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RELATIVISATION AND THE ORDERING OF
CROSS-REFERENCE RULES IN HAUSA

Patrick McConvell
Australian Institute of Aboriginal Studies, Canberra

Hausa has a system of pronominal clitics attached to the auxiliary which agree with subjects. If the subject is a pronoun it is obligatorily deleted by SUBJECT PRONOUN DROP; if it is a noun, in some tenses the clitic which agrees with it may optionally be deleted by CLITIC DELETION. The way in which CLITIC DELETION can apply in the top clause of relative clauses indicates that it is RELATIVISATION and not SUBJECT PRONOUN DROP which deletes the subject in this case, that SUBJECT PRONOUN DROP is a last-cyclic rule, and that CLITIC DELETION is a cyclic rule. It is claimed that PRONOUN DROP rules may be universally post- or last-cyclic for functional reasons, and that the cyclicity of CLITIC DELETION works to functional advantage in Hausa relativisation strategy.

1. Introduction

In this paper I intend to look at three fairly simple syntactic rules of Hausa, AUXILIARY AGREEMENT, SUBJECT PRONOUN DROP, and CLITIC DELETION, which together organise the cross-reference relations of the sentence subject to the modal auxiliary. In the first section I formulate the rules and show that the latter two rules bear an extrinsic ordering relation to each other which cannot be explained away directly by any known principle. I then turn to the behaviour of these rules in relative clauses. I show that RELATIVISATION in Hausa has two forms: CHOPPING and COPYING, which are realised within the relative clause as respectively deletion and pronominalisation of the NP identical to the head. Which of these relativisation rules operates in each case depends mainly on the position and syntactic function of the NP to be relativised within the clause. In the case of sentence subjects, the fact that CLITIC DELETION may operate in the top sentence of the relative clause, but not in any lower sentences of the clause, shows that it is CHOPPING which occurs in the top sentence and COPYING in any lower sentences. As CLITIC

DELETION both precedes and follows SUBJECT PRONOUN DROP, but the latter cannot follow the former on the highest sentence cycle, CLITIC DELETION is a cyclic rule and SUBJECT PRONOUN DROP a last-cyclic rule. CLITIC DELETION is also confirmed as a cyclic rule by its behaviour in relative clauses with *ya ke*, *ta ke*, or *su ke* as their top clause.

Finally I consider CLITIC DELETION as part of a relativisation strategy, and show that the existence and ordering of the rule helps to clarify the identify of the relativised NP.

2. The Subject and Auxiliary in Simple Sentences

The simple verbal sentence in Hausa, in its neutral form,¹ is

- (1) Subject-Auxiliary-Verb-(Object(s))-(Adverbials)

The Auxiliary is normally made up of a tense-aspect marker and a marker agreeing with the subject in person, number, and gender as in (2). Personal pronoun subjects never occur in surface structure in sentences with auxiliaries,² e.g. (3); instead the agreement features on the Auxiliary indicate the nature of the absent subject, e.g. (4). In some tenses the agreement marker on the Auxiliary may be optionally omitted, (5a, b). This only happens where there is an overt subject NP present in surface structure; if there is no subject, the personal marker is always present on the auxiliary, (6a, b).

- (2) *yáaríǹyàa* *tá+a* *zóo*
 girl 3f.s. PERFECT come
 'a girl has come'
- (3) **tá* *tá+a* *zóo*
 she 3f.s. PERFECT
- (4) *tá+a* *zóo*
 3f.s. PERFECT come
 'she has come'

¹ A verbal sentence contains an auxiliary and a verb; an auxiliary sentence contains an auxiliary; copular and existential sentences contain neither. Neutral indicates that the sentence is not affected by transformations such as topicalisation, focalisation, etc. Simple means that the sentence contains only one S node.

² In copular sentences without auxiliaries third person pronoun subjects are optionally deleted.

(5) a. yáarfnyàa tá kàn zóo
girl 3f.s. HABITUAL come

b. yáarfnyàa kàn zóo
girl HABITUAL come

'a girl sometimes comes'

(6) a. *kàn zóo

b. tá+kàn zóo

'she sometimes comes'

I propose to account for the existence of the agreement marker on the Auxiliary by a transformational rule AUX AGREEMENT which adjoins a pronominal clitic to the left of AUX which matches the subject NP for the features [\pm I], [\pm II], [\pm FEMININE], and [\pm PLURAL]. Although these clitics are in some cases subsequently somewhat deformed by morphophonemic rules, their underlying form is fairly clearly (7). There is obviously a close connection with the independent pronouns (8).³

(9) TENSE	FEATURE COMPOSITION				
	INDIC	PERF	FUT	DEF	
1. SUBJUNCTIVE	-	-	-	-	Pro + [^] (low tone)
2. IMPERFECT	+	-	-	-	Pro - nàa
3. HABITUAL	+	-	-	+	Pro - kàn
4. INDEFINITE FUTURE	+	-	+	-	Pro + áà
5. DEFINITE FUTURE	+	-	+	+	záa Pro + [^]
6. PERFECT	+	+	-	-	Pro - n (w. PLUR & 2FE SING PRO) Pro - á (w. others)
7. DEFINITE PERFECT	+	+	-	+	Pro - ka (w. PLUR & 2FE SING PRO) Pro + ø (w. others)

It should be noted that the imperfect tense requires that the following verb add the feature [+N] and become a "verbal noun", e.g.

- (10) yáarínàa t́á+nàa zútwàa
 girl 3f.s. IMPERF come VN
 'a girl is coming'

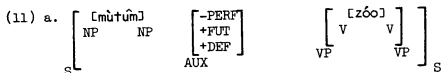
Apart from the forms in (9), imperfect, indefinite future and perfect have distinct forms which occur in relative clauses, certain temporal clauses formed with dà , and cleft sentences.⁴ For imperfect there are two relative forms, PRO + kèè where AUX precedes a verb, or noun with the feature [+V], and -kèè otherwise, e.g. preceding a PP. The relative indefinite future which is PRO + kàa , is obsolescent, and the relative perfect is identical to the definite perfect.

With the exception of the definite future the PRO clitic either precedes the tense marker and is distinct from it, or precedes it and is fused with it by later rules. The definite future is made up of the morpheme záa which

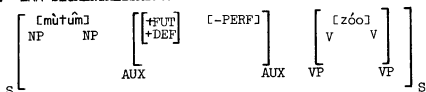
⁴For a full discussion of the connection between these constructions see McConvell [1973]. See also Schachter [1973] for a slightly different view and for the term "out-of-focus" clause used here.

is identical to a verbal root meaning 'go' (from which is derived *zoo* 'come') and a following subjunctive tense marker with *low tone*. It is before the latter and after *záa* that the pronominal clitic is added. There are some grounds for arguing that *záa* constitutes a higher predicate, but I will instead assume that *záa* is produced by a segmentalisation rule which produces the following derivation (11) for sentence (10).

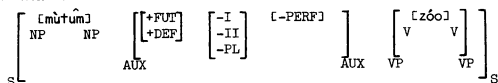
- (10) *mùtùm záa\ zoo*
 man DEF.FUT 3m.s. come
 'the man will come'



b. ZAA-SEGMENTALISATION



c. AUX AGREEMENT



d. REALISATION

mùtùm záa+yá zoo

e. SUBJUNCTIVE TONE LOWERING

mùtùm záa+yà zoo

f. *aáyà → aî* (some dialects only)

[mùtùm zá\ zoo]

The element [-PERF] without further specification is realised as subjunctive tense. The justification for this is that in coordinate sentences or narrative discourse there is a sequence of tenses, such that if the first AUX is any of the [-PERF] tenses, AUX in subsequent sentences which are interpreted as the same tense as the first AUX may all be realised as subjunctive, e.g.

- (12) a. mùtùm zá+ì zóo yà rúfè kóofàa yà, kúllè mákúllíí
 man DUT 3m.s. come 3m.s. SUBJ shut door 3m.s.SUBJ lock lock
 'the man will come and shut the door and lock the lock'
- b. mùtùm yá+nàa zú+waa yà rúfè kóofàa yà, kúllè mákúí
 man 3m.s. IMPERF come VN 3m.s.SUBJ shut door 3m.s.SUBJ lock lock
 'the man comes and shuts the door and locks the lock'

Here the first AUX deletes identical features from subsequent AUX leaving only [-PERF], which is realised as subjunctive low-tone.

The absence of pronoun subjects is accounted for by an obligatory rule SUBJECT PRONOUN DROP, which deletes all subject NP's which are [+PRO]. If the structural description of the rule also has PRO clitic attached to AUX, this ensures that the rule will follow AUX AGREEMENT without resort to an extrinsic ordering relation between them. The rule should also precede the rules which distort the PRO-AUX combination: this is what one would expect as the latter rules have a morphophonemic character and are likely to be post-cyclic and ordered to follow syntactic rules.

CLITIC DELETION applies optionally, deleting the pronominal clitic which has been attached to AUX by AUX AGREEMENT under the following conditions:

- (a) the tense of AUX is imperfect, relative imperfect, habitual, or relative indefinite future, and
- (b) there is a subject NP present.

CLITIC DELETION operates on the output of AUX AGREEMENT and therefore follows it without any need of extrinsic ordering.

A question arises in relation to (a): how is this set of tenses to be characterised? They are all $\left[\begin{array}{c} -\text{PERF} \\ +\text{INDIC} \end{array} \right]$; but the general indefinite future is also subsumed by this feature combination, yet does not undergo CLITIC DELETION. The reason for this is probably that yáà, táà, kwáà, etc. constitute inseparable fusions of the clitic and tense marker, whereas in tá nàa, tá kèè, tá kàn and tá kàa each element retains its separate identity, as reflected in the fact that they are often written as separate words in normal Hausa orthography. One might therefore wish to characterise the applicability of CLITIC DELETION by ordering it to apply after a set of rules which fuse together PRO AUX in certain tenses, by transferring features of one on to the other and formulating it so as to apply only to the remaining distinct PRO + AUX combinations. This of course introduces additional extrinsic ordering into the rules,

and odd examples of it at that, in which a clearly syntactic rule (CLITIC DELETION) follows rules which, although formulated as syntactic rules, are very similar in effect to morphophonemic rules. Such a solution also forces one to consider DEFINITE/RELATIVE PERFECT forms such as *súkà* as fused, whereas *sú kàn* is distinct.⁵ In the rules presented below I use tense features to characterise the scope of application of CLITIC DELETION, although they constitute an unnatural and unwieldy set. In mitigation it may be said that when the relative future entirely disappears from the language the rule will be much more natural.

As for condition (b), the desired result may be obtained by ordering CLITIC DELETION to follow SUBJECT PRONOUN DROP, so that clitics may not be deleted where the subject pronoun is absent. For simple sentences one might equally say that clitics may be deleted only where the subject is [-PRO], thus removing the necessity of an extrinsic ordering relation between the two rules; however, as we shall see in the next section, this statement is not true for relative clauses.

The rules relevant to the above discussion can be stated as follows:

(13) PS Rules

a. S → NP AUX VP (adv)

b. VP → $\left\{ \begin{array}{l} V \quad NP \quad PP \quad PP \\ \left\{ \begin{array}{l} NP \\ PP \\ S \end{array} \right\} \text{COP} \end{array} \right\}$

(14) Early T-Rules

a. NP AUX NP COP
1 2 3 4 => 1 ∅ 3 4

b. NP AUX $\left\{ \begin{array}{l} S \\ PP \end{array} \right\}$ COP => 1 [4] 3
1 2 3 4 2 2

c. COP → $\left[\begin{array}{l} +\text{INDIC} \\ -\text{PERF} \\ -\text{FUT} \\ -\text{DEF} \end{array} \right]$

⁵In the Western dialects, forms like *súkà* are replaced by forms like *sún kà*, which are likely to be the older forms. The removal of the *n* perfect suffix may be connected with the apparent greater fusion of *sú* and *kà* in Eastern dialects. See Newman and Schuh [1974] for a discussion of the operation of analogy in changes in the form of Aux and for the development of the Hausa clitic system in general.

Rule (14a) accounts for the form of neutral copular sentences like (16), and (14a and c) for prepositional, possessive and sentential predicates like (17a, b, c). In the first type the $\begin{bmatrix} +\text{INDIC} \\ -\text{PERF} \end{bmatrix}$ element is realised as *n̄e* (m.s./pl.)/*cee* (f.s.), (*n̄a*/*t̄a* in Western dialects), in the second as *n̄a* in the AUX. While the *n̄a* which occurs in verbal sentences has a relative form *k̄e*, the *n̄a* in this type has a relative form *k̄e* as in (18).

(15) Late T-Rules

a. AUX AGREEMENT (obligatory)

NP (z̄a) AUX

$$\begin{bmatrix} \alpha I \\ \beta II \\ \gamma FEM \\ \delta PLUR \end{bmatrix}$$

1 2 3 => 1 2 PRO 3

$$\begin{bmatrix} \alpha I \\ \beta II \\ \gamma FEM \\ \delta PLUR \end{bmatrix}$$

b. SUBJECT PRONOUN DROP (obligatory)

NP (z̄a) PRO AUX

[+PRO]

1 2 3 4 => ∅ 2 3 4

c. CLITIC DELETION (optional)

NP PRO AUX

$$\begin{bmatrix} +\text{INDIC} \\ -\text{PERF} \\ \{[-\text{FUT}]\} \\ \{[+\text{FUT}]\} \\ \{[+\text{REL}]\} \end{bmatrix}$$

1 2 3

=> 1 ∅ 3

- (16) *n̄i ȳārò n̄e*
 me boy COP
 'I am a boy'

- (17) a. *ȳārò̀h̄ n̄n̄ (ȳá) n̄a c̄íkn̄ ḡí dáa*
 boy REF that (3m.s.) IMPERF in house
 'that boy is in the house'

- t. yáarò+h̃ nân (yá) nàa dà kúdfi
 boy REF that (3m.s.) IMPERF with money
 'that boy has money'
- c. n̂ nàa yáarò à lóokàcf+h̃
 1s. IMPERF boy at time REF
 'I was a boy at the time'
- (18) a. yáarò+h̃ nân (néé) (yá) kè cíkín gfdáa
 boy REF that (COP) (3m.s.) REL IMPERF in house
 'it is that boy who is in the house'
- b. yáarò+h̃ nân (néé) (yá) kè dà kúdfi
 boy REF that (COP) (3m.s.) REL IMPERF with money
 'it is that boy who has money'
- c. lóokàcf+h̃ dà ná + kè yáarò ...
 time REF REL 1s. REL IMPERF boy
 'when I was a boy ...'

These rules produce derivations of the type (19) and (20) with [-PRO] and [+PRO] subjects respectively.

- (19) [mùtúm] [nàa] [zoo]
 NP NP AUX AUX $\left[\begin{array}{c} [zoo] \\ V \end{array} \right]$ $\left[\begin{array}{c} V \\ VP \end{array} \right]$
- a. AUX AGREEMENT mùtúm yá+nàa zóo
- b. SUBJ-PRO DROP _____
- c. CLITIC DELETION mùtúm { yá+ } nàa zóo
 { ø }
- d. VN FORMATION mùtúm { yá+ } nàa zú+wàa
 man { 3m.s. } IMPERF come VN
 { ø }
 'a man is/was coming'

- (20)
- | | | |
|--------|-------|-------|
| [shíi] | [nàa] | [zoo] |
| NP | NP | AUX |
| AUX | AUX | VP |
| VP | VP | |
- a. shíi yá+nàa zóo
- b. ø yá+nàa zóo
- c. _____
- d. ø yá+nàa zú+wàa
- 3m.s. IMPERF come VN
- 'he is/was coming'

If CLITIC DELETION were to apply before SUBJECT PRO DROP, the following derivation would be allowed, yielding an ungrammatical output.

- (21)
- | | | |
|----------|--------|--------|
| shíi | nàa | zóo |
| a. shíi | yá+nàa | zóo |
| c. _____ | | |
| b. shíi | ø | nàa |
| d. *shíi | nàa | zú+wàa |

Simultaneous disjunctive application of the two rules would yield the same bad result, if of the two rules CLITIC DELETION were chosen to apply. If however it were stated as a general constraint on grammatical rules that where two rules apply simultaneously and disjunctively, an obligatory rule takes precedence over an optional rule, the output would be the same as that resulting from the extrinsic ordering SUBJECT PRONOUN DROP - CLITIC DELETION. Unfortunately I am not aware of any evidence to support the existence of such a constraint.⁶

It might be thought possible to restate AUX AGREEMENT as including either SUBJECT PRO DROP or CLITIC DELETION and thus eliminate a rule from the grammar. CLITIC DELETION is separated from AUX AGREEMENT by SUBJ-PRO DROP, thus cannot be combined with it. AUX AGREEMENT could combine with SUBJ-PRO DROP to produce

⁶A number of other types of constraints have been proposed to avoid having to state extrinsic ordering relations among rules. Among those proposed for phonology is PROPER INCLUSION PRECEDENCE [Koutsoudas, Sanders and Noll 1974] which does not work in this case.

Example (25) is ambiguous: it can also be interpreted as 'that specific town where they lived, I am not well acquainted with it'. This latter interpretation I take to arise from a deep structure in which the NP *gàrí* is present both as relative head and as a NP within the relative clause. The relative clause with an IQ interpretation on the other hand has no head in underlying structure. The NP *gàrí* in the clause is chopped into initial position on the basis of a feature of the [+WH] type on its determiner.

The correctness of this conception is shown by the behaviour of Pied-Piping in IQ relative clauses. In a relative clause with a relative interpretation, the arrangement is as in (26) and there is no possibility of an IQ interpretation.

- (26) *bà+h sán gàrí+h nàn dàgà fndà sú+kà zóo bá*
 Is. know town REF that from where REL 3p. REL PERF come NEG
 'I don't know that town from where they have come'

In order to receive an IQ interpretation, the sentence must be as in (27).

- (27) *bà+h sán dàgà gàrí+h dà sú+kà zóo bá*
 NEG Is. know from town REF REL 3p. REL PERF come NEG
 'I don't know which town they have come from'

Here the preposition *dàgà* precedes the first occurrence of *gàrí*; clearly therefore *gàrí* is not the relative head, but part of the PP within the clause which has been chopped to initial position. Since unlike in (26) there is no preceding identical NP, *gàrí+h* can not be reduced to the relative pronoun *fndà*, and the results of chopping are to be seen clearly in surface structure.

"Chopping" relativisation can therefore be seen as a process which extracts an NP usually marked with a referential suffix *-n/-r* or in a few cases, a PP, from within a relative clause, leaving no trace, and places it to the left of the clause preceding an inserted relative marker *dà*. Subsequent rules either delete the chopped NP or replace it with a WH pronoun, provided that there is a head NP to the left. "Copying" relativisation acts in the same way except that the NP to be relativised is copied to the left. The original is left in place and is later pronominalised by the head NP. The derivation (28) of the relative NP's in (22) illustrate these processes.

(28) [mùtùmì [nfi AUX bùgáa mùtùmì]]
 NP S S NP

a. REFERENTIAL SUFFIXING

[mùtùm [nfi AUX bùgáa mùtùm+ìn]]
 NP S S NP

b. RELATIVE CHOPPING

[mùtùm [mùtùm+ìn nfi AUX bùgáa ø]]
 NP S S NP

c. RELATIVE TENSE CHANGE

[mùtùm [mùtùm+ìn nfi AUX bùgáa ø]]
 NP S [+REL] S NP

d. dà INSERTION

[mùtùm [mùtùm+ìn dà nfi AUX bùgáa ø]]
 NP S [+REL] S NP

e. RELATIVISED NP DELETION

[mùtùm [ø ìn dà nfi AUX bùgáa ø]]
 NP S [+REL] S NP

Failure of (28e) to apply necessitates the application of (28f), which produces (29).

