speaker is found for the back vowels.

Figure 7. Vocal tract tracings for back vowels of DhoLuo.
In considering tongue height in the other vocal tract tracings, we note that only two of the other speakers make the same clear patterns as those illustrated; for the remaining five speakers the highest point of the tongue does not always correspond to vowel height. There are seven discrepancies in all: [i]~[i](1), [i]~[e](1), [o]~[o](2), [u]~[o](3).

When we consider the width of the pharynx for all of the speakers, we note only three discrepancies where a vowel harmony pair is not distinguished; here there is merely neutralization, not reversal as with vowel height. In fact, the width of the pharynx turns out to be a better indicator of harmony category membership than the height of the tongue, since for 6 half-sets of tracings (out of 16) both vowels of one category are distinct from both vowels of the other category. I ran a correlated paired t-test on the harmony pairs using the greatest width of the pharynx as an index. The results were very significant (p < 0.01) for all of the pairs except for [u]/[o], which was marginal (p < 0.05).

In general, there is a relationship between the height of the tongue and the position of the tongue root: the higher the tongue, the more advanced the root of the tongue. For DhoLuo, however, we have seen that advancement of the tongue root acts independently of tongue height, so that two distinct vowels can be said with a small or negligible difference in tongue height but with a large difference in the size of the pharyngeal cavity (or in fact a higher vowel can have a lower tongue height, as happens in seven instances within this study).

We also have to be aware of the differences in voice quality—what Tucker refers to as hollow or hard. Since the vowel harmony pairs cannot always be disambiguated by means of the first and second formant frequencies, there must be some other aspect of the speech signal that the speaker-hearer of DhoLuo uses for disambiguating them. It is this difference in voice quality that is probably used by the speaker-hearer as a perceptual cue for category assignment. What isn't known is if the change in the shape of the pharynx is alone responsible for the voice quality difference, or if there is also a different mode of vibration of the vocal cords. We also do not know the functional load carried by the different vowels in the language. Is it possible that there are enough predictive factors in the language that we do not have to resort to voice quality differences as means of disambiguating vowel confusions?

I have been able to determine empirically and in a measurable fashion that there are systematic differences in pharynx cavity volume, as well as the traditionally recognized differences in height and front/back placement of the tongue. I have also determined that all of these phonetic aspects are necessary for describing the vowel system of DhoLuo and its vowel harmony processes. In addition, based on further research in the mode of phonation and the perception of DhoLuo vowels, a descriptive parameter of voice quality may be required.
ACKNOWLEDGEMENTS

I am grateful to the following speakers of DhoLuo for their friendship and assistance in the acquisition of the data upon which this paper is based: W. K. Alwala Ochieng, J. O. P. Andelle, James Hannington Anditi, Raphael O. Ogweno, Jerome Okelo, Jared J. O. Okungu, Caleb Othieno Opondo, and Ezekiel A. Okoth Wamanya. I am thankful to the Radiology Department of the Kenyatta University Hospital for the use of its facilities and especially to L. R. Whittaker, O.B.E., M.D., F.F.R., and Bernard Mburu, D.S.R.(R), for their beneficence and interest. This paper has benefitted from discussion with members of the UCLA phonetics laboratory, in particular from the critical comments of Peter Ladefoged.

REFERENCES


LENGTH AND SYLLABLE STRUCTURE IN HAUSA*

William R. Leben
Stanford University

There have commonly been two approaches in generative phonology for representing length contrasts, one involving the feature [long] and the other involving single vs. double segments. In this paper, I argue that in Hausa neither approach is correct, and that the correct way of capturing length contrasts is by means of a suprasegmental rather than a segmental feature.

Newman [1972] presents an analysis of the Hausa plural class marked by the suffix -aaCee that in general successfully captures how the syllabic and segmental structure of the root determines the realization of the plural form. Ignoring roots of the form CVNC- (where N is a nasal consonant), which inexplicably take the plural ending -aayee1, this plural class falls into the three subclasses in (1):

(1) Type of root  | Singular | Plural      | Gloss
---|---|---|---
a. -CC:  | kaskoo | kasaakee | 'bowl'
       | birnii | biraanee | 'city'
b. -VC  | damoo  | damaamee | 'monitor'
       | wuri   | wuraaree | 'place'
c. -V:C | zoomoo | zoomaayee | 'hare'
       | kiiifii | kijfaayee | 'fish'

We get the singular root by omitting the final vowel, if there is one. If the root ends in CC, as in (1a), the plural is formed by infixing -aa- between the two C's and adding -ee on the right. If the root ends in -VC, as in (1b), -aa- is followed by a reduplicate of this root-final C, which in turn is followed by -ee. If the root ends in -V:C, as in (1c), infix and suffix aa-ee are attached, and a rule of Epenthesis, which Newman finds to apply generally in the language, breaks up these two vowels, giving -aayee.

The following rules, which are essentially those proposed by Newman, integrate the analysis of these three plural subclasses:

*Footnotes for this paper will follow the main body of the article.
(2) a. Double the final root consonant if the syllable preceding it is light.
   b. Insert -aa- after CVC of the root.
   c. Add -ee to the right.
   d. Perform y Epenthesis.

The following derivations show how the rules in (2) generate the subclasses of (1):

(3) a. /kask-/  b. /dam-/  c. /zoom-/  
(2a) --  --  --  
(2b) kas-aa-k-  dam-aa-m-  zoom-aa- 
(2c) kas-aa-k-ee  dam-aa-m-ee  zoom-aa-ee  
(2d) --  --  zoom-aa-y-ee

Consider now roots ending in a long consonant, like the roots of talee 'soup pot', gammo 'head pad', and hanna 'hand'. If this long consonant is represented as a geminate (as it is in Hausa orthography), the rules just formulated would wrongly predict the plurals to be talhaalee, gamaamee, hannaanee. To see this, note how the rules of (2) would apply:

(4) /tall-/  
(2a) --  
(2b) tal-aa-l  
(2c) tal-aa-l-ee  
(2d) --

The correct plurals are: tallaayee, gammaayee, hannaayee. Checking the paradigms in (1), we see that roots ending in a long consonant parallel subclass (1c), which consists of a heavy syllable and a single consonant, in that they simply attach -aayee for the plural.

To handle this fact, one might try regarding long consonants as single segments with the feature [+long], hence talee, gammoo, hañu, where the macron denotes extra length. We can exempt the roots of these words from undergoing doubling by (2a) if we revise this rule to double a short consonant following a short vowel. Now the roots in long consonants will form the correct plurals. Their derivation is analogous to (3c):

(5) /tañ-/  
(2a) --  
(2b) tañ-aa-  
(2c) tañ-aa-ee  
(2d) tañ-aa-y-ee

One could object that this analysis of long consonants is simply a notational
trick devised to make the rules work correctly. A sign that this objection is valid is that, while correctly generating the plurals in question, it does so at the cost of requiring certain other provisions that are unnecessary if long consonants are treated as geminate clusters. This is shown by the distribution of long consonants in Hausa:

(6) a. *cV... b. *...VC c. *...CC... d. *...CC...
   e. OK: ...VCV...

That is, the only place that long consonants occur is between vowels. If we instead regard C as CC, this distribution would follow automatically from constraints on consonant clusters in general. (6a) follows from the ill-formedness of CCV; (6b) from the ill-formedness of VCC; (6c,d) from the impossibility of clusters of more than two consonants; and (6e) reduces to the fact that certain clusters of two consonants are permitted between vowels, as in kaskoo.

To sum up the preceding, it seems that we can improve the description of plural formation in Hausa if we analyze long consonants as C rather than as CC. But doing this causes us to miss the fact that the distribution of C is precisely that of CC.

There is a relatively easy way out of this paradox. Rather than attributing the length of consonants to a segmental feature [long], we can define a suprasegmental feature that accounts for their length. We may reanalyze long consonants as ambisyllabic, i.e. as single consonants that have the peculiarity of closing one syllable and opening the next. The contrast between short and long consonants could then be sketched as in (7). For more on the topic of representing syllable structure by means of association lines connecting segments with syllables, cf. Kahn [1976]; Goldsmith [1976]; their proposals, reflected in (7), will be modified below. $ stands for a syllable.

(7) a. short C: b. long C:

Then the reason why long consonants do not occur initially is simply that there is no preceding vowel for them to be associated with; and the reason that they do not occur finally is that there is no following vowel for them to be associated with. For (6c,d), the reason that long consonants cannot appear adjacent to another consonant is that no syllable may contain two consonants in sequence. That is, for the same reason that the structures (8a,b) are ill-formed, (8c,d) are ill-formed:

(8) a. *CCV... b. *...VCC c. *...VCCV... d. *...VCCV...
In (8c) the first C is ambisyllabic, and in (8d) the second one is.

There remains one problem for this proposal, since in effect it makes the number of syllables in a word phonemic. That is, in order to represent the contrast between long and short consonants in terms of whether they are ambisyllabic or not, we must lexically attach a given consonant to one or two syllables, as illustrated in (7). This is unfortunate, since other than for the long/short contrast in intervocalic consonants, the syllabic composition of words is derivable from their segmental composition.

We will escape this problem if we can show that adding information about syllables to the phonemic content of the lexical entry is balanced by a reduction in the information needed for the segmental composition of a word. In fact, it is possible to do just this. McCarthy [1976], following a suggestion attributed to Paul Kiparsky, argues that it is incorrect to claim that syllables, designated by $ in (7), have no internal constituent structure. Rather than being connected directly to a sequence of segments, the node $ must branch into sets of nodes s and w (for strong and weak), which themselves may branch into s and w. Trees for syllables of the form CV and CVC are drawn as in (9):

\[
\begin{align*}
\text{(9) a.} & \quad & \text{b.} \\
& \quad & \\
& \quad & \\
& \quad & \\
& \quad & \\
& \quad & \\
\end{align*}
\]

McCarthy stipulates, on the basis of Liberman's [1975] study of the hierarchical arrangement of the syllables in English words with respect to each other, that any non-terminal node of $, s, or w branches into two and only two nodes, one of them marked s and the other w. McCarthy further stipulates that the terminal elements (those in (9) which immediately dominate C or V) have the following property: there is only one terminal s per syllable, and this s is paired with the nucleus; all other terminals are w. I will adopt the latter definition but not the former one. The assumption of binary branching does yield some interesting results, as McCarthy shows. (For example, it makes the rhyme of the syllable—the nucleus and coda—into a unit, and there does appear to be good evidence for this in some languages.) But since Hausa syllable structure is relatively simple, we can ignore some of the structure for the sake of expository convenience and still offer an interesting solution to the problem at hand.

Let us take the syllable structure of Hausa CV and CVC syllables to be as drawn in (10):

\[
\begin{align*}
\text{(10) a.} & \quad & \text{b.} \\
& \quad & \\
& \quad & \\
& \quad & \\
& \quad & \\
\end{align*}
\]
This proposal forces us to modify the one sketched in (7), wherein long consonants are represented as being attached to two adjacent syllables. Instead, these consonants must be paired with a sequence $W$, the first is dominated by one $\$, and the second is dominated by a following $\$. Thus the contrast between the short $m$ of damoo and the long $m$ of gammoo will be represented as in (11). The trees are only partially drawn; full trees will be drawn shortly.

(11) a. damoo: $ \ \$ \\
... W ... \\
... m ...

b. gammoo: $ \ \$ \\
... W W ... \\
... m ...

Where past proposals represented the opposition between long and short $C$ as [+long] vs. [-long] or as CC vs. C, the present one represents it as paired with $W W$ vs. $W$. Thus, the possibilities for Hausa consonant length are expressed by the formula $W(W)$.

This representation generalizes readily to vowels. By definition, any vowel, even a short one, is paired with $s$. We can contrast long vowels with short ones by pairing the former with $SW$. So, the possibilities for Hausa vowel length are expressed by the formula $s(W)$. The missing parts in (11) may now be supplied:

(12) a. damoo: $ \ \$ \\
WS \ WSW \\
dam o

b. gammoo: $ \ \$ \\
WSWWSW \\
gam m o

Syllable structure, which is usually described by listing the permissible syllable types of Hausa CV, CVV, and CVC (where $C$ can be a glide as well as a "true" consonant), can be given by the formula $WS(W)$. This formula gives a way of syllabifying properly: we simply specify that any word must be exhaustively broken up into syllables, each of them of the form $WS(W)$.

To sum up the presentation thus far, we have interpreted the phonological contrast between long and short consonants as in (13a,b) and between long and short vowels as in (13c,d):

(13) a. $W $ b. $W $ c. $S $ d. $S $
\begin{align*}
\sqrt{C} & \quad \sqrt{C} \\
\sqrt{C} & \quad \sqrt{V} \\
\sqrt{V} & \quad \sqrt{V}
\end{align*}

Phonological representations will thus have the following form, with the segments here standing for columns of segmental feature specifications:

(14) a. wswsw \\
\begin{align*}
\sqrt{WSW} \\
dam o
\end{align*}

b. wswsw \\
\begin{align*}
\sqrt{WSW} \\
gam m o
\end{align*}

Syllabication will be determined by generating a $\$ to dominate each sequence of the form $WS(W)$, deriving the representations in (12) from those in (13). Sequences like $WWSW$ and $WSWW$ cannot be parsed by this algorithm; this directly captures the impossibility of syllable-initial and syllable-
final long consonants or consonant clusters. In the very same way, it captures the fact that a syllable with a long vowel cannot be closed by a consonant. The imperfect parses of all of these sequences are sketched in (15).

(15) a. *CCV... b. *...CVCC c. *...CVVC

\[
\begin{array}{c}
\text{wsw} \\
\text{wsw}
\end{array}
\]

This proposal captures the insight represented in (7) above, yet avoids the problem of overspecifying the phonological content of lexical representations. The vocabulary it uses to express phonemic length contrasts in Hausa is precisely the same as the vocabulary for expressing the permissible syllables of the language, something that any phonology must capture. Rather than adding any new contrasts, this proposal has merely traded the traditional oppositions [+long] vs. [-long] and double vs. single segment for a new one, presence vs. absence of an additional w for a segment or syllable.

In fact, the new system permits a simplification over the old ones. Recognizing the suprasegmental opposition s vs. w makes the segmental opposition [+syllabic] vs. [-syllabic] unnecessary. Another way of looking at this is to say that the terminals s and w respectively are the old features [+syllabic] and [-syllabic], only expressed suprasegmentally. To see that this system eliminates the need for the segmental feature [syllabic], consider the following realizations:

(16) a. short vowels b. long vowels c. glides

\[
\begin{array}{c}
s \\
\text{[-cons]}
\end{array}
\]

\[
\begin{array}{c}
w \\
\text{[-cons]}
\end{array}
\]

d. short consonants e. long consonants

\[
\begin{array}{c}
w \\
\text{[+cons]}
\end{array}
\]

\[
\begin{array}{c}
w \\
\text{[+cons]}
\end{array}
\]

e. syllabic consonants

\[
\begin{array}{c}
s \\
\text{[+cons]}
\end{array}
\]

I conclude that, along with refining Newman's account of Hausa plurals in -aaCee, this discussion has provided good motivation for regarding [syllabic] as a suprasegmental feature rather than as a segmental one.
FOOTNOTES

1The behavior of nasals in CVNC- roots in this subclass should be contrasted to their behavior in a similar subclass, marked by the plural ending -aaCaa: dams'ee /dam-aa-s'-aa pl. 'forearm'. This suggests that there is nothing inherent in the VN sequence in Hausa that would prevent its being broken up by infix -aa-. Rather, it seems, the behavior of VN in roots that take the plural suffix -aaCee represents a morphological rather than phonological regularity.

2One of the most striking results stemming from this proposal, pointed out to me by John McCarthy, is that the suprasegmental feature [syllabic] provides a ready way of characterizing consonants which involve a sequence of articulations yet count as one unit, such as affricates and prenasalized consonants in many languages; these are, simply \[XX\] C C.

In a similar vein, James Harris has suggested that we may now capture vowel sequences that jointly form the syllabic nucleus without counting as long vowels, such as Spanish oe in poetisa 'poetess', by representing them as \[V\] S V V.

REFERENCES


HOW IGBO GOT FROM SOV SERIALIZING TO SVO COMPOUNDING

Carol Lord
University of Southern California

1. Introduction

Within the Benue-Kwa group in the Niger-Congo language family there is a considerable amount of typological variety. One parameter according to which these languages differ is order of basic sentence elements. Most have the basic order subject-verb-object (SVO), but in Ijo the basic order is subject-object-verb (SOV). Another parameter is the type of structural configuration that occurs within the predicate. Many languages in this group allow a series of verb phrases within a single sentence. These series can be roughly classified with respect to form as either consecutive constructions, in which verbs after the first one may have a restricted set of morphological markers (as in Bamileke and Igbo), or serial verb constructions, in which verbs after the first have no special marker (as in Yoruba). Verbs are typically monomorphemic, for example the Yoruba CV monosyllable, but in Igbo verbs can also be compounds formed from verb root combinations or roots plus affixes. This typological diversity is exemplified in (1). Igbo appears to be unique with respect to predicate type; no other language in this geographical area, as far as I know, has widespread verb-verb compounds of the sort that Igbo has.

<table>
<thead>
<tr>
<th>LANGUAGE</th>
<th>WORD ORDER</th>
<th>PREDICATE TYPE</th>
<th>FORM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bantu</td>
<td>SVO</td>
<td>non-serializing</td>
<td>he carry pot; he go</td>
</tr>
<tr>
<td>Yoruba</td>
<td>SVO</td>
<td>serializing</td>
<td>he carry pot go</td>
</tr>
<tr>
<td>Ijo</td>
<td>SOV</td>
<td>serializing</td>
<td>he pot carry go</td>
</tr>
<tr>
<td>Igbo</td>
<td>SVO</td>
<td>non-serializing, BUT compounding</td>
<td>he carry-go pot</td>
</tr>
</tbody>
</table>

I want to express appreciation to William Welmers for sharing his knowledge of and enthusiasm for the Igbo language, to Talmy Givón and Larry Hyman for circulating such interesting ideas, to Sandy Thompson for her good questions, and to Regina Amankulor for her insights on Igbo.
This present typological variety within Benue-Kwa is particularly interesting if we assume that Niger-Congo, including Benue-Kwa, was SOV non-serializing at some earlier stage. Note that none of the languages in (1) retain this SOV non-serializing typological pattern. For this discussion, I am assuming that Niger-Congo was indeed SOV non-serializing at some earlier stage; I find the evidence and arguments for this presented by Givón [1971b and 1975] quite convincing—namely, morphological and syntactic remnants of the earlier word order in the present-day languages.

Assuming that the languages in (1), then, were all formerly SOV non-serializing, how do we account for their present-day diversity? Basically, three kinds of change have occurred: (a) a word order shift from SOV to SVO; (b) a broadening of the allowable predicate configurations to permit serial verb constructions; and (c) the development of a new morphological structure alternative for verbs, that is, the introduction of compound verbs into the lexicon, in addition to simple verb roots.

2. The Word Order Shift from SOV to SVO

Hyman [1975] discusses the change from SOV to SVO. He concludes that the change was activated by afterthought, the appending of additional information after completing a basic sentence, as in the French utterance, il a mangé le pain, Jean 'He ate the bread, John.' This rightword dislocation process may be used for contrast, disambiguation, or simply for the addition of forgotten information. The process is illustrated, per Hyman, in (2):

(2) Kru:

a. S-O-V: ³ sé kɔ nə dì
   he NEG rice DEF ate
   'He didn't eat the rice.'

b. S-O-REL-V: ³ sé kɔ jú nə tə ã nə dì
   he NEG rice child DEF bought REL DEF ate
   'He didn't eat the rice that the child bought.'

c. S-O-V plus REL as "afterthought":
   ³ sé kɔ nə dì, jú nə tə ã nə
   he NEG rice DEF ate, child DEF bought REL DEF
   'He didn't eat the rice...that the child bought.'

Negative sentences in Kru retain the earlier OV order, as in (2a) and

---

2The OV sequence preserves the earlier word order regardless of whether we view the negative sé as a verb or a grammatical morpheme; the following OV sequence may have developed from a complement marked as a nominal (Lynell Marchese, personal communication).
(2b). Sentence (2b) contains a relative clause on the object, in its usual position directly following the object noun. In (2c) the speaker has not planned ahead, and the relative clause is tacked on at the end of the sentence, after the main clause verb. This may well be at least one process by which pre-verbal material is moved to post-verbal position in the gradual process of word order change.

Hyman suggests that the SOV-to-SVO word change was not an individual innovation in each language, but was diffused throughout the area by contact among speakers, probably starting with Bantu, with a wave sweeping westward throughout Benue-Kwa, missing only Ijo.

