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THREE TYPES OF VERBAL LOGOPHORICITY IN AFRICAN LANGUAGES

Timothy Jowan Curnow
La Trobe University

The term logophoric is most strongly tied to pronominal systems. However, most recent literature on logophoricity accepts the existence of verbal marking of logophoricity. Through examining the verbal logophoricity which has been reported in African languages, it can be seen that there are three different types of verbal marking: logophoric cross-referencing, first person logophoricity, and verbal logophoric affixation. These different types may appear as the only form of logophoric marking in a language, or they may combine with each other and with logophoric pronouns. Each of these types appears to have distinct properties and, hence, needs to be treated separately in typological literature.

1. Introduction[1]

Since the introduction of the term "logophoric" (*logophorique*) by Hagège in 1974, our knowledge of this phenomenon has grown greatly. Most recent general works discussing logophoricity [e.g., Culy 1994a, von Roncador 1992, Wiesemann 1986] have allowed that logophoricity may be marked in pronoun systems or through verbal morphology. However, it appears that, rather than a single phenomenon of verbal logophoricity, three distinct types of verbal logophoricity, with different properties, are found in African languages.

After defining logophoricity in section 2, the three types of verbal logophoricity—logophoric cross-referencing, first person logophoricity, and logophoric verb affixes—are discussed individually in sections 3-5, with each being compared to logophoric pronoun systems. Section 6 deals with the possibility of combining more than one logophoric strategy in a single language. Following this, the effect

[1] This research was carried out while the author was an Australian Research Council Post-doctoral Fellow. I would like to thank Bob Dixon, Sasha Aikhenvald, Gerrit Dimmendaal, Felix Ameka, Robert Botne, and an anonymous reviewer for their comments, which doubtless improved this paper.

that the division of verbal logophoricity into three distinct types has on general typological work on logophoricity is discussed.

2. Logophoricity

In its original conception, the term logophoric was intended to take account of the patterns of pronominal systems found in many West African languages, and was defined as "a particular category of substitution elements (*substituts*), personal and possessive, which refer to the author of a discourse or to a participant whose thoughts are reported" [Hagège 1974:287; my translation]. This can be seen in the contrast of object pronouns in the subordinate clauses of examples (1) and (2) taken from the Dogon language Donno Sɔ. When there is a reference in the subordinate clause to the original speaker, the logophoric pronoun *inyemɛ* occurs, contrasting with the use of the third person pronoun *wo* when the reference is to some person other than the original speaker.[2]

Donno Sɔ [Culy 1994a:1056]

(1) *Oumar [Anta wo-ñ waa be] gi*
Oumar Anta 3S-OBJ seen AUX said
'Oumar$_i$ said that Anta$_j$ had seen him$_k$.'

(2) *Oumar [Anta inyemɛ-ñ waa be] gi*
Oumar Anta LOG-OBJ seen AUX said
'Oumar$_i$ said that Anta$_j$ had seen him$_i$.'

Since its original introduction, the term has been extended in a variety of ways. Leaving aside the use of the term in generative literature, where it is often defined in terms of binding properties (see, for example, Reinhart & Reuland [1991], Reuland [2001]), there is general agreement on the use of the term to indicate some (special) marking in clauses subordinated to verbs of speech (thought, emotion) which distinguishes between reference to the original speaker (thinker, feeler) and other referents; precise details of the definition may, however, vary.

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[2] Abbreviations used in glosses have been taken from the works cited, except in cases where a gloss was added.

AP	antipassive	INDIR	indirect mode	PRG	progressive
AUX	auxiliary	INIT	quote initiator	PST	past
COMP	complementizer	LOG	logophoric	REL	relativizer
CONN	connector	NON1	non-first person	RP	reporting particle
COP:PRE	present tense copula	NPST	non-past	S OR SG	singular
CPL	complementizer	OBJ	object	SUBJ	subject
DF	definite	P or PL	plural	1/2/3	person marking
FACT	factitive	PA	past	4	non-coreferential third person
FUT	future	PRT	particle		
IN	inclusive	POSS	possessive		

In this paper, an element will be considered to be a verbal logophoric marker if it is a verbal form used in clauses embedded under a verb of speech (and potentially under verbs of thought or emotion) which indicates that one of the referents of the subordinate clause (almost always, but not necessarily, the subject) is coreferential with one of the referents of the matrix clause (once again, almost always the subject). Additionally, this form must be grammatically required, that is, obligatory, in the appropriate contexts.

Under this definition, three different types of verbal logophoric markers are found in African languages, depending on whether the logophoric marker contrasts with (other) person marking forms and on whether the logophoric marker is used (for different purposes) in matrix clauses.

3. Logophoric cross-referencing

The most straightforward form of logophoric verbal marking is found in languages with verbal cross-referencing for person, where in subordinate clauses of the appropriate type there is an extra cross-referencing form, logophoric cross-referencing.

For example, the Bantu language Akɔɔse, spoken in Nigeria, has verbal prefixes which indicate the person and number of the subject if it is human (for non-human subjects, the prefix indicates the noun class of the subject), with distinct prefixes for first, second and third person singular, and first inclusive plural, first (exclusive) plural, second plural and third plural [Hedinger 1981]. As well as these forms, however, there is an additional, distinct, verb prefix used in subordinate clauses embedded under a verb of speech if the subject of the subordinate clause is coreferential with a second or third singular subject in the matrix clause, as seen in example (4). That is, in Akɔɔse there is a verbal affix, contrasting with (other) person-marking affixes, used for indicating logophoricity—this sort of verbal logophoric marking will be referred to as logophoric cross-referencing.

Akɔɔse [Hedinger 1984:95]

(3) *à-hɔ́bé ă á-kàg*
he-said RP he-should.go
'He said that he (someone else) should go.'

(4) *à-hɔ́bé ă mə́-kàg*
he-said RP LOG-should.go
'He said that he (himself) should go.'

In Akɔɔse, the logophoric cross-referencing occurs when the matrix subject is second or third person singular. The Nilo-Saharan languages Logo and Kaliko, spoken in the Democratic Republic of Congo (formerly Zaire), also have verb prefixes marking cross-referencing, with third person singular being zero (plus the option of a fully expressed third singular pronoun) as in example (5), and contrasting with a logophoric verb prefix, occurring only with third person

singular matrix subjects, as in example (6). The closely related language Moru, spoken in Sudan, has a similar system, with the logophoric cross-referencing once again restricted to third person, but with separate forms for singular and plural.

Kaliko [Andersen & Goyvaerts 1986:313]

(5) *tà tá (èðī) Ø-ātsā tá*
3S.speak CPL he 3S-come CPL
'He$_i$ said that he$_j$ came.'

(6) *tà tá yí-ātsā tá drùzùlɛ̄*
3S.speak CPL LOG-come CPL morning
'He$_i$ said that he$_i$ came this morning.'

Logophoric cross-referencing may occur with or without an additional system of logophoric pronouns. Thus, Akɔɔse has a logophoric cross-referencing system but no logophoric pronouns [Hedinger 1984:98], Logo and Kaliko have a logophoric pronoun for third person singular and Moru has logophoric pronouns for third singular and third plural [Andersen & Goyvaerts 1986]; in Logo, Kaliko, and Moru, the logophoric pronoun form is also used as a reflexive pronoun; interestingly, the logophoric pronoun appears not to be used as a subject form (though the logophoric subject marker is clearly diachronically related to it).

Logophoric cross-referencing systems seem to have the same general typological properties as logophoric pronouns. Logophoric cross-referencing terms form a paradigm with other person-marked terms, just as logophoric pronouns form a paradigm with other (person-marked) pronouns. If a language has a logophoric cross-referencing system, the logophoric term is always used with singular referents, but may (e.g., Moru) or may not (e.g., Logo) be used with plural referents. Similarly, the logophoric term is always used with third person referents, but may (e.g., Akɔɔse) or may not (e.g., Kaliko) be used with second person referents. Both of these distributional properties are found with logophoric pronouns [Hyman & Comrie 1981, Wiesemann 1986].

Of course, the similarity between logophoric cross-referencing and logophoric pronouns is not surprising. While the above cases of logophoric cross-referencing are clear verbal affixes, several of the examples of logophoric "pronouns" discussed in the literature are intermediate between logophoric pronouns and logophoric cross-referencing, as subject "pronouns" in these languages cliticize to the verb. This occurs, for example, in one of the standard examples of logophoricity, the Kwa language Ewe, spoken in Ghana, where subject pronouns, including the logophoric subject pronoun, cliticize to the following verb, as in examples (7) and (8).

Ewe [Clements 1975:142]

(7) *Kofi be e-dzo*
Kofi say 3S-leave
'Kofi$_i$ said that he/she$_j$ left'

(8) *Kofi be yè-dzo*
Kofi say LOG-leave
'Kofi$_i$ said that he$_i$ left'

These cliticized (weak subject) forms are often similar to, but not necessarily identical to, the independent (strong) pronoun forms—for example, the independent third singular pronoun is *ye*, rather than the cliticized *e* in the Anlo dialect of Ewe [Clements 1975:148]. Given the well-known process of gram-maticalization by which cliticized pronouns become verb affixes, systems of logophoric pronouns can thus become systems of logophoric cross-referencing; and indeed Andersen and Goyvaerts [1986] maintain that the logophoric cross-referencing system of Logo, Kaliko, and Moru has clearly arisen from a grammaticalization of the logophoric/reflexive pronouns to the verb. The system of Akɔɔse, on the other hand, has arisen by other means; Hedinger [1984] maintains it is a grammaticalization of a stressed subject pronoun and the (usual) third person subject marker.

One difference between the behaviour of logophoric pronouns and logophoric cross-referencing arises as a natural consequence of the restricted use of cross-referencing in many languages. While logophoric pronouns can always be found as subject pronouns (and in some languages can only be used as subjects),[3] logophoric pronouns are also commonly used in other grammatical functions, especially as objects and as possessive forms. Logophoric cross-referencing, on the other hand, is seldom found marking anything other than subjects; but then in the languages in which it occurs, cross-referencing is seldom used for anything other than subject marking. Clearly, logophoric (verbal) cross-referencing cannot be used to mark possessive, and only one language, Mabaan, is known in which logophoric cross-referencing may be used to show a logophoric object.

Mabaan is a Nilo-Saharan language spoken in Sudan. It has a highly complex verbal system, with verbs being marked to agree in person and number with subject and object, and also to indicate tense and mood [Andersen 1999]. It has an "anti-logophoric" system of pronouns: the pronouns which in matrix clauses indicate third person (e.g., singular *ʔɛ́kɛ̀*) are used in logophoric domains to indicate coreference with the matrix subject, while a special set of fourth person pronouns (e.g., singular *ʔɛ̂kn̰á)* are used in these domains to indicate non-coreference (the opposite of logophoric pronouns, where the normal third person pronouns indicate non-coreference while a special set of logophoric pronouns indicates coreference).

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[3] This is not entirely true, in fact. As was seen in example (8), logophoric subject pronouns may cliticize to the verb. If a language uses logophoric pronouns for subject and non-subject arguments, but then subject pronouns become verbal affixes through cliticization, the resulting system may use logophoric cross-referencing for subject arguments but logophoric pronouns for non-subject arguments. This is presumably what has happened diachronically in Logo, Moru, and Kaliko, for example, where logophoric pronouns are found for non-subject arguments but there are (historically related) logophoric cross-referencing prefixes for subject arguments [Anderson & Govaerts 1986].

Mabaan [Andersen 1999:508]

(9) *ʔékè gɔ́kè ʔàgē ʔékè kâŋɟé*
3S say:AP:3 INIT 3S swim:FUT:INDIR:3S
'He$_i$ says that he$_i$ will swim.'

(10) *ʔékè gɔ́kè ʔàgē ʔêk̰tá kâŋd̰ɔ́*
3S say:AP:3 INIT 4S swim:FUT:INDIR:4
'He$_i$ says that he$_j$ will swim.'

Just as there are only three person distinctions in pronouns in matrix clauses but four person distinctions in pronouns in clauses subordinated to speech verbs, there are likewise three person distinctions in verb forms in matrix clauses and four person distinctions in verb forms in subordinate clauses; hence, there is a distinc-tion in form between the subordinate verbs in the above two sentences. However, the verb forms used in subordinate clauses (indirect mode) are distinct for all persons from those used in matrix clauses (direct mode), so that corresponding to the subordinate clauses in sentences (9) and (10) above is the matrix clause given in example (11).

Mabaan [Andersen 1999:507]

(11) *ʔékè káŋà*
3S swim:FUT:3
'He will swim.'

Thus, unlike (other) examples of logophoric cross-referencing, in Mabaan there is no special logophoric verb form contrasting in subordinate contexts with the usual matrix verb forms, as all subordinate verb forms are distinct from matrix verb forms. In any case, while the system of pronouns is anti-logophoric rather than logophoric, the system of verbal marking of (anti-)logophoricity shows that a subordinate object is coreferential with a matrix subject as easily as showing that a subordinate subject is coreferential with a matrix subject, as can be seen in examples (12) to (14).

Mabaan [Andersen 1999:509]

(12) *ʔékè gɔ́kè ʔàgē ʔékè ʔêk̰tá jɔ̀ŋɟé*
3S say:AP:3 INIT 3S 4S kick:PA:INDIR:3S:4
'He$_i$ says that he$_i$ has kicked him$_j$.'

(13) *ʔékè gɔ́kè ʔàgē ʔêk̰tá ʔékè jɔ̀ŋŋ́étɛ́*
3S say:AP:3 INIT 4S 3S kick:PA:INDIR:X:3S
'He$_i$ says that he$_j$ has kicked him$_i$.'

(14) *ʔékè gɔ́kè ʔàgē ʔêk̰tá ʔêk̰tá jɔ̀ŋd̰á*
3S say:AP:3 INIT 4S 4S kick:PA:INDIR:4S:4
'He$_i$ says that he$_j$ has kicked him$_k$.'