(28) f. REL-PRO FORMATION

[mùtùm [wá + ñ + dà nfi AUX bùgáa ø]]
 NP S S NP

(29) mùtùm wándà ná bùgáa (yáa mútù)
 man who Is. REL PERF hit (has died)
 'the man whom I hit has died'

The derivation of (23) by COPYING is essentially the same, except that rule (28b) is replaced by (28b'), COPYING, which is followed by (28g).

(28) b'. REL COPYING

[mùtùm [mùtùm +ìn AUX yí wàasáa dà mùtùm+ìn]]
 NP S PRO S NP

g. PRONOMINALISATION

[mùtùm [[ø]n dà nfi yí wàasáa dà shí]]]
 NP S{PRO} S NP

For ease of presentation in what follows, I shall refer to the set of rules (28a-f) (including b) as CHOPPING, and (28a-f) (including b') as COPYING.

The question of the conditions under which each of the rules CHOPPING or COPYING applies is a complex one.⁷ Disregarding subject NP's for the moment, as a rough guide one might say that chopping applies obligatorily to direct objects in the top clause of the relative clause, optionally to indirect objects in the top clause and under certain conditions direct objects in lower clauses. In all the remaining cases (NP's within PP's, within complex NP's, indirect objects in lower sentences, etc.) COPYING is obligatory.

Exactly the same set of conditions is to be found in the "out-of-focus" clauses of Hausa cleft sentences, e.g. the strings following NP COP in (30) and (31).

- (30) yáarò (née) ná bùgáa
 boy (COP) Is. REL PERF hit
 'it was a boy that I hit'
- (31) yáarò (née) mú+kà yí wàasáa dà shíí
 boy (COP) Ip. REL PERF do play with him
 'it was a boy that I played with'

Such clauses mirror the behaviour of relative clauses in all respects except the presence of a relative pronoun or relative marker *dà*. The likely explanation for this similarity is that the derivation of cleft sentences includes an indirect question type relative clause in intermediate level.⁴

4. The Subject and Auxiliary in Relative Clauses

We arrive now at the question of which of the rules CHOPPING or COPYING applies to subject NP's in relative clauses. With NP's bearing other functions, the question is easily settled as CHOPPING leaves a gap and COPYING an anaphoric pronoun as evidence of having applied. In the case of subjects, however, the effect of CHOPPING and that of COPYING followed by PRONOMINALISATION followed (as it inevitably is) by SUBJECT PRONOUN DROP would be the same: a gap in subject position in surface structure.

In the lower sentences of relative clauses, the situation is exactly as it is with other types of subordinate or co-ordinate clauses: a subject co-referential to an NP to its left is deleted in surface structure, but its

⁷Typical "island" phenomena are involved here, elements within certain type of island being more accessible to COPYING than to CHOPPING, but in other type of island totally inaccessible to relativisation. See McConwell [1973], *Chapt* 7.

relevant features can be recovered since agreement is always marked on the auxiliary, as in 32:

- (32) yáarfnyà+r dà sù+kà cée tá+nàa zú+wàa ái bà+tà zóo bá
 girl REF REL 3p. REL say 3f.s. come well 3f.s. come NEG
 PERF IMPERF VN NEG PERF

'the girl they said was coming didn't come after all'

CLITIC DELETION cannot apply in such cases.

- (33) *yáarfnyà+r dà sù+kà cée nàa zú+wàa ái bà+tà zóo bá
 girl REF REL 3p.s. say IMPERF come well 3f.s. come NEG
 REL PERF VN NEG PERF

However, in the top sentence of the relative clause, the situation is different: the subject NP is deleted, and in addition CLITIC DELETION may optionally apply, yielding both (34a and b).

- (34) a. yáarfnyà+r dà tá + kèe zú+wàa táa yí kyáu
 girl REF REL 3f.s. REL come 3f.s. do beauty
 IMPERF VN PERF

- b. yáarfnyà+r dà kèe zú+wàa táa yí kyáu
 girl REF REL REL come 3f.s. do beauty
 IMPERF VN PERF

'the girl who is coming is beautiful'

As one would expect, the same difference in behaviour of the subject position in top and lower sentences is exhibited by the "out-of-focus" clause of cleft sentences.

- (35) a. yáarfnyàa (cée) sù+kà cêe tá+nàa zú+wàa
 girl (COP) 3p.s. say 3f.s. come VN
 REL PERF IMPERF

- b. *yáarfnyàa (cée) sù+kà cêe nàa zú+wàa
 girl (COP) 3p.s. say IMPERF come VN
 REL PERF

'it was a girl that they said was coming'

- (36) a. yáarfnyàa (cée) tá+kèe zú+wàa
 girl (COP) 3f.s. REL IMPERF come VN

- b. yáarfnyàa (cèe) kèe zú+wàa
 girl (COP) REL IMPERF come VN

'it is a girl who is coming'

In order to explain the differential behaviour of the subjects of the top and lower clauses one must return to the rules set out in section 2, as (15a, b, c) CLITIC DELETION operates only where there is an NP subject present, so

conclude that the reason that CLITIC DELETION applies before CHOPPING in this case is that it is a cyclic rule applying on the cycle before CHOPPING applies. As for SUBJECT PRONOUN DROP, it cannot apply before CLITIC DELETION on the relative clause cycle, or it would block CLITIC DELETION's application. Therefore it cannot be a cyclic or pre-cyclic rule. But SUBJECT PRONOUN DROP must apply before CLITIC DELETION on the matrix sentence cycle to account for the non-application of CLITIC DELETION where COPYING takes place. SUBJECT PRONOUN DROP cannot therefore be a post-cyclic rule, and must be a last-cyclic rule.

One problem in regarding CLITIC DELETION as a cyclic rule is that it optionally deletes pronominal clitics on lower cycles before cross-clause PRONOMINALISATION and last-cyclic SUBJECT PRONOUN DROP have a chance to operate, whereas in fact pronominal agreement is always present on AUX in surface structure where the latter rules apply. Now AUX AGREEMENT clearly must apply before all cross-clause rules which delete subjects like CHOPPING: it is therefore likely to be either cyclic or pre-cyclic. If it is cyclic, the problem of CLITIC DELETION would be solved since CLITIC DELETION by its action recreates the structural description of AUX AGREEMENT and allows it to reapply on each successive cycle. Where CHOPPING applies, this would intervene between the two rules, removing the subject NP of the relative clause so that AUX AGREEMENT could not reapply in just this case.

I state below a simplified version of RELATIVE CHOPPING as it applies to subjects only (39), together with a statement of its ordering relations (40) (e = extrinsic, i = intrinsic; where no ordering is marked, this indicates that none has so far been established).

(39) NP NP AUX
 1 2 3 => 1 (PRO) d_a ø 3
 C: 1=2

(40) REL CHOPPING (?cyclic; oblig) ←
 REL COPYING (?cyclic; oblig) ←
 PRONOMINALISATION (cyclic; oblig) ←
 AUX AGREEMENT (cyclic; oblig) ←
 SUB-PRO DROP (last-cyclic; oblig) ←
 CLITIC DELETION (cyclic; optional) ←

Example (41) states the relevant parts of the derivation of the relative NP of (32), where COPYING applies, and (42) states the relevant parts of the derivation of the relative NP of (33), where CHOPPING applies.

(41) [[yáarfnyàa [súu AUX cêê [yáarfnyàa nàa zóo]]] ...
 S₀ NP S₁ S₂ S₂ S₁ NP

S₂ Cycle:

AUX AGREEMENT [yáarfnyàa tá+nàa zóo]
 S₂ S₂
 CLITIC DELETION [yáarfnyàa {∅} nàa zóo]
 S₂ {tá} S₂

S₁ Cycle:

AUX AGREEMENT [súu sún cêê [yáarfnyàa tá+nàa zóo]]
 S₁ S₂ S₂ S₁
 CLITIC DELETION [_____ [yáarfnyàa {∅} nàa zóo]]
 S₁ S₂ {tá} S₂ S₁

S₀ Cycle:

CHOPPING

COPYING [[yáarfnyàr dà [súu sú+kà cêê [yáarfnyàr {∅} nàa zóo]]]
 S₀ NP S₁ S₂ S₂S₁
 PRONOMINALISATION [[yáarfnyàr dà [súu sú+kà cêê [fá {∅} nàa zóo]]] ..
 S₀ NP S₁ S₂ {tá} S₂ S₁ NP
 AUX AGREEMENT [[yáarfnyàr dà [súu sú+kà cêê [fá tá+nàa zóo]]] ...
 S₀ NP S₁ S₂ S₂ S₁ NP
 SUBJ-PRO DROP [[yáarfnyàr dà [∅ sú+kà cêê {∅ tá+nàa zóo]]]
 S₀ NP S₁ S₂ S₂ S₁ NP
 CLITIC DELETION _____

(42) [[yáarfnyàa [yáarfnyàa nàa zóo]]] ...
 S₀ NP S₁ S₁ NP

S₁ Cycle:

AUX AGREEMENT [yáarfnyàa tá+nàa zóo]
 S₁ S₁
 CLITIC DELETION [yáarfnyàa {∅} nàa zóo]
 S₁ {tá} S₁

possessive and sentential clauses mentioned earlier derived by means of the T-rules (14b-c) from a copular structure, in this case containing an S as in (46). The difference is that in this particular construction it is restricted to use within RELATIVE CLAUSES.

- (46) NP AUX S COP => NP AUX S
[+INDIC]
[-PERF]

No matter how the *ya ke* construction is derived, it is clear that the subject of the sentence *ya ke* is empty, or an unmarked dummy which is obligatorily deleted. As with other impersonal verbs in Hausa, AUX AGREEMENT still operates in such cases, adding the unmarked neutral clitic *ya* [-I, -II, -F, -PL] to the AUX.

As well as the construction using the unmarked *ya ke* irrespective of the feature composition of the relative head as in (47), there is also a construction which has the same function and behaviour, except that *ya ke* may become *ta ke* or *su ke* by agreement with a feminine singular or plural relative head NP respectively, as in (48).

- (47) a. *yáarínýà+r dà yá+kè 'yá +r máhàucí cèè táa zóo*
 girl REF REL 3m.s. REL daughter REF butcher COP 3f.s. come
 IMPERF PERF
- b. *vàará+h dà yá+kè 'yá +n máhàucí nèè sún zóo*
 boys REF REL 3m.s. REL children REF butcher COP 3p. PERF come
 IMPERF
- (48) a. *yáarínýà+r dà tá+kè 'yá +r máhàucí nèè sún zóo*
 girl REF REL 3f.s. REL daughter REF butcher COP 3f.s. come
 IMPERF PERF
- 'a girl who is the butcher's daughter has come'
- b. *yáará+h dà sú+kè 'yá +n máhàucí nèè sún zóo*
 boys REF REL 3p. REL children REF butcher COP 3p. come
 IMPERF PERF
- 'boys who are butcher's children have come'

With a small number of verbs, there is the possibility of the application of a RAISING-TO-SUBJECT rule as in (49).

- (49) a. *yáa kásàncée yáarínýà+r 'yá +r máhàucí cèè*
 3m.s. PERF happen girl REF daughter REF butcher COP
 'it happened that the girl was the daughter of a butcher'

(49) cont.

- b. yáarínyà+r t́áa kásàncée 'yá +r máhàucfí cée
 girl REF 3f.s. PERF happen daughter REF butcher COP
 'the girl happened to be the daughter of a butcher'

This rule, although not common, appears to be particularly frequently used in relative clauses to place the NP to be relativised in top subject position and extends in some dialects in relative clauses to verbs which would not normally allow RAISING, e.g. the following headline from the *Gaskiya* newspaper:

- (50) ábúubúwà+n dà sù+kà kàmáatà à yí
 things REF REL 3p. REL PERF befitting one SUBJ do
 'things one ought to do'

which would normally be:

- (51) ábúubúwà+n dà yá kàmáatà à yíi sù
 things REF REL 3m.s. REL befitting one SUBJ do them
 PERF

It is likely therefore that we are dealing with a RAISING-TO-SUBJECT rule in which the element raised is determined by its identity with the relative head. This type of RELATIVE RAISING-TO-SUBJECT appears to be a copying rule as anaphoric pronouns are preferred in the position from which an object NP is raised as in (52).

- (52) yáarínyà+r dà t́á+kè sún { ?bùgáa } t́áa wárkèe
 girl REF REL 3f.s. REL 3p. PERF { ?bùgée t́à } 3f.s. get well
 IMPERF { ?hit }
 { hit her }
- 'the girl who had been hit by them recovered'

The rule can therefore be roughly formulated as follows:

- (53) RELATIVE RAISING-TO-SUBJECT (optional)

NP	[AUX	[X	NP	Y]								
	S		S		S							
1	2		3	4	5	=>	1	4	2	3	4	5
Cond 1 = 4												

RELATIVE RAISING-TO-SUBJECT creates a structure in sentences like (48) in which the top sentence subject is identical to the relative head. One might therefore expect CHOPPING and CLITIC DELETION to apply. As (54) shows, however, CLITIC DELETION does not apply in such cases.

- (54) a. *yáaròn dà kè dǎn máhàucí (nèè) yáa zóo
 b. *yáarínyàr dà kè 'yár máhàucí (cèè) táa zóo
 c. *yáaràn dà kè 'yán máhàucí (nèè) sún zóo

The same is also true of where the NP head is a personal pronoun as in (55), and in cleft sentences (56).

- (55) a. níi dà yá kè sún bùgée nì, náa wárkèè sòosáí
 b. níi dà ná kè sún bùgée nì náa wárkèè sòosáí
 me REL a) 3m.s. REL 3p. PERF hit me Is. PERF get well really
 b) Is. IMPERF
 c. *níi dà kè sún bùgée nì náa wárkèè sòosáí
 'I who had been hit by them really recovered'
- (56) a. yáarínyà+r nǎn (cée) yá kè 'yá r máhàucí cèè
 b. yáarínyà+r nǎn (cée) tá kè 'yá +r máhàucí cèè
 girl REF that (COP) a) 3m.s. REL daughter REF butcher COP
 b) 3f.s. IMPERF
 c. *yáarínyà+r nǎn (cée) kè 'yár máhàucí cèè
 'it is that girl who is a butcher's daughter'

But on further consideration, this pattern is exactly what is to be expected on the basis of the rules already formulated. Recall that the rule of CLITIC DELETION which removes clitics from the top AUX of relative clauses does so on the top cycle of the relative clause, before CHOPPING erases the subject NP. But the rule RELATIVE RAISING-TO-SUBJECT can only take place on the cycle above the relative clause since it crucially refers to the identity of the relative head NP. At the time that CLITIC DELETION could apply on the top relative clause cycle, the subject position in the RC top clause is empty, so its structural description is not met and it cannot apply. This confirms the cyclicity of the rule CLITIC DELETION.

This type of derivation does however raise questions with regard to the ordering of AUX AGREEMENT. It was shown earlier that RELATIVE CHOPPING must precede a cyclic AUX AGREEMENT rule on the matrix cycle to prevent it restoring clitics deleted by CLITIC DELETION on the previous cycle. We have also shown earlier that AUX AGREEMENT applies cyclically or pre-cyclically within simple sentences. In this case some agreement rule must re-apply after

RAISING-TO-SUBJECT to convert the neutral clitic resulting from the underlying empty subject into a fully specified clitic which agrees with the derived relative clause subject. If this rule is the same cyclic AUX AGREEMENT rule, it must therefore follow both RELATIVE RAISING-TO-SUBJECT and CHOPPING. But if CHOPPING applies to the RC top clause subject here, if it applied before AUX AGREEMENT it would remove the subject and block the reapplication of AUX AGREEMENT.

There is, however, some independent evidence to show that the original auxiliary agreement patterns determined by underlying subjects are altered to agree with derived subjects, *not* by the re-application of AUX AGREEMENT, but by a completely different rule, which I shall call AUX AGREEMENT ADJUSTMENT.

In simple sentences with associated conjoined subjects, like (57), auxiliary agreement is plural as a conjoined NP automatically receives [+PLUR] specification.

- (57) Áudù dà Músá sún zóo
 Audu with/and Musa 3p. PERF come
 'Audu and Musa have come'

If one of the conjuncts is a pronoun, the features of the pronoun are also added to the agreement marker on the AUX:

- (58) níi dà Músá mún zóo
 me with/and Musa 1p. PERF come
 'Musa and I have come'

A rule CONJUNCT MOVEMENT commonly applies to such sentences, moving the right hand part of the conjunct dà NP to the right of VP. Example (57) thus becomes (59), and (58), (60). In (59) where a [-PRO] NP is left in subject position, AUX must agree with this derived singular subject.

Where a pronoun like níi is left alone in subject position as in (60) it is obligatorily deleted by SUBJECT PRONOUN DROP. Now in this case agreement of the auxiliary may either be with the plural subject NP before CONJUNCT MOVEMENT, or with the singular pronoun left after CONJUNCT MOVEMENT.

- (59) Áudù { a) yáa } zóo dà Músá
 { b) *sún }
 Audu { a) 3m.s. } PERF come with/and Musa
 { b) *3p. }
- 'Audu has come with Musa'

- (60) { a) náa } zóo dà Músá
 { b) mún }
 { a) Is. } PERF come with/and Musa
 { b) Ip. }
 'I have come with Musa'

In order to account for *mun* in (60), AUX AGREEMENT must precede CONJUNCT MOVEMENT. Since we are dealing with a simple sentence here, we cannot say that AUX AGREEMENT reapplies on a higher cycle to produce *yaa* in (59) and *naa* in (60). I therefore propose the following rule to account for (59a) and (60b).

- (61) AUX AGREEMENT ADJUSTMENT

$$\begin{array}{ccccccc}
 \text{NP} & \text{PRO} & \text{AUX} & \Rightarrow & 1 & 2 & 3 \\
 \left[\begin{array}{c} \alpha I \\ \beta II \\ \gamma F \\ \delta PL \end{array} \right] & & & & & \left[\begin{array}{c} \alpha I \\ \beta II \\ \gamma F \\ \delta PL \end{array} \right] & \\
 1 & 2 & 3 & & & &
 \end{array}$$

This rule clearly applies after AUX AGREEMENT and CONJUNCT MOVEMENT, but must be ordered before SUBJECT PRONOUN DROP for (60a) and after it for (60b). The former order is consistent with the rule applying as soon as its structural description is met, the latter with it applying closer to surface structure.⁸

Returning to the question of agreement and deletion in *ya ke* relative clauses, we can now propose that the change from the neutral AUX *ya ke* to *ya ke/ta ke/su ke* agreeing with a raised subject NP is a result of AUX AGREEMENT ADJUSTMENT applying as soon as its structural description is met, i.e. immediately following RAISING, not a result of AUX AGREEMENT. CHOPPING would then apply, blocking the re-application of AUX AGREEMENT and CLITIC DELETION, as in the derivation (62) of the relative NP in sentence (49a).

⁸ The dialect represented by (60a) seems to be taking over from that represented by (60b). This probably results from the fact that the underlying subject in (60b) is not strictly recoverable: it could be either 'I and Musa' or 'we and Musa'. If the dialect represented by (60b) is entirely lost, the evidence for CONJUNCT MOVEMENT itself as a syntactic rule is lost, and AUX AGREEMENT ADJUSTMENT is confined to cases of raising.

First consider the relations of AUX AGREEMENT and CLITIC DELETION. Given that AUX AGREEMENT and CLITIC DELETION are cyclic rules of the same kind, in complex sentences the effect of CLITIC DELETION on a lower cycle is negated by the application of AUX AGREEMENT on the next cycle; if this is not the last cycle CLITIC DELETION re-applies reversing the situation. As I have stated the position, the two rules continue to apply in this way on successive cycles until a final state is reached on the last cycle. While such an approach adequately covers the data presented in this paper, it does not seem at all natural if syntactic rules are intended to reflect in any way the mental encoding process. The alternative would be to distinguish rules which apply once and for all on the cycle in which their structural description is met, and those which apply iteratively, which would have the additional specification [+iterative]. CLITIC DELETION would belong to the former and AUX AGREEMENT to the latter category; thus specified AUX AGREEMENT would apply twice and CLITIC DELETION once for each AUX, rather than AUX AGREEMENT n times and CLITIC DELETION n-1 times, where n is the number of S-nodes above the AUX in question.