3. The Development and Spread of Serialization

That serialization also spread through language contact is suggested by Hyman [1971]. According to this hypothesis, serial verb constructions developed from coordinate sentences, with consecutive constructions as an intermediate stage. The starting point for this sequence of development would be a coordinate sentence with an overt conjunction, as in (3).

(3) Nupe: ụ la dụkụ ụ cT bé
he take pot he and come
'He took the pot and he (then) came.'

(The morpheme following the subject of the second clause, here cT, is probably verbal in origin, as in Yoruba, but is often called a conjunction; a language with the conjunction between the sentential conjuncts would be, for example, Akan.) The subject of the second conjunct is often pronominalized or deleted when it is identical to the subject—or sometimes the object—in the first conjunct, resulting in a sequence like (4a):

<table>
<thead>
<tr>
<th>LANGUAGE/TYP</th>
<th>S</th>
<th>V</th>
<th>O</th>
<th>CONJ</th>
<th>V</th>
<th>GLOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) coordinate Nupe</td>
<td>ụ la</td>
<td>dụkụ</td>
<td>cT bé</td>
<td>cT</td>
<td>bé</td>
<td>'He took the pot, and (then) came.'</td>
</tr>
<tr>
<td>(b) consecutive Fe?fe?</td>
<td>kà lāh</td>
<td>cāk</td>
<td>n- sā</td>
<td>sā</td>
<td>'He brought the pot.'</td>
<td></td>
</tr>
<tr>
<td>(c) serial Nupe</td>
<td>ụ la</td>
<td>dụkụ</td>
<td>bé</td>
<td></td>
<td></td>
<td>'He brought the pot.'</td>
</tr>
<tr>
<td>(d) serial Yoruba</td>
<td>ó mú</td>
<td>lwé</td>
<td>wá</td>
<td></td>
<td></td>
<td>'He brought the book.'</td>
</tr>
<tr>
<td>(e) compound Igbo</td>
<td>ó bu -là-rà ìtè</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>'He carried the pot back (home).'</td>
</tr>
</tbody>
</table>

In consecutivization in SOV languages, as in Fe?fe? and in Igbo, the first
verb usually establishes the time reference of the sentence, and subsequent verbs are limited to maybe one or two forms. In (4b) the Fe?fe? consecutive marker is a nasal prefix on the second verb. In an Igbo consecutive construction the second verb may have a prefix or suffix, plus tone, the difference apparently corresponding to a completive/incompletive aspect distinction. The Fe?fe? consecutive marker, n-, looks like it could have come from an earlier "conjunction" on either the Nupe or the Akan model. Tracing the Igbo prefix and suffix and tone to a former conjunction or conjunctions is not so straightforward; for Igbo a plausible conjunction source is not readily available.

The term serialization in Benue-Kwa is probably best limited to constructions like (4c) and (4d) in which the verb phrases occur in sequence but are not overtly marked for coordination or subordination with respect to each other. The typical semantic interpretation of a serial verb construction in these languages is usually an action and result comprising a single event;³ compare consecutive (4a) 'He took the pot and came' with serial (4c) 'He brought the pot.' Certain verbs, such as 'take', and verbs with case-related meanings like 'be at' and 'give' and 'be with', tend to imply a single-event reading even in ostensibly coordinate structures. Hyman points out that this occurs even in English, where 'Take the knife and cut the meat' can imply 'with it'; that is, 'Take the knife and cut the meat with it.' This accounts for the fact that, while consecutives are typically interpreted as actions in a sequence, they can get a single-event interpretation when a verb like 'take' occurs, as in (4b).

4. The Development of Compounds in Igbo

The verb-verb compound pattern in (4e) appears to be unique to Igbo. These compounds are typically interpreted as component actions in a connected sequence, usually an action and result comprising a single event. The striking fact is that Igbo (which has no serialization) uses verb compounds to express the very range of meaning relationships that the languages to the west use serial constructions for. Thus Igbo compounds parallel, say, Yoruba serial verb constructions in representing the action-result relationship. Similarly, Igbo consecutives parallel Yoruba and Nupe "conjoined" sentences in having coordinate or sequential interpretations. A further parallel: Igbo verbs in compounds are subject to syntactic reanalysis over time, just as verbs in serial constructions are; but while verbs in serial constructions are typically reanalyzed as grammatical function words such as prepositions and clause subordinators (as described in Lord [1973] and [1976]), verbs in compounds are reanalyzed as derivational affixes.

³For discussion of this interpretation, see, among others, Givón [1975], Hyman [1971 and 1975], Lord [1973 and 1974], Weimers [1973].
In Igbo compounds, as described by Welmers [1970 and 1973], the first component is an independent verb root, and the following component, or components—there can be a string of them, just as in serial constructions—can be another verb root or a suffix, very often traceable to a verb source historically. Examples are (5) and (6).

(5) **FIRST COMPONENT** | **SECOND COMPONENT** | **COMPOUND**
---|---|---
byá 'come' | fè 'cross' | byáfè 'come across'
kwà 'push' | cf 'be stopped up' | kwàcf 'push shut'
mé 'do, make' | cf (as above) | mécf 'close'
mé (as above) | ghé 'be open' | méghé 'open'
tí 'hit' | wá 'split open' | tíwá 'shatter'

(6) **SUFFIXES:**
-śjf 'finish, stop'
-cf (action as a replacement)
-wá 'begin'
-hyè (action by mistake)
-gídé 'continue'

Givón [1975] suggests that Igbo compounds like those in (4e) and (5) arose from a serializing SVO syntax, comparable to that in (4d). Given the semantic parallel between compounds in Igbo and serial verb constructions in languages like Yoruba and Nupe, this line of development is appealing. But the typical configuration in (4d) is SVOV, and a historical shift to S V-V O (that is, SVO, where the verb is a verb-verb compound) requires some motivation for change, either for the object to move out to the end of the sentence, or for the second verb to move in to immediately follow the first verb.

Some Igbo verb suffixes, as in (6), have modality interpretations. Givón suggests that these affixes were formerly complement-taking modality verbs in SOV sentence patterns. Presumably, complex sentences with sentential complements would then have been reanalyzed as simplex sentences with verb compounds, as in (7) and (8).

(7)  
\[ S \quad O \quad V \quad S \quad V \]  
Mary (Mary) cry begin  \quad \rightarrow \quad Mary cry-begin  
'Mary began to cry.'

(8)  
\[ S \quad O \quad V \quad S \quad O \quad V \]  
Mary (Mary) home go want  \quad \rightarrow \quad Mary home go-want  
'Mary wanted to go home.'

Givón's proposal for a higher verb source for certain Igbo suffixes is comparable to his earlier proposals regarding Bantu modality affixes. Many modality prefixes in Bantu languages can be traced to specific verbs.
by comparing form and meaning. Also, a number of Bantu verb suffixes have meanings similar to the modality prefixes. But the suffixes differ from the prefixes in that the suffixes, first, are not productive, second, are often traceable to Proto-Bantu, and third, are shorter, suggesting greater erosion over time. Givón's claim [1971a, 1971b], consistent with these facts, is that both prefixes and suffixes were formerly higher verbs, but the current prefixes were former verbs in the present SVO sentence pattern, and the current suffixes are verb relics from the earlier SOV pattern.

If Igbo, like Bantu, has some affixes dating from the current SVO syntax and other affixes dating from the earlier SOV syntax, as Givón suggests, we might look for similar distinguishing criteria in Igbo. There does not appear to be a systematic distinction between the suffixes in (5) and (6) with respect to productivity. If the suffixes in (6) were older, we might expect them to be highly restricted in their use; but this is not the case. In Igbo, the main restriction on suffixation seems to be the semantic-pragmatic one of limiting compounds to representing situations or events conceivable by the speaker, given his intellectual and cultural experience. And, not surprisingly, once a compound is formed, it may take on idiosyncratic meaning and syntactic behavior, becoming lexicalized [Lord 1975]. If the suffixes in (6) were older than those in (5), we might expect them to be shorter or show some signs of phonological erosion, but there is no basis for distinguishing (5) and (6) with respect to form.

I would like to suggest that the similarities with respect to productivity and form between the suffixes in (5) and (6) reflect their common historical source as verbs during the earlier SOV stage of Igbo. The suffixes in (6), or at least those relatable to verbs with forward-looking meanings, like -wa 'begin', correspond to former higher verbs, which were preceded by sentential complements. The others, and those in (5), correspond to the second verb component in serial verb constructions, comparable to those currently found in Ijo.

It might be suggested that a "higher verb" source is not necessary, since meanings in (6) like 'finish' and 'continue', while higher verbs in English, do occur as verbs in second position in serial constructions in other Benue-Kwa languages. Serial constructions are plausible sources for 'finish' and 'continue', but not for 'begin', since to my knowledge no Benue-Kwa serializing language expresses the notion 'begin an action' with the verb 'begin' in second position in a serial construction. An example of 'begin' in second position in a compound in Igbo (northeastern dialect) is (9a), with similar suffixes in (9b) and (9c):
There is a range of negative suffixes in Igbo dialects, and these are also plausibly from higher verbs with meanings like 'leave out', 'avoid', 'miss', 'refuse', or 'abandon'.

The historical development within Igbo, I suggest, was something like that represented in (10). Whether the change was motivated internally or by contact (or some combination of these), the distinctive compound structure resulted directly from an SOV serializing language changing to SVO, with the single-event interpretation of serial verb constructions surviving in the new compound structure. The forms on the left in (10) are hypothetical earlier serial verb constructions; I have made no indications for tense/aspect.

(10) SOV Serializing SOV Compounding

(a) INTR + INTR:
    ó gbá fù  +  ó gbá-fù
    he run get-lost        he run-get-lost
    'He ran away.'

(b) TR + INTR:
    ó lìtè bù lá       +  ó bù-lá       lìtè
    he pot carry go-home   he carry-go-home pot
    'He carried the pot home.'

(c) TR + TR:
    ó ụbá cọ ọkè fè  +  ó cọ-fè ụbá ọkè
    he wealth seek boundary pass he seek-pass wealth boundary
    'He sought wealth excessively.'
    (Note also)  +  ó cọ-fè ụbá
    he seek-pass wealth
    'He sought wealth greatly.'
SOV Serializing

(d) DITR + TR:

\[
\text{\(\text{ó nw̃óké \textsf{íhē} tī (nw̃óké) gbū \rightarrow \text{ó tī-gbū nw̃óké (*íhē)}\)}
\]

he man thing hit (man) kill he hit-kill man (thing)

'He beat the man to death.'

(e) TR + TR:

\[
\text{\(\text{Okọyè ògụ lù yà gbū \rightarrow \text{Okọyè lù-gbū yà ((nà ògụ))}\)}
\]

fight\(_{N}\) fight\(_{V}\) him kill fight-kill him (fight)

'Okoye defeated him (in a fight).'

(f) DITR + TR:

\[
\text{\(\text{ó ènỳl yà ěgbè gbà (ènỳl yà) gbū}\)}
\]

he friend his gun shoot-at (friend his) kill

'He fatally shot his friend (with a gun).'

When the second verb is intransitive, as in (10a) and (10b), the juxtaposition of the two verbs in SOV structure makes compounding a plausible process. When the second verb is transitive, its object is typically identical to the object of the first verb, as in (10d), and is accordingly usually pronominalized or deleted, leaving both verbs juxtaposed again. The pressures of contact with SVO languages, plus possibly, universal tendencies like afterthought, may have brought about the shift. Those few cases where the object of the second verb is not identical with that of the first, as in (10c) and (10e), probably shifted along with the predominant pattern established by the other sentence types. There are some interesting variations, however: (10c) can retain both objects, or it can drop one. The object it retains, 'wealth', is the one essential for conveying the meaning of the sentence; the discarded object, 'boundary', may be thought of as having been semantically incorporated into its verb 'pass' in the new compound structure. (Note that when the object of the second verb, 'boundary', is omitted, the meaning distinction is one of degree, from 'excessively' to 'greatly'.) In (10d) 'hit' is ditransitive, yet its second object is not allowed in the compound form. The noun íhē 'thing' is the semantically most neutral second object for tī 'hit'; it carries minimal meaning, and can be viewed as a kind of syntactic placeholder, obligatory with the simple verb but disallowed with the compound verb. In (10e) the object noun 'fight' (redundant in the English gloss) is disallowed in the compound structure, unless it is marked by a preposition. Since Igbo really has only one preposition, Locative or Oblique na, it does the job. Similarly, in (10f), the ditransitive first verb loses an object in the shift, permitting it with the compound form only if 'demoted' to object of the preposition na. In (10e) and (10f) the new verb compound takes over the semantic load formerly carried by the object. This jettisoning of nonessential objects can be viewed as a diachronic demonstration of universal synchronic principles suggested by relational
grammar. It can be explained as a process by which the language preserves
the typical Kwa preference for one object per verb; it indicates that the
compounds, though more complex than the CV verbs in semantic and phonological
structure, are functioning as simple verbs in single clauses in the
new typology.

The tones of Igbo verb compounds often differ from the tones of the
corresponding simple components. To my knowledge, no reason has been proposed for this apparently capricious behavior. However, if we assume
that Igbo structure paralleled Ijo at an earlier stage, an explanation emerges.

In Ijo serial verb constructions, non-final verbs have a suffix -nì
(Williamson calls it a linker [1965]; it is high tone in some environments, optional in some environments; the verb-phrase-final subordinator nì is probably related historically). Let us posit a comparable high
tone linker suffix for Igbo in its earlier SOV serializing stage, and
assume that this suffix persisted on the initial verb, in tonal effect at least, during the shift from serializing to compound structure. Then
we can account for the tones of almost all Onitsha Igbo verb compounds
with two ordered rules.

Historically, an initial low tone verb component assimilated to the
high tone of its linker suffix when followed by a low tone component.
Then Onitsha dialect added a second change by which a low tone component
made all subsequent components low tone. For example, Onitsha bì 'press
plus då 'fall' became bìdà 'press down'; similarly, då 'fall' plus fè 'cross' plus gà 'move' became first dàfègà and then dàfègà.
For compounds in Central Igbo (as described by Welmers [1973:140]) the
second change was slightly different: all components after the second
in a verb compound became high tone.

Thus, by positing an abstract "floating tone" suffix, we can make
a synchronic generalization about a series of tonal perturbations in two
dialects, and we can tie this floating tone to an actual suffix in a related language, in a way that is consistent with the shared historical
development suggested here.

5. Conclusion

The scenario for the development of the typologies in (1), then, can
be described as in (11), with the SOV → SVO shift first affecting Bantu
and Yoruba but not Ijo and Igbo, which meanwhile develop serialization
while still SOV. Later, Yoruba takes up serialization, and Igbo acquires
verb compounds, shifting to SVO.
Although this is the kind of proposal that is difficult either to prove or disprove, any movement on the part of Ijo toward developing compounds and signs of SVO typology would constitute support. And indeed, Ijo does show sentences that could indicate the beginning of such a shift. In Ijo, intransitive verbs of motion (such as 'walk', 'run', 'fly', 'swim') can occur as the first verb in a serial verb construction, as in:

\[(12) \text{er\i\ w\eni-n\i\ am\a\ s\uo-m\i} (\text{from Williamson [1965]})\]

he walk town enter-PAST

'He walked into a town.'

But these verbs can also occur *between an object and its transitive verb*, as in:

\[(13) \text{er\i\ w\ar\i\ w\eni-n\i\ akana-m\i}\]

he house walk encircle-PAST

'He walked around the house.'

These semantic combinations occur frequently as verb-verb compounds in Igbo, as in (5). It is possible that intransitive verbs of motion were one of the first verb classes to shift from serial constructions to compounds in Igbo, and that Ijo is now following the path taken much earlier by Igbo.

**Historical reconstruction work in related languages without written records has been criticized as pure speculation. But when configurations in a range of data suggest certain patterns of relationship and historical development, and when these are consistent with our growing understanding of universals of language structure and change, then these findings should be shared and discussed, with the goal of expanding our knowledge. Not to do this implies that there is nothing we can learn about—or from—the past development of language families like Niger-Congo.**
REFERENCES


SUBORDINATE CLAUSES AS TOPICS IN GODIE

Lynell Marchese
University of California, Los Angeles

1. Topic-Comment Constructions

Traditionally linguists have assumed that the subject-predicate relationship was basic in every language. Recently, however, it has been suggested that the notion of topic-comment may better describe structures found in certain languages. In their paper, "Subject and topic: a new typology of language", Li and Thompson [1976] point out that some languages can be characterized as being either subject-prominent or topic-prominent, while others can be said to use both strategies. The latter seems to be the case for Godié, a Kru language spoken in south-west Ivory Coast. A typical subject-predicate construction can be seen in sentence (1):

(1) ści yue kò ści 'His children are there (i.e. around).'

Here the noun phrase ści yue 'his children' functions as the subject of the verb kò 'to be'. In sentence (2), however, the same noun phrase functions as a topic of the following comment:

(2) ści yue wa kò ści 'His children, they're there.'

The phrase ści yue 'his children' is only loosely connected to the following clause and does not serve as an argument of the main predication. The morpheme wa 'they' is the formal subject of the verb kò 'to be'. Thus, the comment in sentence (2) can stand on its own, and still be grammatical.

1The data that follows are from the jìèkò dialect. Most examples come from Zadi Sassi Michel and from texts collected from villagers living in Dakpadou. The one ƙàgbo example (24) comes from Daprè Joseph. Tones are marked as follows: ' indicates high tone, ' low tone, while mid tone is unmarked. I would like to thank Sandra A. Thompson for her helpful suggestions on this paper.
It should be noted that topic is not equivalent to focus. In Godié, any noun or noun phrase can be focused by frontshifting. However, when the focused element occurs in initial position, it is still an argument of the main predication as seen in example (3):

(3) ʃwə kɔ

'There they are.'

Topic and focus may even co-occur in the same sentence:

(4) ʃwə ʃwə kɔ

'His children, it's there they are.'

Another important difference between topic and focus is semantic. Focused items usually contain new information, while topics contain old or assumed information.

According to Li and Thompson [1976], some of the general characteristics of topics include the fact that they appear in sentence initial position and reflect the theme of the utterance. They need not be arguments of the main predication, and they are usually discourse dependent. Chafe [1976:39] states that topics are definite, meaning that both the speaker and hearer know the referent being discussed. In English, we could paraphrase sentence (2) as "You know his children? They're there (i.e., around)." Most often, nouns or noun phrases serve as topics. In Godié, however, there is evidence that certain types of subordinate clauses can also function as topics.

There are basically two types of subordination in Godié. The first type, which I will call "term" subordination refers to those clauses which function as either subjects or objects of the main predication. These include "that" clauses and other complex verbal complements. The other type of subordinate clause can be called a "non-term" subordinate since it does not play an argument role in the main clause. Non-term subordinates are non-reduced clauses containing the full range of tenses and aspects. They typically occur in sentence initial position (preceding the main clause) and are followed by a subordinating particle ʃ. Non-term subordinates, which include adverbial time clauses, conditionals and relative clauses show several characteristics of topics.

2. Adverbial Time Clauses as Topics

One of the most frequent subordinate clauses in Godié narrative texts is the adverbial time clause. These clauses always occur before the main clause and are usually followed by the ʃ subordinate marker. In the following narrative excerpt, subordinate time clauses have been underlined.
...We left our region and we came. When we had come to Abidjan, I didn't know where Dakpa lived. But I looked for him until (finally) I found him. When I had found him, he took me...

Except for the nak marker following the clause, adverbial time clauses look just like any declarative main clause. They take the full range of tenses and aspects. In (7) and (11), for example, the time clauses contain the completive aspect and so indicate actions which occurred previous to the event in the main clause. Adverbial clauses may contain any of the other four aspects, and may refer to an event occurring simultaneously with the event of the main clause.

Adverbial time clauses play an important role in connected discourse. They often recapitulate previously mentioned material, and so link the story into a cohesive unit. Sentence (11), for example, is almost an exact repetition of the clause in (10). In many narratives, sentences can be divided into activity strings [Callow, 1974] like the following:


The slight pause which separates the subordinate and main clauses (i.e. A' and B) is the usual place for the hearer to acknowledge that he is following the story line. Frequently the hearer will make a brief verbal response (a slight hum) right at this point, and the speaker will continue the story.
Sometimes A is not a repetition of a preceding clause. In (7), for example, information is included which the speaker assumes the hearer to know. In this case, the speaker assumes the hearer knows the destination of the trip--Abidjan. Other times, adverbial time clauses may contain information which has not been previously introduced. But when this is the case, this "new" information is never primary or the main assertion of the sentence, Rather, it is always secondary or assumed knowledge.