Thus, excluding the complex case of Mabaan, the first type of verbal logophoricity, logophoric cross-referencing, appears to be quite similar to the marking of logophoricity using pronouns—there is a special (verb) form used to show that one of the referents of a clause subordinated to a speech verb is coreferential to the subject of the matrix clause (more correctly, the source of the proposition, to take account of matrix clauses such as 'I heard from him that ...' where logophoric marking indicates coreference with 'him'); this special logophoric form contrasts with other person forms; the logophoric marker may be used only with third person referents or with second and third person referents, and it may be used only with singular referents or with singular and plural referents. With the exception of the system of marking of Mabaan, logophoric cross-referencing has only been found indicating coreference of a subordinate subject with a matrix subject, but in languages with logophoric cross-referencing the cross-referencing system in general only marks subject, so this is not surprising.

4. First person marking as logophoric

The second type of verbal logophoricity found in African languages is the use of a "first person" verb affix to indicate logophoricity in appropriate contexts. For example, the Dogon language Donno Sɔ, spoken in Mali and Burkina Faso, has a logophoric pronoun, *inyemɛ*. However, Donno Sɔ also has a system of verbal affixation where finite verbs (in matrix clauses) can agree in person and number with their subjects; for example, *bojɛ-m* 'I'm going', *bojɛ-u* 'you're going', *bojɛ* 'she/he is going' [Culy 1994b:122]. In finite subordinate clauses of the appropriate kind with a logophoric subject, the verb is necessarily inflected with the verb suffix which would, in a matrix clause, indicate a first person subject, as seen in example (15).

Donno Sɔ [Culy 1994b:123]

(15) *Oumar [inyemɛ jɛmbɔ paza bolum] miñ tagi*
Oumar LOG sack:DF drop left:1S 1S:OBJ informed
'Oumar$_i$ told me that he$_i$ had left without the sack.'

A first person verb form would naturally occur in this context in direct speech, where within the quoted speech the original speaker would be using first person references: 'Oumar told me, "I left without the sack"'. However, in this case, not only would the verb suffix be first person, but any pronouns in the clause referring to the speaker would also be first person; as seen in example (15), rather than a first person subject pronoun the logophoric pronoun is used in these contexts, showing that such sentences are clearly not examples of direct speech, and consequently that the use of a first person subordinate verb form is unusual.[4]

[4] It is, of course, easy to speculate that this system of first person logophoric marking has arisen through the reanalysis of direct speech as indirect speech. This would be particularly common, one assumes, in languages with optional ellipsis of pronouns, since there is then no

Under certain conditions, Donno Sɔ allows the omission of subjects. When this occurs, a subordinate "first person" verb form may be the only indication of subordinate subject logophoricity, as in example (16). Note that the logophoric pronoun in (16) is not a subject pronoun, but rather a part of the object noun phrase, indicating that the field belongs to Oumar; the only indication that the subordinate subject is Oumar is the use of the first person logophoric marking on the subordinate verb.

Donno Sɔ [Culy 1994b:123]

(16) *Oumar [minnɛ inyemɛ mɔ̃ gɛndɛzɛm] gi*
Oumar field LOG POSS regard:PRG:1S said
'Oumar$_i$ said that he$_i$ will look at his$_i$ field.'

In a context where a subordinate "first person" verb form could cross-reference a logophoric subject, this form may not be used to cross-reference a first person subordinate subject; instead, an unmarked verb form (which is identical to the third person form) must be used together with an explicit first person pronoun, as in example (17).

Donno Sɔ [Culy 1994b:123]

(17) *Oumar [ma jɛmbɔ paza boli] miñ tagi*
Oumar 1S:SUBJ sack:DF drop left 1S:OBJ informed
'Oumar told me that I had left without the sack.'

In Donno Sɔ, this strategy of using subordinate "first person" verb forms to mark a logophoric subject is present together with the existence of a logophoric pronoun. In some other languages, however, the "first person" marking of logophoricity is present, but there is no logophoric pronoun. This is found, for example, in some Nilo-Saharan languages—Lotuko in example (19) and Karimojong in example (18)—where a subordinate clause with a logophoric subject has first person verbal marking, but a third person subject pronoun. It is not known how these languages mark a subordinate verb which has a first person, non-logophoric, subject in a sentence such as 'she said that I went'.

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formal distinction between a direct speech "she said '(I) I-go'" and an indirect speech logophoric "she said (she) I-go". In the synchronic system, however, the construction is clearly distinct from direct speech when separate pronoun forms occur in the subordinate clause. It is interesting to note that there were early proposals that logophoric pronouns developed from first person markers [e.g., in Heine & Reh 1984]. More recent work [e.g., Dimmendaal 2001, von Roncador 1992] has suggested an origin in demonstrative elements, discounting a first person origin. While logophoric *pronouns* thus seem not to develop from first person marking, this would appear to be the origin of some logophoric *verbal* marking.

Karimojong [Novelli 1985:531; gloss added]

(18) *àbù papà tolim ɛbè àlózì iŋèz morotó*
AUX father say that 1S.go.NPST 3S Moroto
'The father said that he was going to Moroto'

Lotuko [Muratori 1938; quoted in von Roncador 1992:172]

(19) *ɑ̨ati 'daŋ xul ojori 'tɔ jojo ɛra isi a xobwok*
people all REL say PRT COMP 1P:be they PRT kings
'Those, who say that they are kings'

While relatively little reported, it is possible that this form of logophoric marking is, in fact, much more common. In many African languages, there is no tense shifting, so that an indirect speech complement will contain the same tense/aspect/mood as the original utterance; both direct speech and indirect speech are often introduced with the same complementizer. If a language has first person logophoricity and optional subject pronouns, then first person logophoricity in indirect speech can easily be mistaken for simple direct speech, as the only indication of the difference occurs with the choice of a pronoun form accompanying a first person verb, either third person or logophoric for indirect speech, or first person for direct speech. If the only examples collected by a researcher have no explicit pronoun forms in the subordinate clause, the use of first person logophoric marking will be mistaken for direct speech.

First person logophoric marking has some similarities with the patterns of distribution of logophoricity marked with logophoric cross-referencing or logophoric pronouns. In particular, the logophoric (first person) verb form contrasts with other person-marked verb forms. However, in contrast to logophoric cross-referencing, there is no special logophoric marking, as the form used is one which would be used to mark first person subjects in matrix clauses.

In Donno Sɔ, only third person referents can be referred to using the first person logophoric marking (and also the logophoric pronoun). Likewise, only third person examples have been found for Karimojong and Lotuko. However, it will be seen below in section 6 that the first person strategy may also be used with second person referents, just as with logophoric pronouns and logophoric cross-referencing. The issue of whether it can be used with first person referents is a complex one, since the marking is first person in any case; this will also be looked at in section 6.

Once again just like logophoric cross-referencing, first person logophoric marking has only been found marking subordinate subjects as logophoric. In the case of Donno Sɔ, this is all that can be marked, as verbal marking is only used to show person of the subject. In Karimojong, verbs inflect for person of subject and object, but it is not known at this stage if the first person logophoric marking extends to the marking of subordinate objects.

One final distinction which appears between first person logophoric marking and logophoric pronouns (and logophoric cross-referencing) is that first person logophoric marking has never been reported to occur only with singular referents

—it generally occurs in both singular and plural, and has in fact been found in one or two languages occurring only with plural referents (see section 6).

An alternative analysis to treating first person logophoric marking as a separate phenomenon would, of course, be to consider that these languages have logophoric cross-referencing but that, for whatever reason (e.g., phonetic changes), the logophoric cross-referencing marker is simply homophonous with the first person marking, and this will be considered as a possibility for Efik and Ibibio in section 6. While no definitive statement can be made on this issue, various arguments can be made against this claim of homophony.

From a theoretical point of view, it is better to treat identical forms in a unitary fashion if possible, rather than as homophonous. This argument seems particularly cogent if, as is the case in Karimojong, each of the two putatively separate forms in the language have precisely the same complex patterns of allomorphy. Furthermore, as will be seen in section 6, Ekpeye has both inclusive and exclusive first person plural markers, and both can be used to mark logophoricity—a truly astonishing case of homophony with related semantics, if it were treated as such.

Another argument against the homophony hypothesis can be seen in Donno Sɔ, where the "first person" form cannot be used in subordinate clauses to mark first person if it can be interpreted as being the logophoric form. If this were simple homophony, we would expect that the first person form could be used in these cases, although an explicit pronoun may be needed to disambiguate.

Additionally, of course, there is the slightly distinct pattern of distribution of logophoric cross-referencing and first person logophoricity with singular and plural referents mentioned above.

Thus, it seems that first person logophoricity should be treated as a separate phenomenon from logophoric cross-referencing.

5. Logophoric verbal affix

The most commonly discussed example of verbal logophoricity in African languages is the system of the Cross-River (Benue-Congo) language Gokana, based on the data presented in two papers by Hyman and Comrie [1981, 1982]. In this language there is a verbal suffix *-EE* (with a variety of phonologically conditioned allomorphs) which marks logophoric reference; the contrast between its absence and presence can be seen in sentences (20) and (21). (While from these examples the logophoric verbal suffix looks simply like a same-subject marker, this is not the case, as will be seen in example (22) below.)

Gokana [Hyman & Comrie 1981:20]

(20) *aè kɔ aè dɔ̀*
he said he fell
'He$_i$ said that he$_j$ fell.'

(21) *aè kɔ aè dɔ-è*
he said he fell-LOG
'He$_i$ said that he$_i$ fell.'

This system of marking logophoricity shares with other systems the environments in which it occurs. However, while Gokana is commonly included in discussions of logophoricity and the development of typologies of logophoric marking [e.g., Culy 1994a, Huang 2000, Hyman & Comrie 1981, Wiesemann 1986], there are clear differences between the logophoric verbal affix of Gokana and other logophoric systems.

The most obvious of these is that the logophoric marker is not integrated into a system which otherwise marks person, which is the case for logophoric pronouns, logophoric cross-referencing, and first person logophoric marking. In all other cases, the logophoric marking is opposed to some other marking indicating person; in Gokana, the logophoric marker contrasts with its absence, which gives no indication of person.

Another contrast with other systems is that, while the use of the logophoric verbal affix is obligatory with third person referents, it is optional with singular second person referents. Other systems of logophoric marking are obligatory when appropriate in their prototypical use under verbs of speech [Culy 1994a:1080]. In some languages, logophoricity may only be used with third person referents, in others it is used with third and second person referents; but if the language allows logophoricity to be used with referents of a particular person, this use is obligatory.

A further potential difference is that the logophoric verbal affix of Gokana may be used with first person referents, although it is dispreferred. In general, logophoric pronouns and logophoric cross-referencing, at least, do not occur with first person referents [von Roncador 1992:166]. A few exceptions have been reported, but these are certainly not straightforwardly clear logophoric systems of the expected type. Thus, Wiesemann [1986:445] reports that the East Chadic language Lele has logophoric pronouns for all persons; however, here the forms are different for each person rather than a single logophoric pronoun used with referents of all persons (historically they consist of a speech introducer followed by the normal pronoun forms). The best candidate for a logophoric system used with first person referents is the Adamawa (Niger-Congo) language Yạg Dii, which has a complex system where pronouns are marked for case, emphasis, and tense, and there are various sets of logophoric pronouns. Most commonly, the first person forms used in logophoric contexts are identical with the non-logophoric first person forms, while there is a distinct single form used for second and third person logophoric referents; in some cases there are special logophoric forms used only with first person (i.e., different forms are used with each person); however, with unmarked subjects a single, specifically logophoric pronoun is used with reference to all persons [Bohnhoff 1986:113].

And finally, while it is certainly the case that logophoric marking is not restricted in all languages to showing that a subordinate subject is coreferential with an argument in the matrix clause, if it can mark coreferentiality of a non-

subject argument it is always clear which argument is coreferential—subject, object or possessive, for example.[5] This is not the case in Gokana, where the logophoric verbal affix simply indicates that some element in the subordinate clause is coreferential with the matrix subject or source, leading easily to ambiguities, as can be seen in example (22).

Gokana [Hyman & Comrie 1981:24]

(22) *lébàreè kɔ aè div-èè e*
Lebare said he hit-LOG him
'Lebare$_i$ said he$_i$ hit him$_j$ / Lebare$_i$ said that he$_j$ hit him$_i$.'

While none of these distinctions necessarily should be taken to imply that the Gokana logophoric verbal affix is not true logophoricity, it is clearly quite different in many of its behaviours from other types of logophoricity, even other types of verbal logophoricity, and should perhaps not be included with them in the develop-ment of typologies of logophoricity.

A system similar to that of Gokana, although perhaps not identical, is found in the related language Kana, described in Ikoro [1996]. Kana has a logophoric marker *-è*, with various allomorphs, which occurs in the same sorts of environments with the same function as the Gokana *-EE*, with the contrast between its presence and absence in examples (23) and (24) patterning identically to the contrast seen in examples (20) and (21) in Gokana.

Kana [Ikoro 1996:283]

(23) *(à-)kɔ̀ kɔ̄ɔ̀ é-kī̄ī*
he-say:FACT CONN he-DF-go
'he$_i$ said that he$_j$ would leave'

(24) *(à-)kɔ̀ kɔ̄ɔ̀ é-kīì-è*
he-say:FACT CONN he-DF-go-LOG
'he$_i$ said that he$_i$ would leave'

However, rather than being a verbal suffix, this element in Kana is a clitic, and may occur in non-verbal subordinate clauses attached to other elements such as

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[5] Confusion of referents can arise when embedded speech is embedded under a further speech introducer in languages with logophoric pronouns—in some languages at least, in the most embedded speech either the "intermediate" or the "primary" speaker may be marked through logophoric pronouns. For example, in Koyra Chiini [Heath 1999:326], in the case of 'X said to Y [Y said to X [...X...Y...]]', the most deeply embedded X and Y will both be marked as logophoric; X is marked as logophoric since X is the speaker of the first-order quotation, while Y is marked as logophoric since Y is the speaker of the second-order quotation. In this case, it is not possible to distinguish which argument in the most deeply embedded clause is which. It is, however, still possible to tell which argument (both) is coreferential, unlike in Gokana; it is simply impossible to distinguish which higher argument is being referred to by the logophoric pronouns.

nouns or pronouns, as in example (25). If the logophoric element in the subordinate clause is a possessive, the logophoric verbal affix may occur on this NP, even though there is a verb in the clause; or it may occur on the NP and on the verb in addition.