A further alternative would be to class AUX AGREEMENT as a cyclic non-iterative rule like CLITIC DELETION and to modify AUX AGREEMENT ADJUSTMENT so that it becomes a last-cyclic rule preceding CLITIC DELETION. The new AUX AGREEMENT ADJUSTMENT rule would then be able to either change the features of a pronominal clitic or add a new clitic if the original clitic has been deleted on a previous cycle while the subject NP still remains in place.

As for SUBJECT PRONOUN DROP, its last-cyclic status seems to arise naturally from two factors.

- a. it must precede CLITIC DELETION, which is a cyclic rule (this point is considered in the following section); and
- b. it cannot apply on the cycle in which its structural description is first met, since if it were to apply on the relative clause cycle before relativisation, no pronoun subjects would be available to be relativised. This would cause the relative clause in sentences such as (38) (repeated here for convenience) and the parallel cleft sentence (63) to become ungrammatical:

(38) múu dà (mú) kèe zú+wàa nân bân mú dà kúfí
 we REL (Ip.) REL IMPERF come VN here NEG Ip. with money
 'we who are coming here have no money'

- (63) múu nèe (mú) kèè zúwàa nân
 we COP (Ip.) REL IMPERF come VN here
 'it is we who are coming here'

Clearly inability to relativise from subject NP's would considerably reduce the generality of relativisation and complicate the grammar, by introducing the necessity of a periphrastic construction to cope with the logical possibility of relativised subjects. Indeed in any language in which there is pronoun drop of any kind (arising from the existence of cross-reference phenomena within the simple sentence such as agreement and cliticisation), it is unlikely that such rules will be cyclic, and likely that they will be last or post-cyclic. If they were cyclic, they would apply before all identity rules operating across sentence boundaries (like RELATIVISATION and EQUI), thus restricting the application of the latter to non-pronouns in the positions where PRONOUN DROP can take place. It would therefore be desirable to establish a universal constraint which either completely excludes cyclic pronoun drop rules or makes them highly marked.⁹

In the absence of extensive comparative evidence it is not possible to decide here exactly what the form of such a constraint would be. One fruitful line of argument might be to distinguish PRONOUN DROP as a root transformation [Emonds 1969] (since it deletes a major constituent like a subject NP) from structure preserving rules like AUX AGREEMENT and CLITIC DELETION in Hausa and to attempt to demonstrate that all structure-preserving rules which operate within one clause are cyclic or conversely that rules which operate within one clause and do not preserve structure cannot be cyclic. This would be related to the need for rules which operate across clause boundaries to have the maximum specification of the structure of lower clauses available to them at the stage at which they apply, so that they can apply with the greatest generality. In particular, rules like RELATIVISATION, EQUI and RAISING would have precedence, both in the sense of functional importance and in actual rule ordering, over rules which merely remove redundant items from surface structure, like PRONOUN DROP.

⁹In an earlier version of this paper, given at a seminar at the Australian Institute of Aboriginal Studies, Canberra in 1974, I adduced evidence from an Australian language, Yukulta, studied by Keen [1972] to show that in this language pronoun drop rules must also be last- or post-cyclic. For a brief discussion of Yukulta EQUI and case-marking rules in a different context see McConvell [1976].

Finally, I wish to look again at the reasons why CLITIC DELETION is a cyclic rule, this time from the point of view of the functions of the two rules in what has been called relativisation strategy.

One of the main strategies in Hausa as in English for determining which NP is to be interpreted as identical to the head in a relative clause involves the contrast between a gap and a pronoun. This is particularly used where the direct object is a possible candidate as the relativised NP. In the two following sentences (64) has a gap in both subject and object position and in (65) there is an object pronoun. In both cases the AUX is 3m.s. like the head, and in (65) the object pronoun is also 3m.s., so this gives no help.

(64) yáarò+n dà yá gánfi zaî zóo
 boy REF REL 3m.s. REL PERF see 3m.s. FUT come
 'the boy whom he was will come'

(65) yáarò+n dà yá gán shì zaî zóo
 boy REF REL 3m.s. see 3m.s. 3m.s. FUT come
 'the boy who saw him will come'

In (64), since gánfi is a transitive verb which normally requires a direct object, a gap can be immediately located to the right of the verb in the object position. The deleted direct object is then interpreted as identical to the head yáarò and the absent subject is interpreted as having been deleted by SUBJ-PRO DROP, and therefore to have a different referent.

In (65), since in relative clause top clauses, direct objects identical to the head are deleted in nearly all cases, the pronoun in direct object position is interpreted as non-identical. Since the only remaining NP slot is the gap in subject position, this is interpreted as identical to the head.

Where CHOPPING does not apply, the gap versus pronoun strategy cannot be used. Only the agreement of AUX in the case of subject and the feature specification of the pronoun in other cases can give a clue about the identity of the relativised NP. For instance, the contrast between masculine and feminine pronouns and pronominal clitics disambiguates the sentences (66) and (67).

(66) yáarò+n dà tá yí wàsáa dà shíí zaî zóo
 boy REF REL 3f.s. REL do play with him 3m.s. FUT come
 PERF
 'the boy she played with will come'

(67) yáarò+n dà yá yí wàsáa dà ítá zaî zóo
 boy REF REL 3m.s. REL do play with her 3m.s. FUT come
 PERF
 'the boy who played with her will come'

however (67) where both the AUX and the oblique pronoun are masculine, is ambiguous:

- (68) yáarò+n dà yá yí wàasáa dà shíi zài zóo
 boy REF REL 3m.s. REL PERF do play with him 3m.s. FUT come
 'the boy he played with } will come'
 {the boy who played with him }

But in cases of this kind where the ambiguity is between a subject NP represented by a gap and agreement in AUX and a pronoun of the same feature composition, a third strategy comes into play. As we know, in the imperfect, habitual and indefinite future, CLITIC DELETION may optionally apply, indicating that it is CHOPPING which has applied to the subject NP, not COPYING, PRONOMINALISATION and SUBJ-PRO DROP. So, alongside (69a), which is as ambiguous as (68), there is (69b), in which the subject NP is unambiguously interpreted as identical to the relative head.

- (69) a. yáarò+n dà yá kè wàasáa dà shíi zài zóo
 boy REF REL 3m.s. REL IMPERF play with him 3m.s. FUT come
 'the boy who {he plays with } has come'
 {plays with him }
 b. yáarò+n dà kè wàasáa dà shíi zài zóo
 boy REF REL REL IMPERF play with him 3m.s. FUT come
 'the boy who plays with him has come'

Not surprisingly, because of its greater clarity (69b) is the preferred way of expressing relativisation of the subject. Examples of a similar kind include the relative clauses (70) involving a contrast between a gap and no object to the right of a verb which can be either transitive or intransitive, (71) where the pronoun is a possessive clitic and the cleft sentence (72) in which the right hand potential referent is in a subordinate clause.

- (70) a. tүүлунà+n dà sú kàn fáshèe ...
 pots REF REL 3p. HAB break
 'pots which {sometimes break } ...'
 {they sometimes break }
 b. tүүлунà+n dà kàn fáshèe ...
 pots REF REL HAB break
 'pots which sometimes break ...'
- (71) a. yáarfnyà+r dà tá kè zàuné à gídá+ntà
 girl REF REL 3f.s. REL IMPERF sitting in house 3f.s. POSS
 'the girlⁱ {whoⁱ is living in her^{i/J} house }'
 {whoseⁱ house she^j is living in }

b. yáarfnyà+r dà kè zàuné à gídá+ntà
 girl REF REL REL IMPERF sitting in house 3f.s. POSS
 'the girlⁱ whoⁱ is living in her^{i/J} house'

(72) a. Múúsá (nèè) yá kè fásatá+n zàì zóo
 Musa (COP) 3m.s. REL IMPERF hope REF 3m.s. FUT come
 'it is Musaⁱ {that hopes he^{i/J} will come }'
 {that he hopes will come }

b. Múúsá (nèè) kè fásatá+n zàì zóo
 Musa (COP) REL IMPERF hope REF 3m.s.FUT come
 'it is Musaⁱ that hopes he^{i/J} will come'

Numerous cases of referential ambiguity in relative clauses are thus rendered avoidable by the existence of the rule CLITIC DELETION, the application of which indicates in surface structure that the subject gap results from CHOPPING, not from COPYING, PRONOMINALISATION and SUBJECT PRONOUN DELETION. This important function of CLITIC DELETION in increasing recoverability is made possible by the fact that it is a cyclic rule, which makes available in surface structure information about earlier stages of a derivation which would otherwise result in an ambiguous surface structure. If it were a post- or last-cyclic rule and followed SUBJECT PRONOUN DROP on all occasions, clitics on the AUX of relative clauses would never be deleted, and the class of ambiguous relative clauses would be enlarged. I would not think it likely, however, that the cyclicity of CLITIC DELETION could be said to be determined by universal constraints related to communication function in the same way as I suggested that the post- or last-cyclicity of PRONOUN DROP rules could be. One point is, of course, that PRONOUN DROP is a widespread type of rule in human language, whereas CLITIC DELETION may be idiosyncratic to Hausa. Apart from that, it seems to me that this particular case of the ordering of CLITIC DELETION shows Hausa grammar using a minor rule to functional advantage.

However any increase in the generality of CLITIC DELETION either by its extension to all tenses or by a change in its extrinsic ordering relative to SUBJECT PRONOUN DROP to yield derivations like (21), would lead to a decrease in the generality of cyclic AUX-AGREEMENT in terms of surface reflections. Loss of the generality of AUX AGREEMENT would in turn tend to threaten SUBJECT PRONOUN DROP, which depends upon cross-referencing rules for its

existence. It appears that the rules here are embedded in a functional structure in which rules which ensure recoverability of reference have a relationship of contradiction with those which tend to simplify surface structure and reduce redundancy.

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ON META-RULES IN PHONOLOGY

Francis Katamba
University of Nairobi, Kenya

The paper considers data from Luganda, a Bantu language of East Africa, and presents arguments for the operation of meta-rules which govern the application of both diachronic and synchronic processes. It also argues that, in accordance with such principles, a language can create segments which are counter-predicted by the markedness theory of natural generative phonology. The paper further considers that some phonological processes can be more naturally stated in terms of the phonological word than in terms of either segments or syllables and, consequently, natural generative phonology requires word structure constraints.

1. Introduction

The main purpose of this paper is to show that certain synchronic and diachronic processes in phonology are most insightfully considered in terms of *meta-rules*, i.e. general principles which govern the application of the various rules responsible for the "phonetic mode" of a language [Lass 1969; Foley 1972; Kim 1972]. It will be further argued that sometimes, in following the dictates of its meta-rules, a language may develop segments and processes which are counter-predicted by the markedness theory incorporated in natural generative phonology: language specific meta-rules can override universal marking conventions. This claim will be supported with data involving vowel lowering and consonant strengthening in Luganda.



The secondary aim is to suggest that there are some phonological processes which can be more *naturally* stated in terms of the phonological word than in terms of simply either segments or syllables. Of course, recognition of the word as a phonological unit is not new [Palmer 1970; Chomsky and Halle 1968]. However, in discussions of natural generative phonology attention has normally been focused on the syllable [Schane 1972; Vennemann 1972]; and with a few exceptions [Vennemann 1974; Hooper 1975], the word has not been given a favoured position in natural generative phonology.

It will be argued here that, in addition to syllable structure constraints, natural generative phonology needs word structure constraints of the kind

proposed by Kisseberth [1972]. The word structure constraints which I envisage are output conditions on the systematic phonetic sequences within a single phonological word. They apply only within this domain and have no effect beyond it. The article falls into two parts. In section 2 I discuss vowel lowering, and in section 3 consonant strengthening.

2. Vowel Lowering

Proto-Bantu had seven vowels: */i | e a o u u/. Only five of them, however, have reflexes in the systematic phonetic representation of modern Luganda because of the mergers of */i/ and */u/ with */i/ and */u/ respectively.

(1)	Proto-Bantu	i	i	e	a	o	u	u
	Luganda							
				e	a	o		

The number of vowels in modern Luganda is controversial. In all traditional descriptions only five vowels are recognized, namely /i e a o u/. In a more abstract analysis where absolute neutralization is allowed, however, a system of seven underlying vowels, two of which are absolutely neutralized could be justified on the basis of morphophonemic alternation [Katamba 1974].

Whichever of these two points of view is adopted in a synchronic grammar, vowel lowering would have to be recognized historically since the vowels /i/ and /u/ do not occur in the surface representation because of the mergers.

(2)	Proto-Bantu		Luganda
	*/-y _i ye/	'locust'	/-zi _{ge} /
	*/-k _i ye/	'eyebrow'	/-si _{ge} /
	*/-t _y ya/	'to tame'	/-fu _{ga} /
	*/-y _u βu/	'hippo'	/-vu _{βu} /

I would like to suggest that the historical process which was involved in the merger of */i/ and */u/ with */i/ and */u/ respectively stems from the existence of a meta-rule which dictates the phonetic mode of non-high vowel articulation for Luganda. That same meta-rule, I would like to further claim, is responsible for what might, at first sight, appear to be an

unrelated word structure constraint which excludes the high vowels /i/ and /u/ from word initial position in modern Luganda.

The effect of this output condition can be seen in the realization of the prefix. The preprefix is a constituent of the noun and the adjective in Luganda. The noun and the adjective typically consist of the following:

(3) (Preprefix) + Class prefix + Stem

The class prefix and the stem are obligatory, while the occurrence of the preprefix is determined by the syntactic context in which a noun or adjective occurs [Ashton *et al.* 1954].

(4) Preprefix + Class prefix + Stem

e	ki	ntu	'thing' (class 7)
o	mu	ntu	'person' (class 1)
a	βa	ntu	'people' (class 2)
e	βi	to	'young' (class 8)
o	lu	to	'young' (class 11)
a	ka	to	'young' (class 12)

If a Bantu class prefix has a vowel, that vowel is normally one of /i a u/. This can be ascertained in the examples above. Two of the vowel oppositions are suspended in that position in Luganda. This neutralization is predicted by the principle of maximum differentiation [Schane 1972]. Schane has proposed that in natural generative phonology, instances of neutralization which are not due to assimilation can be explained in terms of maximum differentiation.

It is generally accepted that a three vowel system with the vowels /i a u/ is more natural than one with the vowels /e a o/ because the perceptual distance between the vowels of the former is greater than that between those of the latter. Likewise, it is suggested that, if two of the oppositions are suspended in a five vowel system, /i a u/ rather than /e o a/ are the vowels most likely to occur in the place of neutralization.

It is against this background that I would like to show that in obeying the meta-rules that permeate its grammar a language sometimes goes against what would otherwise be the natural process. Consider the diachronic derivation of the preprefix vowel: i) A preprefix formation rule, copying the

secondary prefix before the class prefix, was added to the grammar¹:

- (5) /βa+ntu/ → /βa+βa+ntu/ 'people'
 /mu+ntu/ → /γu+mu+ntu/ 'person'
 /βi+ntu/ → /βi+βi+ntu/ 'things'

ii) A rule deleting the consonant of the copied prefix was introduced:

- (6) /βa+βa+ntu/ → /a+βa+ntu/
 /γu+mu+ntu/ → /u+mu+ntu/
 /βi+βi+ntu/ → /i+βi+ntu/

and finally, iii) vowel lowering² applies:

- (7) /u+mu+ntu/ → /o+mu+ntu/
 /i+βi+ntu/ → /e+βi+ntu/

Luganda phonology is governed by a vowel lowering principle. Diachronically it was responsible for the merger of */i/ with */i/ and */u/ with */u/. Synchronically it is implemented by a word structure constraint prohibiting the occurrence of high vowels in word initial position. All high vowels in word initial position are lowered as can be seen in (7)³.

The lowering of preprefix high vowels leads to a situation which is counter-predicted by the maximum differentiation principle of natural generative phonology. When the opposition between /i/ and /e/ on the one hand,

¹Forms like /ku+mu+ti/ 'tree' (class 3) and /ki+mi+ti/ 'trees' are attested in Lumasaaba which is closely related to Luganda. This suggests that the preprefix arose from a copying of the secondary prefix before the class prefix. The secondary prefix occurs before demonstratives, e.g. omuti guno 'this tree' and as pronominal prefix before a verb stem, e.g. omuti guteme 'cut the tree'. The similarity between the Luganda secondary prefix and the Lumasaaba preprefix is not accidental.

²/a+βa+Ntu/ 'people' which already has a low initial vowel is not affected by the vowel lowering rule.

³Though the occurrence of high vowels at the end of a word is permissible in fact word final /i/ and /u/ also tend to be lowered, e.g. tano < *tanu 'five'; muppo < *munyu 'salt'. For the most part word final /i/ and /u/ are reflexes of Proto-Bantu */i/ and */u/.

and between /u/ and /o/ on the other, is suspended, instead of having the maximally differentiated vowels /i a u/ occurring in the position of neutralization, Luganda has /e a o/. The explanation, I would like to suggest, is that the meta-rule of vowel lowering takes precedence over the universal principle of maximum differentiation.

So far it has been tacitly assumed that the rule which implements the vowel lowering meta-rule in the synchronic grammar by lowering any high vowel in word initial position is a word structure rule and not a morpheme or syllable structure rule. It would be incorrect to regard vowel lowering as a morpheme structure rule excluding high vowels from morpheme initial position since morphemes can begin with high vowels. Thus, the lexical roots -iso 'eye' and -ungu 'vegetable marrow', for example, both begin with high vowels (though it should be noted that roots beginning with high vowels are very rare). Likewise, grammatical formatives like -is- and -ul- which are, respectively, causative and conversive verbal extensions also begin with high vowels. However, as the last three examples in (8) show, the first vowel of a morpheme beginning with a vowel is never syllable initial once the morpheme is put in a word.

It would be equally incorrect to regard this constraint as an ordinary syllable structure rule because, outside the word initial position there are no syllables which begin with vowels. Medial syllables always begin with consonants⁴:

(8a)	CV	/mu+kazi/	[mu\$ka\$zi]	'woman'
	NCV	/βa+Ntu/	[βa:\$ntu]	'people'
	C:V	/mi+ggo/	[mi\$g:o]	'sticks'
	CV	/lim+is+a/	[li\$mi\$sa]	'cause to cultivate'
	CV:	/mu+uNgu/	[mu:\$ngu]	'vegetable marrow'
	CV:	/li+iso/	[li:\$so]	'eye'

Only word initially can syllables begin with--or more accurately, be composed of--vowels:

(8b)	V\$CV	[o\$mu\$ka\$zi]	'woman'
	V\$NCV	[e\$nte]	'cow'
	V\$C:V	[e\$t:a\$βi]	'branch'

⁴\$ is used as a sign for a syllable boundary.

The constraint on the occurrence of high vowels can, therefore, only be stated naturally in terms of the word: it is only word initial position that high vowels are excluded from.

It could be argued that the same meta-rule that was implemented by the rule which lowered the high vowels */i/ and */u/ is still operating in Luganda, although its scope has been restricted. The earlier rule which implemented the lowering meta-rule applied blindly, lowering */i/ and */u/ wherever they occurred; today that meta-rule is implemented by a word structure rule and it affects only high vowels in word initial position. But, in one respect the meta-rule has been consistent: both diachronically and synchronically it has had the effect of restricting the distribution of the highest vowels of the system.