From the description above, it is obvious that adverbial time clauses have many of the characteristics of topics as defined by Li and Thompson [1976]. As shown in (7) and (11), adverbial clauses occur in sentence initial position and are only loosely connected to the following clause. They do not function as arguments of the main predication. Their role in discourse also qualifies them as topics. By recapitulating already mentioned material, adverbial clauses serve as common ground between the speaker and hearer. Thus they are definite, in Chafe's sense of the term. Chafe further defines topics as setting "a spatial, temporal, or individual framework within which the main predication holds," [1976:50]. It is clear that adverbial clauses in Godié do exactly this, setting the temporal framework for the event in the following clause.

3. Conditionals as Topics

Conditional clauses have much in common with adverbial time clauses and could, in fact, be analyzed as a subtype of this group. They too occur in sentence initial position and are followed by a na marker. They differ from adverbial clauses in that they obligatorily contain a special conditional auxiliary ke. Yet, conditionals play the same role in Godié discourse as adverbial time clauses, serving to link clauses into cohesive units. Especially in texts describing procedures (where they can occur up to every other line), conditionals are most often repetitions of the immediately preceding clause. Sentences (13)-(17) come from a text explaining the procedures involved in rice-planting. The conditionals are underlined.

(13) ...a lªkª yi plü s'l
  you volitive now weeds pull-out

(14) a ke yi plü s'l't b¡l na
  you if now weeds pull-out-NOM finish NF

(15) nª sükaa lªkª yi g³l
  and rice-DEF volitive now bear.
Note that lines (14) and (16) are almost exact repetitions of sentences (13) and (15). These constructions are very close to the activity strings which were supposed for adverbial time clauses. Here the chain would look something like A A', B B', C, etc. Like adverbials, conditionals in Godié are usually definite and set the temporal scene for the following event.

4. Head Nouns Plus Relative Clauses as Topics

Relative clauses have many of the characteristics of the other subordinates discussed so far. Like adverbial time clauses and conditionals, relatives are followed by $n\lambda$, and within texts, usually precede the main clause. In Godié, relatives are post-nominal. When the head noun is identical to the subject of the relative clause, it is followed by a special low-tone pronoun which agrees in class and number with the head noun. When a head noun plus a relative precedes the main clause, the head noun is recapitulated in the main clause by a resumptive pronoun. In the example below, both the relative and recapitulative pronouns are underlined:

(18) $\lambda\delta\delta$ $\delta$ $\kappa$ $\lambda$ $\delta$ $\mu$ $\delta$ $\lambda$, 
kind-DEF he-REL is there village NF,  
$\mu$ $\lambda$ $\delta$ $\delta$ $\lambda$ $\lambda$ $\mu$ $\lambda$, 
him they call-incompletive George.

When the head noun is identical to the object of the relative clause, there is no special relative pronoun. Rather, there is a shift in word order. The object, which normally comes after the verb, is frontshifted. The clause itself is always followed by the subordinate marker $n\lambda$. Here again the head noun is referred to in the main clause by a recapitulative

Here a clause containing $k\lambda$ occurs without $n\lambda$. When $n\lambda$ is not present, there is usually a tone change on the final verb ($g\lambda\lambda$ vs. $g\lambda$).
pronoun:

(19) Tsetè jëliè c pÀÀ nÀ, 
first arrow-DEF he throw-completive NF,

ë mû; ë nû mû. 
it go-completive it arrive-completive there.

'The first arrow that he shot left and arrived there.'

As was the case with the other non-term subordinates, head nouns
plus relative clauses are very much like topics because of their position
and role in the sentence. They precede and are grammatically unconnected
to the main clause, the grammatical role in the main clause being taken
over by the resumptive pronoun. They also play an important role in
discourse. As with adverbial time clauses and conditionals, they refer
to previously mentioned material and "set the scene". In the story
excerpt which follows, the head noun plus the relative clause both
recapitulate the preceding sentence and serve as the topic of the comment
which follows. Again it can be noted that the resumptive pronoun, and
not the relative or its head, is functioning as the subject of the main
clause.

(20) MÀ, ðëkpà bìe gbi c ñà ñwània ta
Now man one certain he marry-compl. women three

(21) ñ nÀ, ñwàniaa ta c ñà ñÀ nÀ(TOPIC)
I say, women-DEF three he marry-compl. there NF

(22) wa gÀ yûe ta. (COMMENT)
they give-birth-compl. children three.

'A certain man married three women. I say, the three women
he married, they had three children.'

Other subordinate clauses besides those discussed can function as
topics. Clauses which are unmarked for any adverbial function may also
occur in initial position and be followed by nÀ. When this is the case,
a resumptive pronoun ñ (third person non-human plural) occurs in the
comment clause:

(23) c ëòò nÀ ñÀ ki ta kô lû 'He hit me, that makes
he hit-me NF, its times three is there three times.'

These clauses, along with adverbials, conditionals, and head nouns plus
relatives all share properties which are characteristic of single noun
topics. However they differ from them in that subordinate topics are
always followed by nÀ. Interestingly enough, in a dialect of Godié
called kagbowalì (spoken to the northeast of the jìwà dialect), single
nouns which function as topics may be followed by a na marker:

(24) Zozi'i na o y'am' guu cu cu cu Jesus na, he healed disease kind-kind-kind

'Jesus, he healed all kinds of diseases.'

This certainly suggests that na, in addition to being a subordinating particle, is also used to mark topics.

5. The Source of na

Chafe suggests that topics may have arisen from "premature subjects", uttered when a speaker knows what he wants to talk about but is still working out the case frame for the utterance [1976:52]. As an example, he cites Caddo, a Native American language, where a hesitation particle meaning 'it is said' is inserted between the topic and the comment. He suggests that the particle may give the speaker time to decide how to integrate the noun into the following sentence. In Godié, the na following subordinate clauses (as well as single nouns in the kagbo dialect) could be related to the phrase a na 'I say' which is presently used to introduce direct quotes or long speeches and as a means of emphasis when someone has not understood (see (21)). In the early stages of language analysis, in fact, my colleague, Carol Gratrix, described na as a kind of "hesitation" (personal communication). Unfortunately, in Godié there are no written records which could confirm that na did develop from the expression a na. But, Chafe's hypothesis about Caddo is a possible and appealing explanation of the development of topic in Godié.

Comrie [1976] has suggested that topic markers often develop into specifiers or definite markers. There is no evidence that this is happening in Godié. However, in Kla'o, a Western Kru language, the definite marker is na and occurs immediately after the noun.

6. Conclusion

In this paper I have shown that the notion of topic-comment is an essential part of the description of sentence-structure in Godié. Topics function independently from such notions as subject and focus. In Godié, however, topic does not restrict itself to single nouns or noun phrases. Non-term subordinates followed by na occur in the same position and serve the same function as single noun topics.
REFERENCES


WHAT IS A "NEGATIVE EQUIVALENT"?
DATA FROM THE SWAHILI NEGATIVE TENSES*

Ellen Contini Morava
Columbia University

1. Introduction

In "Standard" Swahili fewer tense distinctions are made in the negative than in the affirmative. Furthermore, with one exception the tense-affixes used in the negative are morphologically distinct from those used in the affirmative. Although traditional grammars of Swahili note this asymmetry, they still treat the semantics of the negative tenses from the point of view of "how to express the negative equivalent of" the affirmative tenses.\(^1\) Although this approach is perhaps effective pedagogically, it reflects the traditional view that negation is semantically parallel to affirmation.

In this paper we will argue that the traditional statement in terms of equivalence is inadequate. We will present data in support of two arguments:

a) that negation in general is not semantically parallel to affirmation;

b) that the conceptual areas defined by the affirmative and negative tenses in Swahili are not isomorphic.\(^2\)

\(^1\)I did most of the research leading to this paper while a Research Associate at the University of Dar es Salaam, from October 1976 to March 1977. I would like to thank the members of the Department of Swahili, Foreign languages and Linguistics, and the Institute for Kiswahili Research for their help and encouragement during this period. I also thank Bonny Gildin, Rob Leonard, Joan Levinson, Ricardo Otheguy and Wally Read for acting as sounding boards. I did not necessarily follow their advice.

\(^2\)This possibility was suggested by Zawawi [1967] and Wald [1973] but not pursued.

\(^1\)Cf. Ashton [1944], Steere [1884], Haddon [1955], Loogman [1965].
2. The Data

In (1) we give a list of the tenses under discussion, showing the affirmative-negative correspondences normally listed in grammars:

(1) Affirmative Negative "equivalent"

<table>
<thead>
<tr>
<th>Tense</th>
<th>Affirmative</th>
<th>Negative &quot;equivalent&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA Present definite</td>
<td>HA (ha-)</td>
<td>-I General negative</td>
</tr>
<tr>
<td>A Present indefinite</td>
<td>HA (ha-)</td>
<td>JA 'not yet' tense</td>
</tr>
<tr>
<td>HU Habitual</td>
<td>LI Past</td>
<td>KU negative past</td>
</tr>
<tr>
<td>ME Perfect; action completed</td>
<td>LI Future</td>
<td>TA negative future</td>
</tr>
</tbody>
</table>

Even on the basis of this list it is immediately apparent that the affirmative-negative relationships are not straightforward. However, if we look at the way the tenses are actually used we find that the correspondences are even less direct than (1) suggests. For example, -I is supposed to be the negative equivalent of the affirmative tenses NA, A and HU. However, we also find -I negating messages which in the affirmative are expressed by TA, as in:

(2) a. Sasa tu-TA-mwita mganga au ha-tu-mwit-I? [Msh 31]
   'Now will we call a doctor or won't we call one?'

   'Will you do as we tell you or won't you do [it]?'

-I can also negate messages expressed by ME in the affirmative:

(3) a. Mahuwi: Leo mbona wa-ME-chelewa?
   Makafu: Hata ha-wa-chelew-I. Ujue lazima akina Chowe
   wapitie kwa akina Sembuli halafu tena wapitie
   kwa Mwapishaji ndipo waje huku. [Ht 24]
   'Mahuwi: Why are they late today?
   Makafu: They aren't late. You should know that Chowe's
   people have to go by Sembuli's and then to the
   Oath-Taker's before they come here.'

   b. Ni-ME-sumbuka siku ya nne hii si-end-I kazini namtafuta
      mtofo wenu. [Ht 21]
   'I have bothered myself for the past four days I haven't
   gone to work, looking for your child.'

-I may also negate an event in the past, or one whose "corresponding affirmative" might have been LI:

---

3The labels for the tenses are Ashton's [1944]. I omit verbal markers not normally considered to have a negative "equivalent".
Na hapo wa-Ll-kuwa wakifanya mtihani mpaka upate pasenti inayotakiwa. Na hața ukiwa kama ukishindwa maksiko moja, h-u-pat-I kazi ya ualimu. Sasa ikanibidi niripiti mwaka wa tatu. [taped from an interview on Radio Tanzania]

'And there they used to [re]do the exam until you got the percent that was required. Even if you missed just one point, you didn't get a teaching job. So I had to repeat the third year.' [said in 1977 of the year 1925]

Further, we can find parallels between JA and NA, as in:

a. Mpaka leo a-NA-sikitika kwa nini Cheja akaenda kufanya kazi mjini. [Ht 11]

'Up to today she has been complaining why did Cheja go to work in the city.'

b. Hata leo mguu h-a-JA-u-tia humu ndani. [Msh 37]

'Up to today he hasn't set foot here in [this house].'

c. I say, mtazame yule bwana pale. Toka ssa ile a-NA-cheka peke yake: a-NA-sema peke yake. [Msh 43]

'I say, look at that man over there. Since that time he has been laughing by himself; he has been talking by himself.'

d. Tangu juzi si-JA-pata chakula na pesa sina. [Mf 19]

'Since the day before yesterday I haven't eaten and I have no money.'

In examples (5a) and (5c) we have an affirmative event beginning in the past and continuing up through the moment of speaking; in examples (5b) and (5d) we have a negative event beginning in the past and continuing up through the moment of speaking.

Taking into consideration the data from (2) - (5), a more accurate picture of the affirmative-negative correspondences might look like this:

As can be seen from (6), viewing the negative tenses from the point of view of "how to express the negative equivalent" of the affirmative provides little understanding of the use of the negative tenses. For example, if both -I and (ha-) TA can be the "equivalents" of TA, then what is the difference between them? We will argue below that a more profitable alternative is to treat the negative tenses as a separate system whose semantic relations are not simply a subset of those in the affirmative system.
3. General Differences between Affirmative and Negative

The traditional approach to negatives as "negative equivalents" of affirmatives is based on an implicit equation of negation in language with negation in logic: the pairing of affirmatives and negatives is modelled on the logical pairing of $p$ and $\neg p$. Such a view ignores the basic communicative function of negation in language. This function is described by García [1975:8] as follows: "negative sentences communicate in terms of an implicit, but rejected, affirmation, which for some reason might be expected to hold, but which in fact fails to obtain". As further noted by Givón [1975:109], "while [affirmatives] are used to convey new information on the presumption of ignorance of the hearer, negatives are used to correct misguided belief on the assumption of the hearer's error". That is, negation and affirmation fulfill different communicative needs.

An important point which is not made clear in the above quotations is that the "implicit affirmation" or "misguided belief" to which a negative refers is not an affirmative statement but merely a possibility. Thus if we say:

(7) John has not paid the rent.

the following statements are all equally ruled out (pragmatically, if not logically):

(8) a. John is paying the rent.
    b. John paid the rent.
    c. John has paid the rent.

Direct denial, or contradiction, of an explicit affirmative statement constitutes only a small fraction of the negatives occurring in actual language use. Yet this has been taken as the traditional point of departure for the semantic analysis of negatives.

On the other hand, if we accept that affirmative and negative differ in communicative function, should we not also ask if they differ in content? In other words, if the primary function of negation is to forestall an expectation of a possible occurrence, is it necessarily the case that the same kind of information must be signalled in the negative as would be if the occurrence actually took place? We will now present some data suggesting that this is not necessarily the case.

Givón [1975] points out that negatives differ from affirmatives with respect to localization in time. That is, while affirmative events may be said to occur at specific times, negative events, which fail to occur, range over a potentially infinite number of points in time. For this

---

"Out of 1059 negative verbs in nine Swahili plays only 4% occurred in explicit denials of affirmative sentences."
reason, although one can ask:

(9) When did John arrive?

it makes little sense to ask:

(10) ?When did John not arrive? (from Givón [1975:89])

If lack of precise temporal definition is a characteristic of negative events in general, then this is a difference in content between affirmative and negative. We may expect such a difference to affect the distribution of negatives in actual language use.

In order to test this for Swahili, a count was made of all finite verbs, both affirmative and negative, in nine plays, a total of 4819 verbs. The verbs were classified, according to their lexical meanings, into states vs. activities, with a residual indeterminate category. A typical state: -weza 'be able'; a typical activity: -enda 'go'. States differ from activities with respect to temporal definition--states lack defined limits in time, while activities are "processes going on in time". As argued above, negative events differ from affirmative events in the same way. Because of this shared semantic property, it was expected that the negative environment would be more congenial to state verbs than to activity verbs. In (11) we show the results of this count:

(11) Correlation of Negative/Affirmative with State/Activity verbs

<table>
<thead>
<tr>
<th></th>
<th>State</th>
<th>Activity</th>
<th>Indeterminate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affirmative</td>
<td>33% (1322)</td>
<td>61% (2413)</td>
<td>6% (239)</td>
<td>100% (3974)</td>
</tr>
<tr>
<td>Negative</td>
<td>63% (533)</td>
<td>28% (236)</td>
<td>9% (76)</td>
<td>100% (845)</td>
</tr>
</tbody>
</table>

(p < .005)

Raw figures are given in parentheses

We see from (11) that speakers are more likely to refer to activities in the affirmative, states in the negative. That is, semantic characteristics of negation cause differences in distribution between affirmatives

---

5See references.

6From Vendler [1967:99].
and negatives.  

The purpose of the above discussion has been to suggest that negatives, which differ from affirmatives in communicative function, may also differ from affirmatives in the kind of information they convey. That is, negatives may refer to a different conceptual area from affirmatives. In what follows we will propose that this is the case in Swahili.

4. The Swahili Tense Systems

We present below a tentative semantic analysis of the tenses listed in (1):

<table>
<thead>
<tr>
<th>Contour of event</th>
<th>Affirmative systems: 8</th>
<th>Negative systems:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA/A 'transition depressed'</td>
<td>Negative occurrence (no particular time) -I</td>
<td></td>
</tr>
<tr>
<td>ME 'transition effected'</td>
<td>Time sequence of occurrence</td>
<td></td>
</tr>
<tr>
<td>LI 'before TR' 10</td>
<td>KU 'before TR'</td>
<td></td>
</tr>
<tr>
<td>TA 'after TR'</td>
<td>JA 'up to and limited by TR'</td>
<td></td>
</tr>
</tbody>
</table>

7It might be objected that the state/activity distinction is often difficult to make: for example, is kaa 'sit; reside' a state or an activity? Some verbs may be classified differently according to context. However a control count using only verbs considered typical of each category shows analogous results:

<table>
<thead>
<tr>
<th>State</th>
<th>Activity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>weza 'be able'</td>
<td>enda 'go'</td>
<td>100% (558)</td>
</tr>
<tr>
<td>wa 'be'</td>
<td>fanya 'do'</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ambia 'tell'</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sema 'say'</td>
<td></td>
</tr>
</tbody>
</table>

Affirmative 39% (215) 61% (343) 100% (558)

(p < .005)

Negative 60% (105) 40% (66) 100% (171)

8The affirmative analysis is similar in broad outline to that of Zawawi [1967]. The meaning given for LI resembles that given in Wald [1973].

9This term is borrowed from Hockett [1958].

10TR = temporal reference point. In the absence of contextual indication to the contrary, inferred to be the time of the speech act. Wald [1973] shows that time reference for the affirmative tenses is contextually determined. This seems to be true for the negatives as well.
In the affirmative we have two main conceptual areas subcategorized by tense affixes, contour and time-sequence. The former categorizes verbal events as having reached a peak or point of transition or not, while the latter orders events relative to a temporal reference point. In the negative we apparently lack the contour distinction, but instead have a three-way time sequence distinction. In addition the negative has a form, -I, which simply denies an occurrence without reference to either contour or temporal sequence. Thus the primary difference between affirmative and negative lies in what we will call substance, or area of semantic reference. Affirmative events may be subcategorized either by contour or by time-sequence, while negative events are sub-categorized only by time-sequence, if at all.

The following data seems to support the claim that the substance of NA/ME is not a relevant semantic category in the negative:

A count of verbs occurring with the tenses NA/ME in the nine plays used before revealed that certain verbs show a statistical favoring of either NA or ME. These verbs form two semantic classes: those favoring NA refer mainly to states (e.g. jua 'know', elewa 'understand') or to homogeneous activities having no intrinsic boundary (e.g. fanya 'do', sema 'say'); those favoring ME refer mainly to events implying a change of state (e.g. isha 'end', pata 'get'). If NA and ME have as "negative equivalents" -I and JA/KU respectively (as claimed by the traditional analysis), it is reasonable to expect these verbs to skew in the same way in the negative. In other words, if a verb favors NA over ME in the affirmative it should favor -I over JA/KU in the negative; if a verb favors ME over NA in the affirmative it should favor JA/KU over -I in the negative. We will call this the "expected skewing". Of the 22 verbs occurring in all five tenses and showing a skewing either in the affirmative or in the negative, only 12 show the expected skewing. We may infer that the semantic property differentiating NA from ME is not the same as that differentiating -I from JA/KU.

Let us now briefly discuss the examples presented in (2)-(5) from the point of view of the proposed analysis.

As shown by examples (2)-(4), it is incorrect to restrict the range of -I to that covered by NA/A/HU. -I refers to a negative state of affairs to which temporal ordering is not relevant. Given sufficient contextual redundancy, its actual temporal reference may include past, present or future.

---


time but is not restricted to any one of these times. Since it does not itself convey temporal reference, but only denial, -I can negate messages which in the affirmative are conveyed by a variety of tenses, without itself being equivalent to any of them.¹³

Although the JA/NA. examples in (5) were chosen because of their superficial resemblance, they are not actually expressing the same message. It is true that events in (5) begin in the past and persist at the moment of speaking; however different implications are drawn from the meanings of NA/JA respectively. NA, which means "transition de-emphasized", stresses the persistence of an uninterrupted occurrence, without any change in view. JA, whose meaning includes a temporal boundary, encourages the inference that there may be a change (hence the traditional label "not yet tense"). Thus although both their meanings allow them to refer to the same objective time, they produce different implications about the prospective duration of the event described.