Kana [Ikoro 1996:284]

(25) *ò-kɔ̄ɔ̀ ɔ̀ɔ̀-è nēè-péé*
you-CONN you:COP:PRE-LOG person-goat
'You said that you are an idiot.'

Ikoro [1996:287] suggests that there is, in fact, no significant difference between the Gokana and Kana logophoric elements, with both being clitics rather than affixes, and thus the exact status of the Gokana logophoric verbal "affix" is unclear. However, whether affix or clitic, it is strongly associated with the verb; even in Kana, where the element is undoubtedly a clitic, it occurs on the verb if there is a verb and the logophoric element is subject or object. The logophoric verbal affix of Gokana and Kana has a quite distinct pattern of distribution from logophoric cross-referencing or first person logophoric marking and must be treated as a separate type of verbal logophoricity.

6. Combining types of verbal logophoricity

We have already seen that languages with logophoric cross-referencing may also have logophoric pronouns (e.g., Moru), as may languages with first person logophoricity (e.g., Donno Sɔ); the two closely related languages with a logophoric verbal affix have no other logophoric marking. There is also a language which appears to have both logophoric cross-referencing and first person logophoricity, with the strategy used depending upon number; two other languages may also use this logophoric strategy, although the details are not as clear-cut.

The system used for marking verbs in subordinate clauses of speech in the Kwa (Niger-Congo) language Ekpeye, spoken in Nigeria, was described in an early article by Clark [1972], before discussions of logophoricity were common in African linguistics. Ekpeye has verbal prefixes which indicate the person and number of the subject, with full independent subject pronouns being unnecessary —indeed, Clark [1972] does not mention nor exemplify the pronoun system of Ekpeye. Looking only at singular referents, Ekpeye appears to have a logophoric cross-referencing system, with a contrast between non-logophoric first, second and third singular verb prefixes (example (26)) and a logophoric marker *yá'* used with third singular referents (example (27)) and second singular referents (example (28)).

Ekpeye [Clark 1972:103-4, glosses added]

(26) *ù-kà ɓụ́ ù-zè*
3-said that.NON1 3-went
'He said that he (another) went.'

(27) *ù-kà ɓú yá' zè*
3-said that.NON1 LOG.SG went
'He said that he (himself) went.'

(28) *ɨ́-kà ɓú yá' zè*
2-said that.NON1 LOG.SG went
'You said that you went.'

In fact, it is not entirely clear from the discussion whether *yá'* should be treated as a verb prefix or a proclitic form; Clark [1972:102] notes that this form must occur immediately before the verb in these contexts, but writes it as a separate word and says that in these contexts no pronominal prefix occurs. He calls it an "emphatic reflexive pronoun" and translates it as 'self, himself/herself/itself', suggesting an identity of this logophoric element with the reflexive pronoun, which occurs in various other African languages [von Roncador 1992]. Unfortunately, Clark gives no examples of other uses of this marker, and it is thus unclear whether it is truly used as a reflexive pronoun, or whether Clark simply decided the best translation of this element in logophoric contexts was an emphatic with 'self' (cf. his translations in the above examples).

In addition to this use of the form *yá'* in logophoric contexts, a verb suffix *-mà* also occurs in certain tense forms with second and third person logophoric subordinate verbs [Clark 1972:102]. While the use of this suffix is not further discussed by Clark, it is thus potentially a logophoric verbal affix, similar to that of Gokana, though it is restricted to particular tense forms and to second and third singular referents.

With plural referents, this emphatic reflexive pronoun *ya'* is not used, nor is the suffix *-mà*. Rather, a verb prefix *à-* occurs in second person plural and third person plural logophoric contexts (as seen in examples (29) and (30)), with or without a suffix *-nì*, although no examples are given with the suffix.

Ekpeye [Clark 1972:103-4, glosses added]

(29) *ù-kà-ɓɛ̀ ɓú à-zè*
3-said-PL that.NON1 LOG.PL-went
'They said that they went.'

(30) *ɨ́-kà-ɲì ɓú à-zè*
2-said-PL that.NON1 LOG.PL-went
'You people said that you went.'

This verb prefix *à-* is not only a logophoric marker, however; it is the usual first person exclusive form in matrix clauses. The addition of the suffix *-nì* converts it to the usual first person inclusive form.[6] It is also used in cases where

[6] Note that the verbal cross-referencing system of Ekpeye, excluding the logophoric marking, has four verb prefixes, marking 1st singular, 2nd singular, 3rd singular and 1st plural exclusive;

the matrix and subordinate subjects are both first person (inclusive or exclusive), as in examples (31) and (32); here, of course, it is unclear whether the form is operating in its matrix clause fashion as first person plural, or in its logophoric sense.

Ekpeye [Clark 1972:103, glosses added]

(31) *à-kà mění à-zè*
1P-said that.1 1P/LOG.PL-went
'We (exclusive) said that we went.'

(32) *à-kà-nị̀ mění à-zè-nì*
1P-said-IN that.1 1P/LOG.PL-went-IN
'We (inclusive) said that we went.'

As mentioned above, no examples of the strictly logophoric use of the "first person inclusive" form are given, but Clark notes that the use of the suffix in subordinate logophoric contexts is "not obligatory, but rather depend[s] on the sense of the non-linguistic context" [Clark 1972:102]. While this is not entirely clear, presumably the absence or presence of the suffix in logophoric contexts carries the usual distinction, as shown in examples (33) and (34).

Ekpeye [Clark 1972:104, gloss added, parenthesized element added to translation]

(33) *ù-kà-ɓɛ̀ ɓú̩ à-zè*
3-said-PL that.NON1 LOG.PL-went
'They said that they went (and the addressee was not part of the group).'

(34) *ù-kà-ɓɛ̀ ɓú̩ à-zè-nì*
3-said-PL that.NON1 LOG.PL-went-IN
'They said that they went (and the addressee was part of the group).'
(Constructed example, suggested translation)

Thus, in Ekpeye the system of verbal logophoricity is of a combined type—with singular logophoric referents there is a system of logophoric cross-referencing (or perhaps a cliticized logophoric pronoun), together with what appears to be a logophoric verbal affix; while with plural logophoric referents there is a system of first person logophoricity (although the precise contrast in use between logophoric inclusive and exclusive first person plural is unclear). It is interesting to note that logophoric cross-referencing, like logophoric pronouns, has been found to occur with either both singular and plural referents or with singular referents only, the

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a suffix *-ɓɛ̀* is used in conjunction with the 3rd singular prefix to indicate 3rd plural; and the suffix *-nì* occurs with the 2nd singular prefix to show 2nd plural, and with the 1st plural exclusive to indicate 1st plural inclusive.

situation found here; first person logophoricity in non-combined types of verbal logophoricity occurs with both singular and plural referents, but here with plural referents only, perhaps being ousted from referring to singular referents because of the existence of the logophoric cross-referencing system.

We turn to the two closely related Cross-River (Niger-Congo) languages, Efik and Ibibio, the former spoken in Nigeria, the latter in Nigeria and Cameroon. These languages have a verbal logophoric system which appears similar in many ways to that of Ekpeye. First, these languages have a system of verb prefixes which indicate the person of the subject.[7] In singular logophoric contexts, with second and third person singular referents, a distinct verb prefix is used to signal logophoricity, as can be seen in examples (35), (36), and (37) from Efik.

Efik [Welmers 1968:118, glosses added]

(35) *á-má é-tíŋ é-tè ké èỹé é-ke-yìp òkúk óró*
3S-PST1 3S-say 3S-CPL CPL he 3S-PST2-steal money DF
'He said that he (other) was the one who stole the money.'

(36) *á-má é-tíŋ é-tè ké ìmɔ ì-ká-dá ŋ̀wet fò*
3S-PST1 3S-say 3S-CPL CPL LOG.SG LOG-PST2-take book your

ì-dí
LOG-come
'He said that he (self) was the one who brought your book.'

(37) *à-ma é-tíŋ è-tè ké (ìmɔ) ì-kó-kùt èỹé k-ûyó*
2S-PST1 2S-say 2S-CPL CPL LOG.SG LOG-PST2-see him in-Uyo
'You said you saw him in Uyo.'

Just as in Ekpeye, logophoric second and third person plural referents are indicated using the verb prefix which is used in matrix clauses to mark first plural subject, as can be seen in example (38) from Efik; that is, they appear to have a system of first person logophoricity (unlike Ekpeye, Efik and Ibibio do not distinguish inclusive versus exclusive). As in Donno Sɔ, which has logophoric pronouns and first person logophoricity, a logophoric subject pronoun may be present or absent, leaving the verbal logophoric marking as the only indication of logophoricity.

Efik [Welmers 1968:118, glosses added]

(38) *é-kère é-tè ké (mìmɔ) ì-yé-dí ŋ̀kpɔ́ŋ*
3P-think 3P-CPL CPL LOG.PL 1P/LOG-FUT-come tomorrow
'They think that they (selves) will come tomorrow.'

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[7] The system is extremely complex, with two different sets of affixes depending on whether the verb is neutral (set A) or negative/contrastive (set B), and different tones being used in complex ways for sequential verbs.

There are, however, two differences between the Efik/Ibibio and Ekpeye systems of logophoricity. First, Efik and Ibibio also have logophoric pronouns, singular and plural, and these are not used when there is a first person referent as subject in both matrix and subordinate clauses, suggesting that in first person plural logophoric contexts, the "first person" verb morphology is indicating first person rather than logophoricity.[8]

The more interesting difference is in the form of the verb prefixes in the singular and plural logophoric marking. In Ekpeye, the singular verbal logophoric marking is logophoric cross-referencing, with a special prefix, while the plural verbal logophoric marking is first person logophoricity, using the same morphology as matrix clause first person plural verbs. In Efik and Ibibio, the verb prefixes are identical for singular and plural logophoric referents, both thus being identical with first person plural marking.[9] (The singular and plural logophoric pronouns are, however, distinct.)

It is thus unclear whether the verbal logophoric system of Efik and Ibibio should be treated as similar to that of Ekpeye, with logophoric cross-referencing in the singular and first person logophoricity in the plural. It is possible that historically the system of Efik and Ibibio was that of Ekpeye, but the singular logophoric cross-referencing prefix has fallen together with the first person plural prefix because of phonetic erosion (all verb prefixes are highly reduced forms). Alternatively, there may have historically been logophoric cross-referencing in both singular and plural (with distinct or identical forms), with phonetic erosion leading to phonetic identity between this logophoric cross-referencing prefix (or these number-marked logophoric cross-referencing prefixes) and first person plural marking.

We have thus seen that languages may have a single strategy for marking logophoricity—logophoric pronouns, logophoric cross-referencing, first person logophoricity, logophoric verb affixes—or may combine different strategies. Strategies which have been found are given in Table 1: logophoric verb affixes, logophoric cross-referencing and first person logophoricity with no logophoric pronouns, logophoric pronouns coextensive with logophoric cross-referencing, logophoric pronouns coextensive with first person logophoricity, logophoric cross-referencing in singular and first person logophoricity in plural with no logophoric pronouns, and possibly logophoric cross-referencing in singular and first person logophoricity in plural together with logophoric pronouns.

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[8] Of course, we have seen that logophoric pronouns and verbal logophoricity are distinct phenomena, and consequently could be operating here on distinct principles.

[9] Only the Set A forms of the logophoric prefix are given in the descriptions, and this is identical to the Set A forms of the first person plural. The first person plural Set B form has a different tone; it would be interesting to discover whether the singular/plural logophoric Set B form is identical to the first person plural Set B form.

Table 1: Combinations of verbal logophoric marking and logophoric pronouns (with sample languages)

	No logophoric pronoun	Logophoric pronoun
Logophoric verb affix	Gokana	(none)
Logophoric cross-referencing	Akɔɔse	Moru
First person logophoricity	Karimojong	Donno Sɔ
Logophoric cross-referencing (SG) and first person logophoricity (PL)	Ekpeye	? Efik

7. Typologies of logophoricity

As noted in section 2, there is general agreement in the typological literature on the broad definition of logophoricity, but there are some differences in the details. This section will discuss various definitions and what the existence of three different types of verbal logophoricity means for those discussions.

The most obvious impact of three types of verbal logophoricity on the typological literature has already been mentioned. Given that there are three types, and that each type appears to have somewhat different distributional possibilities, it is not at all clear that general implicational schemes such as those developed in Hyman and Comrie [1981] and Wiesemann [1986]—if logophoricity is used with plural referents, then it is used with singular referents; if logophoricity is used with second person, then it is used with first person, and so on—can be developed without taking into account that not all logophoric systems are the same. Three features of logophoricity appear to be particularly affected in this way: obligatoriness, use with first person, and combination with number.

In general, when a language has some device for marking logophoricity, this marking is obligatory when used to show that a subject (or object, if this is possible) of a subordinate clause is coreferential with an argument of a higher clause.[10] This obligatory nature of logophoricity is precisely one of the features which can be used to distinguish logophoricity from other systems such as non-clause-bounded or long distance reflexives [cf. Culy 1997]. Of course, logophoric marking may be restricted in person or number, only used with third person or only used with singular referents, but where it may occur, it must occur. This appears to be the case for all reported examples of logophoric pronouns, logophoric cross-referencing, and first person logophoricity; but it is not the case with verbal logophoric affixes in Gokana and Kana, where the system is optional with second and first person referents.

[10] In some languages the system is also extended to use in other contexts, and in these contexts the system may be optional (see, for example, Culy [1994a]).