3. Consonant Strengthening

Another pervasive tendency in Luganda phonology is *consonant strengthening*. The strengthening principle is implemented by several P-rules. The output of each one of these P-rules governed by the strengthening principle is more fortis than its input. We shall consider in turn the processes involved in the strengthening conspiracy.

3.1. Consonant hardening. In the surface representation the only permissible consonant sequences are those where a homorganic nasal is followed by a non-nasal consonant--long consonants which are discussed later in this section are not regarded as consonant sequences in the surface representation. Consider the examples in (9) and (10):

(9)	/N+fudu/	[mfudu]	'tortise'	(class 9)
	/N+si/	[nsi]	'country'	(class 9)
	/N+te/	[nte]	'cow'	(class 9)
	/N+kima/	[pcima]	'monkey'	(class 9)
	/N+go/	[ngo]	'leopard'	(class 9)
(10)	/N+βuzi/	[mbuzi]	'goat'	(class 9)
	/ka+βuzi/	[kaβuzi]	'small goat'	(class 12)
	/N+liga/	[ndiga]	'sheep'	(class 9)
	/ka+liga/	[kaɫiga]	'small sheep'	(class 12)
	/N+yu/	[ɲju]	'house'	(class 9)
	/ka+yu/	[kayu]	'small house'	(class 12)

In all the examples in (9) and (10) the nasal prefix is homorganic with the following consonant:

$$(11) \quad \begin{bmatrix} +\text{cons} \\ +\text{nasal} \end{bmatrix} \rightarrow [\text{aF}] \text{ --- } \begin{bmatrix} +\text{cons} \\ \text{aF} \end{bmatrix}$$

(F stands for place of articulation features.)

In addition to (11) which makes a nasal homorganic with a following consonant, a hardening rule applies to the forms in (10). The hardening rule is stated in (12) below:

$$(12) \quad \begin{bmatrix} +\text{cons} \\ +\text{continuant} \\ -\text{sibilant} \\ +\text{voice} \end{bmatrix} \rightarrow [-\text{continuant}] / \begin{bmatrix} +\text{cons} \\ +\text{nasal} \end{bmatrix} \text{ ---}$$

Note that where the underlying consonant preceded by the nasal is not one of $[\beta \mid \gamma]$ the hardening rule does not apply.

We shall assume that (11) and (12) apply to the forms in (10) simultaneously as both rules are obligatory and as the structural description for both is satisfied by these forms [Koutsoudas et al. 1974]. We shall come back to this later.

3.2. The Ganda law. There is another strengthening process which has a similar structural description to the hardening rule. It is the Ganda law (also referred to as Meinhof's rule). The Ganda law is at the root of some of the major complications of Luganda phonology. Meinhof formulated it in these words: "When two successive syllables both begin with a nasal plus a following voiced plosive, the plosive of the first syllable is lost" [Meinhof 1932:183]. On the next page Meinhof qualifies his statement and points out that sometimes this rule may apply even when the second syllable has a nasal without a following plosive. Meinhof's formulation of the Ganda law correctly accounts for its application in (13):

(13)	/N+βuna/	[m:una]	'I get covered with'	
	/N+βanβa/	[m:a:mba]	'lung fish'	(classes 9/10)
	/N+limi/	[n:imɪ]	'tongues'	(class 10)
	/N+laŋga/	[n:a:ŋga]	'harp'	(classes 9/10)
	/N+yima/	[p:ɪma]	'I take a stand'	
	/N+yinβa/	[p:ɪ:mba]	'I sing'	

(13) cont.

/N+goma/	[ŋ:oma]	'drum'	(classes 9/10)
/N+gaNβa/	[ŋ:amba]	'I tell'	

Meinhof's statement of the Ganda law would also predict its application to the data in (14), which is incorrect.

(14) /N+doNgo/	[ndo:ŋgo]	'harp'
/N+doNɣwa/	[ndo:ŋɣwa]	'I talk rubbish'
/N+bama/	[mbama]	'I rush about madly'

The forms in (14) are not affected by the Ganda law. There are two possible explanations. Either Meinhof's statement of the Ganda law is incorrect, or the forms in (14) are exceptions. I think the latter is the case. Only in a phonemicization of Luganda where the principle contrast used in isolating phonemes is carried to absurd limits and where all statistical considerations are ignored could /b/ and /d/ be regarded as separate phonemes from /β/ and /l/ as the number of morphemes which are distinguished by the opposition between /d/ and /l/ on the one hand and between /β/ and /b/ on the other can be counted on the fingers of one hand. It would, therefore, be inadvisable to claim that the Ganda law does not apply to the forms in (14) because they differ from those in (13) in having underlying stops instead of continuants following the first nasal; the non-application of the Ganda law should rather be accounted for using a minus rule feature.

Returning to the forms in (13), I would like to suggest that diachronically their surface representations were the result of the successive application of several assimilation rules. First, there was homorganic nasal assimilation (rule 11) and then hardening (rule 12). Later a rule was added to the grammar which completely assimilated the plosive to the nasal preceding it (that plosive was either created by rule (12), in the case of /β l y/ or it was present in the underlying representation of the morpheme in the case of /g/) where the following syllable also began with a nasal. This assimilation is shown in (15).

(15)	$\begin{bmatrix} +\text{cons} \\ +\text{voice} \\ -\text{cont} \end{bmatrix}$	→	[+nasal]	/	$\begin{bmatrix} +\text{cons} \\ +\text{nasal} \end{bmatrix}$	_____	V ₁	$\begin{bmatrix} +\text{cons} \\ +\text{nasal} \end{bmatrix}$	(C)
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A low level rule then turns sequences of two identical nasal consonants into one long nasal.

One important point which should be noted here is that the Ganda law is a word structure rule. It only applies within the boundaries of a phonological word. It could be regarded as a consonant harmony rule as its effect is to make two successive syllable onsets agree in specification for the feature [nasal]. Being a word structure rule it applies to the examples in (16):

(16)	/#N+βaNβa#/	[m:a:mba]	'lung fish' (classes 9/10)
	/#N+lum+a#/	[n:uma]	'I bite'
	/#N+lunβa#/	[n:u:mba]	'hornet' (classes 9/10)
	/#N+yiNβ+a#/	[ɲ:i:mba]	'I sing'
	/#N+gum+u#/	[ŋ:umu]	'strong' (adjective, classes 9/10)
	/#N+gaNb+a#/	[ŋ:a:mba]	'I say'

But it is blocked in (17) by the presence of word boundaries:

(17)	/#N+βa+a#mu+kazi#/	[mbamukazi]	'if I were a woman'
	/#N+yu#N+lala#/	[ɲju:ndala]	'another house'
	/#βa+tuNi+a#N+βwa#/	[βatu:nda:mbwa]	'they sell dogs'

Clearly, the Ganda law is an output condition on the phonological word, stipulating that in the surface representation, no word may have a sequence of NCV₁N where C is derived from any one of /β l γ g/ in the underlying representation. Beyond the limits of the word, however, such sequences are permissible.

Of course, an alternative analysis in which the Ganda law is regarded as a morphophonologically triggered rule is possible. All the examples of the Ganda law cited in (13) and (16) above involve some nasal prefix which represents either the first person singular personal pronoun, or the classes 9/10 prefix. On these grounds it could be argued that the Ganda law has been morphologised. Such an argument is not overwhelming since the Ganda law can be insightfully discussed without any reference to morphology; for a true morpho-phonological rule that is not possible. Moreover, the Ganda law is still a productive process. This can be seen in the treatment of Swahili loan words; e.g. Swahili *bunduki* 'gun' is borrowed into class 9 as *mmundu* [m:u:ndu] (<N+buNdu(ki)) and the first singular of the verb *kulanda* in the present tense is *nnanda* [n:a:nda] and this is derived from the Swahili noun *randa* 'carpenter's plane'.

The Ganda law and the hardening rule which we discussed earlier are related in an interesting way. Not only do they both derive from the same strengthening principle which was described at the beginning of this section, but they also have partially similar structural descriptions. In a model where extrinsic ordering of rules in a synchronic grammar is allowed, these rules would be ordered in exactly the same way as we suggested above in our historical sketch of the development of the Ganda law, with continuant hardening (12) preceding the assimilation of nasality (15).

In our view, it is not necessary to assume that these rules are applied in a synchronic grammar in the same sequence as they were historically. To assume that would entail extrinsically ordering (12) before (15). But it is unnecessary to resort to extrinsic ordering to ensure the correct application of these rules. The principle proposed by Koutsoudas *et al.* [1974] which states that every obligatory rule must be applied to every derivation that satisfies its structural description is sufficient to ensure the correct application of (12) and (15). A representation like NCV₁N where C is one of /β | γ/ simultaneously satisfies the structural description of (12) and (15) and therefore the two rules apply simultaneously; a derivation where the consonant following the first nasal is /g/ only satisfies the structural description of (15) and therefore it is only affected by (15).

So far the relationship between the Ganda law and the hardening rule has been considered mainly in formal terms. In the next sub-section it will be discussed from the point of view of the articulatory mode of the language.

3.3. Strengthening. Strong consonants are the most interesting peculiarity of Luganda phonology. Consonant lengthening which is a by-product of the Ganda law, and hardening are two of the strategies by which strong consonants are achieved.

According to markedness theory, long segments are marked. Statistically they are rare in the languages of the world; and even in those languages where they occur they are in a minority [Postal 1968]. Markedness theory also claims that it is the marked sounds that are unstable during language change: given two segments, one marked and the other unmarked, the marked is likely to be merged with the unmarked. On the basis of that hypothesis, one would expect Luganda to lose long consonants. An inspection of the facts indicates otherwise: in spite of their being marked, long consonants are not only holding their own, but they are also spreading.

Meeussen [1955] showed that diachronically long consonants arose when a Proto-Bantu syllable containing the vowel */i/ was lost and a following consonant was lengthened in compensation.

(18)	Proto-Bantu		Luganda	
	/-j β-/	'steal'	/-bb-/	[-b:]
	/-j t-/	'kill'	/-tt-/	[-t:]
	/ i+taβi/	'branch'	/ø+ttabi/	[t:aβi]

This strengthening of consonants by compensatory lengthening was due to the strengthening meta-rule which controls Luganda phonology. The effect of this meta-rule is to produce optimum consonants which are as different as possible from vowels. The continuant hardening rule and the process shown in (18) are two of the strategies by which the articulatory mode of strong consonants is achieved. As the continuant hardening rule seems to have operated in Proto-Bantu [Meinhof 1932], (and is still operating in many Bantu languages) Luganda may be said to have inherited an embryonic strengthening principle from Proto-Bantu and generalized it to new environments where it did not apply before.

Thus, the Ganda law, which is found in several other Bantu languages, produces long consonants in Luganda but not elsewhere⁵. For example, in Swahili which does not have the articulatory mode of consonant strengthening, /N+goma/ 'drum' is realised as [ŋgoma] and not as [ŋ:oma] as in Luganda. If the Ganda law produces strong consonants in Luganda but not elsewhere, it is probably because Luganda phonology is controlled by the principle of consonant strengthening while the phonology of sister languages is not. That principle operated diachronically to produce the type of long consonants shown in (18) and it is at the root of the synchronic operation of the Ganda law. Because of the strengthening meta-rule, when (by the operation of the Ganda law) a non-nasal consonant assimilates to the nasal, one long nasal is produced. However, in other languages which do not have the strengthening principle markedness theory holds sway: after the assimilation of the non-nasal to the nasal, the second nasal (or the length feature) is deleted so that instead of marked NN or N: one has unmarked N occurring in the surface representation.

The strengthening meta-rule also projects itself into the area of

⁵This statement must be qualified. The Ganda law causes strengthening in a few other Bantu languages (cf. Meinhof 1932:184).

innovation. In the contemporary language a new consonant strengthening rule, which seems to be the most important and obvious linguistic manifestation of the generation gap, has been added to the grammars of younger speakers. They generally strengthen the initial consonant of a verb stem when it is preceded by an infinitive prefix, if the initial stem consonant is a non-nasal velar.

(19) Older speakers

/ku+kola/	[kukola]	'to work'
/ku+kuβa/	[kukuβa]	'to hit'
/ku+gaβa/	[kugaβa]	'to give'
/ku+gula/	[kugula]	'to buy'

(20) Younger speakers

/ku+kola/	[k:ola]	'to work'
/ku+kuβa/	[k:uβa]	'to hit'
/ku+gaβa/	[g:aβa]	'to give'
/ku+gula/	[g:ula]	'to buy'

In (20) the infinitive prefix has its vowel deleted and /k/ assimilates the voicing of the consonant which it now abuts with. Note that the hardening rule turns the continuants /β | γ/ into the stops [b d j] respectively after nasals and these same continuants are obligatorily realised as the strong stops [b: d: j:] when they are lengthened in a strengthening environment. The structural similarity between the two rules suggests that the hardening rule and the strengthening rule are part of the same process [Katamba 1974].

The pervasiveness of the strengthening process can further be seen in the manner in which it has affected some loan words. In recent decades many of the nouns borrowed from other languages have been incorporated in Luganda with strong initial consonants which they do not possess in the source language.

(21) /φ+ddokita/	[d:ocita]	'doctor'	(class 1)
/φ+bbaasi/	[b:a:sɪ]	'bus'	(class 9)
/φ+ssaati/	[s:a:tɪ]	'shirt'	(class 9)

Normally the indigenous nouns with a zero class prefix and a strong initial consonant belong to class 5. The historical explanation for the strong

consonant in that case is the loss of class 5 prefix */lǐ/ before noun stems which begin with a consonant. This led to the compensatory lengthening of the stem initial consonant. Thus Proto-Bantu */lǐ+tɒβi/ 'branch' became /φ+ttɒβi/[t:tɒβi].

There is no obvious reason why many loan words which do not belong to class 5 are borrowed with a strong stem initial consonant--if they all belonged to class 5 paradigm pressure might have been a plausible explanation. But the examples in (21) rule that out. The strengthening meta-rule again holds the key to the explanation. I would like to suggest that because of the pervasiveness of the strengthening principle, strong consonants are not unnatural in Luganda. On the contrary, the phonetic mode of strong articulation characterizes the language. Strengthening is dynamic. Strong consonants which originally characterised class 5 nouns only in the noun class system have now been generalized to a new paradigm of forms marked [+foreign], often regardless of the noun class the loan words belong to.

4. Conclusion

The upshot of this argument is that the meta-rules of a particular language may take precedence over universal marking conventions. Thus, long consonants may be marked according to universal marking conventions, but they are normal in Luganda because the consonant strengthening principle dominates a big portion of Luganda phonology. Several structurally diverse rules, as we have shown above, only exist in order to bring about the articulatory mode imposed by the strengthening principle. Likewise, the occurrence of the vowels /e a o/ in a position of neutralization in a language which has the vowels /i e a o u/ may be unnatural according to markedness theory, but it is normal in Luganda because the vowel lowering principle dominates the vowel processes in the language.

In view of the pervasiveness of the vowel lowering and the consonant strengthening meta-rules (which both involve violations of marking conventions) in the synchronic as well as the diachronic phonology of Luganda, one is tempted to agree with Lass [1972,1973] that the strong universalist bias of generative phonology may sometimes obscure significant, idiosyncratic characteristics of an individual language or language family. Phonological theory has to take into account the fact that a segment may be marked, a process may be extremely rare and still be natural in some language where it occurs.

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TONES IN OLD MOSHI (CHAGA)

D. Nurse and G. Philippson
University of Dar es Salaam, Tanzania

Several general features of the tonal system of the Old Moshi dialect of the Central Kilimanjaro group of Chaga dialects are treated in this paper. At the phonological level only two tones, high and low, need to be posited. Tone permutations involving down-stepped high tones are presented as well as examples of tone shift, a general phenomenon attested in other Bantu languages of East Africa. Finally, the tonal behavior of nouns, other elements of the NP, verbs, and particles, is discussed.

1. Introduction

Old Moshi (OM), or *kimoci* as its speakers call it, is one of the Central Kilimanjaro group of Chaga dialects.¹ All the Chaga dialects have lexical and grammatical tone, as have most of the surrounding Bantu languages (Daßida, Pare, Kamba, etc.).

Phonological tones in OM correspond fairly closely to what can be reconstructed as Proto-Bantu (PB) tones, with a few exceptions, but the rules for surface realisation are quite complicated, as is the case with many Bantu languages in East Africa. This study is about the most general of these rules only. A complete description and analysis of the tone system of the language would be a formidable task indeed and one well beyond the scope of this paper.² It follows from this that the analysis presented here is explicitly valid *only for the environments described*. Other environments would, in most cases, require supplementary rules.

¹See Nurse and Philippson [forthcoming], where we have divided them into four major groups — West Kilimanjaro (Meru, Siha to Kibosho), Central Kilimanjaro (Uruto Vunjo), Rombo, and Gweno.

²There exists a very complete grammar of OM, which however makes little reference to tone: Raum [1964]; also an article on phonetic tone in Machame: Sharp [1953].

At the phonological level in OM there are only two tones, high (H) and low (L). A phonological syllable may be defined as a segment necessarily bearing one of these two tones, so that there will be as many tones as syllables at this level. Phonological H is marked /^h/, phonological L /^l/. Phonological strings are enclosed by diagonal lines, so /XYZ/. At the phonetic level, a high tone is marked [ˈ], a low is not marked; in addition, there are also downstepped high, marked [ˈ], rising [ˆ], and falling [ˆ] tones.

A vexing question is that of downstepped high tones, which are quite frequent at the phonetic level. They can be discussed under three headings:

a. Clear and predictable downstep linked to vowel coalescence: the vowel coalescence rules in OM would justify a study in themselves and only their consequences for tonal analysis will be given here. When two vowels coalesce, as for instance between subject and tense markers in verbs, the resultant phonologically long vowel³ will carry an *underlying complex* tone (to be distinguished from surface rising or falling tones), which can be of four types: H + H, L + L, L + H, H + L. The first two are identical to single H or L respectively and behave accordingly. The last two, which both contain a combination of H and L in a different order, will be realised as a *single H* tone on either the syllable itself or the next one, according to the tone shift rules. In the case of an underlying complex tone of the L + H type, the L part will be realised as a downstep relative to any high preceding, e.g.

- (1) /ní wà-á-hùR-á/ →
 /ní wǎhùRá/ →
 [ŋwáhùRǎ]
 'they bought (today)'

The downstepped H on [-hùR-] represents both the L and H parts of the phonologically complex tone on /wǎ-/.

Again it is impossible to go deeper into the rules of vowel coalescence in this paper, but it should be emphasised that the coalescence of any two

³In contemporary OM, surface length is not phonemic, but Raum's description seems to imply that it was a century ago.

vowels does not automatically result in a *phonologically* long vowel bearing two tone segments, e.g.,

(2) /-lí-à#/ → /-lyá#/ → [-lyǎ#] ' (to) eat'

in contrast to

(3) /á-á-mè-lí-à wù-úkì/ →
 /ámèlyá wúkì/ →
 [ámélya wúkí...]
 'he has eaten honey'

Had we considered the result of the coalescence of /lí-/ and /à/ to be a phonologically long vowel, the result would have been */-lyá/ and the example */ámèlyá wúkì/ > *[ámélyá wúkí...], which is wrong. Note that the downstep H on [-kí] again represents both H and L segments of the complex tone on /wú-/.