5. Conclusion

In this paper we have tried to suggest that the semantic difference between affirmative and negative need not be limited to a difference of communicative presuppositions. In the case of the Swahili tenses, it appears that negative and affirmative tenses refer to different semantic substances, or conceptual areas. It is possible that a reappraisal of negatives in other languages may lead to similar results.

¹³It may appear that this is what Ashton [1944] had in mind when she stated that -I expresses "the fact of negation without reference to time" (p. 70). However the examples she uses to illustrate this point are all aphorisms or "timeless truths". She was apparently not aware that the meaning of -I does not rule out a temporal interpretation, as we see in examples (2)-(4).
REFERENCES

Ashton, E. O. 1944. **Swahili Grammar.** London: Longmans


Garcia, E. 1975. "Other than ambiguity." Dittoed MS, Lehmann College, CUNY.


Haddon, E. B. 1955. **Swahili Lessons.** Cambridge: Heffer and Sons Ltd.


Loogman, A. 1965. **Swahili Grammar and Syntax.** Pittsburgh: Duquesne University Press.


SWAHILI REFERENCES


ON THE PRODUCTIVITY OF DERIVATIONAL MORPHOLOGY AND LEXICAL REPRESENTATION: MANNER ADVERBS IN LUGANDA¹

Martin Mould
University of Southern California/
California State University at Los Angeles

1. Introduction

Providing an adequate account of derivational morphology within a generative framework has always been a problem. This is so because, within any given language, on the one hand there are regular, productive processes that derive words from other words; on the other hand, there are those that are not productive and not so regular. A grammar must be able to account explicitly for both, and for the difference between the two. Since Chomsky's "Remarks on nominalization" [1970] and the increasing acceptance of the lexicalist hypothesis, there have been various approaches to handling derivational morphology (DM). Most are in agreement that the place for DM is in the lexicon, before lexical insertion. The major differences concern the nature and role of morphological rules and the issue of productivity.

To cite two notable examples, Jackendoff [1975] provides a system of lexical redundancy rules (LRRs) to capture the regular correspondences between words that he considers to be largely unproductive. He also states that if a process is productive that can be accounted for by a LRR being used generatively. Aronoff [1976], on the other hand, proposes word formation rules (WFRs), which operate on existing words to produce other words, including new words. He says that only WFRs, which are by definition productive, can indicate redundancies.

Both approaches suffer from the same deficiency: they do not adequately

¹Many thanks to Sandra Thompson, Talmy Givón, Benji Wald and Laura Meyers for their comments and criticisms of earlier drafts. Very special thanks to Omw. Samuel Mugalasi for his great help in determining synonymy, the acceptability of new coinages and class shifting, and some of the more obscure derivations.
distinguish between productive and non-productive processes. This distinction is a psychologically real one; we know that speakers distinguish between them. We also need to be able to account for the interesting fact that the change of a morphological rule from productive to non-productive is an important kind of language change, is normally a one-way change, and is one which is often accompanied by—and probably caused by—the introduction of newer productive rules.

In this paper I will show that both productive and non-productive processes are involved in the derivation of manner adverbs in Luganda, and, as proposed by Thompson [1974], two kinds of rules are needed to account for them.

Most manner adverbs in Luganda seem to be derivable from adjectives, nouns and verbs. Morphologically they are special types of nominalizations; they carry noun-class prefixes, and in certain syntactically predictable circumstances even the pre-prefix (cf. Mould [1974] for details). These adverbs are found in five noun classes: 6, 7, 11, 13, 14 (ma-, ki-, lu-, ka-, bu-) and at least some of them are found in more than one class. To determine how best to account for the derivation of these adverbs in a generative grammar of Luganda it is necessary to determine the semantic content and regularity—if any—of the class prefixes and the productivity of the DM processes involved.

Ashton et al. [1954] have claimed that the five prefixes do have regular semantic content, namely that:

1) ki- = likeness
   bu- = state/result
   lu- = manner
   ka- = degree
   ma- = process

No further explanation of these meanings is given, so lack of clarity and insufficient data render these translations difficult to interpret. They also imply that adverbs can shift classes to convey different shades of meaning, and that the derivational processes are productive. As will be shown below, these implied claims are largely false, or at least grossly

---

2 One of the major differences between Aronoff and Jackendoff lies in their judgements of productivity. Aronoff determined many nominalization processes in English to be productive that were not so considered by Jackendoff. But many of those determinations depended on his acceptance of the description of English phonology in Chomsky and Halle's [1968] Sound Pattern of English. As one who finds SPE far too abstract (it is excellent internal reconstruction) and insists on a more natural and concrete phonology, I suspect many of those processes are not productive synchronically, and therefore the issues of the unproductive ones ought not to be treated so lightly as was done by Aronoff.
misleading.

2. The Data

I undertook an investigation, with the assistance of a native speaker, and using all the adverbs I could find in Snoxall's dictionary [1956], to determine (a) the semantic content of the class prefixes, (b) the extent to which adverbs can occur with different prefixes, and (c) the nouns, verbs and adjectives they might be derived from. Attempts were also made to coin new adverbs, as tests of productivity, and comparisons were made between lexical adverbs and other--syntactic--adverbial expressions, looking for synonymy and preferability.

2.1 Ki- adverbs. Ki- adverbs are derived from human nouns only; conversely, all adverbs of this type are in ki-:

2) a. atambula kizungu 'he walks like a European' (omuzungu)
   b. afumba kiganda 'she cooks like a Muganda' (omuganda)
   c. nfumba kiwulu 'I cook like a bachelor' (omuwulu)
   d. atambula nga muzungu 'he walks like a European'
   e. *atambula kazungu/uzu/uzu/mazungu

They are normally found with ethnic nouns (a,b)--names of clans, tribes and nationalities, but can be used with class 1/2 nouns generally if a suitable context can be found (2c). This type is fully productive, and the meaning given by Ashton et al. is essentially correct, though they failed to mention that the likeness is always to a person. Note that these adverbs are fully synonymous with adverbial prepositional phrases with nga + N (2d). The latter seems to be preferred with ordinary 1/2 nouns and it may be that ki- adverbs are on their way to a loss of productivity. Note also that ki- adverbs cannot change classes (2e).^3

2.2 Bu- adverbs. Looking next at bu- adverbs we observe four subtypes. First are those derived from the limited inventory of underived adjectives:

^3To answer a couple of questions raised at the conference, a plural subject would have no effect on the adverb. Adverbs do not agree with anything, thus: batambula kizungu 'they walk like Europeans', synonymous with batambula nga bazungu. Dr. Hazel Carter raised the interesting point about deriving a ki- adverb from omuntu 'person'. One could not derive kinifu '*like a person'. This is so, evidently, because kinfu 'thing' already exists. This is comparable to trying to derive 'hardly' from 'hard' with the obviously productive suffix -ly.

Languages have constraints (or perhaps metaconstraints) against derivations interfering with existing words, as well as against deriving words when a suppletive word already exists, e.g. *longness vs. length. These constraints, two sides of the same coin, should not interfere with judgements about productivity.
3)  a. yakikoze bulungi 'she did it well'  
   (¬lungi 'good')  
  b. asoma bubii 'he reads badly'  
   (¬bi 'bad')  
  c. *asoma busirise 'he reads silently'  
   (okusirika 'be silent')  
  d. *asoma kibi/kabi/lubi/mabi

These may be referred to as entailing state or result. They may be considered productive, but only in a trivial sense. One cannot derive new adverbs from adjectives that are themselves derived (3c). They also cannot change classes (3d).

The second subtype are those from negative infinitives. Regular negative infinitives are normally in class 14, with the negative morpheme -ta- infixed. The adverbs also have the participial (adjectival) suffix -e, and the vowel in -ta- is lengthened:

4)  a. ayamba butaakome 'he quarrels incessantly'  
   (okukoma 'to stop'; obutaakoma 'not stop')  
  b. yakola butaagaane 'he worked reluctantly'  
   (okugaana 'agree'; obutaagaana 'not agree')  
  c. *yagenze butaabuuze 'he went without asking'  
  d. yagenze mu butabuuza 'he went without asking'  
   (okubuuza 'to ask'; obutabuuza 'not ask')

There are few of these, and new ones, like (4c), cannot be formed; the process is not productive and these few are evidently relics of a once-productive process. There is a productive process, like the nga + N construction: mu + neg. infinitive, illustrated in (4d), which has evidently replaced the other.

Examples (5a-d) illustrate the third subtype of bu- adverbs. These form the majority of bu- adverbs and they do indicate state or result. But they refer to state or result of the subject or object, hence are more adjectival in meaning, though obviously not in form, since they do not agree with the NPs they describe:

5)  a. baatuuse bukunyegere 'they arrived stark naked'  
   (okunyegera 'be stark naked')  
  b. yazze bwaggu 'they came empty-handed'  
  c. yakiguze bukanga 'he bought it at a high price'  
  d. emmere yagirye bukute 'he ate the food "au jus"'

These are not found with other class prefixes. Moreover, very many of them, as (5b-d), are not relatable to other words at all.

The fourth subtype (6 a-c) consists of a very small group, wherein bu-, normally the plural counterpart of the diminutive class ka-, carries an extra connotation of plurality or repetition. These seem to be derivable from other adverbs.
6) a. atambula buwunjunju 'he goes from place to place'
   (connotes 'many places')
   (okuwunjawunja 'go from place to place')

   b. yatuuse bukutu 'he arrived by a series of shortcuts'
   (okukutula 'to cut off')

   c. etonnya bufuyirize 'it's raining drizzingly'

2.3 Ka- adverbs. Ka- adverbs form a rather large group, and in most of
them ka-, normally used in N ~ N derivations as a diminutive, connotes
smallness, sharpness, brightness, or quickness. These four can be sub­
sumed under a more general semantic feature--compactness:

7) a. yagenze kalanduko 'he went quickly'
   (okulanduka 'to snap')

   b. batudde kakukuulo 'they stood packed tightly together'
   (ekikukuulo 'a crowd')

   c. omusana gwaaka kabangulo 'the sun shone brightly'
   (okubangula 'to train harshly')

   d. atambula kawunjuwunju 'he walks from place to place'
   (cf. (6a), connotes 'quickly')

   e. atambula kasoobo 'she walks slowly'
   (connotes little steps, "like a bride")
   (okusooba 'to be slow')

A few ka- adverbs can be found in other classes, namely bu-4, lu-, and ma-, but the majority evidently cannot.

2.4 Lu- adverbs. In lu- adverbs we see that the prefix connotes length.
That class is normally used in N ~ N derivations for long, thin nouns. In
the following examples it is interesting to note that all adverbs in this
class are found also in other classes, and length is always an extra conno­
tation; they are thus evidently derived from other adverbs.

8) a. yagenze lulanduko connotes long strides (cf. (7a))

   b. atambula luwunjuwunju connotes long distances (cf. (7d) and (6a))

   c. atambula lusoobo connotes long strides, casual (cf. (7e))

   d. ayamba lutaakome connotes on the same topic (cf. (4a))

   e. batudde lukukuulo connotes in a queue (cf. (7b))

   f. yatonnya lufuyirize connotes for a long time (cf. (6c))

However, the kind of length, whether spatial or temporal, is not predictable,
and the use of lu- does not seem to be productive; many adverbs cannot
change to lu-, even when the addition of the connotation of length would
seem quite reasonable, as in (9):

9) omusana gwaaka lubangulo 'the sun shone brightly for a long time'
2.5 Ma- adverbs. Finally, ma- adverbs make up a large group. The prefix carries no connotations, or any semantic content. They are simple manner adverbs, and are in a sense the unmarked class.4

10) a. atambula mawunjwunju 'he walks from place to place'
    b. bamukwaata makungujjo 'they took him forcibly'
       (okukungujja 'to take by force')
    c. baasisinkana mankwetu 'they met secretly'
       (okweekweeta 'to sneak')
    d. ayavula mate 'he crawls on all fours'
       (en-te 'a cow')

Note especially (10a) compared with (6a, 7d and 8b). It thus appears that if the changing of noun classes (i.e. the derivation of adverbs from other adverbs) were productive, which it is not, ma- adverbs would be chosen as unmarked, or basic.

2.6 Summary. To sum up, we find a good deal of semantic regularity in the prefixes ki-, ka-, lu-, and some bu- adverbs. Otherwise, there is some purely morphological regularity; bu- from simple adjectives and negativized verbs, ma- primarily from verbs. Semantically these tie in fairly well with the semantics of the noun classes in other derivational processes: ka- for diminutives, lu- for elongation, bu- for abstract state or result, or the plural of ka-. There are, of course, several exceptions to these regularities.

Regarding productivity we see that only ki- adverbs are truly productive. In general, adverbs cannot shift classes; only a few have been found in more than one class. New adverbs cannot be made in the same way as the ones we have seen. What we have seen are relics of DM processes that were evidently productive at one time but no longer are. We do see new productive processes that have replaced or are replacing the old ones, such as nga + N, mu + neg. info. Here we may note two more adverbial constructions. One is the old but still productive causative-instrumental (ll.a,b); the other is ne 'with', plus N (llc) with the same meaning and use, but newer in the language:

11) a. afumbisa munnyo 'he's cooking with salt'
    (okufumbisa causative of okufumba 'cook')
    b. yayogeza bbogo 'she spoke forcefully'
    c. yayogera ne bbogo 'she spoke forcefully' (with force)

"According to the definitions in Ashton et al., lu- adverbs should be unmarked, meaning just 'manner'. In fact, since lu- adverbs come only from other adverbs (historically, at least) and with added connotations, they should be considered the most marked."
It is particularly interesting to observe that the three newer constructions are not DM devices; they are all the same kind of construction—prep + N. They are syntactic/analytic, rather than morphological/agglutinative devices.

3. Discussion

We can now return to the question of how to account for these lexical relationships in a grammar of Luganda. It is clear that redundancy rules are needed to capture the fact that a speaker/hearer knows that two words are related. In (12) is an example of a LRR for English, paired with an accompanying semantic interpretation rule. Two words like decide/decision are listed separately in the lexicon and reference is made to M1, which indicates the relationship. The two-way arrow indicates that either form is relatable to the other. In (13) we see how readily a comparable pair of rules for Luganda can be represented in the same schema.

12) an English LRR (Jackendoff [1975:650]):

\[
\begin{align*}
M_1: & \quad \left[ \begin{array}{c}
+\text{N} \\
/\text{y + ion}/
\end{array} \right] \leftrightarrow \left[ \begin{array}{c}
+\text{V} \\
/\text{y/}
\end{array} \right] \\
S_1: & \quad \left[ \begin{array}{c}
+\text{N} \\
+[\text{NP}_1 \text{'s}_((P)\text{NP}_2)] \\
\text{abstract result of act} \\
of \text{NP}_1 \text{'s, Z-ing (NP}_2)'
\end{array} \right] \leftrightarrow \left[ \begin{array}{c}
+\text{V} \\
+[\text{NP}_1\text{ }((P)\text{NP}_2)] \\
\text{NP}_1 \text{ Z(} \text{NP}_2 \text{)}
\end{array} \right]
\end{align*}
\]

13) a Luganda LRR:

\[
\begin{align*}
M_1: & \quad \left[ \begin{array}{c}
+\text{Adv.} \\
/\text{bu + taa + y + e/}
\end{array} \right] \leftrightarrow \left[ \begin{array}{c}
+\text{V} \\
/\text{y + a/}
\end{array} \right] \\
S_1: & \quad \left[ \begin{array}{c}
+\text{Adv.} \\
+ [\text{V}_((NP)] \\
\text{without Z-ing}'
\end{array} \right] \leftrightarrow \left[ \begin{array}{c}
+\text{V} \\
+[\text{NP}_1((NP}_2)] \\
\text{NP}_1 \text{ Z(} \text{NP}_2 \text{)}
\end{array} \right]
\end{align*}
\]

Now we need another kind of rule for the productive processes such as the ki- adverbs and others\(^5\) to account for the fact that a speaker considers the process to be productive and can use it to coin new words. Such a lexical derivation rule (LDR), as proposed by Thompson [1974] for English

\[\text{Some of the more common ones in Luganda, and many other Bantu languages, are the N + N derivations, such as augmentatives, diminutives, agentives, and many—but not all—of the verb extensions, such as the causative, applied, reciprocal, stative, and probably the reversible, but not the old -ama, -ata, and probably not the double reversible or double stative. All these and others need to be examined and evaluated on their own in the same way as the adverbs, before making any claims.}\]
is illustrated in (14a). One of Aronoff's WFRs, a differently detailed variant, is shown in (b):

14) an English LDR [Thompson 1974:20]:

a. \[ V + \{ -\text{able} \} \rightarrow \text{[V-able]}_{\text{adj}}. \]

b. [Aronoff 1976]

\[ [X]_{v} \rightarrow [\{X\}_{v} \#\text{able}]_{\text{adj}}. \]

15) a Luganda LDR:

\[ \left[ \frac{\text{'ki'}}{\text{+cl. 7}} \right] + \left[ \frac{\text{+N}}{\text{+human}} \right] \rightarrow \left[ \frac{\text{ki} + \text{N}}{\text{[-cl. 1/2]}} \right]_{\text{adv}}. \]

In such cases the derived words are not listed separately; only the undervived words need be listed, and they have access to the LDR. An example of a LDR for Luganda is given in (15). The feature \([-\text{cl. 1/2}]\) on the right of the arrow is intended to indicate, if crudely, that the prefix for the derived word always replaces the original class prefix, rather than being added to it.\(^6\)

Finally, I want to emphasize that whether a redundancy relationship exists between any two words is an empirical question that must be answered by testing the intuitions of real speakers. For example, hardly anyone but

\[^{6}\text{This is more or less language specific. Some Bantu languages sometimes allow class prefixes to be added to original class prefixes. In some cases, even if one prefix replaces the original, certain agreement rules remain sensitive to the original one. There are similar problems with agreement rules, e.g., conjunction-reduction, animate concord in Swahili, etc. As has often been noted there is a big difference between derivational and inflectional morphology. This distinction must hold in Bantu, even when, as with many noun class prefixes, the two are "spelled" the same.}\]

I consider that in Luganda and similar languages a noun is listed in the lexicon with its normal class prefix and with an abstract class membership feature. This latter feature is necessary, as was demonstrated by Givón [1972] for agreement rules such as conjunction-reduction, and I think that his arguments for spreading abstract features and spelling them post-transformationally in a second (inflectional morphology) lexicon are still valid. The only difference here is that a noun in the first lexicon will have a real prefix as well as an abstract feature.
a linguist would relate 'bake' to 'batch' in English despite the relatable pair 'speak--speech'. The latter should have access to a LDR but not the former. Similarly, there should probably not be access to a LRR to relate mankwetu and okweekweeta in (10c). Linguists cannot rely simply on cleverness and still talk seriously about psychological reality.

REFERENCES


COMPOUNDING IN TO: THE DYNAMICS OF A CLOSED PIDGIN

Philip A. Noss
Gbaya Translations Center, Meiganga, Cameroon

1. Introduction

The definitions most frequently given for pidgins recognize the twin features of form and function, assuming a significant interrelationship between the two (cf. [Hall 1966:25]; [Todd 1974:1]). As the role of a pidgin changes, its linguistic form also changes until it becomes a creole and the first language of a speech community, or, if it is no longer needed, an unused and forgotten relic.

2. Special Languages

A not uncommon feature of traditional African social structure was societies, initiations, and religious rites in which there was restricted membership and participation. These institutions were often characterized by languages that separated members from non-members, initiates from the uninitiated, the holy from the profane. Samarin has called these languages "special languages" [1971a:230-234], perhaps because of their special role in society. The function of these languages was similar from one society to another and many of them appear to have undergone a similar process of pidginization (cf. [Samarin 1971a]).

3. The To Language

The To language was spoken in an early Gbaya initiation in the area which lies on either side of the Cameroon-Central African Empire border. It was a boys' initiation in which the initiates ritually died and were brought back to life again. One of the miracles of the ritual resurrec-

---

1The information and data on which this paper is based was provided for the most part by Dua Simo André of Baina who learned To the last time the initiation was carried out in his community, when he was a boy, and who died in the fall of 1976 at the age of about seventy-five years. Minor lexical differences and dialectal variations occur between the data provided by Simo and that of other consultants. More significant differences exist between the To recorded by Tessmann [1931] and that recorded by myself.
tion was the fact that upon coming to life again, the initiate had forgotten his mother tongue and spoke no language but To, a secret language which he had never been taught. At the end of the initiation period, he would be given raw eggplant to eat and would miraculously remember Gbaya again, without, however, forgetting To.