Turning to the use of logophoricity with referents of different person, it is clear that logophoricity systems may be used with third person referents only, or with third and second person referents (see, for example, von Roncador [1992]). A few examples have been reported of the use of logophoric pronouns with first person, as noted above, although there are often additional complications in these systems. Once again, Gokana and Kana appear rather unusual, as the verbal logophoric affix is optionally used with first person referents. This unusual behaviour of a distinct type of logophoric system casts doubt on part of Hyman and Comrie's [1981] or Wiesemann's [1986] suggested logophoric implicational scale of 1>2>3 (that is, that the use of logophoricity for first person referents implies that it is used for second person referents, which in turn implies it is used for third person referents): if the only clear evidence of the use of a logophoric system with first person is an entirely different type of system from the others, then it seems somewhat dubious to develop a scale on the basis of this evidence. Even accepting that first person logophoric marking occurs in Yạg Dii, there is still an additional problem with the implicational scale, in that it does not quite hold true for Gokana; the logophoric verbal affix is used with first person plural but not for second person plural.

With regard to the implicational hierarchy that if logophoric marking is used with singular referents it is used with plural referents [e.g., Hyman & Comrie 1981], this holds true but seems to miss an important point. Logophoric pronouns and logophoric cross-referencing are found to refer to singular referents only in some languages and singular and plural referents in other languages. There is even the case in Ekpeye, where the logophoric cross-referencing (or cliticized logophoric pronoun) is used in singular but not in plural. However, it does not hold for first person logophoricity, which does not seem to have this distribution. First person logophoricity is used with both singular and plural referents in all languages where it occurs, with the exception of Ekpeye (and possibly Efik and Ibibio), where it only occurs with plural referents, as logophoricity with singular referents is shown through logophoric cross-referencing. While the general statement that if some form of logophoric marking is used in plural then some form of logophoric marking is used in singular holds true (since some form of marking is used for both in Ekpeye), it seems more in line with the facts to say that if logophoric pronouns or logophoric cross-referencing is used with plural referents then the same strategy is used with singular referents; this restatement thus covers the use of logophoric cross-referencing with singular referents only in Ekpeye, and the fact that no examples have been reported where first person logophoricity occurs with singular but not plural referents.

One issue which arises in some of the typological literature with respect to logophoricity is the division of languages into "pure" and "mixed" logophoric languages, or "pure logophoric", "mixed logophoric", and "non-logophoric" languages. For Culy, pure logophoric languages are those in which there is some morphological and/or syntactic form (logophoric pronoun, addressee pronoun or verbal morphology) which is used only in logophoric domains, and mixed logophoric languages are ones in which "reflexive pronouns have an extended use in logophoric domains to refer back to the logophoric trigger" [1994a:1057].

According to Huang [2000:172-73], pure logophoric languages have special morphological or syntactic forms employed only in logophoric domains, non-logophoric languages have no special morphology/syntax, and mixed logophoric languages where logophoric marking may be used for other purposes or reflexives may be used in logophoric contexts.

One general problem with these definitions is their framing in terms of *languages*, as a single language may contain elements of each type. For example, Culy [1994a] lists Moru as a pure logophoric language, with logophoric verbal marking, as it has special verbal affixes used only for marking logophoric contexts (although these have clearly derived from reflexive pronouns, according to Andersen & Goyvaerts [1986]). However, Moru also uses reflexive pronouns in logophoric contexts, and thus according to Culy's definition, Moru is also a mixed logophoric language. This difficulty can, of course, be overcome by discussing pure and mixed logophoric *constructions* or *elements*, rather than languages.

A more serious problem with the definitions of pure and mixed logophoricity arises because of their non-exclusive nature, as can be seen by examining the three types of verbal logophoricity in terms of the division between pure and mixed. A verbal logophoric affix such as that of Gokana is clearly pure logophoricity, as it is apparently not used for anything else. Logophoric cross-referencing is also pure logophoricity, not otherwise used (but see below for further comment on the Moru, Kaliko and Logo systems). First person logophoricity, on the other hand, is clearly not pure logophoricity, as the form used to signal logophoricity is used elsewhere in the language as a marker of first person. This would imply that first person logophoricity is mixed logophoricity—but in fact given the definitions of Culy and Huang, it is not. Culy [1994a:1057] defines mixed logophoricity as the use of reflexive pronouns in an extended use,[11] while Huang [2000:172-73] defines it as the use of reflexive pronouns or where logophoric marking is extended for other uses; and first person logophoricity is clearly neither of these.

Given Culy's [1994a, 1997] discussion, his division between pure and mixed logophoricity appears to be designed to distinguish the phenomenon of logophoricity from the distinct phenomenon of non-clause-bounded or indirect reflexives, as found for example in Japanese and Icelandic; an important and worthy goal. He clearly establishes that these two phenomena have distinct properties in terms of the discourse environments in which the two are used, their obligatoriness in situations of coreferentiality, and whether they are discourse-role-oriented [Culy 1994a:1079-82]. Given that these phenomena, which are conflated in some discussions, have different properties, it is important to distinguish them. However, whether a particular logophoric-like form and construction have the properties of logophoric pronouns or indirect reflexives is a quite distinct issue from whether the form which is used in these constructions is employed somewhere else in the grammar for a different purpose (although an examination

[11] It must be noted that shortly after his definition of mixed logophoricity as relating to reflexive pronouns, he goes on to give as his first example of a mixed logophoric language the Kwa language Yoruba, where the forms used for logophoric marking are the "long forms" of the pronouns, which are used as independent, non-reflexive, pronouns.

of strictly single-use forms may be of great assistance as the initial step in establishing the respective properties of the phenomena). Indeed, with regard to at least two of the three properties in question, first person logophoricity lines up with logophoricity rather than with indirect reflexives—first person logophoricity is used in the discourse environments of logophoricity, and is obligatory under these conditions. Whether or not first person logophoricity is discourse-role-oriented is unknown.

This distinction of logophoricity on the basis of its properties rather than on the form used also avoids potential problems of deciding whether two forms are the "same" or "different". For example, as seen in example (6), Kaliko has a logophoric cross-referencing verb prefix *yí-*, and this appears to have the expected properties of such marking (e.g., used in appropriate environments, obligatory). This prefix is never used as a reflexive marker; reflexives cannot be subjects. However, it is clearly related historically to the pronoun *yī*, and has the same morphophonemic relation to it that first and second person verbal prefixes have to the corresponding pronouns [Andersen & Goyvaerts 1986:311]. The pronoun *yī* is used everywhere except directly before a verb, as are other pronouns. In particular, it is used in logophoric contexts when the subordinate clause is non-verbal, as in example (39).

Kaliko [Andersen & Goyvaerts 1986:311]

(39) *kìnì tá yī drà bɛ̄*
3S.say CPL LOG illness with
'He$_i$ said that he$_i$ was ill.'

However, while we may thus wish to say that *yī* is the equivalent of the logophoric cross-referencing prefix used when there is no immediately following verb, the pronoun *yī* is identical in form to the reflexive pronoun in Kaliko.[12] Disallowing this pronoun as a representative of pure logophoricity would thus lead us to report that in Kaliko there is a system of pure logophoricity when the subject of a subordinate clause is coreferential with the matrix subject and there is a subordinate verb, but a system of mixed logophoricity when the subject of a subordinate clause is coreferential with the matrix subject but there is no subordinate verb. And we would have to decide at which point during the grammaticalization of the pronoun into a clitic then into a prefix that the system had suddenly changed from one of mixed logophoricity to one of pure logophoricity.

Of course, whether a logophoric form is identical to, similar to, or historically derived from some other form (reflexive or not) is of interest in examining the origins of logophoricity and paths of grammaticalization—but it should not be used as a defining feature of logophoricity, since some "mixed" logophoricity seems to have the properties of "pure" logophoricity rather than the properties associated with indirect reflexivization.

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[12] In fact, it is also related to a referential demonstrative; Dimmendaal [2001:140] suggests that this use is the historical origin of the logophoric marker in the related language Moru.

Rather than establishing a division between pure and mixed logophoricity on the basis of whether the particular form is used in other contexts, then, it seems more appropriate to divide up logophoricity (and distinguish it from indirect reflexivization) on the basis of the properties of the particular phenomenon in question.

8. Conclusion

Verbal logophoricity in African languages is indicated using three separate devices: logophoric cross-referencing, first person logophoricity, and logophoric verbal affixes. In some languages, more than one of these devices may be used, depending on features of the referent, such as person and number, and verbal logophoricity may be found alone or combined with logophoric pronouns, as was seen in Table 1.

While all three types share certain features (such as their use in logophoric domains, when an utterance is subordinated to a verb of speech), they have distinguishing properties also; these properties are exemplified in Table 2, which also includes the properties of logophoric pronouns and indirect reflexives.[13]

Given that each of these types of verbal logophoricity would appear to have different properties, it is important to keep them distinct from each other and from logophoric pronouns in general discussions of typological features of logophoricity, at least until it is determined on the basis of further research whether the properties truly are different or simply appear distinct because of a current lack of data.

[13] Logophoric addressee pronouns, clearly related, have not been included here.

Table 2: Properties of different types of verbal logophoricity
(a semicolon indicates that a language may have either one or the other property)

	Logophoric cross-referencing	First person logophoricity	Logophoric verb affix	Logophoric pronoun	Indirect reflexivization
Obligatory[a]	yes	yes	yes[b]	yes	no
Marked on	verb[c]	verb	verb	pronoun	pronoun
In person paradigm[d]	yes	yes	no	yes	yes
Special form[e]	yes[f]	no	yes	yes; no	no
Person[g]	3 only; 2+3	2+3; 3 only[h]	(1+2+)3[i]	3 only; 2+3; 1+2+3[j]	3 only
Number	sg; sg+pl	sg+pl; pl	sg+pl	sg; sg+pl	sg+pl

Notes to table 2:

a. That is, whether the logophoric form is obligatory at least in embedded speech contexts.
b. The logophoric affix in Gokana and Kana is obligatory only with third person.
c. Some cases are intermediate between logophoric verb marking (with affix) and logophoric pronouns, with pronouns cliticized to the verb.
d. That is, does the logophoric form contrast with (other) person-marked forms.
e. That is, does the logophoric marker have other functions as well.
f. The logophoric cross-referencing forms of Moru, Kaliko and Logo are clearly related to and historically derived from the reflexive pronouns.
g. Here it is important that the same form be used for different persons.
h. There are languages for which the only examples of first person logophoricity are found with third person referents; however, it is not clear whether these forms cannot be used with second person referents, or are simply not exemplified.
i. The logophoric verbal affix of Gokana is found with all persons, but is obligatory with third person only.
j. The only clear example of the use of a logophoric pronoun used with second and third person also being used with first person is Yąg Dii, and apparently some related Adamawa languages [Bohnhoff 1986].

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21/68 Gladstone Road
Highgate Hill QLD 4101
Australia
tjcurnow@ozemail.com.au

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A WHOLE LOTTA FOCUSIN' GOIN' ON: INFORMATION PACKAGING IN SOMALI TEXTS *

Mauro Tosco
Istituto Universitario Orientale

The article deals with the pragmatics of focus marking in Somali written texts. The use of the nominal focus markers *baa* and *ayaa*, of clefts, of noun incor-poration and of the particle waa is analyzed. Concerning the latter, it is argued that the verbal-focus effect often associated with it is more the result of the absence of nominal focus than an inherent property of this particle, thereby confirming Saeed's analysis of *waa* as a "declarative classifier". A few text-building uses of the focus particles are discussed, namely, the use of subject focus in text-initial thetic sentences, the topic-shifting value of nominal focus, and the use of focus on a clausal or nominal adverbial as an action-enhancing device. In light of these considerations, it is argued that the nominal focus particles are perhaps better considered as generic "foregrouding particles".

1. Introduction

The grammar of focus is without a doubt the single most studied feature of Somali syntax. Due to the painstaking efforts of a number of scholars, starting with Andrzejewski [e.g., 1964, 1975] and followed by Puglielli [e.g., 1981] and her associates in Rome [e.g., Svolacchia, Mereu & Puglielli 1995], John I. Saeed [e.g., 1984, 1999] and J. Lecarme [e.g., 1994], we have gained a fairly fine-grained knowledge (generally couched within a generative, either GB or minimalist, framework) of the syntactic conditionings which regulate focus marking.

Briefly, and leaving aside the intricacies of subject marking and verb form when associated with focus, the following general rules apply:

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1. any main declarative (positive) sentence must receive focus marking (except for 5. below);
2. in any sentence, only one NP may receive focus, marked by the nominal focus marker *baa* or *ayaa* which follows the last member of the NP or is cliticized to it;
3. apart from the focused phrase, all the other nominal elements (with the exception of incorporated ones; cf. below Section 8.) may be considered topics;
4. the order of constituents is syntactically free, and all the grammatical information is found within the "Verbal Complex", which contains in rigid order object pronouns, adpositions and adverbials and is ended by the verbal form;
5. whenever an NP is not focalized, a main declarative sentence is marked by *waa*, which is either described as a "verbal focus marker" [e.g., Puglielli 1981] or as a "declarative sentence marker" [Saeed 1984, 1999];
6. all other sentence types (dependent, negative, interrogative, imperative, etc.) are not focus-marked;
7. apart from the nominal focus and *waa*, a cleft construction is frequently used, whereby a constituent may be shifted to the right of the verb.

In contrast to syntax, the pragmatic and discourse conditioning of focus have received much less attention; among the very few studies dealing with the pragmatics of Somali sentences, one can mention Hetzron [1965], El-Solami–Mewis [1980, 1981], and, in particular, Gebert [1986]. As a consequence, attention has been brought upon the conditions for the placement of "narrow" focus and the order of topical NPs within the sentence (an issue which will not be dealt with here, and for which the interested reader may consult Gebert [1986]), but, with the possible exception of Ajello [1995], larger-than-the-sentence units have hardly been considered at all.