In summary, phonologically long vowels *can* arise from the following cases of coalescence:

- (4) a. /a + e/ → /e:/, e.g.,
 /wá-è-ké-kà-à pfó/ →
 /wèkékáà pfó/ →
 [βékekáá pfǒ]
 'they don't usually stay/live'
- b. /a + o/ → /o:/, e.g.,
 /wá-òsé/ → /wòsé/ → [wósě] 'all (class 2)'
- c. /u + a/ → /o:/, e.g.,
 /-wú-àh-w-à/ → /-wòhò/ → [...wóho] 'be killed'
- d. /u + e/ → /o:/, e.g.,
 /sú-è/ → /sò/ → [só...] 'we'

Phonologically long vowels are also to be found before nasal clusters in at least one case

(5) /wá-:ndù/ → /wāndù/ → [wāndu]⁴ 'people'

⁴For the H on the nominal prefix, see 3.1.2. below.

to which the following can probably be equated

(6) /wá:-ná/ → /wānà/ → [wána] 'four (cl. 2)'⁵

b. Predictable, but not at all clear, is the downstep associated with certain morphemes, e.g., the negative copular /cí/. Any H directly following /cí/ will be downstepped, e.g.,

(7) /cí N-búru pfó/ →
 [ci mbúru¹ pfó] and not
 *[ci mbúru pfó]
 'it isn't a goat'
 /cí wá-hènu pfó/ → [ci wáhènu¹ pfó]⁶

We haven't investigated this behaviour, nor have we an explanation for it. Further investigation may show that this downstep is a lexical feature of the morphemes in question (cf. the third underlying tone in Kikuyu) or that it is morphosyntactic.

c. Unpredictable downstep, which sometimes appears in certain verbal forms, but not regularly, even with the same speaker. We have chosen to ignore such cases at present and have selected all our examples from unambiguous utterances.

The OM phonemic inventory comprises /i,e,a,o,u,p,t,k,h,b,d,s,ʃ,pf,ts,c/ (affricate, not stop), w (with two allophones, [β] before l,e, and [w] before a,o,u), y,l,r (trill), R (retroflex), m,n,ny,ŋ/.

2. Tone Shift

OM, like other Bantu languages in East Africa, has a tone shift, which means that PB tones are realised on the syllable immediately following the one for which they are posited in PB. In other words, the phonetic tone on any syllable will always to some extent depend on the underlying tone of the previous syllable. Cf. the following simple example

(8) /m-Rì l-à wà-súngù cí l-mú nà l-à wà-cákà pfó/

⁵For the lowering of /:ná/, see 3.3. below.

⁶See note 4.

which will be heard as

[mRi ya wasungú ci ímu ná ya wacaká pfǒ]

'villages of Europeans are not same as (those) of Chagas not.'

The only exception to this rule is to be found in connection with phonologically long vowels. As mentioned above, H + H and L + L behave exactly like single H and L respectively, e.g.,

(9) /á-á-hùR-à pfó/ →

/áhùRà pfó/ →

[ahúRa pfǒ]

'he did not buy (today)'

L + H gives a H on the following syllable, which will then be downstepped if immediately preceded by another H. Cf. the example given above as (1) (/ní wà-á-hùR-á/ → /ní wáhùRá/ → [ŋwáhùRǎ]). H + L gives a H which *does not* shift and remains on the syllable itself, the following syllable will then bear a low tone:

(10) /tsí-:ná/ → /tsínà/ → [tsína] 'four (cl. 10)'

/à-á-mè-wú-àh-w-à/ → /ámèwòhò/ → [améwòho] 'he has been killed'

The central fact of the shift raises the question of what happens sentence-initially and -finally.

2.2. Sentence initial position

2.2.1. ní + verb. Verbs naturally often occur in sentence-initial position and many are preceded by /ní/⁷ which is realised as [nyí] or as a variety of assimilated nasals, or as total assimilation to the following consonant, thereby lengthening it, or as zero. Examples follow:

(11) a. /ní/ → [ny]

/ní ò-è-ké-àmb-ù-y-à ò-ká ù-àkó/ →

/ní òkéàmbùyà òká òkó/ →

[nyókéámbuya mka ókó]

'are you looking at my wife (by any chance)?'

⁷See 3.4.2.

- b. /ní/ → [n]
 /ní à-kúnd-ì wà-súngù ì-nú/ →
 [nákundí wasungú mnũ]
 'he likes Europeans a lot'
- c. /ní/ → [CC]
 /ní lù-lé-hùR-à mà-Rùhú/ →
 [lúlehúRa məRuhú]
 'we bought bananas (before today)'
- d. /ní/ → [∅]
 /ní wà-è-ké-hènd-à/ →
 /ní wəkéhèndà/ →
 [βékéhènda]
 'they usually go'

2.2.2. ní + X + verb. The preceding paragraph implies that /ní/ is an integral part of many verb forms. Nevertheless, it need not necessarily precede the verb immediately, but may often appear in sentence-initial position separated by a number of other items from the verb. The phonetics are the same as 2.2.1. Examples:

- (12) a. /ní kíkí ò-á-mè-hùR-á/ →
 /ní kíkí òmèhùRá/ →
 [ŋkíkí ómhuRá]
 'what have you bought?' or
- b. /ní ò-á-mè-hùR-á kíkí/ → [nómhuRa kíkí]
- c. /ní njòfù tsì-á-hènd-á ì::ndà-ìní/ →
 /ní njòfù tsáhèndá ìndèní/ →
 [nyí njófu tsahénda ìndenyí]
 'it is that the elephants went to the garden (today)'

2.2.3. ní + complement. Another variant of this occurs in the various phonetic shapes of the answer to questions such as 'Who are they?'

- (13) a. [nyí wácakâ]
 b. [ŋwácakâ] all from /ní wà-cákà/
 c. [wwácakâ] 'they are Chagas'
 d. [wácakâ]

where the underlying form contains /ní/, the copular equivalent to 'be'. There is much to be said about whether this /ní/ is the same as the stabiliser /ní/ which precedes verbs, but in OM at least, they are identical in their tonal and segmental forms.

2.2.4. ní + person/class + [prefix + adj. stem]. Sentences such as

- (14) a. [wá watutú] 'they (are) small'
 b. [nji mtutú] 'I (am) small'
 c. [ná mtutú] 'he (is) small'
 d. [mfú mlejí] 'it (is) tall (tree, cl. 3)'

contain an initial phonetic high tone, deriving from underlying /ní/, which is visible in the last two examples. The corresponding negative forms show an initial phonetic low tone, as negatives in OM do not take initial /ní/, but the person marker is now phonologically high, as can be seen in

- (15) a. [wa wátutu pfó] 'they (are) small not'
 b. [nji mítutu pfó] 'I (am) small not'
 c. [a mítutu pfó] 'he (is) small not'
 d. [fu mlejí pfó] 'it (is) tall not'

It seems that these forms are actually shortened (*not* coalesced) forms of the copular /-i-/ (cf. Raum [1964:111-15]: in other dialects this *i* is realised as *li*). The full forms, /wáì/, etc., are to be heard in the relative, e.g.,

- (16) /í-wò wá-ì wá-fó-ì.../ →
 [íwó wáí wafóy...]
 'those that are many...'

The difference between positive and negative can be explained as follows:

- (17) a. /ní à(ì) ñ-tútú/ → [ná mtutú]
 b. /á(í) ñ-tútú pfó/ → [a mítutu pfó]

Compare the behaviour of the present tense A2 which is extremely similar (cf. 3.5. below).

2.2.5. Nouns in isolation. All nouns in isolation (citation forms) are preceded by a phonologically high tone. This is realised on the prefix, e.g.,

- (18) a. Class 6 /' + mà-déndé/ → [mádendé] 'legs'
 b. Class 7 /' + kî-nùngú/ → [kí'nungú] 'pot'
 c. Class 8 /' + ðì-lèhé/ → [ðí'lehé] 'birds'

In classes 9/10, the class prefix is either a non-syllabic nasal as in /N-kúkú/ → [ŋgúkú] 'chicken', or zero, as in /N-tùmó/ → [túmó] 'market'. The prefix for class 5 is /i/, which never appears in some nouns and only optionally in others. So in these three classes and occasionally in others where the initial syllable is not tone bearing, the first syllable of the stem will carry a high tone and any following H will normally be downstepped, as in

- (19) a. /' + ñ-kúkú/ → [ŋgúkú] 'chicken'
 b. /' + (ì)-r'íná/ → [r'íná] 'hole'

The downstep in (19a) can be explained here by the lowering influence of the L class prefix, which is not realised segmentally.

2.2.6. Elsewhere. All other sentence-initial syllables will be phonetically low.

2.3. Sentence-final position. The final phonetic syllable will have to bear the tone transferred to it from the previous syllable plus its own tone. The following rules operate:

- (22) a. /' + CV#/ → [CV#], e.g.,
 /hùR-á mà-ñ-kúkú/ →
 [huRa máŋgúkú]
 'buy big chickens'
- b. /^ + CV#/ → [CV#], e.g.,
 /hùR-á mà-Rùhú/ →
 [huRa máRuhú]
 'buy bananas'
- c. /' + CŨ#/ → [CŨ#], e.g.,
 /hùR-á mà-kúmbí/ →
 [huRa mákumbí]
 'buy hoes'

- d. /' + CV#/ → [CV#], e.g.,
 /hùR-á má-ngùwè/ →
 [huRa mángúβe]⁸
 'buy big pigs'

4. Adjustments at positions other than sentence boundary. When a verb form with /ní/, realised as any of the phonetic forms given in 2.2.1. above, is preceded in a sentence by a phonological H, this H very often does not shift entirely but remains on its own syllable in the form of a rise, followed by a short pause, e.g.,

- 23) /ì-hèhò lí-ngí lì-tùtù ní-lì-á-fúnj-ìk-á/ →
 /ìhèhò língì lìtùtù nílyǎfúnjìká/⁹ →
 [ìheho língí litutù lyáfúnjikǎ]
 'another small tooth is broken'

This behaviour which, although very frequent, is apparently optional, can be attributed to a reluctance to have three underlying tones represented on one syllable.

Syntactic Categories

The afordiscussed are general phenomena, whereas now we consider what happens in individual sentence constituents-- nouns, other elements of the P, verbs, and particles.

1. Nouns. Given that there are only two phonological tones, and that each syllable has to be tone bearing, there are theoretically two possible patterns for mono-syllables, four for disyllables, etc., e.g.,

24) Monosyllables

- | | | |
|-------------------|-------------|---|
| a. /m-Rì/ → [mRì] | 'homestead' | L |
| b. /m-dí/ → [mǎí] | 'medicine' | H |

⁸See note 4.

⁹For this change of tone in the verb stem, see 3.4.7. below.

(25) Disyllables

a. /m̄-hènù/ → [m̄hénu]	'stranger' ¹⁰	LL
b. /kì-nùngú/ → [kínungú]	'pot'	LH
c. /ò-wókò/ → [ówokò]	'arm'	HL
d. /ò-déndé/ → [ódendé]	'leg'	HH

We will not deal here with nominal stems of three or more syllables.

3.1.1. Nominal prefixes. With the exception of 3.1.2. nominal prefixes are low for all classes and are as follows: classes 1,3,4 /m̄-/ , class 2 /wà-/ , class 5 /lì-/ , class 6 /mà-/ , class 7 /kì-/ , class 8 /ʃì-/ , classes 9,10 /ń-/ , class 11 /ò-/ , (class 12 /kà-/), class 14 /wù-/ , classes 15,17 /kù-/ , class 16 /hà-/.

3.1.2. Mhenu-rule. Many noun stems have only low tones and in all such cases a high phonetic tone appears on the stem initial syllable, indicating that the phonological tone from the prefix must be high. This we have called the *mhenu* rule as it first came to our attention when *mhenu* 'stranger' was said in isolation. Expecting *[m̄hénu], following 3.1.1., we found instead:

(26) a. [m̄hénu]	from /' + m̄-hènù/,	similarly
b. [m̄Rì]	from /' + m̄-Rì/	'homestead'

This rule applies apparently to nouns of any syllable length, provided only all the stem tones are low, and to all noun classes. But, and it is a rather large but, it only applies in certain environments--nouns in isolation, nouns in initial position as subject immediately followed by a verb, and nouns in any function immediately followed by demonstratives, /-òsé/ 'all', and by numerals bigger than six, which latter are best treated as nouns as they show no form of agreement with the antecedent noun. Nouns in citation form have already been illustrated, examples of some of the others are:

(27) a. Noun + demonstrative (as subject)

/wá-hènù wályá wà-á-mè-c-à/ →
/wáhènù wályá wámècà/ →
[wahénu walyá waméca] ¹¹
'those strangers have come'

¹⁰See note 4.

¹¹For the change of tone of /wályá/, see 3.3. below.

b. Noun + demonstrative (as object)

/ní njì-kúnd-ì wá-hènù wá-lyá/ →

[njíkundí wahénu walyá]

'I like those strangers'

c. Noun + nominal numeral

/wá-hènù ì-kúmì wà-á-mè-c-à/ →

[wahénu ikumí waméca]

'ten strangers have come'

here is a set of environments where the rule does not work--when the noun is followed by numerals from one to six ("real numerals"), possessives, adjectives, verbs in relative form¹², genitive particle (-a), locative suffix (-ini), -ngi 'other', and subject nominals deriving from the verbs of embedded sentences (e.g., 'to tell the truth is good'). Examples:

28) a. Numerals

/ní-njì-fc-ì ì-hènù ù-mú tùpù/ →

[njííííí mhenu umu túpu]

'I know only one stranger'

b. Possessive

/ì-m-Rì ì-àdú ní-ì ì-(ì)cá/ →

[mRì yadú^(c) ní mcá]

'our homesteads are nice'

c. Adjective

/wà-hènù wà-fwù wà-á-mè-c-à/ →

[wahenu waiwú waméca]

'black strangers have come'

d. Verbs in relative form

/ní-à-fc-ì wà-hènù wá-fó-ì ì-nú/ →

[náííííí wahenu wafóy mnú]

'he knows strangers (who are) very many'

¹²Due to the rather large number of inconsistencies in our data, it might be more correct to say that the *mhenu*-rule seems to be optional in the case of relatives.

e. Genitive particles

/ní-njì-kúnd-l Ñ-yàmà l-à Ñ-kúkú/ →
 [njíkuḍf nyama ya ngukú]
 'I like chicken meat'

f. Locative

/m-hènù ní-à-lé-pf-l-à m-èdà-lní fú-ḡán-l/ →
 [mhénu nálepfa mēdenyi fúḡány]
 'the stranger died in the big river'

g. -ngi 'other'

/ì-hèhò lí-ngí l-l-tùtù ní-lì-á-fúnj-lk-á/ →
 [ìheho língí lītutù lyáfúnjiká] (cf. 2.4.)
 'another small tooth is broken'

h. Nouns deriving from embedded verbs

/ì-hùR-à mà-Rùhú ní nà-lcá/ →
 [ìhuRa maRuhú nécá]
 'to buy bananas is good'

cf. in isolation [fúRa] from /f-hùR-à/ 'to buy', class 5

3.1.3. Irregular nouns. A few disyllabic noun stems behave irregularly. Most of these are probably loans, and they could be fitted into the general pattern by postulating a complex tone: e.g., [fóndí] 'sheep' which always keeps a H on [-fónd-], whatever the context, and does not follow the mhenú rule, could be explained as /f-fóndí/. In the same way, the word [kítê] 'dog' is always [...kítê...] in context, e.g.,

(29) [kítê kítutù kyákápô]
 'a little dog was beaten (today)!

The underlying form could be written */kì-tê/ although there is no justification for a complex tone in this position. Note that while in OM the stem is /-tê/ (sg. kítê, pl. jítê), in other Chaga dialects /-kítê/ is the stem (generally in class 5/6).

A more difficult case is posed by [fóRê] or [fóRê] 'egg' for which one would have to posit the form */f-fóRê/. It is probably best to consider this an irregular loanword.

.2. Adjectives. Adjectives behave as nouns in that they can all have the one patterns described above and they take the same set of prefixes (except n cl. 9/10 where the prefix can be either /N-/ or /njì-/).

- 30) a. /ní-njì-wód-è N-gùò njì-tùtú/ →
 [njíwodé nguo njítutú]
 'I have small/few clothes'
- b. /ní-njì-wód-è N-gùò njì-ííí/ →
 [njíwodé nguo njíííí]
 'I have white clothes'
- c. /ní-njì-wód-è N-gùò njì-íwù/ →
 [njíwodé nguo njíiwù]
 'I have black clothes'
- d. /ní-njì-wód-è N-gùò njì-àngù/ →
 [njíwodé nguo njíàngù]
 'I have light clothes'

There are certain words which are translated by adjectives in a European language, or in Swahili, but they behave in all ways as verbs in a relative clause, which is indicated both by the shape of their prefixes and by their tonal behaviour. Such words are /-ǵánì/ 'big', /-fóì/ 'many', etc.

3.3. Other elements of NP. Besides adjectives with nominal prefixes, there is another set of stems which follow the noun in the NP but do not behave like adjectives as they have a distinctive set of prefixes. These are: numerals from 1 to 6, /-ose/ 'all', /-ngí/ 'other', /-lyá/ 'that', possessives, interrogatives like /-íngá/ 'how many'. They are prefixed by class 1 /j-/ , class 2 /wá-/ , class 3 /fú-/ , classes 4,9 /ì-/ , class 5 /lí-/ , classes 6,16 /há-/ , class 7 /kí-/ , class 8 /jí-/ , class 10 /tsí-/ , class 11 /lú-/ , class 14 /wú-/ , classes 15,17 /kú-/ . So classes 1,4,9 have L prefixes, all the others are H. These stems can be classified according to their tonal behaviour as follows: /-RándàRù/ 'six' always has an underlying H on the first stem syllable whatever the tone of the prefix, e.g.,

- (11) a. cl.2 /wá:-ndú wá-RándàRù/ → [wandu waRándáRu] 'six people'
 b. cl.4 /m-èdà ì-RándàRù/ → [meda IRandáRu] 'six rivers'

The other numerals (/ -mú/ 'one', / -wí/ 'two', / -RÁRÙ/ 'three', / -:ná/ 'four', / -tánù/ 'five'), the demonstrative / -lyá/ 'that', and /ngí/ 'other exhibit tonal polarity. If the class prefix preceding the stem carries an underlying L (i.e., in classes 1,4,9), then the stem itself will be H. If the underlying tone of the prefix is H (as in the other classes), then the stem will be low. Examples:

- (32) a. cl.1 / ñ-ndù ù-mú/ →
 [mndu umũ]
 'one person'
- b. cl.3 / ñ-Rì fú-mú/ →
 / ñRì fúmù/ →
 [mRì fumũ]
 'one homestead'
- c. cl.4 / ñ-Rì ì-wí/ →
 [mRì iβĩ]
 'two homesteads'
- d. cl.2 / wà-ndù wá-wí/ →
 / wàndù wáwì/ →
 [wandu wáβĩ]
 'two people'
- e. cl.9 / Ñ-bùrù ì-ngí/ →
 [mburú ɪngĩ]
 'another goat'
- f. cl.10 / Ñ-bùrù tsí-ngí/ →
 / mbùrù tsíngì/ →
 [mburú tsíngĩ]
 'other goats'
- g. cl.4 / ñ-èdà ì-:ná/ →
 [meda inǎ]
 'four rivers'
- h. cl.2 / wà-ánà wá-:ná/ →
 / wǎnà wǎnà/ →
 [waná wána]
 'four children'

- i. cl.1 /m-ákà ì-RÁRÙ/ →
 [maká iRaRÙ]
 'three years'
- j. cl.2 /wà-hènù wá-RÁRÙ/ →
 /wàhènù wÁRÁRù/ →
 [wahenu waRÁRu]
 'three strangers'
- k. cl.4 /m-érì ì-tánù/ →
 [merí itanù]
 'five months'
- l. cl.10 /Ñ-gùwè/tsí-tánù/ →
 /ngùwè tsítànù/ →
 [ngùʒe tsítánu]
 'five pigs'

Tonal polarity is also to be found with verb stems (cf. 3.4.7. below) and also applies to the locative suffix /-ini/, and to the shorter demonstrative series (not dealt with here). From the situation obtaining in verb stems it is best to assume that the underlying tone of the stems is H, which turns to L after a H prefix (rather than a basic L which is raised after a L prefix).