4. A Pidgin

The origin of To, both the initiation and the language, is lost in antiquity. The Gbaya can only say that it came from the east. Lexical comparison, however, would suggest that it is an Adamawa language related to the Mbum cluster (cf. [Samarin 1971a:230]), and evidence from the structure of compounds would lead toward the same conclusion.²

Although there is not yet enough evidence of a comparative or diachronic nature available to trace the development and use of To, even cursory examination leads to the conclusion that it has undergone pidginization. While its lexical base is not Gbaya, and is indeed of the other branch of the Adamawa-Eastern phylum from Gbaya, To possesses no phones that do not occur in the Gbaya inventory. The functional load of tone is also severely limited with no minimal pairs in evidence, a marked difference from both Gbaya and Mbum, where tone plays a relatively important role. Its grammar is likewise restricted, with a minimum of affixes and relational items. Finally, its lexical inventory is very restricted and, as is typical of most pidgins, is marked by an almost total absence of ideophones.

5. A Closed Pidgin

If To is a pidgin, it is of a different type from those most commonly encountered. While pidgins are normally subject to relexification and expansion, the function of To precluded such evolution. Instead of making interlingual communication possible, To served as a medium of communication among a group of people set apart from society. It was a secret language in that it concealed (cf. [Hymes 1971:86]) and was known, with a very few exceptions, only by initiates, whom it marked as a special group of people.

The prestige that was attached to To also distinguishes it from other pidgins [DeCamp 1971:25]. Not only did it set apart the young

²Gbaya, the first language of the initiates, ($L_1$), is classified by Greenberg [1963] in the Eastern branch of the Adamawa-Eastern subfamily of Niger-Congo; the Mbum cluster, which includes Pana and Karé, and with which To shares a number of cognates, is classified in the Adamawa branch. In this paper, examples are cited from Mbum as representative of the source language (SL) of To.
initiates from their uninitiated peers, but the language which they con­
tinued to speak among themselves, like the initiation scar by which they
swore, marked them as an elite group all their lives. The unknown origin
of the language and its reputation for being "deep" and impossible to
learn except by the miracle of resurrection further enhanced its status.

Unlike most pidgins that are used for limited communication needs,
To was used for all the speech needs of its speakers during the three
years or longer that they were isolated. It served not only the young,
but also the needs of adult and old men. The language was required to
accomodate the needs of its speakers from childhood to death and through
the historical changes experienced by society throughout the lives of its
speakers as well.

Because of its sociolinguistic role, To could not look outside it­
self synchronically or back upon itself diachronically to provide the
flexibility and adaptability [Whinnom 1971:108] required to accomodate
the changing needs of its speakers. To expand and relexify by dipping
back into the past would destroy part of the mystique that surrounded the
initiation language. To adopt from neighboring languages would destroy
the special character of To by introducing the mundane and modern into
the esoteric and ancient that came from the fathers. It was therefore a
textus receptus, a "closed pidgin".

6. Compounding in To

As a closed pidgin, To could only look inside itself to fulfill its
lexical needs. Among the several processes affording internal flexibility,
the most productive was that of compounding in the nominal system. 3

The lexical inventory on which this paper is based, excluding gram­
matical constructions such as serial verbs, verb-object idioms, or affixes,
is as follows:

327 tokens: 237 nouns (and pronouns) 72.47% of total
135 compounds 56.96% " "
9 possible compounds 3.79% " "

Compound constructions, including possible compounds, comprise 44.03% of
the total inventory. This percentage rises as the lexical inventory is
expanded.

3For example, the machete introduced by Hausa traders was called
'great-knife-cut-bush', and the magnetic tape on the recorder was identi­
fied by the consultant as 'rope-word'. Other processes were serial verb
constructions, verb-object idioms, and expansion of the semantic field of
lexical items to accomodate new concepts. The tape recorder came to be
known as 'mother'.
7. Transparency of Compounds

From the point of view of the Gbaya speaker, one of the most significant characteristics of To compounds is their transparency. With one exception, all To compound structures are found in Gbaya [Noss 1976], and with one different exception, all To compound structures occur in Mbum [Hagège 1970:176ff.], [Bohnhoff 1971:56-57], which is also spoken by many Gbaya speakers. Thus, the grammatical structure of To compounds is transparent to Gbaya speakers. They understand the underlying relationships among the elements comprising the compound and are able to produce other To compounds on the basis of their Gbaya intuition.

The majority of the compounds are also transparent in meaning (v. [Ullmann 1966:221]). Because the Gbaya intuitively understands the underlying grammatical relationships that obtain within the compound, if he knows the meanings of the individual lexical elements, he is able to decipher the meaning of the whole. This is possible because the compound is not an idiom in which the whole is greater or at least different from the sum of its parts, but rather a descriptive and perhaps periphrastic statement of the whole.4

This transparency, whether grammatical or semantic, clearly depends to a great degree on the mother tongue of the speakers and on their culture and milieu. A non-Gbaya and certainly a non-African would not recognize the "rain-tree" to be a lophira lanceolata, known by the Gbaya to be an enemy of lightning, nor would he identify the "big-tree" as the daniella oliveri, which is the largest tree commonly seen on the hillsides and plains where the Gbaya live.

8. Semantics of Compounds

The semantic basis of the compound is the classification of the object cited according to one of several classes of objects. The broad class is then modified or qualified to provide the precision and detail necessary for identification by the listener. The following exemplify the most common classes:

4"Periphrase" is a term that has been used in reference to constructions of this type [Whinnom 1971:109], but I prefer to call them compounds because they are not mere circumlocutions, but clearly defined structures. Evidence of this is the internal tone shifting that occurs in the same patterns as is found in Gbaya compounds.
9. Compound Structures

Five basic compound structures may be identified in the corpus. They may be divided into two categories as indicated below: ⁵

<table>
<thead>
<tr>
<th></th>
<th>occurrences</th>
<th>percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Nominal Compounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. [Adjective + Nominal]</td>
<td>11</td>
<td>8.15%</td>
</tr>
<tr>
<td>B. [Nominal + Adjective]</td>
<td>2</td>
<td>1.48%</td>
</tr>
<tr>
<td>C. [Nominal + Nominal]</td>
<td>68</td>
<td>50.37%</td>
</tr>
<tr>
<td>II. Verbal Compounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. [Verbal + Nominal]</td>
<td>52</td>
<td>38.52%</td>
</tr>
<tr>
<td>B. [Nominal + Verbal]</td>
<td>2</td>
<td>1.48%</td>
</tr>
<tr>
<td></td>
<td>135</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

In the first category of compounds (I), the structure is that of head and modifier. The modifier may be an adjective which either precedes the head (IA) or follows it (IB), ⁶ or it may be a noun which follows the head (IC). In the second category (II), the compound is comprised of a nominal head, which may be either explicitly stated or implicitly understood, and a modifying predicate construction. The compound is structured about the verbal, which may be either a verb followed by its object (IIA), or a copulative (IIB). The various structures are exemplified below: ⁷

⁵The figures and percentages quoted refer to the number of occurrences as separate compounds. Not counted is the number of times each type occurs as part of another compound.

⁶In the formulae, items preceded by a [+] are obligatory; those preceded by a [±] are optional. Items in a vertical list following an arrow are alternatives. For additional examples of each type of compound, see the appendix.

⁷Formally, the adjective may be identified by virtue of its capability of accepting the nominalizing suffix -kiá which appears to be a cognate of the adjectival suffix -ké of Mbum and Pana.
IA. [Adjective + Nominal] Structure: [+Adj + Nom]
Nom > noun

1) Cpd
adj great noun
\texttt{gáň-soi} \texttt{tęęęŋ} 'python'

L₁: \texttt{gba-gök} "great snake" 'python'
SL: (does not occur)\textsuperscript{8}

IB. [Nominal + Adjective] Structure: [+Nom + Adj]
Nom > \{noun noun + cop + neg\}

2) Cpd
noun
\texttt{dárá} animal
\texttt{sáźóŋ} red
\texttt{antelope}'

L₁: (does not occur)
SL: \texttt{soi-ľůkú} "snake-great" 'python'

3) Cpd
Nom
\texttt{dima} feet
\texttt{tá} be \texttt{yá} not \texttt{sáźóŋ} red
\texttt{“fish”}
\"fish" \texttt{red-tailed fish'}

\textsuperscript{8}Hagège [1970:184] gives the form \texttt{gáň-soi} 'Python regius Shaw', which he glosses 'seigneur + serpent'. Darman Paul, who speaks Mbum as a mother tongue, rejects \texttt{gáň-soi} as a legitimate Mbum word, but does give a parallel form, \texttt{gúń-sáźóŋ} "child+sheep" = 'lamb'. Both items are semantically similar to To compounds of type IA, but formally they parallel To compounds of type IC (v. note 13 below).
IC. [Nominal + Nominal] Structure: [+Nom +Nom]

4) noun
Nom > { noun + noun
      adj + noun
      noun + cop + neg

Prep

noun

meat/animal

'beef'

L₁: kpo6-ngai "meat-cow" 'beef'
SL: hai-ndai "meat-cow" 'beef'

5) noun

Nom

noun

bín

child

"mouse"

adj

cófɛr

big

head

noun
dúká

grass

Cpd

'big-head'

'a type of mouse with a big head'

6) noun

Nom

noun

dárà

meat/animal

Cpd

'noun'

dima

feet

Pred

cop

tá

be

neg

yá

not

'noun'

'ta

"fish"

'meat/animal"

'fish meat'

In type IC there is a subtype in which the modifying element may be locative: 9

9This structure is included as a subtype under IC because the relationship is basically noun to noun, with a preposition making explicit the nature of the relationship, in this case location. Numerous [Nominal + Nominal] compounds express a locative notion, and in L₁ both forms occur:

sadí-dɔs-yi "animal-under-water" 'water-animal'

sadí-yi "animal-water" 'water-animal'

Similar to this prepositional construction is the possessive and its compound equivalent:

bín kí kásó "child of sky" 'star'

bín-kásó "child-sky" 'star'
Structure: \([+\text{Nom } + \text{Prep}]\)
\[
\text{Prep} > \text{prep} + \text{noun}
\]

7)

\[
\text{Cpd} \quad \text{noun} \quad \text{Prep} \quad \text{noun}
\]
\[
dárá \quad \text{animal} \quad \text{in} \quad \text{water}
\]
\[
\text{L}_1: \text{sadí-đög-yi} \ "\text{animal-in-water}'' \ '\text{water animal}'
\]
\[
\text{SL}: \text{kpuu-di-hól} \ "\text{tree-of-valley}'' \ '\text{valley tree}'
\]

IIA. \([\text{Verbal } + \text{Nominal}]\) Structure: \([\pm\text{Nom } + \text{Pred}_v + \text{Nom } \pm\text{Prep}]\)

8)

\[
\text{Cpd} \quad \text{noun} \quad \text{Pred} \quad \text{verb} \quad \text{noun}
\]
\[
\emptyset \quad \text{er kɛ} \quad \text{see} \quad \text{thing}
\]
\[
\text{L}_1:\text{du-yi} \ "\text{draw-water}'' \ '\text{water drawer}'
\]
\[
\text{SL}:\text{izm-nzuk} \ "\text{trick-people}'' \ (\text{name}) \ '\text{Trickster}'
\]

9)

\[
\text{Cpd} \quad \text{noun} \quad \text{Pred} \quad \text{verb} \quad \text{noun}
\]
\[
\text{läm} \quad \text{person} \quad \text{er kɛ} \quad \text{see} \quad \text{thing}
\]
\[
\text{L}_1: \text{wi-zok-mo} \ "\text{person-see-thing}'' \ '\text{seer}'
\]
\[
\text{SL}: \text{nzuk-kôna-ngála} \ "\text{person-see-omens}'' \ '\text{seer}'
\]
10) Cpd
   noun
   
   verb
   noun
   
   Pred
   adv
   
   ngau
   above

11) Cpd
   noun
   
   verb
   noun
   
   Prep
   noun
   
   Prep
   noun
   
   ta
   carry
   sticks
   with
   back

   [Nominal + Verbal]
   Structure: [+Nom +Pred_c +neg]
   Nom > noun
   Pred_c > copular + negative

12) Cpd
   noun
   
   cop
   neg
   
   dima
   feet
   
   t'a
   be
   
   y'a
   not

   L1: nam-bó-ná  "relatives-be-not" (name) 'No-relatives'
   SL: cf. zi-gór-yá "love-stranger-not" 'bedbug'

10) An alternate form occurs without an expressed subject: ṣaŋ-ke-ka-kporo, "carry-thing-with-back" = 'donkey'. This construction is paralleled by the Gbaya name of a mythical forest creature, kpa-mó-ŋe-nginda "find-thing-with-stump (of a leg)".

11) An item which may be a compound with an affirmative copula is taŋgaú 'maize', which could theoretically be glossed "be-high" from ta-ŋgaú. However, the order is reversed from the order of the elements in the negative form, and no example of a compound with a copula in the affirmative occurs in Gbaya or Mbum.

12) On the basis of L1 and SL, the existence of compounds with negative verb constructions might be postulated in To, but none are attested in the available data.
9. The Sociolinguistics of To

The significance of compounding in To may be viewed from several perspectives. By grouping items according to semantic category and by using modifiers that might themselves be compounds, a very high level of flexibility was attained with a restricted lexical inventory. This was particularly true when nominal patterns of a descriptive nature and verbal patterns that specified action were both available as productive processes. Because these constructions paralleled those of the initiate's mother tongue and because they required only a very minimal vocabulary, the load on the boy's memory was relatively light. This was important because, from the time he came to life again during the rite de passage, he had to be a functioning member of his new community without ever speaking his mother tongue. Although old men steadfastly maintain that it was the life-restoring medicine that miraculously enabled the initiate to know the secrets of the language of To, the ease with which it could be learned by a Gbaya-speaker was undoubtedly a factor in the efficacy of the medicine.

A major function of initiation training was to teach the Gbaya boy to understand his world. If Adam was directed by the Creator to name the animals, the initiate's task was very similar. And in naming, he learned, for the naming entailed not merely the memorization of lexical tags, but the observation required to recognize and describe the objects that made up his world. Distinguishing those objects according to a number of categories enabled him to structure his world. In this way, through a process of observing, describing, recognizing, and naming, the practical teaching of the elders in the way of the bush was reinforced. And as this learning was reinforced by the language which he spoke, the initiate learned to be a self-sufficient member of society who was able to use his environment for the welfare of his family and his community.

10. Conclusion

Although the origins of To are not clear, it may be possible to hypothesize that it developed as a special speech form among a particular people for an initiation rite or for some other rite. It must then be postulated that the language and the rite was at some point adopted, perhaps not without modification, by the Gbaya.

As used by the Gbaya, To represents a complex linguistic development in response to specific needs of society. It represents the restricted use of a pidgin within a homogeneous speech community, the form of the language itself being at least partially determined by the demands placed upon it as a language of initiation. It could neither hark back to a source language for relexification and expansion, nor could it borrow from surrounding languages. Its role required that it remain pure in much the same way that a religious language may be maintained in an archaic and petrified form. Due to its internal flexibility, To was not, however, a static language.
Ultimately, of course, all pidgins and perhaps all languages share the same fate. When they are no longer needed, they are either transformed into something new, or they die. Since the initiation of To was abandoned nearly fifty years ago, the only use its language now has is communication among old initiates, and when these last few survivors die and the initiation songs are sung at their funeral wakes for the last time, the language of To will also die. As the rites and initiations with which special languages such as To are associated disappear in favor of an urban and technological way of life which brings its own initiation language, whether English or French or both, the languages also disappear and are forgotten.

REFERENCES


APPENDIX

IA. [Adjective + Nominal]

2 element: bín-ndúká

çófer-lám

"little-bush"

'grass'

IB. [Nominal + Adjective] (no additional examples observed)

IC. [Nominal + Nominal]

2 element: lâm-déâer

marám-tangaú

"per son-theft"

'water-maize'

3 element: bín-dárá-zaa?ere

bín-ndóofur-zaa?ere

"little-animal-town"

'goat, sheep'

4 element: bín-dárá-tafá-maram

dima-tá-yá-dima

"little-animal-in-water"

'otter'

5 element: dima-tá-yá-çófer-tůr

"feet-be-not-feet"

'channel catfish'

IIA. [Verbal + Nominal]

2 element: er-bai

ter-kímč

"hear-word"

'ear'

3 element: darágban-pan-por

ndarî-dir-dârá

"tree/stick-take-hand"

'staff, cane'

4 element: dárá-pok-wSYō-mûr

pan-dima-tafá-marm

"animal-destroy-fruit-ground"

'squirrel'

5 element: dima-tá-yá-soar-dima

ndóofur-pok-bín-ndóofur-zaa?ere

"feet-be-not-pierce-feet"

'barbed catfish'

IIB. [Nominal + Verbal]

3 element: seke-tá-yá

"mouth-be-not"

'type of fish'

13 There is an overlap of certain items between adjective and noun. For instance, bín may be either an adjective modifier or a nominal head: bín-ndúká is both a compound of type IA, "little-bush" = 'grass', and of type IC, "child-bush" = 'mouse'.
LINGUISTIC PERFORMANCES AS SUBJECTIVE MEASURES--
SOME FINDINGS AND IMPLICATIONS¹

Carol Myers Scotton
Michigan State University

1. Introduction

Sociolinguistic studies set for themselves the necessary conditions that the linguistic repertoire of any speech community includes more than one variety, and that one of the ways these varieties are differentiated is by use. That is, each variety is linked to certain groups and/or activities within the community. (Variety is a neutral term to cover styles and dialects of one or more distinct languages as well as different languages.

Sociolinguists can cite evidence that societal norms operate in each community to indicate which variety is appropriate for which persons on a given topic, in given circumstances ([Fishman 1972] or [Scotton 1976] for example). Therefore, the use of certain varieties becomes associated with certain social activities and the individuals who normally take part in those activities. Further, to be able to speak certain linguistic varieties is even a necessary condition for entry into certain activities. For example, in Kampala, Uganda, the site of this study, one cannot be a white collar worker unless he speaks English. One would need Swahili to hold a job on a multi-ethnic construction site.

2. The Problem

The problem which this paper explores is: does it follow that how listeners perceive a person's performance in a certain linguistic variety forms the basis for how that person is perceived by listeners as a possible participant in the activities linked with regular use of that variety? That is, is how a person speaks a certain variety used by listeners as an

¹An earlier version of this article appeared in The Journal of Social Psychology 102:35-45. Data-gathering was financed by the Ford Foundation-sponsored Survey of Language Use in Eastern Africa. Analysis was completed under a grant from the Yale University Concilium for International Studies. I wish to acknowledge gratefully statistical advice from Professor Richard Savage, Department of Statistics, Yale University, and also Rhou-jane Chou, a graduate student there. 'Performance' is used in this paper as inferential evidence of competence.
indicator of whether or not the person **appropriately** might take part in certain activities?

3. **The General Hypothesis**

This question gives rise to a general hypothesis, with "social activities" interpreted narrowly for the purposes of this study as occupations. The hypothesis is this: if speaking a linguistic variety well is linked with specific occupations or a range of occupations, then community members will use a speaker's performance of that variety as an indicator in predicting his occupation. The hypothesis, then, implies that how a person speaks a certain variety may facilitate or restrict his entry into certain occupations. That is, linguistic performance may be used as a socioeconomic filter.

4. **Operational Versions of the Hypothesis**

The operational hypotheses of this study were derived from earlier research in Kampala [Scotton 1972] which showed Swahili was spoken in a wide variety of situations and that many spoke it whether or not they could approximate the standard dialect. Earlier research also showed that few people even claimed to speak English unless they had received sufficient formal education to have learned English in school.

The hypotheses are:

A. Kampala residents differentiate among speakers' performances in English or Swahili, judging those performances closer to the standard dialect as "better".

B. The Kampala listeners who can differentiate Swahili or English speakers according to linguistic performances also differentiate them according to occupation, with language as the only cue.

C. Kampala residents can predict different occupations on the basis of different performances in Swahili and English.

D. (for English only) In responding to a single speaker, Kampala residents will predict the higher status occupations on the basis of "better" English performances and the lower status ones on the basis of "poor" English performances.

Two types of predictions are involved in both hypotheses C and D. The first type of prediction is between speakers. This type predicts that most listeners who judge any two speakers' linguistic performances the same (e.g. "good") will also state that they have the same occupation. Further, listeners often will not agree on occupation if they make different judgments about a linguistic performance (e.g., "good" vs. "fair" vs. "bad").

The second type of prediction is within a single speaker. This type
predicts that most listeners who agree on a speaker's linguistic performance will also agree on his occupation. Again, they will not agree on occupation with those listeners who make different judgments on linguistic performance for the same speaker.