In contrast to this sentence-centered approach, the present article will look at the interplay of nominal focus (through *baa* or *ayaa*), the element *waa* and clefting in the information packaging of Somali texts. It will be shown that, apart from the use of the nominal focus markers *baa* or *ayaa* in "narrow" (argument) focus, subject focus is used textually in event-reporting sentences, i.e., whenever the whole sentence is pragmatically new, and in thetic (presentational) sentences. Further textual-based uses of focus involve the focusing of an adverbial (either an NP or a subordinate clause) as an "action-enhancing" strategy, and the use of clefts. In contrast, the use of the element *waa* seems to be linked with the absence of focus and the backgrounding of topical elements. Apart from its mandatory use in focusless nominal sentences and in focusless, not-event-reporting and not-thetic intransitive sentences, *waa* will therefore be found whenever the attention is brought upon the action itself, and all the other elements are detopicalized, as is frequently the case when a noun is incorporated into the verb.

Although our analysis is based upon a very limited corpus (basically, Ciise's [1985] collection of Somali folktales, as well as a selection of articles from a few Somali websites), the information-packaging strategies identified are very robust: they recur in a large number of cases, and some of them (such as the use of

subject focus in thetic sentences) are commonplace in any Somali text. Moreover, they find their parallel in many other languages. What is peculiar to Somali is rather the use to these purposes of those ubiquitous elements which mark most Somali main declarative sentences: the focus markers.

2. Subject focus and event-reporting sentences

It will be assumed, following Lambrecht [1994], that the division of sentences into topic and comment is a universal feature of sentence organization, with topic loosely defined as "the referent about which the proposition is construed, expressing information which is relevant to and which increases the addressee's knowledge of this referent" [cf. Lambrecht 1994:131], while focus is simply "[T]he semantic component of a pragmatically structured proposition whereby the assertion differs from the presupposition" [Lambrecht 1994:213]. Therefore, the overall function of focus marking is "to indicate denotata with pragmatically non-recoverable relations to propositions, whether topical or focal" [Lambrecht 1994:337].

It will also be assumed that the presence of lexical and morphosyntactic marking of pragmatic functions in Somali and many other East Cushitic languages finds its ultimate explanation in the non-availability for pragmatic purposes of sentence accent in pitch-accent languages, in which accent is used for morphosyntactic and lexical coding. A similar conclusion was reached by Sasse [1984: 266, fn. 16]: "One motivation for the development of such an elaborate focus-marking system may perhaps be seen in the fact that, in the course of the history of EC [:East Cushitic; MT] languages, there has been a considerable increase in the distinctive functions of pitch differences (tone). This may have given rise to the avoidance of intonational means of pragmatic marking and their replacement by morphosyntactic means'.

At the same time, Somali, like many verb-final languages, does not have access to subject inversion as frequently found in Romance languages. Information structure therefore needs a different coding.

Even a cursory look at a Somali text reveals that the particles *baa* and *ayaa* are employed with a variety of constituents which it would be very difficult to qualify as "in focus" on either semantic or pragmatic grounds. As has been noted by Gebert [1986:48], (2) could be uttered as a reply to (1). [1]

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[1] Somali examples are in the standard orthography, in use since 1972. Its main peculiarities are: <c> = [ʕ]; <x> = [ħ]; <dh> = [ɖ]. The following abbreviations are used in the glosses:

ANPH	anaphoric article	ITIV	itive adverb (*sii*): movement away from the speaker or the center of attention
ART	determinate article		
DEP	dependent mood		
F	feminine	LINK	linking particle (*ee*), used with appositive relatives and in modifying a definite head
FOC	1. nominal focus marker; 2. subject-focus verbal form		
GEN	genitive case form	M	masculine
IMP	impersonal subject pronoun	NEG	1. negative particle; 2. negative verbal form
INF	infinitival verbal form		

(1) *Maxaa dhacay*?
what happen.PAST.3M.FOC[2]
'What happened?'

(2) *Cali baa Maryam dilay*
Cali FOC Maryam beat.PAST.3M.FOC
'Cali beat Maryam'

Obviously, here not just the subject Cali, but the whole sentence is new and asserted. Gebert notes that a sentence in which *waa*, rather than *baa*, is used (e.g., *Cali Maryam wuu dilay*, in which *wuu* is the element *waa* followed by the clitic subject pronoun *-uu*; see also Section 9 below), though syntactically well-formed, would hardly be appropriate, and that Somali speakers have difficulties in producing and accepting such sentences. What is missing from Gebert's analysis is a unified theory of focus. Using Lambrecht's [1994] tripartite division of focus structures into predicate, argument, and sentence focus, a sentence like (2) will be an instance of sentence focus. The fact that the whole proposition is asserted does not mean that the focus of the assertion does not cover the subject, which is the element marked as focused in Somali: it does, but together with the whole sentence, whose pragmatic presupposition is simply that something happened. Contrary to topic-comment sentences, in (2) Cali is not the topic (although of course it must be identifiable to the addressee) and the sentence is not a statement about him: (2) is an event-reporting sentence, a sentence which could also be uttered "out of the blue" [Lambrecht 1994:124]. Such sentences are marked in English primarily by accent on the subject (accompanied, in transitive sentences, by accent on the object: 'CALI beat MARYAM'), prosodically the reverse of topic-comment sentences ('Cali beat MARYAM'). The same reversal of the topic-comment pattern is instead realized syntactically in various Romance languages through subject inversion. In a topic-comment sentence, the focus is on the predicate (in the sense of "what is predicated about the subject", i.e., the verb together with the object and, where relevant, other "new" elements. In English the absence of prosodic prominence on a constituent indicates the active (topical) status of its referent, while the presence of prominence is compatible with either an inactive or an active status [Lambrecht 1994:98]; an active element may well get accent and still be topical. In Somali, absence of focus marking only indicates that the referent is active, while the presence of focus is neutral with respect to

P	plural	S	singular
PAST	past tense	SUBJ	subject case
PRES	present tense	VENT	ventive adverb (*soo*): movement toward the speaker or the center of attention
PROG	progressive		
Q	question marker		
REFL	reflexive object pronoun	VN	verbal noun

2 When the focused element is the subject, the verb has a special tonal pattern as well as a special reduced accord; such forms are glossed here with FOC, although no pragmatic focus on the verb is implied.

this feature and can be used both with active and inactive referents: in many cases focus is found on a topical element, as in the case of contrastive focus, while in other cases focus will mark a new constituent.

According to Lambrecht [1994], there are therefore three focus possibilities, realized prosodically in English by two basic accent-sentence patterns (in the following scheme, accent is indicated by small caps):

Predicate focus:	'Cali BEAT MARYAM'	(topic — PREDICATE)
Argument (subject) focus:	'CALI beat Maryam'	(TOPIC — predicate)
Sentence focus:	'CALI beat Maryam'	(PREDICATE)

In English, sentence focus is not unambiguously marked: the same sentence pattern is used in the case of argument focus on the subject, as in answering the question 'who beat Maryam?' Likewise, in Somali a sentence like (2) is ambiguous between a sentence-focus interpretation and an argument focus interpretation; sentence (3) could again be answered by (4), identical to (2).

(3) *Yaa Maryam dilay*?
who Maryam beat.PAST.3M.FOC
'Who beat Maryam?'

(4) *Cali baa Maryam dilay*
Cali FOC Maryam beat.PAST.3M.FOC
'CALI beat Maryam'

Moreover, the same construction with subject-focus marking would be used in the case of contrastive focus: sentence (5) could be answered by (6), identical again to (2). As noted by Lambrecht [1994:286], "contrastiveness" is better understood as a gradient property of narrow focus, with no specific marking. The absence of a specific construction which would mark the subject of (6) as a reply to (5) is therefore totally expected.

(5) *Ma Cali mise Axmed baa Maryam dilay*?
Q Cali or Axmed FOC Maryam beat.PAST.3M.FOC
'Was it Cali or Axmed who beat Maryam?'

(6) *Cali baa Maryam dilay*
Cali FOC Maryam beat.PAST.3M.FOC
'CALI beat Maryam'

Leaving aside the complex issue of the position of the non-focused object NP Maryam in (2), it is important to note that the Somali data confirm Lambrecht's [1994:321] observation that "[P]artial or total homophony of sentence-focus and narrow-focus sentences is a common occurrence across languages".

The first rule for the information packaging of a Somali text is therefore: "event-reporting sentences are expressed through focus marking on the subject NP".

3. Subject focus and thetic sentences

There are no presentational particles in Somali, neither is subject inversion, of the type commonly found, e.g., in Romance, available. Thetic judgements make use instead of subject focus marking, as in (7)-(8). Of course, this construction is one and the same with the subject-focus-marking sentences seen above. For example, (8) could also be used for narrow focus on the subject, as in answering (9).

(7) *roob baa da'aya*
rain FOC fall.PROG.3M.FOC
'It is raining'

(8) *Cali baa imanaya*
Cali FOC come.PROG.PRES.3M.FOC
'Cali is coming'

(9) *yaa imanaya*?
who come.PROG.PRES.3M.FOC
'Who is coming?'

Thetic sentences are often found at the beginning of a text (cf. also below Section 5), as in (10) and (11), the initial sentences from two folktales.

(10) *laba nacas baa waa*[3] *is qabay*
two fool FOC time REFL take.PAST.3M.FOC
'There were once two fools married to each other' [Ciise 1985:73]

(11) *laba nin baa waa ollog ahaa*
two man FOC time neighbor be.PAST.3M.FOC
'There were once two neighbors' [Ciise 1985:49]

At the same time, not all instances of initial subject focus are thetic; many are simply event-reporting; consider (12), from a tale in which a man and a lion become friends. The sentence in (13), instead, is the opening line of a newspaper article.

(12) *Libaaxii baa dabadeed kexeeyay oo gurigiisii*
lion=M.ANPH FOC then lead.PAST.3M.FOC and house=M.his.ANPH
geeyay
take.PAST.3M.FOC
'After that the lion took him and brought him to its den' [Ciise 1985:67]

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[3] *waa* here is a noun meaning 'time' and has a different tonal pattern from the classifier *waa*.

(13) *Ciidanka booliska ee saldhigga Berbera ayaa*
force=M.ART police=M.ART LINK station=M.ART Berbera FOC

shalay gacanta ku dhigay haweeney soo xadday
yesterday hand=F.ART to put.PAST.3M woman VENT steal.PAST.3F

cunug da'diisu ahayd 10 bilood
infant age=M.his.SUBJ be.PAST.3F 10 month.GEN

'Yesterday police forces of the Berbera [police] station caught a woman who had kidnapped a 10-month-old infant'
(www.ayaamaha.com/News/April10217/N005.html)

In other languages this sentence would be built as a topic-comment structure with a major sentence stress on the object NP in English (cf. the hardly acceptable English rendering of (13) with 'FORCES OF THE BERBERA POLICE STATION caught...'). Somali has recourse instead to subject focus. Note also that the focused element (in this case, the subject phrase) is not the one which is going to be the "center of attention": the text is not "built around" the police. In fact, the next sentence in the text is (14).

(14) *Cunuggii iyo haweeneydii ayaa la sheegay in*
infant=M.ANPH and woman=F.ANPH FOC IMP say.PAST.3M that

haatan lagu hayo saldhigga Berbera
now IMP=in hold.DEP.3M station=M.ART Berbera

'It is reported that the infant and the woman are presently kept at the Berbera police station' (www.ayaamaha.com/News/April10217/N005.html)

In other cases subject-focus has a contrastive value and is therefore to be analyzed as an instance of argument focus; this is often the case when an NP changes its syntactic role from subject to object or vice versa. In (15) a man finds a leopard sleeping along the road and, thinking it to be dead, makes ready to skin it; the leopard is introduced in the role of object. At the last moment, the leopard stands up and slays the unfortunate man (16). The leopard, which is obviously topical, now becomes the syntactic subject, and is marked by focus.

(15) *Isagoo iska mushaaxaya ayuu maalin kale shabeel*
he=and REFL=in stroll.PROG.PRES.FOC FOC=he day other leopard

waddada dhex hurda ka dul dhacay
road=F.ART middle sleep.PRES.FOC on upon happen.PAST.3M

'Another day, strolling around, he came by a leopard sleeping in the middle of the road' [Ciise 1985:69]

(16) *Shabeelkii baase ku toosay oo meeshii ku*
leopard=M.ANPH FOC=but in stand-up.PAST.3M and place=F.ANPH in

kala gooyay
apart cut.PAST.3M

'But the leopard stood up and and slayed him on the spot' [Ciise 1985:69]

In (17), from another text, a jackal tricks a lion into eating a stone wrapped in resin. The lion, which is the indirect object of the preceding sentence and which is topical, then becomes the subject and is again marked by focus.

(17) ... *debadeedna*[4] *dhagaxii xabagtu ka dahaarreyd*
then=and stone=M.ANPH resin=F.ART.SUBJ in covered.PAST.3F

hoosta u gelisey
underneath=F.ART to enter.CAUS.PAST.3F

'... then she[5] slipped the stone wrapped in resin under him'
[Ciise 1985:75]

(18) *Libaaxii baa xabagtii laq is yiri*[6]
lion=M.ANPH FOC resin=F.ANPH laq REFL say.PAST.3M
'The lion wolfed down the resin' [Ciise 1985:75]

In all these cases, the function of the focus marker can therefore be said to be simply that of a topic-switching device.

4. Object focus: focus marking as a topic-switching device

Subject-focus, although fairly frequent, especially text-initially, is obviously not the only possibility; object-focus is the normal way to introduce a new element in a text. In (19) we see the same non-coextensiveness of the syntactic and pragmatic domains of focus marking seen in Sections 2. and 3. for subject focus. As noted by Gebert [1986:46], the sentence in (2) above, with subject focus, is excluded precisely if the subject is already activated, as in (20), which could be answered by (21).

(19) ... *hal gool ah beyna heleen*
she_camel fat be FOC=they=and find.PAST.3P
'... and they found a fat she-camel' [Ciise 1985:63]

---

4 Most probably a typographical error for *dabadeedna*.

5 'Jackal' (*dawaco*) is grammatically Feminine.