The possessives (/ -ako/ 'my', / -apfo/ 'your (sg.)', / -ake/ 'his, her', / -adu/ 'our', / -anu/ 'your (pl.)', / -awo/ 'their' (cf. Raum [1964:80-81] table), and / -inga/ 'how many', offer a variant of this tonal polarity rule, which in their case might be better known as "tone reversal." Depending on the tone of the class prefix, they vary between -CVCV̄ (cl.1,4,9), and -CVCV̄ (all other classes), e.g.,

- (33) a. cl.1 /m-ánà ù-àké/ →
 /mǎnà òké/ →
 [maná okě]
 'his child'
- b. cl.2 /wà-ánà wá-àké/ →
 /wǎnà wákè/ →
 [waná wakê]
 'his children'

- c. cl.3 /m-Rì fú-ànú/ →
 /mRì fónù/ →
 [mRì fonũ]
 'your homestead'
- d. cl.4 /m-Rì ì-ànú/ →
 /mRì yànú/ →
 [mRì yanũ]
 'your homesteads'
- e. cl.16 /ní hà::ndù há-ìngá ò-ìé-mà-f-ìk-à/ →
 /ní hàndù héngá òìéměfìkà/ →
 [nyì hándu héngá oìeměfìka]
 'how many places have you already been to?'
- f. cl.4 /ní m-Rì ì-ìngá ò-ìé-mà-f-ìk-à/ →
 /ní mRì ìngá òìéměfìkà/ →
 [nyì mRì ìngá oìeměfìka]
 'how many homesteads have you already been to?'

Although the underlying form of /-ose/ 'all' was given in (4) above as /-òsé/, for the sake of simplification, this is probably incorrect. The surface forms of classes 1,4,9 are identical to the other classes, so

- (34) a. cl.2 [wandu wósě] 'all people'
 b. cl.4 [mRì yósě] 'all homesteads'

Since the underlying tone of the class markers /wá-/ and /ì-/ are known to be different, the high tone must be part of the stem, and we are thus led to the probable solution /-ò:só/ → /-òsé/ → [...ósě]. The lengthening of the vowel /-o-/ could be attributed to disappearing nasal (cf. the PB form ^a-o:ŋ). Note that there is no tonal polarity here.

3.4. Verbs. Verbs have the structure

- (35) (ní) + class + tense + (object) + stem + tense
 person

We use a system of referring to tense similar to that devised by Whiteley [1960], that is, of using "tense" to refer to both tense and aspect, of regarding tense in this sense as consisting of a pre- and post-stem morpheme.

and of giving the pre-stem morpheme a number and the post-stem a letter, so that any "tense" will be referred to by both number and letter, e.g., A1, A2, B3, etc. Post-stem morphemes, for the purposes of this study, are /-a/ (A: neutral), /-e/ (B: subjunctive), /-ie/ (C: perfective), and /-i, -e/ (D), which latter needs some explanation. There are a number of defective verbs whose post-stem vowel is never /-a/, but either /-i/ or /-e/, e.g., /wóde / 'have', presumably connected to /-wád-/ 'have', or /-íci/ 'know'. In addition, there are some regular verbs, which have forms ending in these vowels, forms which in general have perfective or stative meaning, but not always, e.g. [njíwón] 'I see' (from [íwonâ] 'to see'). Raum [1964:141] feels that such forms are simply allomorphs of /-ie/ but since we are not sure about the semantics nor particularly the phonology of such a relationship, we have preferred to treat them separately. In any case, both /-ie/ and /-i, -e/ can be used with the same verb with different meanings.

Pre-stem morphemes are more numerous and the main ones are listed in 3.4.4. below. We have omitted a few less common markers, and it should be mentioned that these pre-stem morphemes can be combined in a bewildering variety of ways, up to four in a sequence (cf. Raum [1964:116-45]). Actually, Raum gives about 70 different forms of which only ten are characterised by a single morpheme, the others having two or more.

3.4.1. /-la-/ negative marker. Not all these morphemes have the same status, however. For example, the secondary negative marker /-la-/ can never be used by itself and can only be the initial morpheme in the sequence, immediately following the SM. The consecutive tense marker /-ka/, which cannot be used in the negative, is never preceded by another tense marker. The past tense markers /-a-/ and /-ie-/ are never preceded by any tense marker other than /-la-/, etc.

For each tense, then, we will adopt the following descriptive conventions: a capital letter (A,B,C,D) indicates the suffixes /-a/, /-e/, /-ie/, /-i, -e/ respectively. A numeral indicates a given pre-stem marker (see list below). Complex tense markers are indicated by a combination of numerals (e.g. A 3+10, etc.). For each tense marker there exist three possible theoretical forms, as indicated by the small letters:

(36) a. /ní-SM-TM-stem-suffix/

- b. /SM-TM-stem-suffix/¹³
 c. /SM-la-TM-stem-suffix/

Form (36c) appears mainly in secondary negatives which will not be dealt with here except in the case of tenses which do not have a primary negative.

Primary negatives consist of form (36b) accompanied in sentence final position by /pfó/, or sometimes /ní/, e.g.,

(37) [njiléhúRa maRuhu pfó] or [njiléhúRa maRuhu nyí] 'I didn't buy bananas

In other Chaga dialects, additional negative markers exist beside some forms of /pfó/¹⁴.

3.4.2. /ní/ stabiliser. The form /ní/, which is phonologically high, is often referred to as a "stabiliser". Its appearance varies from dialect to dialect in Chaga. In OM it seldom cooccurs with negatives, and is usually, although not always, present in positive tenses. It carries a strong sense of affirmation. It is almost always realised before a vowel (2sg. no-, 3sg. na-), but less often before consonants (cf. 2.2.1.).

3.4.3. Person/class markers (SM). SM's in OM are not distinguished from each other tonally nor do they have a basic tone. In any one tense, therefore, they all behave identically. They are /nji-/ 'I', /o-/ 'you (sg.)', /a-/ '3sg.', /lu-/ 'we', /m-/ 'you (pl.)', /wa-/ '3pl.', the rest being segmentally identical to the prefixes of 3.3.¹⁵

3.4.4. Pre-stem tense markers. The TM which can be used by themselves are the following (with their numerical references): /-g-/ 1, /-(i)-/ 2, /-g-/ 3, /-lé-/ 4, /-wè-/ 5, /-eci-/ 6, /-è-/ 7, /-ké-/ 8, /-kà-/ 9¹⁶. The only other morpheme we will deal with is /-mà-/ 10, which is not found by itself but frequently occurs in combination.

¹³Note that the difference between (36a) and (36b) is not just the presence or absence of /ní/, but also the tone of the SM as well as of the suffix in certain cases.

¹⁴See Nurse and Philippson [forthcoming].

¹⁵A few tenses have a slightly different set of prefixes. They are discussed under each individual tense.

¹⁶Those morphemes not marked for tone exhibit tone reversal.

The justification for considering /-eci-/ as a single morpheme and not as /e + ci/ is primarily tonal, as will be seen below.

3.4.5. Object markers. These are segmentally the same as the SMS of 3.4.3 except /-kù-/ '2sg.', /-m-/ '3sg', plus /-kú-/ 'reflexive'. /-njì-/ , /kù-/ , /-m-/ are L, all the others high.

3.4.6. Verb stems. Verb stems may of course be mono- or poly-syllabic. Monosyllabic stems are either L or H phonologically, e.g.,

(37)	High		Low
	/-káp-/	'hit'	/-hùR-/ 'buy'
	/-dém-/	'cultivate'	/-hènd/ 'go'
	/-Rúnd-/	'work'	/-sèk-/ 'laugh'

A few stems have an underlying long vowel, e.g.,

(38)	/-wâh-/	'kill',	/-kôy-/	'meet', etc.
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Polysyllables behave in a similar way--however many syllables a stem has, it is only the first which is distinctive in that it may be H or L, the following syllables being all L. This is true whether the stem consists of root + extension or whether it is a real polysyllable, e.g.,

(39)	High		Low
	/-íc-ùR-/	'fill'	/-lèm-ì-/ 'be heavy'
	/-káp-àn-/	'fight'	/-hòR-òk-/ 'stand'
	/-térèw-/	'beg'	/-hàdìm-/ 'forget'

3.4.7. Tonal polarity. It may be seen in 3.3.4 that several of the pre-stem TMs end in a H. Similarly most of the object markers listed in 3.4.5 are H. When H's from either of these two series immediately precede a H in the first syllable of the verb stem, then the latter is realised as L. That is, the H-L contrast in verb stems is neutralised after a preceding H, e.g.,

(40)	a. L	/ní-njì-lé-hùR-à/	→	[njílehúRa]	'I bought'
	b. H	/ní-njì-lé-káp-à/	→		
		/ní njìlékàpà/	→		
		[njílekápa]			
		'I hit'			

When the tense or object marker is L it does not affect what follows, e.g.,

- (41) /ní-njì-lé-wá-káp-à/ →
 /ní njìléwákàpà/ →
 [njíléwákápa]
 'I hit them'
- (42) /ní-njì-lé-kù-káp-à/ →
 [njílékúkápà]
 'I hit you'

This phenomenon is clearly related to that of sec. 3.3. Descriptions of nes by languages, e.g., Whiteley's [1960, 1962] work on Kamba and Gusii, employe the notion of Imposed Pattern to explain such tense patterns which were not the single sum of individual lexical tones, but in OM this proves unnecessary as neutralisation of verb tones can be explained by a general phonological rule.

3.5. Tenses. Following are the most important individual tenses.

3.5.1. Tense A2. The *present continuous, general present* tense consist of a positive form:

- (43) A2a /ní-SM-(ì)- $\left\{ \begin{array}{l} (í)-stém- \\ (ì)-stém- \end{array} \right\}$ à/
 a. /ní-njì-(ì)-(í)-hùR-à mà-Rùhú/ →
 [njíhúRa maRuhú]
 'I am buying bananas'
 b. /ní-à-(ì)-(ì)-káp-à ñ-ánà/ →
 [nákápá manà]
 'he is hitting the child'

and a negative form:

- (44) A2b /SM-(í)- $\left\{ \begin{array}{l} (í)-stém \\ (ì)-stém \end{array} \right\}$ à/
 a. /njí-(í)-(í)-hùR-à mà-Rùhú pfó/ →
 [njíhúRa maRuhu pfó]
 'I am not buying bananas'
 b. /á-(í)-(ì)-káp-à ñ-ánà pfó/ →
 [ákápá maná pfó]
 'he is not hitting the child'

The surface forms of this tense have changed since Raum's time since he gives them as *njiikapa*, *aiihuRa*, etc. (cf. Raum [1964:116]). The neighbouring, very similar, *Vunjo* dialect retains the old forms. Even in OM, permuted forms of the same tense still have the TM /-i-/, e.g.,

(15) [nyi íkapá njií] 'it is hitting I am'

Compare the analysis presented in 2.2.4. above, which applies here also. The second /-i-/ is of course the infinitive prefix which explains its change of tone, according to the *mhenu-rule* (3.1.2.).

3.5.2. Tense A3. This tense, the *recent past*, consists of the positive form:

(16) A3a /ní-SM-á-stem-á/
 /ní-lù-á-hùR-á mà-Rùhú/ →
 /ní lǒhùRá màRùhú/ →
 [lǒhùRá màRuhú]
 'we bought bananas (today)'

and the negative:

(17) A3b /SM-á-stem-à/
 /lú-á-hùR-à mà-Rùhú pfó/ →
 [lòhùRá màRuhu pfó]
 'we didn't buy bananas (today)'

3.5.3. Tense A4. The *non-recent past* has both a positive form:

(18) A4a /ní-SM-lé-stem-à/
 /í-cò ní-lù-lé-hènd-à má-càmì/ →
 [icó lúlehénda macámì]
 'the day before yesterday we went to Machame'

and a negative:

(19) A4b /SM-lé-stem-à/
 /njií-lé-m-kôy-à kàní kú-ákè pfó/ →
 [njiilémkóya kaní koké pfó]
 'I didn't find him at home'

3.5.4. Tense A5. This tense, the *past continuous*, also consists of a positive form:

- (50) A5a /ní-SM-wè-stem-à/
 /l-pfúwè ní-lì-wè-kùmb-à má-hò/ →
 [lɪpɸúbé lɪlɪβəkumba mahò]
 'the baboon was throwing stones'

and a negative:

- (51) A5b /SM-wè-stem-à/
 /njí-wè-hùR-à mà-Rùhú pfó/ →
 [ɲjɪbéhuRa maRuhu pfó]
 'I wasn't buying bananas'

3.5.5. Tense A6. This is the *future*; it has both a positive form:

- (52) A6a /ní-SM-ècí-stem-à/
 /Ñ-gámá ní-ò-ècí-hùR-à mà-Rùhú/ →
 [ɲgama nócihúRa maRuhú]
 'will you buy bananas tomorrow?'

and a negative:

- (53) A6b /SM-éçl-stem -à/
 /njí-éçl-ñ-wí-à pfó/ →
 [ɲjɛçɪmbiá pfó]
 'I won't tell him'

We write /-eci-/ as a single morpheme to avoid giving the impression that the first syllable is identical to the /-è-/ morpheme (see A7 below). As can be seen from above, /-eci-/ displays tonal assimilation to the tone of the SM, which is never the case with /-è-/ (cf. for instance tense A7+8 below).

3.5.6. Tense A7. This tense, the *imperfective*, is found only in dependent clauses. This is one of the few tenses characterised by a slightly different SM series: the 2sg. is /ku-/ instead of /o-/, and 3sg. /ka-/ instead of /a-/. Tense A7a does not exist. But (54) is attested:

- (54) A7b /SM-è-stem-à/
 /ní-njì-lé-kù-wón-à kù-è-déd-à nà wà:ndù wá-wí/ →
 /ní njìlékùwónà kòdédà nà wàndù wáwì/ →
 [ɲjɪlékùwóná kódedá na wàndù wáwì]
 'I saw you talking to two people'

3.5.7. Tense A9. The *past consecutive/conditional* tense is found only in *dependent clauses*. This tense has an irregular combination of SM and TM in the three singular forms: 1sg. /ñkà-/ instead of */njika-/, 2sg. /kò-/ and not */oka-/ or */kuka-/, and 3sg. /kà-/, not */aka-/ or */kaka-/. Furthermore, these three SMs do not carry a H, whereas all the other SMs do in this tense. Tense A9a does not exist, but A9b does:

- (55) A9b /SM̂ (except 1/2/3sg. SM̂)-kà-stem-à/
 a. /m̂:-ndù à-kà-hènd-à ñ-ùkà/ →
 /m̂ndù kàhèndà ñùkà/ →
 [m̂ndu kahenda núka]
 '...(and) a man went to the plains' or 'if a man goes to the plains'
 b. /mà-pfúwè há-kà-kú-sàny-à hà:-ndò há-mú/ →
 [mapfupé hakákusánya hando hamú]
 'and the baboons got together in one place'

3.5.8. Tense A7+8. This is the *habitual* and it consists of two forms: the first, the positive:

- (56) A7+8a /ní-SM̂-è-ké-stem-à/
 /mà-kúngà ní-hà-è-ké-kà-à m-Ríngà-lní/ →
 /màkúngà ní hékékàà mRíngèní/ →
 [makungá hékekáa mRíngény]
 'eels live in water'

and the second, negative:

- (57) A7+8b /SM̂-è-ké-stem-à/
 /ʃì-lèhé ʃí-è-ké-í-d-à kù-fúl nà Ñ-ùmbá pfó/ →
 /ʃìlèhé ʃékéídà kùfúl nà ñmbá pfó/ →
 [ʃìlehe ʃékeída kufúl na mba pfó]
 'birds don't usually pass near the house'

3.5.9. Tense A3+10. This tense, a *perfective*, presents several difficulties. It is the only tense in which form (a) is *not* normally used to express statements, but only questions. Furthermore there are *two* (b) forms (here called (b') and (b'')), distinguished by the tone of the suffix. Thirdly, the (a) and the (b'') forms, ending in /-a/, seem to regularly(?) lower the H of H stems, so that there is no distinction in form between H and L stems. Since

these are the only forms of their kind it is hazardous to generalise but *nyt* a supplementary rule should be introduced stating that a H verbal suffix causes a lowering of a preceding H stem—all the other tenses having a H suffix also have a H pre-stem morpheme which causes a lowering of the stem to *ie* anyway, so it is impossible to check:

- (58) A3+10a /ní-SÑ-á-mà- $\left\{ \begin{array}{l} \text{í-stém-} \\ \text{ì-stém-} \end{array} \right\} \acute{a}/$
 /pàpá ní-à-á-mà-ì-íñj-á Ñ-gùwè/ →
 /pàpá ní àmèíñj á ngùwè/ →
 [papá náméíñja ngúwè]
 'has Father slaughtered a goat?'
- (59) A3+10b' /SM-á-mà- $\left\{ \begin{array}{l} \text{í-stém-} \\ \text{ì-stém-} \end{array} \right\} \grave{a}/$
 /á-á-mà-í-hènd-à ì-èdà-ìnf/ →
 /ámèhèndà mèdènf/ →
 [améhènda medenyí]
 'he has gone to the river'
- (60) A3+10b'' /SM-á-mà- $\left\{ \begin{array}{l} \text{í-stém-} \\ \text{ì-stém-} \end{array} \right\} \acute{a}/$
 /Ñ-pfúò¹⁷ í-á-mà-ì-káp-á pfó/ →
 /ñpfúò yámèkápá pfó/ →
 [mpfúò yamékapa pfó]
 'it hasn't rained yet'

3.5.10. Tense A4+10. The *past perfective* has only:

- (61) A4+10a /ní-SÑ-lé-mà- $\left\{ \begin{array}{l} \text{í-stém-} \\ \text{ì-stém-} \end{array} \right\} \grave{a}/$
 /ní-ò-lé-mà-í-íìk-à má-càmì/ →
 /ní òléméíìkà macàmì/ →
 [nyóleméíìka macámì]
 'have you ever been to Machame?'

The negative counterpart, A4+10b, does not exist.

¹⁷Also heard as [mvuo].