5. Background of this Study

Previous language attitude studies often have used aural stimuli—tape-recorded voices—following Lambert and his associates [Lambert 1967]. The present study uses this method, but is more aligned in purpose to Labov's use of subjective reaction tests than to Lambert's use. Labov [1966] played tape-recorded English sentences marked by particular stigmatized phonological features to subjects in New York City. They were asked to rate the speech heard on the tapes as acceptable or not for a range of occupations.

6. The Kampala Situation

Although English is the official language of Uganda, few Ugandans speak it very well. A nationwide study in 1968 [Ladefoged et al. 1971] showed that far less than half the men surveyed and fewer women thought they could carry on a conversation in English. In the urban areas, such as Kampala, the percentage fluent in English is higher since this is where the jobs which require English are located. But Swahili, not English, is more of a lingua franca among the masses [Scotton 1972]. Swahili is, of course, a Bantu language and about two-thirds of Ugandans are native speakers of Bantu languages. It, therefore, should be relatively easy for many Ugandans to learn Swahili. Further, Swahili enjoys a long history as a lingua franca among most Ugandan ethnic groups, Bantu or not.

7. Subjects

Two groups were used as subjects. For the Swahili test, a random sample of 90 per cent men and 10 per cent women was studied (N = 223). It was stratified ethnically to reflect the typical Kampala population from which it was drawn. A random sub-sample of all men was tested for English (N = 41). These 41 subjects were queried several months after the Swahili test by the same interviewers, two local men. Data were collected in 1969-70.

8. Method

Four one-minute tape recordings, each of an individual man speaking Swahili, were played to each of the 223 subjects. Each of the four speakers described the same occupationally-neutral picture. Each spoke Swahili differently. The subjects had no clue about the abilities of the speakers in other languages, such as English.

Subjects were asked to make two evaluations of these taped speakers.
First, they were to judge the Swahili qualitatively—as "good" or anything else. Second, they were asked what kind of job the speaker might have, considering the way he spoke. The subjects were free to give any answer; that is, they were not provided with a set of alternative responses.

Interviewers stressed that only opinions were being solicited and that there were no correct responses. Swahili or English, or occasionally Luganda, was used as the medium of the interview, according to the subject's preference.

The 41 subjects in the English test were played tape recordings of four East African men, each speaking English differently. The speakers all described the same picture, as in the Swahili test. Subjects were asked the same questions as in the first test, but with reference to the English speakers.

9. Results

9.1 Hypothesis A. For both Swahili and English, hypothesis A is supported. That is, subjects clearly differentiated both the Swahili and the English speakers in terms of their linguistic performances.\(^2\) Also, subjects seemed to use the standard dialects as their points of reference in rating speakers.

Swahili speaker 1 was judged "good" by 94 per cent of the Swahili test sample of 223. He was, in fact, a native speaker of the Zanzibar dialect of Swahili, the basis of Standard Swahili. A shop foreman, he had a middle level of education. Speaker 2's Swahili was judged "good" by only 8.5 per cent. His halting Swahili, with a good deal of both phonological and morphological interference from his own first language and also at least one English loan word, was typical of a person of his educational status and ethnic group: he was a university official and a Ganda, a member of the numerically dominant group in Kampala. Speaker 3's Swahili was judged "good" by 72 per cent. A university student from the Tanzanian coast, his Swahili was fairly close to the standard dialect except for his uneven speech rhythms. Speaker 4 spoke very fluent Swahili with no hesitations. But the phonological interference from his own first language was striking. His Swahili was judged "good" by 16 per cent. A Luyia from Kenya, he was a house servant.

Subjects also had definite ideas about the English performances. Speaker 1 was judged "good" by only 3 per cent (N = 41). He was an electrician whose English was intelligible, but halting, and with phonological interference from his own first language, Acholi. The English of speaker 2, a high-level Nyoro civil servant, was judged "good" by 95 per cent. Speaker 3 and speaker 4 received identical evaluations, only 5 per cent

\(^2\)Only three subjects in the Swahili test and none in the English test gave the same judgment, such as "good" or "don't know", for all four speakers.
finding each "good" and most finding each "fair". Speaker 3, a Ganda office messenger, made fewer grammatical deviations from what might be a Standard English in Kampala than speaker 4 did, but spoke with seeming effort. Speaker 4 was a Soga house servant.

9.2 Hypothesis B. The parallelism between English and Swahili test results breaks down when subjects were asked to differentiate speakers according to occupation. Hypothesis B (that listeners who can differentiate speakers according to linguistic performance can go on to differentiate them according to occupation, with speech as the only cue) is strongly supported for the English test. There is no such support for about half the Swahili test subjects.

Table 1 compares the 220 Swahili and 41 English test listeners in terms of whether or not they differentiated among the four speakers for occupation, that is, whether they thought at least one speaker had a different job from the others. Clearly, if subjects made a differentiation in the English performances, they also made one in occupational assignment. The same result held for only 111 out of the 220 subjects in the Swahili test.

Table 1
Differentiation of Speakers' Occupations by Language Tested

<table>
<thead>
<tr>
<th>Language Performance</th>
<th>Occupation Differentiation</th>
<th>Total Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>English</td>
<td>40</td>
<td>1</td>
</tr>
<tr>
<td>Swahili</td>
<td>111</td>
<td>109</td>
</tr>
</tbody>
</table>

9.3 Hypothesis C. Subjects saw some relationship between the way a speaker spoke English and his occupation. Further, in judging between speakers, they were consistent in seeing the same type of relationship. They did not see such a relationship between Swahili performance and occupation, either for an individual speaker or between speakers. The English part of

\[\text{3The three subjects who did not differentiate Swahili speakers according to linguistic performance were dropped; therefore, all subjects in Table 1 did make some differentiation for linguistic performance.}\]
hypothesis C, therefore, is supported, but the Swahili part is not.  

Table 2 provides evidence that differences in linguistic performance judgments were not predictive of differences in occupation, whether these differences were for judgments between speakers or in comparative judgments for a single speaker. For example, the data for speakers 2 and 4 show that the judgment "fair" (the majority choice for these speakers) was not predictive of the same occupation between speakers. Whether subjects thought the Swahili of speaker 3 "good", "fair" or "bad", many still thought he was a teacher: the data here shows little predictive value.

Findings in the English test reported in Table 3 show that perceived differences in linguistic performances are indeed predictive of differences in perceived occupation, both between speakers and within any single speaker. Very few subjects predicted a speaker held a white collar job unless they also perceived his English as "good". As a corollary, very few subjects placed a speaker in a white collar job if they said his English was "bad" or even "fair". Compare these results with those for the Swahili test in Table 2.

Formal analysis of the data was attempted. However, the subjects' evaluation for all four speakers could not be grouped together because the independence of each evaluation could not be proven. Performing the χ² test on the judgments for each individual speaker along the two variables was inappropriate because many of the categories had very small marginals.

Although the English sample was small, the data indicate increasing sample size would not necessarily provide a better distribution of the marginals. Subjects generally clustered together in all judgments about linguistic performance; therefore, having a larger sample probably would

---

4Not all Swahili test data were considered for the Swahili test statistics for hypothesis C. The 109 subjects who gave the same occupational judgment for all four Swahili speakers were dropped, leaving a total N of 111. Many of these 109 subjects stated that all four speakers were teachers; others said "don't know" for all four. Since these subjects were saying in effect that they could not differentiate the speakers according to occupation, they were eliminated in the further consideration of occupation based on linguistic performance.

5The category "other" in Table 2 included a variety of non-white collar jobs. Main choices were night watchman, hunter, game park worker, policeman, farmer and house servant.

6In a few instances, "good" English was predictive of being a house servant. Many servants worked for Europeans and therefore the occupation was linked with being able to speak English at least fairly well.
<table>
<thead>
<tr>
<th>Swahili Judgment</th>
<th>White Collar</th>
<th>Teacher</th>
<th>Other</th>
<th>Don't Know</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>39</td>
<td>50</td>
<td>3</td>
<td>10</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>39%</td>
<td>49%</td>
<td>3%</td>
<td>10%</td>
<td>92%</td>
</tr>
<tr>
<td>Fair</td>
<td>7</td>
<td>--</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>78%</td>
<td>--</td>
<td>11%</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>Column</td>
<td>46</td>
<td>50</td>
<td>4</td>
<td>11</td>
<td>111</td>
</tr>
<tr>
<td>Total</td>
<td>41%</td>
<td>45%</td>
<td>4%</td>
<td>10%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Speaker 2**

| Good            | 4            | 4       | --    | 1          | 9     |
|                 | 44.5%        | 44.5%   | --    | 11%        | 8%    |
| Fair            | 20           | 36      | 15    | 7          | 78    |
|                 | 26%          | 46%     | 19%   | 9%         | 70%   |
| Bad             | 7            | 8       | 5     | 4          | 24    |
|                 | 29%          | 33%     | 21%   | 17%        | 22%   |
| Column          | 31           | 48      | 20    | 12         | 111   |
| Total           | 28%          | 43%     | 18%   | 11%        | 100%  |

**Speaker 3**

| Good            | 12           | 33      | 3     | 16         | 64    |
|                 | 19%          | 51%     | 5%    | 25%        | 58%   |
| Fair            | 7            | 16      | 3     | 7          | 33    |
|                 | 21%          | 49%     | 9%    | 21%        | 30%   |
| Bad             | --           | 7       | 3     | 3          | 13    |
|                 | --           | 54%     | 23%   | 23%        | 12%   |
| Column          | 19           | 56      | 9     | 26         | 110*  |
| Total           | 17%          | 51%     | 8%    | 24%        | 100%  |

**Speaker 4**

| Good            | 8            | 2       | 16    | 4          | 30    |
|                 | 27%          | 7%      | 53%   | 13%        | 27%   |
| Fair            | 11           | 5       | 24    | 24         | 64    |
|                 | 17%          | 8%      | 37.5% | 37.5%      | 58%   |
| Bad             | 2            | 3       | 2     | 9          | 16    |
|                 | 12.5%        | 19%     | 12.5% | 56%        | 15%   |
| Column          | 21           | 10      | 42    | 37         | 110*  |
| Total           | 19%          | 9%      | 38%   | 34%        | 100%  |

*Findings not included for subject who judged linguistic performance "don't know".*
only provide more cases for the already most populous marginals. The demonstrated "cluster tendency" regarding linguistic performance judgments is itself of much interest. That is, these data show people tend to agree in perception of linguistic performance.

9.4 **Hypothesis D.** The data also tend to support hypothesis D. Table 3 shows that a judgment of an English linguistic performance as "good" is predictive of an occupational judgment in the higher status jobs and a judgment of "bad" in the lower status jobs. Again, however, formal analysis cannot be provided.

10. **Discussion**

The major finding of this study is that listeners use a person's English performance to predict his occupation, but they do not so use his Swahili performance. Half of the subjects in the Swahili test thought the four Swahili speakers all had the same job; those who did differentiate the speakers according to job did not consistently associate any particular type of Swahili performance with any particular type of job.

A second finding is that listeners do differentiate among linguistic performances as "good" or less whether or not they go on to use those performances as social indicators.

The finding that Swahili is not an occupational indicator explains why so many persons who do not know Swahili "well" still use it in situations where norms make it appropriate. In contrast, those subjects with little or no English ability report avoiding English, even in potential status-raising situations where its use is acceptable and where those who can speak it well definitely use it. (See Scotton [1972] for specific data.) People feel free to speak Swahili because they need not fear they are being cate-

---

7 A separate, as yet unpublished study [Scotton 1977], validates the assertion that East Africans do perceive white collar jobs, such as civil servant or teacher, as the higher status jobs.

8 No claims are made as to which linguistic features of a speaker's performance are crucial in judging his performance linguistically or in assigning him to an occupation.
<table>
<thead>
<tr>
<th>English Judgment</th>
<th>White Collar</th>
<th>Non-White Collar</th>
<th>Servant</th>
<th>Don't Know</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Column</strong></td>
<td>2</td>
<td>16</td>
<td>13</td>
<td>10</td>
<td>41</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5%</td>
<td>39%</td>
<td>32%</td>
<td>24%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Speaker 1**

<table>
<thead>
<tr>
<th>Good</th>
<th>100%</th>
<th>3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair</td>
<td>7%</td>
<td>36%</td>
</tr>
<tr>
<td>Bad</td>
<td>50%</td>
<td>33%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Column</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>32%</td>
</tr>
</tbody>
</table>

**Speaker 2**

<table>
<thead>
<tr>
<th>Good</th>
<th>74.5%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair</td>
<td>50%</td>
<td>5%</td>
</tr>
<tr>
<td>Column</td>
<td>73%</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>17%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Speaker 3**

<table>
<thead>
<tr>
<th>Good</th>
<th>100%</th>
<th>5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair</td>
<td>3%</td>
<td>13%</td>
</tr>
<tr>
<td>Bad</td>
<td>67%</td>
<td>33%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Column</th>
<th>17%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>41%</td>
</tr>
</tbody>
</table>

**Speaker 4**

<table>
<thead>
<tr>
<th>Good</th>
<th>50%</th>
<th>5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair</td>
<td>6.5%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Bad</td>
<td>22%</td>
<td>56%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Column</th>
<th>12%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>54%</td>
</tr>
</tbody>
</table>

Table 3
Linguistic Performance Judged by Occupational Judgment for English Speakers
gorized as to job or education. They do not use English so freely because English performance does mark them in an occupational-educational sense.

10.1 Implications. These findings have three implications of general importance, two regarding a theory of linguistic variation and one regarding language policy.

First, manner of acquisition may explain Swahili's non-status as an occupational indicator. Most people in Uganda's urban centers, regardless of educational status, have an equal opportunity to learn Swahili and they learn it in the same way. Swahili is added informally as the need for an inter-ethnic lingua franca arises, with friends or co-workers as typical teachers. It has not been taught recently in Ugandan primary schools and in 1970 was a subject in only a few secondary schools. When it is learned in Kampala, the variety acquired is largely a matter of what variety the informal teacher speaks. Therefore, Swahili performance hardly can reflect either educational or occupational status.

In contrast, English is acquired mainly through formal education where the model is more or less consistent and approximates an East African standard dialect (although none is formally recognized). Speaking this variety is associated with schooling, and, of course, certain jobs are linked to schooling. The pathway for English performance to become an occupational-educational indicator is clear.

Second, the original general hypothesis that a relation holds in any society between a certain occupation and speaking well the linguistic variety associated with that occupation is not supported for all varieties. Instead, how well a person speaks some varieties, such as Swahili in this study, seems to have little to do with where the variety is used. Thus, the limits of acceptability on Swahili in those activities where it is appropriate may be said to be less narrowly drawn than are those of English

---

9 Note I do not claim Swahili performances are not social indicators at all. How a person speaks Swahili is used to make other types of social evaluations. For example, a local who speaks Swahili very fluently may be thought too "sharp", his Swahili ability indicating he has "been around" too much. Men who speak Swahili well may be taken as itinerant thieves, women as prostitutes. Conversely, at least in towns where an inter-ethnic lingua franca is needed, a very weak Swahili performance can mark a person as a country bumpkin ([Scotton 1972] or [Scotton 1977]).

10 Field work I did in Western Kenya in summer 1977 shows a similar set of perceptions exists there regarding Swahili and English performances as social indicators and also use patterns. Almost anyone will attempt Swahili; generally only those with some secondary schooling even claim to know English.
for its activity range. One can conclude that while all linguistic varieties in a community may be allocated to specific activities, performance in a variety does not necessarily designate the appropriate participants for that variety's allocated activities. That is, the limits of performance acceptability and the use of performance as an entry requirement for an activity may vary from one variety to another within the same community.

Third, an implication of these findings is relevant to language policy. If only a narrow performance range of a variety is considered acceptable by listeners for certain activities, then this variety would be a poor choice as an official language. Speakers would avoid using it, fearing that they were being judged socioeconomically on the basis of their linguistic performances. This is so in East Africa where English is the official language in Kenya and Uganda. If English is to succeed in this role, either the limits of performance acceptability for English must be relaxed or the model for "good" English must be made universally available. An obvious alternative would be to make Swahili the official language.11

11. Conclusion

Linguistic variation is not always a social indicator. Many linguistic variationists ([Labov 1972] or [Wolfram and Fasold 1974], for example) have found there is something of a one-to-one association between variation in the performance of a specific linguistic variety and variation among the values of a specific social category, such as occupation or age. One could conclude from such findings that differences in speech forms always correlate with differences along any of the social scales which are salient in the community in question. Findings from the present study negate this conclusion. Rather, these findings indicate that all linguistic performances in a community do not have the same type of social weight nor can they all be associated in the same manner with social categories.

In the case of English and Swahili in Kampala, differences in their social association seem to stem from differences in acquisition patterns. Such findings raise the question of what patterns are crucial in other societies in the use of linguistic performances as social indicators.

11It has been suggested, for example, that one of the reasons Bahasa Indonesia was accepted as a national/official language in Indonesia is that a general tolerance exists for a wide range of performances in that language [Alisjahbana 1971]. Also, on Mauritius, English (the official language) seems to be gaining speakers and situational allocations at the expense of French, which has traditionally enjoyed more prestige there. Again, it is reported speakers fear being judged in socioeconomic terms when they speak French; the limits of performance acceptability are more severe in French than when they are speaking English [Baker 1969].
Whatever the case, the findings here clearly suggest one should not expect performance to be a social indicator of the same order across linguistic varieties.

REFERENCES


MIGRATION THEORY, THE NORTHEASTERN COASTAL BANTU
AND THE SHUNGWAYA HYPOTHESIS

Philip Sedlak
Université de Benin

1. Introduction.

For linguists and historians concerned with the reconstruction of the earlier movements of present-day Kenyan and Tanzanian peoples, the Shungwaya hypothesis refers to a theory of northern origins for some Northeastern Coastal Bantu (NECB) peoples at some point in their history in an area between the Tana River in Kenya and the Juba River in Somalia. The debate has involved scholars with differing disciplinary perspectives. Scholars accepting the hypothesis claim northern origins. Those who reject the hypothesis (or parts of it) claim a southern homeland and offer alternative explanations. Spear [1974], utilizing oral-historical recountings of origin traditions and written accounts of ethnohistory, favors the Shungwaya hypothesis. Sedlak [1975], using lexicostatistical techniques, and Hinnebusch [1973 & 1976], using both lexicostatistical techniques and comparative linguistic methods, claim a more southern origin. The application of migration theory—with certain qualifications—to this problem may argue for a northern homeland for the proto-Sabaki branch of NECB: Swahili, Mijikenda, Pokomo.

2. Pro-Shungwaya


The Sabaki speakers...moved northwards along the Kenya and Somali coasts as far as Brava, the furthest northeastern extension of any of the Bantu-speaking peoples. There they settled alongside Shirazi, resulting in an interaction which gave rise to the Swahili language. From this point the more detailed traditional, documentary, linguistic and cultural evidence slowly comes into play and shows them pushed southwards to the Juba River Valley and Singwaya by the expanding Shirazi. When the Galla invaded in the mid-sixteenth century, they encountered first the Digo at the Juba and later the remaining Kashur [NECB?] at Singwaya, driving them all further south in two migrations. The Digo proceeded down the coast to their main settlement at
Kwale, south of Mombasa, while the others followed. The Pokomo settled along the Tana River while the Mijikenda and Taita continued to Mwangea, inland from Malindi, from whence the Taita went inland to be absorbed by Dabida and Saghala-speakers and the Mijikenda dispersed to their present locations.

Leaving linguistic evidence out of the picture entirely for the moment, it is uncertain as to whether the above account using oral evidence is an accurate reflection of actual population movements, or whether it is merely an unconscious attempt of an ethnic cluster to save face in view of the southward Galla expansions of earlier times. Greenberg [1971] takes a cautious position on the degree of credibility which oral traditions should be accorded, concluding that "...the time depth and chronological precision of oral traditions are necessarily limited, but within these limitations they can give important and reliable information when treated critically" [1971:173]. This position is intermediate between that of Murdock [1959], who considers it altogether unreliable, and that of Vansina [1961], who makes it the "...very keystone for his reconstruction of the history of a number of African peoples" [Greenberg 1971:173].