6 *laq* is an ideophone expressing the action of swallowing.

(20) *Cali muxuu sameeyay?*
Cali.SUBJ[7] what=he do.PAST.3M
'What did Cali do?'

(21) *Cali Maryam buu dilay*
Cali.SUBJ Maryam FOC=he beat.PAST.3M
'Cali beat Maryam'

In (21) *baa* focalizes the object Maryam, although not only Maryam, but also her beating, are new. Just as for (2) in Section 2 above, the sentence in (21) shows that focus on an NP may contain focus on the predicate: focus on the subject (cf. (2)) presupposes pragmatic focus on the whole sentence, while focus on the object (cf. (21)) presupposes pragmatic focus on the whole predicate, or the VP, although a syntactic VP category does not exist in Somali. Object-focus is therefore used either for a "broad" focus on the whole predicate, as in topic-comment sentences such as (21), or for a "narrow" argument focus. Consider the question (22).

(22) *Cali yuu dilay?*
Cali.SUBJ who=he beat.PAST.3M
'Whom did Cali beat?'

Although the most probable spontaneous answer to (22) would simply be *Maryam*, an appropriate sentential answer would involve both the use of the focus particle and the shift of the whole focused object NP before the subject.

(23) *Maryam baa Cali dilay*
Maryam FOC Cali.SUBJ beat.PAST.3M
'It was Maryam whom Cali beat'

Just as a topical subject can get focus, one often finds focus used with a topical object; (19) is immediately followed in the text by (24).

(24) *Hashi bey kaxaysteen*
she_camel=F.ANPH FOC=they drive.PAST.3P
'They drove the she-camel away' [Ciise 1985:63]

In (24) the she-camel, which has already been introduced in (19) and is therefore active, is still focus-marked. The value of focus marking in this context can best be understood as that of a topic-switching device: after having introduced in the preceding sentences the protagonists of the story, now the discourse is centered on the she-camel and its fate.

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[7] Subject is expressed here (as on most nouns) tonally through absence of high tone; i.e., *Cali* (Absolute case form: [ʕáli]) vs. *Cali* (Subject case form: [ʕali]). Tone is not represented in the standard orthography.

The value of focus marking as a topic switch is also evident in another tale, which begins with (25), the usual thetic sentence with subject focus. The text continues with (26).

(25) *Nin baa waa ari badan lahaa*
man FOC time sheep many have.PAST.3M
'Once a man had many sheep', or
'There was once a man who had many sheep' [Ciise 1985:65]

(26) *Arigii baa cudur xumi ka galay*
sheep=M.ANPH FOC disease bad.SUBJ in enter.PAST.3M
'A bad disease fell upon the sheep', or
'The sheep fell prey to a bad disease' [Ciise 1985:65]

Note that in (26) it is the object "the sheep" which gets focus, and not the subject, which is new. Although the sheep is not a new element, while the disease is, the sheep are the center of attention; actually, in the text the disease will not be further mentioned, while the attention will be brought upon its consequences, and (27), the third sentence of the text reverts to subject focus.

(27) ... *maalin kastana dhowr neef baa ka dhiman jirtay*[8]
day each=and several animal FOC from die.INF exist.PAST.3F.FOC
'... and every day many animals died' [Ciise 1985:6]

Although thetic sentences, argument focus, and topic shift account for many instances of focus marking, neither the subject nor the object are the most common bearers of focus marking in a Somali text: rather, whenever they are present either an adverbial or a subordinate clause are the preferred locus of focus. To this we turn in the following section.

5. Adverbial focus: focus marking as an action-enhancing device

Having set the scene and presented the participants, the tale of the sheep continues with the actual action: the shepherd divides his flock into two parts, one for himself and the other for God, asking God to take His part and let him keep the rest. But, as the epidemic goes on, he starts killing one sheep from God's flock whenever one of his sheep dies.

As the action develops, the normal solution is to focalize an adverbial, be it a nominal phrase or a whole clause. After (27), the fourth sentence of the text is (28). This pattern, in which a time or manner adverbial or a dependent clause gets focus, is preserved for all the following text.

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[8] An Infinitival verbal form followed by the Past of the verb *jir* 'to exist' expresses the Habitual Past.

(28) *Goor arigii sii daba yar yahay, buu laba u*
time sheep=M.ANPH ITIV tail small be.PRES.3M FOC=he two in

qaybiyay
divide.PAST.3M

'As the sheep were shrinking in number (*daba yar yahay* 'the tail is small' is idiomatic for 'to shrink in number'), he divided (the flock) into two parts...' [Ciise 1985:65]

(29) *Arigi sidii buu u le'anayay*
sheep=M.ANPH.SUBJ way=F.ANPH FOC=he in die.PROG.PAST.3M
'(Even) so, the sheep were (still) dying in that way' [Ciise 1985:65]

Focus on an adverbial is the "neutral" solution whenever attention is upon the development of the action. It is also common, together with the presentational, event-reporting use of subject focus, for the initial sentence of a text, as in (30).

(30) *Maalin baa nin socota ahi, shabeel waddada*
day FOC man traveller be.PAST.3M.SUBJ leopard road=F.ART

dhex bilqan ku kulmay
middle spread in meet.PAST.3M

'One day, a traveller came by a leopard lying on the road' [Ciise 1985:69]

The default value of the focalization on an adverbial element is best seen where both a subject and an object NP are available but, being already activated, focus falls on the adverbial, as in (31).

(31) *Lo'da midba maalin buu raaci jiray, kan*
cattle=F.ART one=each day FOC=he graze.INF exist.PAST.3M M.this

kalana qaraab buu dooni jiray
other=and fruit FOC=he look-for.INF exist.PAST.3M

'Every day one of them was taking the cattle to pasture, while the other one was looking for edible fruits' [Ciise 1985:75]

Actually, whenever a dependent clause is present it is the rule for it to be marked by focus. In this case the focus marker also has an evident clause-demarcating role, whereby it marks the end of the dependent clause and introduces the main clause. Consider the sentences in (32) and (33).

Thus, focus marking on a sentence-initial adverbial or dependent clause shows yet another central value of focus in Somali: its use as an action-enhancing and coherence-building device.

(32) *Markii ay u caddaatay [...], buu calaacal iyo*
time=M.ANPH it to become-clear.PAST.3F FOC=he complaint and

Alla eedeyn billaabay
God blame.VN begin.PAST.3M

'When it became obvious to him [...], he started complaining and blaming God' [Ciise 1985:65]

(33) *Markuu dibi maddobe ka laacay buuna*
time=M=he bull black from finish_off.PAST.3M FOC=he=and

aydii isaga guuray
forest=F.ANPH just=from leave.PAST.3M

'As he had finished off the black bull, he just left the forest' [Ciise 1985:71]

6. Clefts

As Ajello [1995] has pointed out, it is not strictly true that only one element may be focalized in any Somali sentence: a focus marker may co-occur with a cleft. Clefts in Somali are built around *waxa* or *waxaa*, from the noun *wax* 'thing'.[9] Actually, it is very common to have a focus-marked adverbial immediately followed by the cleft, especially at the beginning of a text, as in (34)-(36).

(34) *Waa baa waxaa belo isugu faanay libaax, good*
time FOC what dangerousness he.SUBJ boast.PAST.3M lion viper

iyo habar
and old_woman

'Once a lion, a viper, and an old woman were boasting their own dangerousness' [Ciise 1985:37]

(35) *Beri baa waxaa sheekeystay hal, sac iyo ri*
day FOC what chat.PAST.3M she_camel cow and goat
'One day a she-camel, a cow, and a goat were chatting' [Ciise 1985:41]

(36) *Waa baa waxaa jiri jiray nin fulay ah*
time FOC what exist.INF exist.PAST.3M man coward be
'Once there was a certain coward' [Ciise 1985:45]

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[9] *waxa* is *wax* followed by the article; *waxaa* is generally interpreted as either *wax* or its articulated form *waxa* followed by the cliticized form of the focus marker *baa*: *wax(a) baa* → *waxaa*, although an alternative interpretation could be as *wax* followed by the distal demonstrative ('that thing'). The problem with this interpretation is that in this case the constraint against a focus marker appearing more than once in the same sentence would be violated. *waxa* and *waxaa* seem to be used interchangeably. Both forms will be glossed here with 'what'.

Clefts are generally treated as synonymous with focus sentences, and as a stylistic device used in order to bring a costituent (esp. a long, heavy one) after the verb [cf. Saeed 1987:214]. The usefulness of clefts in order to avoid embedding a long sentence before the main verb is particularly evident in (37), still another initial sentence of a folktale.

(37) *Waa baa waxaa wada socdaalay afar nin oo mid fulay*
day FOC what together travel.PAST.3M four man and one coward

yahay, mid geesi yahay mid caaqil yahay, midna
be.PRES.3M one hero be.PRES.3M one smart be.PRES.3M one=and

kasmo iyo waaya-aragnimo isku biirsaday
wisdom and experience REFL=in accumulate.PAST.3M

'One day four men were traveling together: a coward, a hero, a trickster and one possessing both wisdom and experience' [Ciise 1985:43]

Clefts are probably more common in written than in oral styles, and are especially frequent in modern prose. A press release starts with (38).

(38) *Shalay ayaa hoteel Global waxaa isugu yimid qaar*
yesterday FOC hotel Global what REFL=to=in come.PAST.3M part

ka mid ah xubnihii ka tirsanaan jiray
from one is members=M.ANPH from be-part-of.INF exist.PAST.3M

isbahaysigii SSA
organization=M.ANPH SSA

'Yesterday a group composed of members of the organization "Somali Salvation Alliance" have met at the Global Hotel...'
(www.ayaamaha.com/News/April10217/N001.html)

Syntactically, there is no problem with a cleft following a focus marker because the cleft is formally built as a relative clause ('the thing that...'), and the constraint against two focus markers occurring within the same sentence is therefore upheld. If not for the thetic value of subject focus, it seems impossible to discover a pragmatic difference between the focalization on the subject in (21), repeated below as (39), the possible use of a cleft in (39a), or, still, the focus on the time adverbial in (39b).

(39) *Nin baa waa ari badan lahaa*
man FOC time sheep many have.PAST.3M
'Once a man had many sheep', or
'There was once a man who had many sheep' [Ciise 1985:65]

(39) a. *Waa nin waxaa lahaa ari badan*
time man what have.PAST.3M sheep many

(39) b. *Waa baa nin ari badan lahaa*
time FOC man sheep many have.PAST.3M

The same applies to many other text-opening sentences in which subject focus is used, although an additional factor which comes into play is, of course, the use of focus in order to mark the most salient, or unexpected element. In (40), focus on the subject, stressing the fact that in former times the owner of the cows was the hyena, prepares the scene for the story, which is about how it came to be that mankind tricked the hyena and got the cattle.

(40) *Waagii hore lo'da dhurwaa baa lahaan jiray*
time=M.ANPH before cows=F.ART hyena FOC have.INF exist.PAST.3M
'Once upon a time the cows belonged to the hyena'
[lit.: 'the hyena had the cows', i.e., 'it was the hyena who had the cows'; Ciise 1985:21]

Likewise, in (41) a nominal predicate is focalized, instead of either the subject or the adverbial, because it contains the main piece of information, namely the fact that, at one time, the tortoise did not have its shell—thus setting the scene for telling how it came to get one.

(41) *Waagii hore diinku hilib guduudan buu*
time=M.ANPH before tortoise=M.ART.SUBJ meat red FOC=he

ahaa
be.PAST.3M

'Once upon a time the tortoise was (just) red meat'
[i.e., it did not have its shell; Ciise 1985:17]

7. Avoiding focus: *waa*-sentences

Up to this point, the verbal focus marker or declarative classifier *waa* has been left out of consideration. As mentioned above, Gebert [1986:50] notes that Somali speakers tend to avoid the use of *waa* when more than one NP are available; as noted by Ajello [1995:14], *waa* is mainly restricted to two sentence types:

1. nominal predicates, for which the use of *waa* before the predicate noun is mandatory, unless the nominal itself is focused (as in (41) above);
2. with intransitive verbs (but not if the sentence is event-reporting or thetic, in which case, as shown in Sections 2 and 3 above, subject focus will be used).

The sentence in (42) provides an example of a complex nominal predicate introduced by *waa*.

(42) *Jamhuriya waa jariidada kaliya ee xaalada*
Republic waa newspaper=F.ART only LINK situation=F.ART

wadanku uu marayo ka hadasha[10]
country=M.ART.SUBJ it pass.PROG.DEP.3M on speak.PRES.3F

'"Republic' is the only newspaper which speaks about the situation of the country' (lit. "the situation which the country is passing")
[www.jamuriya.com]

In (43) one can note that a time adverbial ('the dry season', 'the rainy season'), although available and a good candidate for focus on the basis of what was observed in Section 5, fails to attract focus. Here the time adverbials cannot fulfil their dynamicizing role in the plot: there is no action, and a timeless condition (the behavior of the frogs) is described. This is evident if one compares (43) with (44), which precedes it in the original. In (44), focus on the time adverbial is further justified contrastively: this sentence is found after another sentence in which the man had tried in vain to get back what he has lent to the frog during the dry season.

(43) *Rahu jiilaalkii waa deyn doon*
frog=M.ART.SUBJ dry-season=M.ANPH waa debt look-for

gugiina waa waalan yahay
rainy_season=M.ANPH=and WAA crazy be.PRES.3M

'During the dry season the frog wants to borrow, and during the rainy season it is crazy (for the joy)' [Ciise 1985:31]

(44) *Gugii dambe ayaa misana ninkii u*
rainy_season=M.ANPH after FOC again man=M.ANPH.SUBJ to

yimid
come.PAST.3M

'In the following rainy season the man went again to him [the frog]'
[Ciise 1985:31]

Also, the examples of *waa* in topic-comment intransitive clauses in which the subject fails to get focus are very numerous. The sentences in (45)-(47) are three examples. In all these cases the subject has already been introduced and does not need activation, nor is it used contrastively. Furthermore, no other NPs (possible

[10] The spelling used in this source is at times idiosyncratic or downright faulty; a more common spelling would be: *Jamhuuriya waa jariidadda keliya ee xaaladda waddanku...*

recipients of focus) are available in (46) and (47); in (45), which is taken from the same text of (40) above, one could have found the focus on the subordinate clause, as in (48). This could also be construed as a contrastive focus (in opposition to a hypothetical situation in which hyenas disappear and the fighting between hyenas and humankind ends: 'this fighting still goes on, and it will go on UNTIL there will be the hyena').