3.5.11. Tense B1. The *subjunctive*, consists of a form which only occurs in dependent clauses:

- (62) B1a /ní-SM-stem-è/
 /ní-njì-kúnd-ì ní-ò-hùR-è mà-Rùhú/ →
 [njíkundí nóhuRe maRuhú]
 'I want you to buy bananas'

and a form used, for example, to make requests:

- (63) B1b
 /njí-hènd-è sé/ → [njihénde sě] 'am I to go again?'

and a negative with the suffix /-e/ displaying tone reversal:

- (64) B1c /SM-là- $\left\{ \begin{array}{l} \text{stém-è} \\ \text{stém-é} \end{array} \right\}$ /
 a. /ó-là-hùR-é mà-Rùhú ìnú/ →
 [oláhuRe máRuhu ínu]
 'don't buy bananas today'
 b. /ó-là-Rúnd-è kù-dí sé pfó/ →
 [oláRundé kudi sé pfó]
 'don't work like this again'

3.5.12. Tense B4+10. This tense is the *negative* of A4+10; it also attests tone reversal:

- (65) B4+10b /SM-lé-má- $\left\{ \begin{array}{l} \text{-stém-é} \\ \text{-stém-è} \end{array} \right\}$ /
 a. /njí-lé-mà-í-íìk-é ìpfó pfó/ →
 /njíléméíìké ìpfó pfó/ →
 [njíléméíìke ípfo pfó]
 'I haven't been there yet'
 b. /njí-lé-mà-ì-wón-è ì:-ndù ì-wícò à-dí pfó/ →
 /njíléwèwónè ìndù ìbícò àdí pfó/ →
 [njíléwèwoné mndu mbicó adi pfó]
 'I have never seen such a bad man'

3.5.13. Tense C1. This tense, a *perfective* (cf. 3.5.9.), has a suffix /-fè/ in OM/Chaga, which, as in most other Bantu languages in E. Africa, has many allomorphs; these are not presented here:

- (66) Cl_a /ní-SM-stem-fè/
 /Ñ-mbè ní-ì-já-fè mà-hácè há-wí/ →
 /m̀mbè ní \j́á-yè màhácè háwì/ →
 [m̀be fjaé mahacé haβì]
 'the cow has given birth to two calves'

This tense also attests a negative:

- (67) Cl_b /SM-stem-fè/
 /á-hùR-fè mà-Rùhú pfó/ →
 [ahúRíé maRuhu pfó]
 'he hasn't bought bananas'

3.5.14. Tense D1. For the meaning of this tense cf. 3.4. above. Both positive and negative forms exist:

- (68) D1_a /ní-SM-stem-ì/
 /ní-njì-kúnd-ì Ñ-yàmà ì-à Ñ-bùrù m-nú/ →
 [njìkundí nyama ya mburú mnú]
 'I like goat meat very much'
- (69) D1_b /SM-stem-í/
 /njí-wón-í kì-wánjà kí-ákè mà-térù ní/ →
 /njfwóní k̀wánjà kyákè màtérù ní/ →
 [njwóní k̀wanjá kyaké materú ní]
 'I don't see Materu's house plot'

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APPENDIX 1--Tone patterns of monosyllabic noun stems¹⁸

HIGH		LOW	
ˈmá/	'wife'	class 1	/mːndù/ 'person'
ˈdí/	'medicine'	class 3	/mːrì/ 'root'
ˈdó/	'head'		/mːRì/ 'homestead'
ˈfí/	'arrow'		/mːfà/ 'thorn'
ˈsó/	'flour'		
ˈfú/	'ashes'	class 5	/hò/ 'stone'
ˈRá/	'leaf'		/ì:ndò/ 'animal'
Rú/	'voice'		
ˈmá/	'spittle'	class 6	
ˈdí/	'stool, chair'	class 7	/kì:ndò/ 'thing'
ˈkú/	'thousand'		/kìpfì/ 'wasp'
ˈló/	'night'		
ˈdá/	'war'	class 8	
ˈdá/	'louse'	class 9	/nzì/ 'fly'
ˈdí/	'knee'		
ˈkú/	'firewood'	class 11	
ˈrá/	'side'		
ˈwú/	'bow'	class 14	
ˈwú/	'old age'		
ˈdú/	'ear'	class 15	
		class 16	/hà:ndò/ 'place'
		class 17	/kù:ndù/ 'place'

¹⁸As these tables represent an intermediate stage of derivation, they will be seen to contain certain elements (e.g. /z, j, / not mentioned in sec. 1.

APPENDIX 2--Tone patterns of disyllabic noun stems (first syllable high)

<u>HIGH-HIGH</u>		<u>HIGH-LOW</u>	
		class 1	/mǎnà/ 'child'
			/ndém/ 'farmer'
			/mǐmb/ 'singer'
			/mǐw/ 'thief'
			/mǐfsl/ 'cowherd'
			/mRúnd/ 'worker'
			/msácà/ 'brother'
			/msúngù/ 'European'
		class 2	/wàRúmù/ 'spirits of dead'
		class 3	/mǎkà/ 'year'
			/mbáR/ 'sunlight'
			/mór/ 'moon'
			/mhás/ 'tail'
			/mkónù/ 'day'
			/mńíngà/ 'corpse'
			/mǒdò/ 'fire'
			/mńímà/ 'soul'
			/mRásà/ 'boundary'
			/mRíngà/ 'water'
			/msáR/ 'slope'
			/mńsír/ 'soot'
			/mńsù/ (from /m-útsù/) 'smoke'
			/mńsúdù/ 'forest'
/lǐfúmpfú/	'mountain'	class 5	/lǐdédò/ 'word'
/lǐkándá/	'bark'		/démà/ 'field'
/lǐkúmbí/	'hoe'		/dǐfà/ 'liver'
			/lǐfúò/ 'bone'
			/kǎ/ 'roof'
			/kómbè/ 'shoulder'
			/lǐkúml/ 'ten'
			/lǐkúngù/ 'fish'
			/lǐpfúmù/ 'spear'
			/lǐpfúwè/ 'baboon'

HIGH-HIGHHIGH-LOW

			/ḷpúḡà/	'bull'
			/ḷRámbà/	'tree leaf'
			/ríkò/	'hearth'
			/rínà/	'name'
			/rísò/	'eye'
			/rúwà/	'God'
			/ìtángì/	'drum'
			/ìwéè/	'breast'
		class 6	/màfúdà/	'oil'
			/màkàà/	'charcoal'
			/màrúwà/	'milk'
/kyélyá/	'food'	class 7	/kìfmbò/	'song'
			/kìlínjè/	'shadow'
			/kìwàrì/	'clan'
			/kyádù/	'shoe'
/mbéú/	'seed'	class 9	/mbúrù/	'goat'
/ngúkú/	'chicken'		/mpfúò/	'rain'
			/ngímà/	'monkey'
			/ngóò/	'heart'
			/ngúRù/	'tortoise'
			/njókà/	'snake'
			/njúkì/	'bee'
			/nzíngò/	'neck'
			/sámù/	'blood'
			/sónù/	'shame'
			/térì/	'earth'
/òdéndé/	'leg'	class 11	/òcàà/	'fingernail'
			/òcúl/	'hair'
			/òlúmi/	'tongue'
			/òmbè/ (from /òémbè/)	'horn'
			/òrúsù/	'string'
			/owérì/	'feather'
			/òwíni/	'speed'
			/òwókò/	'arm'
		class 14	/wúkì/ (from /wù-úkì/)	'honey'

APPENDIX 3--Tone patterns of disyllabic noun stems (first syllable low)

<u>LOW-LOW</u>			<u>LOW-HIGH</u>	
/m̀cìlì/	'subchief'	class 1	/m̀màngf/	'chief'
/m̀èrì/	'nurse'		/m̀pòrǎ/	'young woman'
/m̀hènù/	'stranger'		/m̀sòRó/	'(young) man'
/m̀sùRì/	'noble'		/p̀ápǎ/	'father'
/m̀èdà/	'river'	class 3	/m̀òdú/	'beehive'
/m̀fìrì/	'day (24 hours)'		/m̀òndú/	'(law) case'
/m̀hàndà/	'burden'		/m̀rèwǎ/	'banana rope'
/m̀hómà/	'cow'			
/m̀hòngò/	'back'			
/m̀:ndà/	'garden'			
/m̀òhò/	'stem of banana tree'			
/m̀òngò/	'door'			
/m̀rìkè/	'heat'			
/l̀èm̀bè/	'mango'	class 5	/l̀kìdí/	'tree'
/ìhà̀nà/	'hundred'		/ìp̀úcf/	'cloud'
/ìhè̀hò/	'tooth'		/r̀ìná/	'hole'
/t̀èm̀ò/	'game'		/ìr̀úmú/	'leopard'
			/ì̀)R̀ùhú/	'banana'
			/ì̀R̀ùngú/	'hole'
			/ì̀sòkǎ/	'ax'
/k̀ìk̀ùmbì/	'granary'	class 7	/k̀ìhà̀mbá/	'field'
/k̀ìm̀ìnyò/	'finger'		/k̀ìhòwò//k̀ìwòhó/	'rope'
/k̀ìt̀àR̀à/	'bed'		/k̀ìlè̀hé/	'bird'
			/k̀ìǹùngú/	'pot'
			/k̀ìR̀úmí/	'fame'
			/kỳòǰfú/	'knife'
/mb̀ùò/	'nose'	class 9	/mb̀òhó/	'buffalo'
/m̀mbè/ (from /N-ùmbè/)	'cattle'		/m̀mbá/ (from /N-ùmbá/)	'house'
/nd̀ùwà/	'pool'		/nd̀èú/	'stomach'
/ng̀àwò/	'shield'		/ng̀àmǎ/	'tomorrow'
/ng̀òl/	'rope'		/nj̀ònf/	'skin'
/ng̀ùò/	'clothes'		/ǹùmǎ/	'behind'
/ng̀ùwè/	'pig'		/t̀ùmó/	'market'

LOW-LOW

/njàà/	'hunger'
/njàmà/	'chief's advisor'
/njìà/	'path'
/njòfù/	'elephant'
/hndà/	(from /N-ìndà/)'banana tree'
/nùkà/	'steppe'
/nyàmà/	'meat'
/nzìhè/	'locust'
/òRòò/	'throat'
/wàrì/	'beer'

LOW-HIGH

class 11	/òrùkà/	'country'
class 14	/wùkòwù/	'yesterday'

APPENDIX 4--Verb stems

LOW

/-àmbuya/	'look at'
/-àtsa/	'light fire'
/-cà/	'come'
/-hàdima/	'forget'
/-hàmba/	'say'
/-hènda/	'go'
/-hèja/	'try'
/-hòRoka/	'stand'
/-hùRa/	'buy'
/-ìhuda/	'be satiated'
/-kùmba/	'throw, sell'
/-lìà/	'cry'
/-mànya/	'know'
/-màa/	'finish'
/-màrisa/	'finish'
/-pfùla/	'look for'
/-rùnduka/	'fly'
/-Rìka/	'hide'
/-sànja/	'wash' (trans.)
/-sèka/	'laugh'

HIGH

/-ádanya/	'listen'
/-ápfamia/	'smell' (trans.)
/-dáhia/	'draw water'
/-dámia/	'sit'
/-déda/	'talk'
/-déka/	'get lost'
/-déma/	'cultivate'
/-díca/	'run'
/-dúma/	'send'
/-dúo/	'take away'
/-dúmbuo/	'cut'
/-énde/	'bring'
/-fána/	'resemble'
/-fíhira/	'cry'
/-fóya/	'be numerous'
/-fúna/	'drive away, chase'
/-fúnja/	'break'
/-fco/	'hear'
/-fcuRa/	'fill'
/-fda/	'pass'

Appendix 4 (cont.)

LOW

/-ʃɪka/	'arrive'
/-tèma/	'play'

HIGH

/-kúšana/	'gather (of crowd)'
/-kúsaRa/	'think'
/-láa/	'sleep'
/-lása/	'shoot'
/-lísa/	'herd'
/-lódia/	'dream'
/-lóRa/	'show'
/-lúo/	'be sick'
/-lyá/	'eat'
/-mánya/	'cut'
/-nyó/	'drink'
/-ŋána/	'be big'
/-óloka/	'fall'
/-óŋgoya/	'talk'
/-páRa/	'break in pieces'
/-pfá/	'die'
/-púsuo/	'pour'
/-rúma/	'insult'
/-Ráa/	'wear'
/-sámbuo/	'harvest'
/-sfa/	'finish' (intrans.)
/-súma/	'dig'

HIGH

/-ídima/	'be able to'
/-íla/	'be white'
/-fmba/	'sing'
/-fwa/	'steal'
/-káanga/	'fly, roast'
/-kápa/	'hit'
/-kóRa/	'cook'
/-kúdiKa/	'carry'
/-kúo/	'get big'
/-kúre/	'come out'

HIGH

/-ʃfna/	'dance'
/-ʃfinga/	'close'
/-táa/	'pay'
/-térewa/	'ask for'
/-úma/	'dry'
/-úmba/	'make pots'
/-wáda/	'get'
/-wáwa/	'hurt'
/-wésa/	'ask'
/-wífa/	'tell'
/-wíka/	'put'
/-wóna/	'see'
/-wúka/	'come out'
/-wúfa/	'take out'
/-wúya/	'return' (intrans.)

SOME CONSIDERATIONS ON THE NEW LEXEME BEAU IN LINGALA

Salikoko S. Mufwene
 The University of Chicago

Discussions of borrowing have tended to concentrate on phonological adaptations of the borrowed terms and/or semantic displacements of native terms effected by the borrowing. Little studied has been the question of the place of borrowed items in linguistic competence, defined as "the ability of a speaker to pair sentences with presuppositions relative to which they are well-formed or grammatical." The lexical item *beau* in Lingala is identified as probably having come from French *beau-frère* but takes on a function in Lingala identifiable by the features of AFFINITY, COLLATERALITY, and MALE. A full understanding of this term must also take into consideration its vocative or referential use and the degree of formality or joviality to be indicated between user and referent.

General Observations

Studying a new word, whether a borrowing or a coinage from the native lexical wealth of a given language, is actually nothing new in linguistic literature.¹ A look in the bibliography of such a classical work as Bloomfield's *Language* reveals to us that he was inspired by the works of nineteenth century scholars, including G. Hempl, R. Lenz, P. Grade, H. Schuchardt, A. Darmsteter, and H. Paul. Bloomfield's devotion of three chapters of his book to a survey of borrowings attests to how much this topic was of interest at his time.

However, we will note that up to the fifties and sixties studying borrowings essentially consisted in describing how much the morphology of the

¹We should like to express our most sincere gratitude to our friend J. Ndoma (native of Kinshasa), who with his wife (also native of Kinshasa) enthusiastically accepted to check our data and gave us advantage of his linguistic knowledge in discussing the drafts of the present paper. We cannot fail to heartily thank Professor Kostas Kazazis for also reading the same drafts, kindly raising questions of interest and providing us with some useful pieces of advice. Needless to add we assume alone full responsibility for all the failures of the present analysis.

item has changed or remained the same, and in stating how much the meaning of the item has shifted (i.e., narrowed, broadened or was absolutely displaced). Associated with such names as Weinreich [1953] and Haugen [1953] is *inter alia* the interest in the analysis of the semantic and stylistic influence of the loanword on the native synonym if there is any, and/or of the particular stylistic and/or dialectal function(s) of the borrowed item itself. Even though Haugen [1953:9] states in "The Bilingual Dilemma" the following, it is important to note that he indeed does not still fully account for the actual behavior of the loanword in use in the host language.

"Languages differ not only in the specific terms they use for specific objects and actions; they differ even more in the kind of linguistic and social contexts in which these terms can be used. Even after one has mastered perfectly the grammatical situations, there are rigid limitations on the use of the terms to describe classes of objects."

This failure in the literature can easily be correlated with an established linguistic belief which up to now has not fully disappeared. In fact linguistic competence has been identified with the speaker's knowledge of the principles enabling him to produce formally "grammatical" sentences regardless of the communicative situation (with respect to the particular atmosphere, style of language, age and sex of speakers, and other factors characterizing the communicative event).

As hinted above, the traditional conception of linguistic competence and grammaticality, despite the reluctance of some to change attitudes, is in change. Since the late sixties, with works such as Lakoff [1971], Fillmore [1971a], Lakoff [1972], Keenan [1971], and others, such new notions as "relative grammaticality", "felicity/happiness conditions" and "presuppositions" have been in current use in linguistics. Of all we would particularly like to cite the following definition of linguistic competence by G. Lakoff [1971:330]: "the ability of a speaker to pair sentences with the presuppositions relative to which they are well-formed" or grammatical.

We actually believe that time has also come for those linguists interested in problems of language contact (the study of borrowings in the present case) to consider this extension of the notion of linguistic competence. In the present paper, the aim of which is the analysis of the borrowing *beau* in Lingala, we intend to sustain the above claim. We wish to lay more emphasis

on the actual socio-linguistic state and behavior of the loan in the host language rather than on *WHY* and *HOW* the borrowing was effected. Among the reasons for this shift of concern are: (1) the irrelevance (as we believe) of the knowledge of such details for the competence of the speaker, (2) the limitation of the scope of the paper.

Before giving those considerations we have gathered about the Lingala lexeme *béau*, we believe that a brief digression related to the linguistic and cultural situations of the subject matter as well as to some methodological specifications may be of some use.

According to Guthrie [1948], Lingala belongs to group C26. Its creolized form (LingalaC) has become one of the present *lingue franche* of Zaire,² and is spoken particularly in Kinshasa (the capital) and the surrounding area, along the whole central Zaire River (from Kinshasa to Kisangani), as well as in the whole northern part of the country. (In some other dialect of its own it is also the *lingua franca* of the army all over the country.) The dialect we will base our analysis on is the one known as Kibil, spoken essentially in Kinshasa (but also in other cities) by certain youth whose age varies from puberty to the late twenties or early thirties. Besides the lexical and morphosyntactic characteristics it shares with the other *lingue franche* of Zaire (we discuss them in the next paragraph), Kibil may be characterized by (1) more borrowings, (2) a lot of "expressive switching of codes", (3) its unstable lexical novelties, and (4) its quasi-solely oral form.

Like the other *lingue franche* of Zaire, LingalaC morphosyntax is known to be simplified in comparison with less widely used Bantu languages and its vocabulary is of various national and foreign origin. Its contact with Western civilizations and languages has its obvious linguistic marks in the flux of such words as *mesa*, *sabátu*, *mútuka*, *lopitálo*, *radiô/ladiô*, *perezidá/pelezidá...*³ some of which have been in use since the precolonial period

²The other *lingue franche* being Swahili (Bantu A. 42) Kituba (H 16) and Tshiluba (Bantu L 30).

³They are from *mean*, respectively: Portuguese *mesa* 'table', *sabato* 'shoe', English *motor car*, French *hôpital* 'hospital', *radio* [Radjo] 'radio', *président* [pRezidã] 'president'.

probably, some others (like the last item) since not long ago. Some of the words parallel African contact with new cultural realities, whereas some of the borrowings are harder to explain in terms of cultural novelties.

This, we suspect, may be the case of the new lexeme beau (as of many other such words as místa, másta, sheríf, guéter? ⁴) to which some of the rather conservative elderly speakers have not unfrequently reacted with some contempt. Beau, as we will discuss it below, is essentially a word of Kibil (though it may be heard in the standard form of LingalaC as a case of "expressive code switching"). It is a kinship term, and is thus related to one of the most central and traditional socio-cognitive domains.

In the present study we wish to distinguish between the "referential use" of the term (by which the term is used solely to fix the referent) and the "vocative use" of a term (by which the speaker not only fixes the referent but also summons this referent as the addressee in the communicative act).

We will also use the following convention: Ɔbeau to refer to the French lexeme beau, brother to refer to the English lexeme brother, and ɓbeau to refer to the LingalaC lexeme beau. The orthography used here for the Lingala/Kibil loanwords is actually our own and we do not know of any standardized orthography of these words so far.

2. Identification of ɓBeau

It is undeniable that the socio-cognitive position and the morphophonology of ɓbeau (as for the very sounds involved as well as the CVCV syllabic structure, quite typical of LingalaC) do not lead to the conclusion that the word is a borrowing. However, the following few arguments seem to support that it actually is a borrowing.

(1) None of the written records available to us lists either this form or its kindred: Guthrie [1966] gives only the entry boklló to cover both the spouse's relative and SpPa⁵, of which only the former overlaps with the

⁴These are from English mister, master, sheriff and French guéter. They mean respectively: 'pal/person whose behavior is appropriate for a group of pubers', 'father', and 'you see?' (colloquial).

⁵We mean by "relative" non-parental member of the family. We will often use the following abbreviations, common in anthropological linguistics, to

semantic domain of p_{beau} . Blavier [1958] lists two separate entries of which bokllo covers only SpPa while monyala, equivalent with LingalaC seméki, covers spouse's relative. Guthrie [1967] enters the stems bo 'they, them', bu 'mosquito', and bu 'soil' which we find hard to relate with the kinship term beau in LingalaC.

(2) Awkwardly enough, French, with its intellectually prestigious position in Zaire as the language of the intelligentsia as well as the official language, offers five items which are (initially) identical (at least phonetically) with p_{beau} : beau [bo] 'beautiful, handsome', beau-frère (Sp-Br, SiHu), beau-fils (DaHu), beau-père (spFa), beaux-parents (SpPa).