3. Anti-Shungwaya

With linguistic evidence as a central focus and as a key to the understanding of the movement of the NECB, Hinnebusch [1976:20] treats the Shungwaya problem as follows:

If Shungwaya, then, as I am suggesting here, seems doubtful as a total explanation of Sabaki origins what then are the origins of these people and their nearest relatives? As an initial speculation, I would suggest the Kilimanjaro-Taita-Pare triangle. It is an area of great linguistic diversity, a relic area, with each of the major language groups (Chaga, Taveta-Pare, and Taita) as distinctly related to each other as Saghala is to Sabaki [Nurse and Philippson 1974]. As a relic area it suggests a long period of separate development and long settlement to explain the diversity, in contrast to the uniformity of the low-lying coastal areas, a uniformity which indicates relatively more recent linguistic developments. This plus the few sound changes that are shared between the two areas would indicate that the highlands were an early settlement area from which the coastal peoples came, spilling out of the over-crowded agricultural areas and spreading north and south along the coastal plain. The linguistic evidence is now beginning to be sifted through and all the evidence is not in; therefore, the idea that the highlands is a nuclear area is tentative and, at most, an indication to historians and others where future research might produce results.
4. "Somaliland Bantu"

Before proceeding with the discussion of the origins of proto-Sabaki as indicated by the application of Dyen's migration theory to that area, I will review the evidence from three published sources regarding the presence of Bantu groups in Somalia. Unfortunately, linguistic information which would demonstrate the presence of Sabaki-related peoples in Somalia is minimal and field research to ascertain the presence of these groups is essential to a final statement on this matter.

Of the three sources, Grottanelli [1953], Prins [1950] and Andrzejewski [1970], Grottanelli provides the most copious information relating to the Somali Bantu in question. Grottanelli conducted field research for a two-day period in 1951-52 at Ngambo on the right bank of the lower Juba, an area populated, according to him, by two ethnic stocks (It. ceppi): Somalia and "Uagoscia" (WaGoʃa, Wagasha)—"... racially Negroid and linguistically Bantu" [1953:249]. In his account, the Wagasha are essentially sedentary agriculturalists and are concentrated along the banks of the river, a site bioclimatically suited to their agricultural needs. As reason for the long term coexistence of Bantu agriculturalists and Cushitic pastoralists, Grottanelli cites the inability of the riverine area to support cattle, inadequate pasturage in a limited geographical range and a high incidence of tse-tse.1

Grottanelli suggests that the term "Wagasha" is a regional Bantu pejorative generic term in the Somali area for 'people of the forest' < Somali dal golet.

In his discussion of the origins of the Wagasha, Grottanelli states that at the period of the abolition of slavery in the Somalia region, numbers of slaves became independent of the domination of the Somali. Distinct from the group whose origins derived from the slave trade were others who, according to Cerulli, had inhabited the riverine areas of Somalia at a much earlier period. Grottanelli also refers to them and notes the usage in the Kitab al Zanuj of the term Wanyika or 'bush people' (a cover term used by Swahili speakers for (roughly) any inland non-Muslim Bantu population) to refer to these peoples. Grottanelli suggests that: "In the dialects of the lower Juba are perhaps represented archaic versions of Northeast Bantu..." because "...ethnic names are preceded by the singular prefix m- ...", however he is aware of the speciousness of evidence available to him, proposing that he will "...wait for the linguist to verify this" [1933:251].

1The 'high incidence' of tse-tse is insufficient to account for the failure of the Cushitic pastoralists to spread into these areas. 'Tse-tse' may refer to a number of different cattle disease vectors. Various cattle strains are resistant to the different species of tse-tse to varying degrees in varying locales. For an introductory discussion, cf. 'Survey of Kenya', National Atlas of Kenya, pp. 44-45.
Grottanelli cites several sources regarding the contemporary (post 1900) ethnic situation. Ferrari's [1910] census of the left bank of the Juba in "Wagoshaland" revealed the following ethnic names (Ferrari's orthography): Musciambare, Moniassa, Macale, Muhiao, Masaninga. Three years later Elliott indicated the presence of the following "Wagosha tribes" on the right bank: Wazugoa, Yao, Wa-Swahili, Wagendu and Mushunguli, noting also that these groups were fugitive slaves from the Somali. In 1927, when the Juba territory was placed under Italian administration, Colucci published a list of "Wagosha": Macua, Munyica, Muyao, Musciongolo, Magindo, Molema, Nyamesi, Muniyasa. Grottanelli himself recorded the presence of the following in 1952 (according to informants' accounts): Makua, Myika, M'Yao, M'Jindo, Mlima, M'Nyasa, M'Zegua. Grottanelli notes that, of all the above names, Makua, Yao (Muhiao, Muyao), Swaheli, Nyamwezi (Nyamesi) require no comment. The Mlima (Molema of Colucci) are not identified. The Nyasa (Moniassa) are a subtribe of the Nyanja, who live near the Yao. Ferrari's "Musciambara" are identified as the Shambala of Northeastern Tanzania. The Makale (Ferrari's Macale) are "...a small group at the mouth of the Rovuma." Masaninga is unidentified. Wagendu (Magindo, M'Jindo) are "...with all probability..." to be identified with the Ngindo of the Rufiji mouth. Elliott's Mushunguli (Colucci's Musciongolo) are "...ethnically poorly defined...", appearing in 17th century Portuguese sources as Mosugalos, Musungulos, Mosoungalos, etc., in accounts of attacks on Mombasa. Prins [1952] suggests that Washungwaya = Mossungualos, and Grottanelli finds this etymology most plausible. Grottanelli rejects Michel's 1940 proposal to relate the name to Mzigula, one of the forms of Zegua, because both the "Mushunguli" and the Wazegua are listed in Elliott [1913]. Grottanelli's informants mentioned the presence of Giriama along the river at the time of his visit, but as he himself notes, this term in that area was equivalent to Myika. During the course of my own fieldwork on Lamu in Northeastern Kenya in 1971, a number of Muslims who identified themselves as Arabs, Bajun or Swahili, used Giriama as a reference term for mainland non-Muslim Bantu, often including under this term Pokomo and Segeju as well as Mijikenda people other than the Giriama. Grottanelli's unidentified "tribes" may be clan names--field workers in East Africa are aware of the problem that, e.g., Swahili kabila, Giriama mbari may refer to ethnic collocations at a number of different levels: clan, tribe, etc.

In conclusion, Grottanelli states:

...there is no doubt about the fact that the present-day Bantu of the lower Juba are almost in their totality groups assembled from varied sources. The people from which the latter originate are located through wide areas of East Central Africa, from Kenya to Lake Nyassa and the mouth of the Rovuma, and even further south to the northern provinces of Mozambique. Their presence today in Somalia can be explained in no other fashion than by events related to slavery. ...The sole fact that these nuclei of slaves have preserved, or at least rediscovered or reconstituted, their tribal cohesion and their respective ori-
original ethnonyms demonstrates, in my opinion, that their relocation in Somalia could not have occurred in the distant past: either during the 19th century or at the earliest, during the latter part of the 18th century. There remains the case of the "WaNyika" or "M'Nyika": but the groups along the Juba today to which this name is given are formed of descendants of the ancient Kashur, whom we may consider more or less autochthonous, or...are they not "free men", as is the case with the other groups, that is, descendants of slaves recruited and imported from among the "Nyika" tribes of Kenya? [1953:253]

In a final summary, Grottanelli selects neither the "original inhabitants" nor the "freed slaves" hypothesis, but concludes that for present-day WaNyika in Somalia: "...the so-called Wanyika...as E. Cerulli has demonstrated, inhabited the southern valleys of Somalia prior to the Hamitic occupation, and clearly abandoned the banks of the lower Juba (at least up to the Mt. Bardera rapids) long ago, without leaving behind any rearguard population segments" [1953:259]. In a subsequent statement, Grottanelli appears to accept the Shungwaya origins hypothesis for Kenyan Wanyika: "...the Wanyika appeared in the area adjacent to the present-day Kenyan coastal strip only after the arrival of the Portuguese and, taking into account their own traditions, it is probably that this migration toward the southwest, under the impetus of Galla invaders, occurred at some time between the second half of the 16th century and the first decades of the 17th century" [1953:259]. As a source for this latter piece of information, Grottanelli cites Prins [1952:48], which is an account of Mijikenda Shungwaya origin traditions.

The second source, Prins [1960], contains a map with a list of "Bantu pockets" in Somalia: 1) Gobawein, 2) Warabei, 3) Wagosha, 4) Bajun, 5) Eile, 6) Liberti, 7) Scidiei, 8) Capule, 9) Macanne, 10) Shabeil and 11) Amarani. (1)-(3) are distributed along the Juba, (7)-(10) along the Shebeli River, (4) and (11) are on the coast, and (5) is inland, northwest of the coast between the Juba and Shebeli. Liberti and Gosha are discussed in the text as growing out of "...scores of fugitive slaves...their affinity Yao, Zegua, etc." In addition to the ex-slave group, Prins suggests a second group, "...that in all probability represent remnants of a pre-Somali population going back to the first millennium of the Christian era. Examples are the Warabei and maybe the Gobawein. Their affiliation would be with the Nyika cluster of the N.E. Coastal Bantu."2 Except for the Bajun, no

---

2Both Hinnebusch [1976] and Sedlak [1975] are in agreement that present-day Mijikenda diverged 300-400 years ago. If Prins' "second group" of Somaliland Bantu are affines with the 'Nyika Cluster' of NECB, then his "first millennium of the Christian era" date for the Somaliland Bantu would indicate a genetic relationship originating at an earlier time (higher node) within NECB on the basis of genetic and lexicostatistical evidence.
other groups on his list are mentioned in the text, nor are reasons cited for assigning those which he does mention to their respective ethnic classifications.

Of the groups along the Shebeli, the Shabelleh (Sciaveli) are cited as linguistically and culturally Somali by Andrzejewski [1970], the third source. Andrzejewski suggests that this group (and possibly others along the Shebeli?) have been falsely classified as gruppi negri by Puccioni [1931] and that this false classification has been picked up by Prins [1960]. This assessment tends to cast considerable doubt in assigning Prins' (7)-(10) to Bantu at all.

In his paper on linguistic minorities in Somalia, based on field work conducted in 1968-69, Andrzejewski mentions agriculturalists along the Juba, Bravanese and Bajuni. Only the identification of the first is of concern here. As to the linguistic makeup of this group, Andrzejewski remarks: "There is no reliable information as to what languages are spoken but I was told by people from that area that the following languages were spoken: (a) Ci-Zigula, spoken by the Mushungul who claim that it is the same language as Zigua spoken in Tanzania; (b) Yao (Myao or Miyao?); and (c) Kamba." The identification of Zigua/Ci-Zigula as the language spoken by the Mushungul clarifies to some extent (but still only on the basis of second-hand evidence) the ambiguous position assigned to them by Grottanelli as "ethnically poorly defined" and tends to support Michel's 1940 proposal which also equates Mushungul to Zigua. In a footnote, Andrzejewski indicates that he was informed of the presence of speakers of other Bantu languages. "Information provided by Caniglia, 1935, might suggest that Pokomo is one of these languages" [1970:7]. The oral traditions of some Somali-speaking groups [1970:2] indicate that they were Bantu speakers at an earlier date. Cultural and physical characteristics support this possibility [1970:loc cit].

In conclusion, on the basis of these three sources, it is impossible to state that there are no autochthonous remnants of languages deriving from proto-Sabaki in Somalia. On the other hand, given the identification of most of the Somalia Bantu, it seems unlikely that such groups do exist. The presence of such Sabaki subgroups would lend strong evidence for a Shungwaya hypothesis, both lexicostatistically and in migration theory terms.

5. Migration Theory

In his formalization of Sapir's [1949] insights into linguistic geography and prehistory, Dyen developed a technique, migration theory, as an empirical and probabilistic model of Sapir's suggestion that the center of linguistic diversity is the center of origin of related language varieties. In terms of the movements of language groups, Dyen asserted: "The probabilities of different reconstructed migrations are in an inverse relation to the number of reconstructed language movements that each requires"
This postulate is dependent on the assumption that "...the area of origin of related languages is continuous" [loc. cit]. In Sedlak [1975], Dyen's formulation of the "theory of least moves" together with lexicostatistical information were applied to the reconstruction of a proto-Mijikenda homeland. These techniques indicated a homeland located in the area presently occupied by the southern Mijikenda. However, the Mijikenda is only a part of a wider proto-Sabaki picture.

Hinnebusch [1976] indicates a close affinity of Swahili (both lexicostatically and in terms of sound correspondences) with Mijikenda and Pokomo in the Sabaki subgroup, rather than with any other NECB subgroup. Wald contends that "...it seems likely from historical evidence of a social nature that Swahili is more closely related to the languages of coastal Kenya than those of coastal Tanzania" [1975:282]. The presence of relic features such as tone in verb inflection [Goodman 1965] in Ci-Miini (Bravanese) as well as the greater diversity of Swahili dialects in the archipelago region of northeastern Kenya and neighboring coastal areas to the north (Bajun, ciMiini), are indicative of that area as a center of spread for Swahili, but a final judgement on this matter must await detailed comparative study of these Swahili subgroups to firmly establish their interrelationship. This diversity would then argue for a northern origin of the Swahili dialect chain, which would act as a counterweight to the concentration of Mijikenda languages to the south. Together with the present location of Pokomo, this northerly center of diversity for Swahili would present a stronger case for the Shungwaya hypothesis, when the techniques of migration theory are applied, but still only for the Sabaki subgroup. Migration theory contraindicates the claims of Saghala or Seuta (other branches of NECB) to Shungwaya origins. The presence of still other (linguistically diverse or close to presently known Sabaki affiliates) Sabaki Bantu remnants in Somalia would lend additional support to a (Sabaki) Shungwaya hypothesis, but unfortunately, until on-site research can be conducted, this question will remain unresolved.

An additional factor in the distribution of Swahili varieties is the mode of migration of these peoples. It is well-known that the Swahili are sea-faring. Is it possible that language variety distribution among maritime groups would occur in ways different from those shown for non-seafaring peoples? What effect would this have on a hypothesis of a northern origin for Swahili? Evidence from Dyen [1962] on the classification and distribution of the Malayo-Polynesian languages indicates that the basic claims of migration theory ("theory of least moves") are substantiated,

---

3Polomé [1967] and Whiteley [1969] do not attempt a subgrouping of Swahili varieties, but merely list them.

and that the effect of a different kind of geographical mobility within a maritime population is a negligible factor in the equation.

Spear's [1977:12] deduction that: "If the Swahili language did originate in Somalia and was carried south by maritime traders sometime between the 13th and 16th centuries, then there must have been Sabaki-speakers in the Somali coastal hinterland at the time ", can be accepted only if the premise can be justified. In my opinion, there is a "principle of minimal adaptation", which is involved in all population movements. This principle is basically ecological and can be stated as follows: ceteris paribus, populations will move in the direction which requires the least number of cultural adaptations to the natural environment. Dyen's theory of least moves could be restated in accord with the above principle such that new settlement areas would be environmentally most similar to areas of origin and therefore most "probable" in terms of moves.

Applying this principle to the East African coast, areas of greater Swahili varietal diversity would be "older" and more similar ecologically to areas formerly occupied by Arab trading populations while areas of lesser diversity would be "younger" and less similar ecologically to formerly occupied areas. Given two areas equally preferred ecologically, the nearer one would be chosen for settlement. Given two areas equidistant from the point of origin of migration, one favored and one disfavored ecologically, the favored one would be chosen. Linguistic confirmation of ecologically most favored areas may not always be present, however. The case of Gedi is a good one. On the basis of archaeological evidence, there is no question that Gedi was an important Arab port [Kirkman 1954:xiii], founded in the twelfth century. Today, no linguistic evidence remains to demonstrate that Gedi was at one time such a center. The present-day Swahili community in the area does not appear to show greater diversity than more recently settled Swahili enclaves. The most likely reason for this is that the original population dispersed before the southward-advancing Galla in the 16th century and relocated in earlier-Swahili-speaking enclaves. The present populations of Gedi and Watamu (which has a larger Swahili-speaking population) developed from 19th and 20th century settlers originating from other Swahili enclaves.

Migration theory can be very useful to the linguist and the historian in locating the homelands of protolanguages. It must be borne in mind, however, that the determination of proto-homelands can be made at a variety of time depths, for example, the establishment of separate centers of dis-

---

5Phillipson [1977], in an article which appeared in a recent issue of the Scientific American, shows that such a principle affected the movement of proto-Bantu peoples from their Nigerian homeland: directly eastward across savannah similar to their homeland and then southwards at the eastern edge of the Congo rain forest, rather than dispersing directly through the rain forest area.
persal for Mijikenda, Pokomo and Swahili at one time depth, then for proto-Sabaki at a greater time depth, and for proto-NECB at the greatest time depth.

6. Conclusions

In conclusion, a claim for a point of dispersal for Sabaki peoples approximating the Shungw~a homeland will be considerably reinforced if the following conditions are met: 1) that linguistic evidence for Bantu subgroups in Somalia demonstrates an affinal relationship with presently known Kenyan members of the Sabaki subgroup, 2) that linguistic evidence for the archipelago region of Northeastern Kenya indicates that this area is the center of diversity for these Swahili varieties, 3) that the centers of origin for Mijikenda and Pokomo, both members of the Sabaki subgroup, are the center of its present location (for Mijikenda) and the downriver area of its present location (for Pokomo). Two further assumptions of a methodological nature underlie the above claim: 1) that the center of diversity is the center of origin and 2) that language distribution among maritime groups does not differ substantially from that of terrene groups.

The foregoing discussion indicates two primary areas of research for the resolution of this question: first, the status of Bantu linguistic minorities in Somalia and second, the subgrouping of Swahili varieties.

REFERENCES


Cerulli, E. 1933. Etiopia Occidentale, vol. II. Rome. [not seen]


Spear, Thomas. 1977. "Traditional myths and linguistic analysis: Singwaya revisited." Manuscript. [A slightly revised version of this paper has since appeared in History in Africa 4:229-246.]


1. **Introduction.**

The tone system of Lendu\(^1\), spoken in north-eastern Zaire, has four level, and one contour, tones. Tones will be abbreviated and marked in this paper as follows: High (H) ['], Mid (M) ['], Low (L) ['], (Extreme Low) (EL) [-], and Rising (R) [']. The digraphs dz, ts = dz t's.

The last level tone, Extreme Low, has been parenthesized to emphasize its "non-contrastive" status\(^2\), particularly in relation to Low\(^3\). Notice that the only contour allowed to surface is Rising, an unfortunate term, in that its marking conventions do not say anything about the constraints on its phonetic shape. On the other hand, the set of features normally associated with the above terms, e.g. H = [-M, -L], do not lend themselves to the description of Lendu tone structure. Were the standard set of fea-

---

\(^1\)I wish to thank N. Clements, L. Dresel and V. Fromkin for their encouragements. I am indebted to my consultants M. Njabu and F. Bulo de Gov, as well as to G. Manessy, H. Stahlke, B. Vattuone and L. Arvanites, from whom I received very helpful comments and suggestions. Here is G. Manessy's point of view on splitting as such: "Je serais plutôt tenté de supposer que ce genre de "complexification" se produit lorsqu'un procédé morphophonologique a cessé d'être pleinement opératoire (ainsi par exemple de la prolifération des classes nominales en peul, ou des systèmes d'alternance consonantiques dans cette langue)." [personal communication]

\(^2\)Following Greenberg's classification [1963], Lendu is a member of the Central Sudanic subgroup of the Chari-Nile branch of Nilo-Saharan.

\(^3\)Lendu is aptly described by D. N. Clement's assertion that 'non-phonemic' registers can have a "lion's share" in the "parcelling out of the total pitch range normally used by a speaker among the various tone levels." See Clements [1975:5].

3In other words, Lendu could be described as a three-level tone system in which Low and Extreme Low do not 'overlap'—without implying that they are in complementary distribution in the usual sense.
tures to be adopted for this language, they would veil rather than illum­
inate its underlying nature.

This paper, then, searches for an explanatory device which will re­
veal the dynamics underlying such a system. This search will involve pri­
marily a certain amount of syntactic evidence, which reveals: (1) a number
of syntactically-determined tone processes, which appear to govern the
present-day Lendu tone system. Although the outputs of these processes
are viewed in terms of current analysis of floating tones [Hyman and Schuh
1974, Hyman and Tadadjeu 1976], we would also like to stress the positional
constraint on tone patterns, for it shows that beyond tonal morphemes and
beyond their role on individual segments, there is a relation between tone
processes and sentential strings. (2) The existence of systematic patterns,
surfacing as the result of the above-mentioned tone processes, and resulting
in the merger of M with H, and of EL with L.

Insistence on syntactic evidence, with its attendant tonal patterns
and processes, leads us naturally to this simple hypothesis: (1) At an
earlier stage, Lendu must have been a two level tone language. (2) For
syntactic purposes, both these basic tones would have undergone the tone
splitting process, resulting in two "additional" (i.e. derived) level
tones.

2. Syntactic Evidence of Tone-Class Merger

2.1 Associative construction. The first eight examples are sentential
strings in which the basic NPs--subject, object--presented in the associ­
iative construction, are bracketed for ease of reference:

(1) m̀á ʒ̀i [m̀á dzá ð́i] ngbà
   'I wanted [my calabash
   indeed."