(45) *Dagaalkii weli wuu socdaa, wuuna*
fight=M.ANPH.SUBJ still WAA=he go.PRES.3M WAA=he=and

soconayaa inta waraabe jiro
go.PROG.PRES.3M until hyena exist.DEP.3M

'This fighting still goes on, and it will go on as long as there will be the hyena' [Ciise 1985:21]

(46) *Kolkii la wareersaday, baa mid soo jeediyay [...]*
time=M.ANPH IMP confuse.PAST.3M FOC one VENT propose.PAST.3M

kalase wuu diiday
other=but WAA=he refuse.PAST.3M

'When they became dizzy (from hunger), one of them proposed [...], but the other one refused' [Ciise 1985:33]

(47) *Caasigii wuu koray, wuu guursaday*
stubborn=M.ANPH.SUBJ WAA=he grow.PAST.3M, WAA=he marry.PAST.3M
'The stubborn [boy] grew and married' [Ciise 1985:59]

(48) *inta waraabe jira buuna soconayaa*
until hyena exist.PRES.3M.FOC FOC=he=and go.PROG.PRES.3M

The same conditions apply for the use of *waa* in transitive sentences, as in (49). Here the attention is brought upon the hostility and lack of trust, rather than on the birds, the object of hostility. Furthermore, a possible contrastive interpretation of the object is not possible ('he does not trust THE BIRDS').

(49) *Xiidxiito wacadkii ma jebin, oo haadda weli*
ringed_plover promise=M.ANPH NEG break.NEG and birds=F.ART still

wey colaadisaa
WAA=she be-hostile-to=PRES.3F

'The ringed plover (a sp. of bird) did not break its promise, and it still does not trust the (other) birds' [Ciise 1985:25]

The folktale which starts with (41) above is about how the tortoise got its shell. Adam, in order to please Eve, orders the raptors to bring him the tortoise's liver.

The tortoise overhears Adam's order and asks for God's protection, whereby God covers the tortoise with a shell. In (50), the sentence in which the tortoise hears Adam's order is not focalized because it is not going to be the topic of the following portion of text, which rather deals with the tortoise reaction at hearing the order.

(50) *Diin wuu maqlayay amarka adag oo Aadan*
tortoise WAA=he hear.PROG.PAST.3M order=M.ART hard and Adam

bixiyay, isagoo oohin iyo Alla tuug isku
issue.PAST.3M he=and crying and God begging together

deraya buuna nagaar hoosta ka
mix.PROG.PRES.3M.FOC FOC=he=and bush under=F.ART in

galay...
enter.PAST.3M

'The tortoise heard the harsh order given by Adam, and, crying and asking for God's protection, sought refuge under a bush' [Ciise 1985:17]

The example in (51) is a coordinated sentence from a well-known tale in which the jackal tricks the crocodile out of his tongue; the jackal (*dawo*) is not focalized because attention is directed toward the consequences of the crocodile trusting him.

(51) *Yaxaas dawo wuu aaminay carrabkiina wuu*
crocodile jackal WAA=he trust.PAST.3M tongue=M.ANPH=and WAA=he

siiyay
give.PAST.3M

'The crocodile trusted the jackal and gave him his tongue' [Ciise 1985:29]

8. An excursus on noun incorporation and its pragmatic value

The tale about the crocodile's tongue introduced in (51) ends with (52), another coordinated sentence. Compare the last clause in (52) with two possible alternatives, (52a) and (52b). The sentence in (52a) has object focus: no contrast with another object is implied, and it is grammatically possible but pragmatically odd,

(52) *... dawo webi kama ag dhowaato, yaxaasna*
jackal.SUBJ river to=not near approach.NEG.3M crocodile.SUBJ=and

wuu weli carrab la'yahay
still WAA=he tongue miss.PRES.3M

'... the jackal still does not go near a river, while the crocodile still does not have his tongue' [Ciise 1985:29]

(52) a. *yaxaasna weli carrab(kii) buu la'yahay*
crocodile.SUBJ=and still tongue(=M.ANPH) FOC=he miss.PRES.3M

(52) b. *yaxaasna weli carrab(kii) wuu la'yahay*
crocodile.SUBJ=and still tongue(=M.ANPH) WAA=he miss.PRES.3M

as the tongue is topical (it is the element around which the tale turns, and in order to be fully acceptable, in (52a) *carrab* should be made definite and referential with an article or a possessive).

More difficult is to ascertain the eventual pragmatic difference between (52) and (52b) (where, again, *carrab* should be definite and referential). In (52b) all the NPs are placed outside of the Verbal Complex *wuu la'yahay*. The original sentence, (52), shows instead noun-incorporation of the object (*carrab*) into the verb; *carrab la'yahay* could well be written *carrabla'yahay* or, even, *carrab-la'yahay* and (52) could be aptly translated 'the crocodile is still tongueless'.

We cannot deal here with the whole complex question of noun incorporation in Somali (preliminary observations can be found in Sasse [1984] and Ajello 1995]), and we limit ourselves to pointing to its pragmatic role in text building. Noun-incorporation is, in Somali, first of all a widely used lexical device in order to enrich the vocabulary [cf. Caney 1984]; it yields innumerable new verbs and nouns, from *sinjifaquuq* 'to discriminate because of race' (from *sinji* 'race' and *faquuq* 'to separate') to *jawrfal* 'to oppress' (from *jawr* 'tyranny' and *fal* 'to do'). But noun-incorporation is also a productive device in everyday speech; through noun incorporation one can background, detopicalize an element in the sentence. To come back to the pragmatic difference between (52) and (52b): (52b) would probably be uttered whenever the attention is brought upon the action, rather than upon a topical object (as in (52) above). But in (52), the last sentence of the text, the crocodile's tongue is no longer a topic; rather, the crocodile's fate and its current situation is. What the crocodile does not have is not just its tongue, but *any* tongue; it has become a tongue-less animal, and the tale is about how this came to happen. An incorporated noun is indeterminate and non-referential, and carrab appears here without any determiner, be it the determinate article (*carrabka*), the anaphoric article (*carrabkii*) or a possessive (*carrabkiisa* 'its tongue').[11]

One therefore finds in Somali a tripartite opposition in the pragmatic marking of elements:

1. focus-marked (either through a focus marker or clefting);
2. topical (not-focus-marked, out of the Verbal Complex);
3. detopicalized, backgrounded (incorporated in the verb).

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11 There are actually a few cases in which a noun is incorporated together with the article; an example is *farta fiiq* as an alternative to *farfiiq* 'to point out, indicate' ("to point [the] finger"). The form with the definite article is always written separated from the following verb, and informants seem to have problems in accepting sentences with it, generally preferring *farfiiq*.

9. A verbal focus? Pragmatic and comparative notes on *waa*

The problem with *waa*-sentences is to understand whether the attention towards the action evidenced in Section 7 is a positive feature of *waa* or simply a consequence of the *absence* of focus on a nominal constituent. Saeed makes a similar point when he notices that "[T]here is no doubt that at a pragmatic level verbs can be contrasted nor that *waa* sentences are compatible with verbs being introduced as new information. The problem arises when *waa* is seen as a syntactic device reflecting this" [Saeed 1984:179].

Although a great amount of effort has been deployed to save the analysis of *waa* as a verbal focus particle (originally introduced by Andrzejewski [1975]; cf. also Svolacchia, Mereu & Puglielli [1995]), it seems to the present writer that Saeed's original arguments (based among others upon the behavior of *waa* and the focus particles in negative, interrogative and coordinated sentences) still hold much of their value. The following observations are meant to support, from a pragmatic and functional point of view, Saeed's syntactic analysis of *waa* as "something else" than a focus particle.

First of all, the use of *waa* in intransitive sentences is obviously in opposition to the focalization of the only other element in the clause, namely the subject. Let us compare (53) and its near-synonym (54) (without the subject pronoun *-uu* cliticized to *waa*, on which see below) with (55).

(53) *Cali wuu yimid*
Cali.SUBJ WAA=he come.PAST.3M
'Cali came'

(54) *Cali waa yimid*
Cali.SUBJ WAA come.PAST.3M
'Cali came'

(55) *Cali baa yimid*
Cali FOC come.PAST.3M.FOC
'CALI came'

In (53) and (54) the possible focus on the verb ('Cali CAME') is an automatic consequence of the absence of subject focus. In English, the pronunciation 'Cali CAME' is phonologically the only alternative to 'CALI came'. Pragmatically, it is consistent both with a broad focus interpretation, as in

i. 'What did Cali do?' — 'Cali CAME'

and with a narrow focus on the verb, as in:

ii. 'Did Cali stay home?' — '(No,) Cali CAME'

Likewise in Somali: case (i.) was seen above as (20), repeated here as (56). Case (ii.) would correspond in Somali to (57), which could be answered by a variant of (53), shown in (58).

(56) *Cali muxuu sameeyay?*
Cali.SUBJ what=he do.PAST.3M
'What did Cali do?'

(57) *Ma Cali gurigiisa joogay?*
Q Cali.SUBJ house=M.his stay.PAST.3M
'Did Cali stay home?'

(58) *Maya, Cali wuu yimid*
no Cali.SUBJ WAA=he come.PAST.3M

It was seen in Section 2 that an answer with subject focus is required by an argument-focus question, such as that in (59).

(59) *Yaa yimid?*
who come.PAST.3M.FOC
'Who came?'

(60) *Cali baa yimid*
Cali FOC come.PAST.3M.FOC
'CALI came'

It was also noted that subject focus is likewise acceptable in the case of an event-reporting sentence with a transitive verb and an overt object, as in question (1) and its answer (2), repeated here as (61) and (62), respectively.

(61) *Maxaa dhacay?*
what happen.PAST.3M.FOC
'What happened?'

(62) *Cali baa Maryam dilay*
Cali FOC Maryam beat.PAST.3M.FOC
'Cali beat Maryam'

Subject focus is scarcely acceptable with an intransitive verb: (63) is odd as an answer to (61); in its place, (53) could be used. Note that in (53) (as well as in (2) in Section 2) the subject is topical, and (53) could also be used as a reply to (20), repeated here as (64). In Section 2 (20) was answered with (21), repeated here as (65).

(63) ??*Cali baa yimid*
Cali FOC come.PAST.3M.FOC
'CALI came'

(64) *Cali muxuu sameeyay?*
Cali.SUBJ what=he do.PAST.3M
'What did Cali do?'

(65) *Cali Maryam buu dilay*
Cali.SUBJ Maryam FOC=he beat.PAST.3M
'Cali beat Maryam'

As for (53) and (54), Gebert [1986:60] has pointed out that, although both are grammatically correct, they are not exactly synonymous pragmatically: (53) is consistent with a more topical subject, while (54) [which Gebert proposes to translate as 'Cali did come'] is preferred if no subject was mentioned and more information is going to follow: in (54), 'the truth value of the event expressed by the verb [...] is asserted with more intensity' than in (53), so that (54) 'appears as more marked for the focus of assertion on the verb' than (53). Moreover, a sentence such as (53) "can be uttered in a context announcing a new state of affairs; it is considered thus as an unmarked sentence"; a sentence such as (54), on the other hand, "can apparently be used as an announcement (confirmation) of an expected event" and "cannot be uttered in isolation, but has to be followed by some other sentence. It functions, then, as a beginning of a story" [Gebert 1986:61]. All in all, (54) is "preceived as a marked pattern", while (53) is unmarked. Moreover, as remarked by Gebert [1986:62], the topical value of the subject pronouns is further confirmed by their behavior with the focus particles, whereby they are precluded from appearing with subject focus; for example, while (2) above (repeated here as (66)) is correct, its variant (67) is ungrammatical.

(66) *Cali baa Maryam dilay*
Cali FOC Maryam beat.PAST.3M.FOC
'Cali beat Maryam'

(67) **Cali buu Maryam dilay*
Cali FOC=he Maryam beat.PAST.3M.FOC
'Cali beat Maryam'

In general, our informants confirm Gebert's analysis (although it must be stressed again that informants tend to give different acceptability values to *waa*-sentences in general). Now, given that *waa* is present in both sentences and the only difference between (53) and (54) is given by the absence in the latter of the subject pronoun *-uu*, whose presence alone gives to (53) "a more topical value", it stands to reason to assume that "the focus of assertion on the verb" (to use

Gebert's formulation) is not given by *waa*, but by the *absence* of a topical subject. That is, the focalizing value of *waa* is essentially illusory and the result more of the absence of *baa/ayaa* than of any specific value of *waa* itself.

If *waa* is not a focus particle, what is it? One must confess that Saeed's "declarative particle" hypothesis is not very convincing: typologically, it is unusual (although not unattested) for a language to mark the most unmarked sentence type, the declarative sentences, with a specific particle (especially if this particle has no further functions, such as marking evidentiality). Even in the Somali-speaking context, *waa* is an absolute isolate.

In very broad terms, one can distinguish within Somali between a Northern-Central dialect cluster and a much more heterogeneous group of Southern dialects (possibly separate languages in strictly linguistic terms). In the distribution we have seen, *waa* is restricted to Northern Somali (and the official language upon which it is based); already in the closely related Central varieties [the "Benaadir" dialects in Lamberti's 1986 classification] its place in nominal sentences is taken by the sentence-final copula *waaye* or *weeye*; cf. (68), which is acceptable in writing, although distinctly marked as "Southerner", and (69), its Northern variant.