It may not be unnecessary to note that the phonetic word [bo] is used under exactly the same felicity conditions in slangish versions of Kituba and Swahili, calling also for the same "contemptive reaction of the rather conservative elderly speakers" pointed above. Because of the coincidental prestigious position of French in Zaire and of the presence of the five lexical items noted above in this language, the hypothesis of the possibility of LingalaC, Kituba and Swahili borrowing the word from their European counterpart seems preferable to the possibility of one of them lending it to the others.

Under that hypothesis, we face the problem of determining which of the French words is the model for the loan. Let us quickly point out that with the exception of p_{beau} , all the others are kinship terms.

p_{beau} [bo], is homophonous with p_{beau} [bo], is an adjective, as in (1):

- | | | |
|-----|----------------|---------------|
| (1) | beau garçon | beau bébé |
| | 'handsome boy' | 'pretty baby' |

It is sometimes used as a substantive, as in (2) and (3), and has a special connotation which may be complimentary or ironical depending on the specific context of its use. While it is a nickname in (2), it is a surname in (3):

- | | |
|-----|--|
| (2) | Bien sûr, Monsieur le Beau y sera. |
| | 'Of course, Mr. Handsome will be there' |
| 3) | Charles le Bel était Roi de France. |
| | 'Charles le Bel (the handsome) was King of France' |

shorten our descriptions of kinship relations: Br = brother, Da = daughter, Pa = father, Hu = husband, Pa = parent, Si = sibling, So = son, Sp = spouse, Wi = wife. The first term possesses the second, e.g. SpPa = spouse's parent, DaDaHu = parent's daughter's husband.

Although this pbeau has been borrowed in Kibil, it should be pointed that:
 (a) it is *not* a kinship term; (b) it is borrowed with the article, with which it may be assumed to make one single morphophonological string / lebó / as in (4) and (5), whereas the Kibil beau / bó / is only a two-segment word.
 (c) Lbeau has the same denotative meaning as pbeau and is also endowed with the same connotations of irony and compliment in (4,5) (though situational contexts, the paralinguistic means of intonation and others, surely, contribute to the expression of these connotations); (d) as it will appear below, Lbeau and Lbeau have different sociolinguistic behaviors.

- (4) $\overbrace{\text{Ye nkufu}}$ $\overbrace{\text{lebeau!}}$ (Ironic tone)
 him above all the handsome
 'Of course, everybody knows he is Mr. Handsome himself!'
- (5) $\overbrace{\text{Tala}}$ $\overbrace{\text{lebeau!}}$
 look (Imper) the handsome
 'You really (do) look handsome + TIME!'

In such a non-native-like utterance as (6) the co-occurrence of the transferred French adjective beau with Lbeau is far from being ungrammatical:

- (6) $\overbrace{\text{Beau}}$ na $\overbrace{\text{ngái}}$ azalí $\overbrace{\text{beau}}$ té
 SpBr connec- me Mod+be handsome Neg
 SiHu tive
 'My brother-in-law is not handsome.'

With this last case we may exclude the possibility of pbeau being the model for Lbeau .

If Lbeau has been borrowed on the model of either pbeau-frère , pbeau-fils , pbeau-père or pbeaux-parents , then it is also very likely that it has undergone a truncation anterior or subsequent to the borrowing. Truncation may be asserted to be common enough in many languages. Although we have no evidence of the truncated use of the above words in Belgian or French French, we observe the following other cases anyway: *dactylographe*, *radiographie* have been currently shortened into *dactylo*, *radio*, and in English *lab*, *phone*, *specs*, *plane*, *fridge* are truncated forms from *laboratory*, *telephone*, *spectacles*, *aeroplane*, and *refrigerator*. Swahili, to mention a Bantu language, offers *sonner*, which Polomé assumes to have been truncated

from pklaxonner ⁶ (in a process, we assume, similar to the hypothesis under consideration). And in Lingala itself the following few truncated forms may be attested: $(\text{Kfm})\text{Tail} < \text{Tailleur}$, $\text{K'In} < \text{Kinshasa}$, $\text{Yaa Geo} < \text{Yayá Georges}$.

The truncation hypothesis is then not implausible, not even the possibility of its application after the borrowing in Lingala. But still we have to determine which of the four words is the model.

While pbeau-père , beau-fils and beau-parents designate lineal relations, Lbeau refers to collateral ones. Other features in Lingala kinship may also be noted. (a) Sons and parents-in-law entertain avoidance relationships and their contacts are strictly formal. These factors do not seem compatible with the jovial contexts in which Lbeau occurs. (b) Children and parents-in-law address each other as papa or mama according to whether the addressee is respectively male or female, and these terms connote both familiarity and respect rather than familiarity mixed with a mood of joviality as connoted by the use of Lbeau . (c) LBeau alternates with another truncated cognate Lbeauf under the same felicity conditions and shares with the latter the same socio-linguistic connotations, namely, it is used in (very) informal contexts and it connotes familiarity, intimacy and joviality. (d) In formal context Lbeau is replaced by not only the native term seméki but also by its other cognate beau-frère more commonly heard in the speech of French-native language multilinguals.

On account of the above it does not seem unjustified to assume that Lbeau has pbeau-frère as model.

3. Sociolinguistic Behavior of LBeau

We will hold here to the same contrastive approach used above for the identification of Lbeau . We will first compare the item to its French model and then to its Lingala (quasi-) synonyms beauf , seméki , beau-frère .

pBeau-frère covers the following kinship relations: HuBr , WiBr and

⁶This example is cited from Polomé [1968:16]. We will, however, note that there also exists in French a verb sonner 'to ring (a bell)', which shows little semantic distance from klaxonner 'to blow the horn' (automobile).

SiHu, the common semantic features of which may be +MALE, +AFFINITY, +SIBLING. It is used mostly referentially as in (7) which, in contrast with (8), implies that the speaker insists on specifying to his addressee the particular kinship relation that links him to the referent of beau-frère .

- (7) Mon beau-frère sera absent ce soir.
'My brother-in-law will be out tonight.'
- (8) Jean sera absent ce soir.
'John will be out tonight.'

Its occasional vocative use seems formal. Assuming a dimension of "social distance" (as in Gumperz [1971] quoting from Roger Brown), the English and French vocatives (9)-(11), in which (9) shows the most distance and (11) the least distance, suggest that there is not much intimacy achieved in using kinship term or title instead of the first name.

- (9) (Mon Cher) Monsieur Dupont,
'Dear Mr. Thompson:'
- (10) (Mon) Cher beau-frère,
'Dear Brother-in-law:'
- (11) (Mon) Cher Jean,
'Dear John:'

There are no constraints whatsoever in its usage with respect to the speaker's sex or age, nor with respect to the circumstantial context of its use, whether formal, humorous, and the like.

The sociolinguistic behavior of L_{beau} diverges in many respects from its model. It covers a larger conceptual domain, the enumeration of the categories of which we will close with a period. Besides the kinship relations H_{br}, WiBr and SiHu, it also covers such relations as SpPaSo, SpPaSbSo. This appears to be in accordance with the conditions underlying the Lingala use of the referential frère or its native near synonym ndeko ya mobáli. Consequently, the relational feature SIBLING posited for beau-frère will be replaced by a less restricted feature COLLATERALITY, while the features MALE, AFFINITY will be maintained. On account of ethnical variations as to which kin to designate as frère, ndeko ya mobáli, hence as L_{beau} , we may assume the following rule:

- (12) If an individual x may be referentially designated as Lfrère in relation to y, then x may be designated as Lbeau in relation to z if z is y's spouse (or y's SpSb ...).

As specified in the introduction, its users are restricted. So are the actual contexts in which it can be used. A father-in-law informing his children of the arrival of his son-in-law can use (13) or (14) but would sound funny using (15):

- (13) Seméki na bínó akoyâ lóbí.
SiHu Con. you Mod+come tomorrow
'Your brother-in-law is coming tomorrow.'

(The appropriate English version should be: "John is coming tomorrow.")

- (14) Beau-frère na bínó akoyâ lóbí.
SiHu Con. you Mod+come tomorrow
'Your brother-in-law is coming tomorrow.'

- (15) *Beau na bino akoya lobi.

Its use is strictly informal and jovial, though connoting intimacy and familiarity. It is consequently precluded from formal talks, hence from the kinds of talks a father usually has with his children in the community concerned here. It is used mostly vocatively. Its referential use, as in (16), is restricted to one of the two members of the (symmetrical) relation.

- (16) Beau ayé! (out of excitement)
SiHu Mod+come
'My/Our brother-in-law has come!'

(The appropriate English version would again be: "John has come!")

In terms of social distance, the French/English scale seen in (9)-(11) is reversed. Thus, while (17) is the most formal and distant and (18) only achieves some relative intimacy, (19) implies not only intimacy, but also familiarity, joviality and cordiality.

- (17) Káíalá akoya.
Mod+come
'Kalala will come!'

(As corresponding to the English: "My/Our brother-in-law will come.")

- (18) Seméki akoyâ.
SiHu Mod+come

'My brother-in-law will come!

(Corresponding to the English: "John will come.")

- (19) Beau akoyâ. (informal)
SiHu Mod+come

'My/Our brother-in-law will come!

(Also corresponding to the English: "John will come.")

LBeau thus extends a social gesture that beau-frère does not achieve. It even becomes more indexical by its being associated with a special informal talk, proper to a generation and virtually male exclusive with respect not only to the sex of the referent but also to the sex of the speaker. For reasons so far unknown to the writer and according to our informants, it seems that females do not use LBeau in their talks, unless they want to sound "crazy" or want to produce some expressive effect.

In all the above respects LBeau , as was said above, alternates freely with Lbeauf .

LBeau differs from Lbeau-frère first in the fact that the latter ignores the formal vs. informal distinction and occurs in any context. Secondly, they are different in that Lbeau-frère does not know any restrictions with respect to the age or sex of the speaker. Thirdly, they also differ in the fact that Lbeau-frère lacks the connotations of joviality, familiarity and intimacy (as a matter of degree) usually associated with LBeau . However, Lbeau-frère is subject to rule (12) in its use.

LBeau designates half of the semantic domain covered by its native near-synonym *seméki*, since in the latter the sex dimension becomes irrelevant. In other words, the semantic conditions underlying the use of Lseméki may be posited as AFFINITY and COLLATERALITY. This gives the impression that the need to differentiate the sex of the referent justifies the presence of *beau* in Lingala. This simply is wrong, since Lingala usually specifies the sex dimension by apposition of either *mobáli* 'male' or *mwási* 'female' to any kinship term that does not incorporate the sex dimension in it. LBeau and Lseméki differ in the speaker's age and sex restrictions as well as the formal vs. informal situation restrictions, which Lseméki ignores. Like Lbeau-frère , Lseméki is not associated

with any connotative power of the kind associated with Lbeau , except for the relative intimacy achieved in its use. Sentences (17)-(19) locate clearly enough the position Lseméki has in the "social distance" scale; and in this sociolinguistic position it can freely alternate with Lbeau-frère . Sentences (20)-(24) below intend to show that, while achieving a higher degree of familiarity than Lseméki , Lbeau might also be subject to some syntagmatic constraint: it does not seem to accept nominal apposition. (Other linguists more fluent in and/or familiar with the Lingala dialect of Kinshasa may want to check this.)

- (20) Seméki, nsango níni?
SiSp/siSb news Wh-Q
'_____ how are you?'

(More approximately: "John: how are you?" We were told that "Brother-in-law: how are you?" would sound funny and sarcastic in English.)

- (21) Seméki Kálala akoyâ.
SiHu Mod+come
'((My)? brother-in-law) Kalala will come.'

- (22) Seméki Kálala, Ngalula azóbénga yô.
SiHu(+MALE) (-MALE) call you
'Kalala, Ngalula is calling you.'

(Again, according to our English informant, starting this sentence with 'brother-in-law' vocatively used would sound funny, unless it is intended to be specific, (say) by opposition to another individual named Kalala and who may take himself as the addressee.)

- (23) ?Beau Kálala akoyâ.
'Kalala will come.'
- (24) ?Beau Kálala, Ngálula azóbénga yô.
'Kalala, Ngalula is calling you.'

4. Tentative Definition of Lbeau

In the light of all that was said above we will try below to somehow organize those conditions that we assume to be relevant for the proper use of Lbeau . We will make a distinction between those conditions or features that linguists have so far considered semantic and the rest of our felicity conditions that we may roughly identify as presuppositional.

Since semantics as such has not been the primary concern of the present paper, the description we give below is nothing but a gross one aiming at specifying the type of conditions that could be met anyway.

We assume that $\text{L}\overline{\text{beau}}$ is underlain by the semantic conditions AFFINITY, COLLATERALITY and MALE. AFFINITY implies kinship involved through marriage whereas COLLATERALITY specifies that only the collateral relatives of the spouse are involved in this relation. We do not think that the specification of such features as HUMAN would actually be necessary. Indeed, we believe it would be redundant, since it is presupposed by the kinship feature; AFFINITY and COLLATERALITY already, the kinship relation being solely a practice of mankind (to our knowledge).

In Lingala the item $\overline{\text{beau}}$ indeed covers the semantic domain including the kinship relations SpBr, SiHu, SpPaSo, SpPaSiSo, PaDaHu, PaSiDaHu ... in accordance with rule (12). Its use is mostly vocative. Even when it is used referentially (occasionally), it assumes that the speaker is the other member of the relation so designated. It is more commonly used by male speakers ("male exclusive"). In vocative use it is normally the elder member of the relation that initiates the address. More than intimacy, it connotes familiarity, joviality and cordiality, and its proper use presupposes a good feeling of mutual friendly understanding between the two members thus related. Its use is also limited to informal talk. In its syntagmatic relations it seems to reject any nominal apposition whether in referential or vocative use.

Only when none of the above felicity conditions is violated can we consider the use of $\overline{\text{beau}}$ in Lingala grammatical or correct and in accordance with George Lakoff's definition of linguistic competence above.

5. Conclusions

In this paper we have first tried to demonstrate that (a) $\text{L}\overline{\text{beau}}$ is a loan from French, and (b) if it is so, it has been maintained in Lingala dialect of Kinshasa in a truncated form, which alternates freely with another truncated cognate $\text{L}\overline{\text{beauf}}$. $\text{L}\overline{\text{Beau}}$ is used in an obvious sociolinguistic complementary distribution (though overlapping) with its other cognate $\text{L}\overline{\text{beau-frère}}$ and its native near-synonym seméki . It has not had any effect on the sociolinguistic behavior of the native term but has,

instead, become heavily marked to the point of being quite indexical (carrier of what Gumperz [1971:124] calls "social meaning"). From a strictly semantic point of view, it is important to note that it has joined the class of the few kinship terms that have the sex dimension incorporated in them: namely, *papá* 'father', *mamá* 'mother', *mobáli* 'male/husband', and *mwási* 'female/wife'. By opposition to other kinship terms for which sex is specified by apposition of *mobáli* 'male' or *mwási* 'female', it confirms the arbitrariness/relativity with which the configuration(s) of semantic features that parallel a thought are incorporated into single or combinations of lexical items. Thus $\text{L}_{\text{seméki ya mobáli}}$ and L_{beau} designate the same referent if used in the same circumstantial context.

ADDENDUM

We have insisted on the importance of presuppositional features in this paper. It is simply because we believe that the semantic features, which underlie a lexical item, though absolutely necessary, are far from being sufficient for the appropriate use of words, nor for the proper understanding of other speakers [Fillmore 1971b:274-5]. They can account neither for the stylistic variations in the language use, nor for indexical use of words, as is the case for L_{beau} . In relation to this we may mention a definition of language by Goodenough [1964:37]: "whatever it is one has to know in order to communicate with its speakers as adequately as they do with each other and in manner they will accept as corresponding to their own."

Two facts have particularly struck us in this definition:

(a) It allows for consideration of those factors which have traditionally been considered as non-linguistic and which therefore have had to be excluded from any kind of linguistic description.

(b) It considers linguistic knowledge or competence as active or in use rather than as passive cognition.

In other words, we may sum up our complaint by pointing out the incompleteness of many lexical descriptions which have contented themselves with the specification of the strictly semantic conditions under which the item described should be used. Linguists may not mind welcoming this complaint, which in fact is not the first.

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Studies in African Linguistics
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EIGHTH ANNUAL CONFERENCE
ON AFRICAN LINGUISTICS

University of California, Los Angeles
April 1-3, 1977

Friday, April 1

BANTU SYNTAX

1. Eyamba G. Bokamba, "On the syntax and semantics of WH-questions in Kókongo and Kiswahili"
2. Martin Mould, "Manner adverbs in Luganda"
3. Ellen Contini Morava, "On the non-equivalence of affirmative and negative tenses in Swahili"
4. Kathryn Speed Hodges, "Causatives, transitivity and objecthood in KiMeru"
5. Joseph Greenberg, "Proto-Niger-Congo noun class affixes: prefixes, suffixes, both or neither"

TONE

1. B.O. Elugbe, "The implications of low tone raising in Southern Edo"
2. Istvan Fodor, "The use of L. Magyar's records (1859) for the history of Umbundu"
3. Mirjana Trifkovic, "Tone splitting: Lundu"
4. Herbert Stahlke, "Some psycholinguistic implications of accentual typologies"

WORKING GROUPS

Bantu Syntax -- Chair: Talmy Givón

Tone -- Chair: Ian Maddieson

Saturday, April 2

WEST AFRICA

1. P.R. Bennett and J.S. Sterk, "Eastern Benue-Kwa: internal and external relations"

2. Carol Lord, "How Igbo got from SOV serializing to SVO compounding"
3. Saeed Ali and Yero Sylla, "Perceptual transparency and relativization: a case study in Fula"
4. S.A. Ekundayo, "Lexical nominalizability restrictions in Yoruba"
5. Sylvia Ottemoeller and Kent Bimson, "Nominal compounding in Bambara: a lexicalist approach"
6. Lynelle Marchese, "Subordinate clauses as topics in Godie"

CHADIC

1. Karen H. Ebert, "Some aspects of the Kera verbal system"
2. William R. Leben, "On geminate consonants"
3. Zygmunt Frajzyngier, "On the identical copy pronouns in Chadic"
4. Paul Newman, "Chadic verbal extensions"

WORKING GROUPS

Language Planning -- Chair: Maurice Tadadjeu

Afroasiatic -- Chair: Russell Schuh

Sunday, April 3

MISCELLANEOUS

1. Robert K. Herbert, "Prefix restructuring, lexical representation, and the Bantu noun"
2. Carol McKinney, "Plural verb roots in Kaje"
3. M.L. Bender, "The Surma language family: a preliminary report"
4. Philip A.S. Sedlak, "Migration theory, the Northeastern Coastal Bantu and the Shungwaya hypothesis"
5. Philip A. Noss, "Compounding in To: the dynamics of a closed pidgin"
6. Carol Myers Scotton, "Language performance as a socioeconomic indicato:"

PHONETICS AND PHONOLOGY

1. Charles W. Kisseberth and Mohammad Iman Abasheikh, "Vowel drop in Chimwi:ni and the multiple application of phonological rules"
2. Leon C. Jacobson, "Phonetic aspects of DhoLuo vowels"
3. Linda Dresel, "Some phonological aspects of the acquisition of Hausa"
4. Olasope O. Oyelaran, "On vowel change in West African languages"

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ERRATA

The following corrections have been received from Talmy Givón concerning his article "On the SOV reconstruction of Southern Nilotic: internal evidence from Toposa."

"In my recent article in the Welmers Festschrift (SAL supplement 6) a number of mistakes were inadvertently made concerning the sub-grouping of several Nilotic languages. Chet Creider has brought to my attention that:

- (a) Toposa (VSO), Bari (SVO) are Eastern Nilotic languages (not Southern) as I inadvertently suggested;
- (b) Nandi (VSO) is a Southern Nilotic language;
- (c) Luo (SVO) is a Western Nilotic language.

My sincere apologies to those whose blood pressure got a boost due to my oversight."



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