(2) ngó dzá kà ʧ́ fa
   'The old house is here.'

(3) [ʧ́ d̀z ʧ́ kódà] sàǹ tʃe
   '[The surface of this drum]
   is completely worn out.'

(4) tá fó [kè dzá d̀zó]
   'Here is [his brother].''

(5) [fàtákì nà lè] pò r̀ ma òó
   '[The woman from Fataki]
   told me this.'

(6) ndz ǹ mbàe nè tsó nà
   'Yesterday you went with
   the goat into the scrubs.'

(7) ǹ ká njā [pi tsè òù-nga]
   'Did you (pl.) see the
   chief's seat?'

(8) m̀ ngá ke tʃ́ tsú tsè nà
   'I saw him under that
   tree over there.'
The associative construction appears to be a sequence of three members, whose central element regularly undergoes tonal change. Comparison of these elements as follows reveals that the associative construction is marked solely by tone change on its central segment:

(9) a. dza (in (1) and (4)) with dza (in (2)) associative marker
b. dző (in (3)) with dző (in (4)) postposition
c. nā (in (5)) with nā (in (6)) associative marker
d. tsē (in (7)) with tsē (in (8)) postposition

The associative tone process raises M to H--dzā--and EL to R--nā--while R is unchanged--tsē--tsē. In terms of current analysis, this process could be accounted for by positing a floating H as associative marker. Thus, the underlying forms for 1, 5, and 7 could be represented as follows:

(10) /má dzā 'ōí/ → /má dza 'ōí/ → má dzā 'ōí
T→∅ 'my calabash'

(11) /fàtkɔ nā 'lé/ → fàtkɔ nā 'lé
'woman from Fataki'

(12) /pɨ tsē 'θɲ ngā/ → pɨ tsē ḏɲ ngā
part
'the chief's seat'

Positing an intermediate /dzā/ for (10) does not seem convincing, given the fact that R in Lendu is neither likely to drop--cf. (7), where tsē surfaces R instead of H--nor to be simplified by levelling. In (10) we seem to be dealing with tone substitution; in (11) with a straightforward combination resulting in a tone sequence, and in (12) this combination, or better, "compression" appears to be vacuous for the segmental tone carrier tsē. This last already has H as part of its contour, and thus shows no noticeable change from the compression.

2.2 Compounds with nga. The underlying form for (12/7) provides a hint that there is a floating H in NPs whose rightmost member is nga 'portion, fraction, part of'. Here the floating tone is regularly "grounded" [Hyman and Tadadjeu 1976:70] to the left, and nga is unchanged. The surface form in (12/7) is, as expected, a compound whose leftmost member, ōɲ has contour tone. If the floating H were assigned to a M segment, e.g. ké 'man', as in /ké 'ngà/, the compound would surface as këngà 'man's invisible part'. In the same context, t's 'cow' and tsɨ 'dog', would surface in their citation forms, since the assignment of H is vacuous in both cases (see also (13) below).

At this stage, we can already recognize that the tone raising tendency

^In accordance with a rule blocking any change where the contour is concerned, R in (8) remains unaffected.
whether due to a floating H or not—must be accounted for in the Lendu tone system. Tone raising can be considered the result of a specific process which merges (1) two higher, level, tones and (2) two lower tones. That is, tone raising makes M go to H, and leaves H unaffected. Further, tone raising takes L and EL and makes both surface as R. In other words, the four synchronic level tones in Lendu are nearly always coupled in relation to each other whenever their participation in the associative construction is required, and this gives rise to the patterns discussed above.

In dealing with this type of two-by-two level-tone behaviour, we are drawn to consideration of its possible historical origin. At an earlier stage, Lendu would have been a two-level tone language, in which the occurrence of a tone split would have resulted in the two 'derived' levels. On the other hand, the fact that the majority of tone processes aim, whenever possible, at the reduction of existing levels, could be considered a sign of their synchronic merger.

2.3 [S V PP] sentential strings. Example (13) consists of S V sentential strings followed by an obligatorily non-nul element—here, the postpositional phrase: 'dà dʒo. In order to illustrate the tone process involved, the strings are presented in a paradigmatic contrast: (13) is past and (14) is non-past:

(13) a. tś rā 'dā dʒo
   'cow went river to (and is still there)'
   b. ké rā 'dą dʒo
   'man went river to (" " " )'
   c. nṛ rā 'dą dʒo
   'goat went river to (" " " )'
   d. (kē) vē rā 'dą dʒo
   '(his) sister went river to (" " " )'
   e. tśi rā 'dą dʒo
   'dog went river to (" " " )'

(14) a. tś rā 'dą dʒo
   'cow is going river to '
   b. ké rā 'dą dʒo
   'man is going river to '
   c. nṛ rā 'dą dʒo
   'goat is going river to '
   d. (kē) vē rā 'dą dʒo
   '(his) sister is going river to '
   e. tśi rā 'dą dʒo
   'dog is going river to '

In (13), the initial term is the NP subject of a past-tense sentence,
and the adjacent term is the verb, in this case rā 'go'. The same sequence is shown in (14), as it must surface to express an on-going, non-past, process. For the moment, we will leave the postpositional phrase aside, and look at the basic constituents. We can easily see that in non-past utterances both M--kē 'man'--and H--tī 'cow'--end up H in (14 a, b), and that both L--nē 'goat'--and EL--vē 'sister', rā 'go'--end up R in (14 c, d). Substitution of M by H could account for (14 a) and tone compression giving rise to a contour could explain (14 b). Again we see the same tone process affecting the basic constituents of the non-past string in the same type of merger seen in 2.1 in the associative construction, and in 2.2 for compounds with nga. The difference here is that the floating tone analysis must be expanded to include complex tonal morphemes to adequately account for tone raising in the non-past. The non-past is communicated by means of a tone sequence which must be taken as an inseparable whole. We can label this sequence "progressive aspect marker".

In other words, a sentence such as:

(15) p{j rā 'dā dɔ̄ ̄

chief going river to 'The chief is going to the river.'

if represented in tree form, could account for the M verb becoming R, but unfortunately not for the subject NP (also M) becoming R. If the floating H is posited as part of a complex "progressive aspect marker"--for it obligatorily requires surface tone change on both constituents--a tree representation would be unable to take care of the simultaneous assignment of initial H on the subject NP (leftmost element) as well as on the verb in the right element of the tree, in a natural fashion.

We are, however, free to posit two floating Hs instead of one; so that (15) can be derived as follows:

(16) /p{j rā 'dā dɔ̄̄ − / p{j rā 'dā dɔ̄̄

chief Prog go Prog river to M 'The chief is going to the river.'

Here, leftward grounding results, as far as basic constituents are concerned, in the substitution of H for M on 'chief', and compression of the underlying EL with the floating H following the verb: rā → rā.

Whether we posit one or two non-segmental tonal morphemes, we must in any case be able to account for the simultaneous tone assignment onto both basic constituents, in order to avoid *p{j rā as well as *p{j rā.

Again, note that thus far, whatever the type of construction involved--[N N 'N] in the associative construction, [N 'N] in (partitive) compounds with nga, and [N 'V 'PP] in sentential strings--the same type of tone process obtains: namely, a tone raising pattern, which has been demonstrated to operate on one constituent, as well as on two constituents of a syntagm, simultaneously. We made an attempt to account for this by positing a floating H, but we must recognize that the last case, requiring two Hs, is
not very convincing. However, let us not overlook the fact that the least convincing analysis is the one positing floating tones on a sentential string.

3. Two Tone Processes: Left Raising, Final Lowering

There is another detail we would like to emphasize: in the three constructions considered above, tone raising occurs only on segments in non-final position. To understand the importance of this "positional feature", let us reconsider (13) and (14), this time focusing on the postpositional phrase 'dà dʒo. We see that only the rightmost member of a postpositional phrase changes its tone, and furthermore the process involved is unlike that repeatedly encountered on non-final segments. To distinguish the two types of tonal processes, let us call the first type—the tone raising pattern—Pl, and the second, P2. On the surface, P2 affects the final element of a PP such as dʒo 'to', changing the H into EL, or vice versa, depending on the movement/stillness distinction involved. However, on the final segment na 'in', of the PP tsó nā 'in the scrubs' (6), P2 would change the EL into M instead of H. Roughly speaking, P2 is active on H and M, if these are to be converted into EL. Since PP's occur only sentence finally, it must be stressed that P2 takes place in absolute phrase- and sentence-final position. Furthermore, if the [+past] sentential string of the type seen in (13) is taken as basic, as opposed to the progressive aspect type seen in (14), the lowering effect of P2 on that basic pattern is revealed.

In order to account for P2 and its lowering tendency in terms of current analysis, we posit a segmentless EL5 being assigned leftward. Something like:

(17) /'dà dʒo − / + /'dà dʒo − / + 'dà dʒo (prog. asp.)
river to T→∅

(18) /tsó nā − / + /tsó na − / + tsó nā (prog. asp.)
scrubs in T→∅

Here, two M segments end up as EL. What could have happened to their lexical tone? Is it a case of lexical tone deletion (as suggested above), in which grammatical tone simply overthrows lexical tone, for syntactic purposes? Per our objections to underlying R in (10), we find an intermediate stage with contour formation highly unlikely in Lendu. Furthermore, if, as in (13), the PP comes at the end of a [+ past] string, then dʒo + dʒo, and nā + nā, not *nā. Thus, to account for this phenomenon, we should posit a floating H, which must surface as M on na 'in', but not on dʒo 'to':

5This will be clarified in section 5.
Is the M toned *ná just a handy device to avoid any risk of ambiguity which could arise between *ná the postposition and ná the relative clause marker? If such is the case, there is no need to posit an unassignable floating H.

Recall our previous distinction between džơ and ná in the associative construction, in examples (3) and (5). In (3), džơ behaves as dzá—the associative marker in (1)—because both surface H, while ná surfaces R. In other words, džơ behaves like all lexically M toned segments in the associative, while ná unexpectedly ranges itself on the side of L toned ones. This could be due to the possibility that their derivational stages differed, as follows:

\[(džơ \rightarrow džơ') \rightarrow džơ \rightarrow džơ' \rightarrow džõ)\]

\[(ná \rightarrow ná') \rightarrow ná \rightarrow ná' \rightarrow ná)\]

If P1 preceded P2 in the derivation of the tone pattern on ná there would be a non-acceptable *ná after P1 was applied.

From the above, we can see that P2 is more resistant to analysis of the type we suggested for P1. What we can say is that the alternation between EL and H/M in P2 is closely related to a specific semantic feature, namely the distinction between movement and stillness, and that this semantic feature triggers P2. P1 and P2 are, as we have seen, determined positionally: P1 being active on strings followed by a non-nul element, while P2 operates only phrase- and sentence-finally. Furthermore, P2 makes M and H behave in a similar manner, and this again points toward the possible common origin of these two tones.

4. N for N Compounding: [N₂ EL N₁] and Right Lowering

Now consider two sentential strings, each containing a 'new' type of construction. In (23) and (24), the (b) examples show instances of an [N N] compound which differs from the bracketed sequence or word in the (a) examples tonally and syntactically. Comparison of the two types reveals the actual direction of the tone process in "benefactive" compounds:

(23) a. ?á [ngo džá] here is [old house] 'Here is [the old house].'
    b. ?á [ngo dzá] here is old house 'Here is the [house-intended-for the old].'

(24) a. má ʒɨ [jó] I want(ed) [basket] 'I wanted [a basket].'
    b. má ʒɨ [ló jó] I want(ed) [eggplant basket] 'I wanted [an eggplant basket].'
In (23b), dza surfaces EL in final position in N for N compounding. In (24) the H segment 'jó becomes R in the same context. Instead of a complete drop to EL, the word for 'basket' and, of course, all other H segments, turns up R, i.e., with a contour. At this point, the question is why they do not follow one of the patterns we are used to: those resulting in identification, or merger, of two higher level tones. In this type of compound, a L segment such as nr 'goat', becomes EL, while such R segments as ts 'dog' remain unaffected.

Again, we have to recognize the existence of a segmentless tone whose grammatical function is that of "benefactive" compound marker. Because of the lowering of H tones in this P3, our floating tone here cannot be H as in P1. For this reason, we posit a floating tone as in P2--EL. To show how this works we illustrate with two non-H nouns the [N for N] context 'N intended for the chief':

(25) /p+ 'dza / .... /p+ dža / .... /p+ dzā 'house intended for the chief ben. house T→∅ chief'

(26) /p+ 'nr / .... /p+ 'nr / .... /p+ nē 'goat intended for the chief ben. goat T→∅ chief'

(or assimilation)

As for H in this context:

(27) /p+ 'jó / .... /p+ 'jó 'basket intended for the chief' ben. basket

the combination of EL + H is represented on the output as the [''] portion of [''], or R, to avoid proliferation of symbols. We do not consider that our representation of the contour formation suffers from this generalization.

It can be seen that here we recognize the rightward grounding of floating EL for, if its direction appears indifferent in M and L toned segments, allowing, for example, p+ dzā -- as well as the p+ - dzā suggested in (25), in the H ones, positing a rightward tone movement is certainly more advantageous than the leftward one. If we assume, for the sake of parity with P2, that the floating EL is assigned to the left, we would have to complicate our rules with an ad hoc device in order to account for the surface shape of the contour on the final N. We would need to employ, for example, the 'mirror-image' convention. Given the fact that in Lendu any surface contour is a sequence in which the lower tone must precede the higher, we would have to take into account the contour conversion needed to make the right output when only leftward grounding is allowed--this does not lead to greater simplicity:

(28) /lō 'jó / .... /lō 'jó/ .... /lō 'jó 'eggplant basket' ben

Let us conclude that the behavior of H shows a new type of tone pro-
cess, P3, which is active only within compound boundaries. While in PP phrases—see P2—merged tonal classes are obtained by lowering both M and H to EL, in compounds with the general meaning 'N₂ intended for N₁' (or, rightmost intended for leftmost N), the tendency to merge M and H is less apparent, until we see that H → R is like [M, L] → EL, in that both processes show the 'lowering' direction of P3.

5. Tone Splitting Hypothesis

We have seen that the identical patterns of the type M/H → H/EL, on the one hand, and of the type L/EL → R on the other, are a systematic phenomenon in Lendu tonology, and we suggest that they reveal tonal multiplication in Lendu to be the result of a diachronic tone splitting process.

Assuming that tone splitting operated on a system of two basic tones, resulting in four synchronic, i.e. two basic and two derived, tones, we are then faced with the question of which tones in Lendu to consider basic, and which derived. The following considerations influence our contention that the historical situation is recoverable: (a) some outputs marking certain elementary grammatical distinctions, such as singular vs. plural on first and second person pronouns, and, redundantly, on third person. Consider the following:

(29) a. m^' n̄  n̄  I ate [food]  
    b. m̄ n̄  n̄  We ate [food]

(30) a. n^ r r n̄  ñ̄  ñ̄  you(sg) heard that goat died [death]  
    'You heard that the goat died.'
    b. n^ r r n̄  ñ̄  ñ̄  you(pl) heard that goat died [death]  
    'You heard that the goat died.'

(31) a. z̄ v̄  ngān̄gā  ké  ñ̄  him  
    'The fact of watching for animals is a 'must' for him.'
    b. z̄ v̄  ngān̄gā  kp̄  ñ̄  them  
    'The fact of watching for animals is a 'must' for them.'

Notice that all singular pronouns are invariably M, while plural pronouns are EL. The need to mark singular versus plural within a human group may be supposed to have been felt earlier than the need for establishing more subtle distinctions such as stillness versus movement, or past versus non-past. Hence, the two tones available to speakers would have been used for this purpose; synchronically they are M and EL.

^6Variant: k̄  'we'.
(b) The historical two-tone system could also have 'survived' in N + Attributive Predicate constructions, where the predicate is essentially an adjectival element—or a subclass of verb. In:

(32) ké ngo
he old 'He is old.'

the leftmost element is the subject, and the rightmost the predicate. If ngo is moved to pre-nominal position in a derived construction, it is assigned a H tone:

(33) ngo ké 'old man'

(c) The only contour allowed to surface, as we have said, is R. The phonetic shape of R could be interpreted too as a sequence of two level tones: EL + M, or ELM. We could suppose that it is an underlying sequence of the reflexes of the two original tones of this language, and that as such, R makes all tone processes apply vacuously. 7

The split itself, we contend, probably started as a flectional change on the sequence [S + V], blocked later on for the subject if anything else intruded between it and the verb, for example, the question marker ká seen in (7) and below;

(34) a. ké rā rā he goes going 'He is leaving.'
b. ké ká rā rā he question goes going 'Is he leaving?'

This grammatical process was subsequently used to mark other types of strings, e.g. compounds, as well as for expanding the lexicon. Here, all the tonal distinctions became lexical, whether in a 'contrastive' manner: M vs H, or in a non-contrastive: EL vs L.

If the present system is viewed as the result of tone split, there would be a certain advantage in introducing basic tone classes which in themselves reflect the split:

(35)

<table>
<thead>
<tr>
<th>Two Levels</th>
<th>Tone</th>
<th>Four Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td></td>
<td>H₂ (H)</td>
</tr>
<tr>
<td>L</td>
<td></td>
<td>L₂ (L)</td>
</tr>
<tr>
<td>LH (R)</td>
<td></td>
<td>L₁H₁ (ELM) (unaffected)</td>
</tr>
</tbody>
</table>

7R = ELM. As it rises slightly in the environs of M, the reflex of diachronic H, EL appears to be less stable.

8The terminology used throughout is parenthesized.
Class III would have been formed before splitting took place (in fact, we find only $H_1$ and $L_1$ in its tonal perturbations).

6. Conclusion

The syntactic evidence above reveals: (a) three active tone processes underlying Lendu syntactic organization; (b) the existence of systematic tone patterns (reflecting the synchronic merger of level tones), identifying two higher and two lower level tones with respect to each other, i.e. 'Mid' (considered basic) with High (derived) and 'Extreme Low' (considered basic) with Low (derived). We think that these patterns should be accounted for by: (c) a tone splitting process resulting in two additional (i.e. derived) level tones. A more explanatory account of Lendu grammar is possible in terms of three tone classes, than a description employing five distinct tones. The latter type of grammar would merely represent these five tones in terms of their surface contrastive or non-contrastive relations. Furthermore, this hypothesis allows the following simplified formalization of the processes involved:

\[(36)\]
\[
\begin{align*}
\text{a. } & \text{H} \rightarrow \text{H}_2 & \text{Context: } & \text{Associative construction} \\
& & & \text{Compounds with nga} \\
& \text{P}_1 & & \text{[S V] sentential strings for ongoing processes, i.e. "progressive aspect"} \\
& \text{L} \rightarrow \text{R} & & \text{Postpositional phrase} \\
& \text{P}_1 & & \\
\text{b. } & \text{H} \rightarrow \text{L}_1 & \text{Context: } & \text{Compounds with floating EL} \\
& \text{P}_2 & & \\
\text{c. } & \{H_1\} \rightarrow \text{L}_1 & & \\
& \text{L}_2 & & \text{P}_3
\end{align*}
\]

(d) An interaction between the tone processes (such as those made possible by splitting): those aimed at marking distinct syntactic functions, e.g. subject, verb, postpositional phrase, with those active at the NP level, e.g. in compounds, etc. There is a clear ordering to their application as well. For example, if a 'N for N' compound, marked by floating EL/L1, becomes the subject of a non-past sentence, P3 (right lowering) must apply before P1 (left raising), in order to enable the rightmost member of the compound to bear the 'correct', raised, tone.\(^9\)

\(^9\)The last point can be briefly summarized as follows: if the sentence 'requires' a rising pattern, for example to express an ongoing process, derived tones are used throughout, only EL toned PP and the sentence boundary marker escape the raising. If a 'lowering' change is necessary, as in past strings where the 'process is over', basic tones come into play whenever possible. In other words (here we limit ourselves to subject only) ke $\rightarrow$ ke 'man/he', but tsu $\rightarrow$ tsu 'tree' and not *tsu because
a lexical distinction based on splitting would already have been established. By the same token,  kê vê → kê vê 'his sister', but nรก → nรก 'goat' and not *nรก unless it happens to be the rightmost member of a compound, as was vê; and rể → rể 'bird' and not *rể simply because a noun as such must surface L2 (thus, carry a derived level tone), never L1, since in fact L1 should be the underlying tone for an item belonging to the basic lexical stock, before the splitting of basic L (=L1) established a rigid distinction between noun and verb.

REFERENCES


Trifkovic, M. Forthcoming. "Tone and intonation patterns: Central Sudanic case."