(68) *run waaye* (or *weeye*)
truth COPULA
'it is true'

(69) *waa run*
WAA truth

In the Southern Somali dialects (the Maay, Ashraaf and Digil groups of dialects, following Lamberti's classification), *waa* is unknown. These varieties, moreover, have no obligatory focus marking, and a sentence without focus is fully acceptable and indeed the normal solution. At the same time, these dialects make probably a much wider use of clefts as a focalizing device (cf. Tosco [1997] for the Tunni dialect and Tosco [1993] for an overview of Southern Somali focus and cleft constructions). The same final position of the copula found in the Central varieties is the rule in all the Southern dialects; in Tunni, one finds (70) for (69) of Northern-Central Somali.

(70) *rún=u*
truth=COPULA

In verbal sentences, *waa* is found in front of the verbal complex in the Central dialects just as in the Northern dialects and in the written language. But in the Central dialects, although much relevant data is lacking, it seems that the use of the subject pronouns is restricted if not absent; one finds, e.g., (71) for Standard Somali (72).

(71) *waa ni arkey*
WAA you.P see.PAST.1S
'I saw you (P)' (Xamari dialect of Mogadishu [Lamberti 1986:59])

(72) *waan idin arkay*
WAA=I you.P see.PAST.1S

It seems evident, on comparative and typological grounds, that the shift of the copula from sentence-final (as is normal in verb-final language) to preverbal position was a Northern-Central innovation, whose reasons are unclear. It is possible that the necessity to unambiguously distinguish main and relative clauses played a role: as Somali lacks relative pronouns, the main feature of relative (and dependent clauses in general) is the absence of either a focus particle or *waa* (although a supplementary feature is provided by a different tonal pattern on the verb and, in certain syntactic contexts, a segmentally different verbal form). In the absence of *waa*, a focusless sentence in which the Verbal Complex follows immediately an NP could be interpreted as a relative clause. Compare, for example, (47) above, partially repeated here as (73), and the relative clause in (74) (whose verb has a different tonal pattern). From this position after an unfocused NP, *waa* could have later been generalized to all declarative unfocused sentences.

(73) *Caasigii wuu koray* [...]
stubborn=M.ANPH.SUBJ WAA=he grow.PAST.3M
'the stubborn [boy] grew and married' [Ciise 1985:59]

(74) *[Caasigii koray] baan jeclahay*
stubborn=M.ANPH grow.PAST.3M FOC=I like.PRES.1S
'I like the stubborn [boy] who grew'

The Southern Somali dialects also do not have the subject pronouns we have seen in most sentences in this article, which in main sentences are cliticized to the focus particles *baa* or *ayaa* or to *waa*, yielding such forms as *baan* (from *baa* + *-aan* 'FOC=I'), *wuu* (from *waa* + *-uu* 'he'), etc. For disambiguating purposes, the independent pronouns may be used, but they are not mandatory, and, since neither a focus particle nor a subject pronoun is necessary, (75) is a perfectly accettable sentence in Tunni, corresponding in Standard Somali (in this context) to (76).

(75) *débkíi soo qáadi*
fire=M.ANPH VENT take.PAST.3M
'he took up the fire' [Tosco 1997:81]

(76) *dabkii wuu soo qaaday*
fire=M.ANPH WAA=he VENT take.PAST.3M

Now, while the subject pronouns of Northern Somali are often written as separate words in certain syntactic environments, in speech they normally cliticize; in relative clauses (which have no focus marking; cf. Section 1), they cliticize to the head noun, although they are generally written as separate words. An example is the relative clause in (77), which is normally pronounced (and sometimes also written) as (78).

(77) *guriga aan lacagtii ka keenay*
house=M.ART I money=F.ANPH from bring.PAST.1S
'the house out of which I brought the money'

(78) *gurigaan lacagtii ka keenay*
house=M.ART=I money=F.ANPH from bring.PAST.1S

In a similar context, a Southern dialect would rather use an independent subject pronoun, as shown in (79) for Tunni.

(79) *mínka ána beesódíi kú šéenə*
house=M.ART I money=F.ANPH from bring.PAST.1S

After the shift of *waa* to preverbal (or better: pre-Verbal Complex) position in focusless declarative sentences, the cliticization of the subject pronouns to it was the logical next step. Also the slight difference between the use of the subject pronouns in certain *waa*-sentences (cf. (53) and (54) above) is possibly a sign of an on-going change and the result of different dialect influences, as shown by the absence of the subject pronouns with *waa* in certain Central dialects (cf. (68) above).

10. Conclusions

We have seen that in Somali there is no correspondence between the linguistic expression of focus and its pragmatic value. Using Lambrecht's [1994] classification of focus constructions, one may summarize the situation in Somali as follows:

1. ARGUMENT FOCUS is typically expressed by the focus particle following (or cliticized to) the relevant NP, or by a cleft;
2. SENTENCE FOCUS is generally expressed by focus on the subject, except when no overt NP is available, in which case a focus-unmarked sentence with *waa* and no subject pronouns may be used;
3. PREDICATE FOCUS, being the unmarked case, may find different expressions:
   a. argument-focus on an NP, generally along the following implicational scale: ADV > OBJ > SUBJ;
   b. a focus-unmarked sentence with *waa*;
   c. a cleft.

It has also been argued that the element *waa* which appears as a copula in nominal sentences is not, pragmatically speaking, a focus particle, thereby confirming Saeed's [1984 and following] syntactic analysis.

Possibly the most important point has to do with the *vexata quaestio* of the focus particles and their role. It is evident that to call *baa* and *ayaa* "focus markers" is at best an oversimplification. As soon as one leaves the question-and-answer framework upon which much syntactic work has been based and looks at actual Somali texts, it becomes apparent that focus (at least in its narrow, conventional meaning) is just one, and possibly not even the most prominent nor common, function of these particles. In fact, their use as topic-switching and action-enhancing devices is central in text-building. Given this wide variety of functions, it would probably be safer to label *baa* and *ayaa* simply as "foregrounding particles".

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Università di Napoli "L'Orientale"
Dept. of African and Arab Studies
I-80134 Napoli
Italy
m.tosco@iuo.it

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TONE IN BULI*

George Akanlig-Pare
University of Ghana

Michael Kenstowicz
Massachusetts Institute
of Technology

The paper analyzes the principal tonal contrasts and alternations in Buli from both synchronic and diachronic, comparative perspectives. The role of tone in the inflectional morphology as well as the phonetic implementation of tonal contrasts is also discussed.

1. Introduction

Buli is a Gur language spoken by some 100,000 persons in the Upper East region of Ghana. Previous study of the language is limited to several papers by the first author [Akanlig-Pare 1994,1997,1999] and the dictionaries by Mélançon and Prost [1972] and Kröger [1992]. In this paper we survey the major tonal contrasts and tonal processes. Next we place the language in a larger context by comparing various features of Buli tone with other, better-studied Gur languages. We then pass on to the inflectional tonology of the nouns and the verbs. The paper closes with a description of the F0 implementation of the major tonal structures discussed in the paper. Our study is based on the speech of the first author, a native speaker of the Central dialect.

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2. Tonal Contrasts

Buli distinguishes three lexical tones: high, mid, and low. There is no downstep. The language has a surface rising tone but it is a predictable variant of an underlying high tone. While nouns and adjectives contrast for the three tonal levels, verbs have no lexical contrasts in tone. However, tense and aspectual distinctions are encoded tonally making for an intricate set of tonal paradigms for verbs. The syllable is the tone-bearing unit in Buli. Even though the language combines a vowel length distinction with an optional coda of one or two consonants, there is no underlying tonal contrast as a function of syllable shape. In (1a) we cite some minimal pairs. The data in (1b) show the independence of tone and syllable shape.

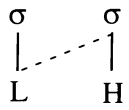
(1)		H		M		L	
a.		*s^{y}úk*	'path'	*s^{y}ūk*	'navel'	*s^{y}ùk*	'fish' sp.
		náːb	'cow'			*nàːb*	'chief'
		bíːk	'child'			*bìːk*	'language'
				bāŋ	'bangle'	*bàŋ*	'lizard'
b.	CV	*lé*	'spinster'	*lō*	'fall'	*mà*	'mother'
	CV:	*mí máː*	'I helped'	*māː*	'help!'	*wà màː mǐ*	'he helped me'
	CVC	*zúk*	'head'	*bāŋ*	'bangle'	*bàŋ*	'lizard'
	CV:C	*bíːk*	'child'	*būːk^{w}*	'goat'	*nàːb*	'chief'

3. Tonal Processes

There are two very general tonal processes in Buli: Low Tone Spread (LTS) and Rising Tone Absorption (RTA); (see Akanlig-Pare [1997] for more discussion). By the first process a high tone syllable becomes rising when it follows a low tone syllable. In autosegmental terms, a low tone spreads to a following high-tone

syllable, as in (2).[1] Low-Tone Spreading applies word internally as well as at the phrasal level across word boundaries, as shown in (3).

(2)



(3) word internally :

bʸé	'seeds'	*bʸéŋá*	'the seeds'
bàŋsà	'lizards'	*bàŋsàŋǎ*	'the lizards'

pronoun plus noun:

bí:k	'child'	*wà bĭ:k*	'his child'

noun plus noun:

àtì:m	personal name	*àtì:m bĭ:k*	'Atim's child'

noun plus adjective:

fí:k	'small'	*bàŋ fĭ:k*	'a small lizard'

subject plus verb:

mí té	'I emph. gave'	*ǹ tě*	'I gave'

verb plus object:

ná:b	'cow'	*wà tè nă:b*	'he gave a cow'

Low-Tone Spread changes a high tone to rising after a low tone regardless of the internal syllabic (moraic) structure of the first (4a) or the second (4b) syllable.

(4)

a.	*mà*	'mother'	*mà fĭ:k*	'small mother'
	bàŋ	'lizard'	*bàŋ fĭ:k*	'small lizard'
	ŋà:ŋ	'back'	*ŋà: fĭ:k*	'small back'
	wà mà:	'he helped'	*wà mà: mĭ*	'he helped me emph.'
b.	*zá*	'millet'	*wà zǎ*	'his millet'
	zúk	'head'	*wà zŭk*	'his head'
	ná:b	'cow'	*wà nă:b*	'cow'
	mí má:	'I (emph.) helped'	*fì mă:*	'you helped'

[1] The data are analyzed in terms of ordered rules instead of Optimality Theoretic constraints for the sake of familiarity and convenience. Our transcriptions abstract away from an ATR differ-ence in the vowels that is unstable and seems to be disappearing from the language.

Mid tones neither initiate nor undergo the process.

(5)	*nūm*	'grind'	*nūm zá*	'grind millet' (imperative)
	lām	'meat'	*wà lām*	'his meat

Rising Tone Absorption, the second general process of Buli tonology, simplifies a rising tone (whose source is always an underlying high tone that has become rising by Low-Tone-Spread) to low when followed by a high tone. Absorption applies in the same range of contexts as Low Tone Spread. Some word-internal examples appear in (6).

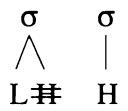
(6)	*náːmú*	'cow' def.	*wà nàːmú*	'his cow'
	níːgà	'cows'	*wà nĭːgà*	'his cows'

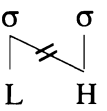
In *wà nĭːgà* 'his cows', the low of *wà* spreads to the first syllable of *níːgà* to create a rise. In *wà nàːmú* 'his cow' the low of *wà* spreads to the first syllable of *náːmú* to create a rising tone /wà nằːmú/ which is then simplified to low by the Absorption process that deletes its high component. Absorption applies regularly in the phrasal phonology as well. (When followed by an adjective many nouns such as *biːk* take a shortened allomorph).

(7)	*bíːk*	'child'	*bí fíːk*	'a small child'
	wà bĭːk	'his child'	*wà bì fíːk*	'his small child'
	bí màŋ	'good child'	*wà bĭ màŋ*	'his good child'

mí ŋmá nàːwă	'I (emph.) blamed the chief'
mí ŋmá bíːká	'I (emph.) blamed the child'
ŋ̀ ŋmă nàːwă	'I blamed the chief'
ŋ̀ ŋmà bíːká	'I blamed the child'
wà ŋmà mĭ nàːb	'he blamed my (emph.) chief'
wà ŋmà mì bíːk	'he blamed my (emph.) child'

Rising Tone Absorption can be expressed as the rule in (8a) that deletes the H portion of a LH sequence on a single syllable when followed by a high tone syllable. The alternative autosegmental delinking formulation in (8b) would require the grammar to include a preceding process that fuses adjacent high tones. Since there is no evidence for this fusion process in Buli, we prefer the formulation in (8a). And, since all rising tones originate from Low Tone Spread, Rising Tone Absorption is intrinsically ordered after it, as illustrated in (9).

(8) a. 

b. 

(9) *wà bí fíːk* underlying
wà bǐ fíːk Low Tone Spread
wà bì fíːk Rising Tone Absorption

'his small child'

The processes of Low Tone Spread and Rising Tone Absorption do not iterate. Only the first H in a LHHH sequence changes to L.

(10) *bíːsáŋá* 'children' (pl. definite)
wà bìsáŋá 'his children' (def.)

bíːká 'child' (def.)
fíːká 'small' (def.)
bí fíːká 'small child' (def.)
wà bìːká 'his child' (def.)
wà bì fíːká 'his small child' (def.)

mí bíːká 'my (emph.) child' (def.)
wà ŋmà mì bíːká 'he blamed my (emph.) child' (def.)

The failure of the processes to iterate creates a rule opacity [Kiparsky 1971]: only an underlying LH sequence becomes LR (R = rising)—a LH sequence resulting from Rising-Tone Absorption does not. This opacity is expected if the processes are expressed as ordered rules. Since both Low Tone Spread and Rising Tone Absorption apply word-internally as well as at the level of the phrase, the rule opacity cannot be circumvented by assigning the processes to different components of the grammar such as Lexical and Post-lexical [Kiparsky 1982].

As a result of Low Tone Spread and Rising Tone Absorption, Buli has two contrasting pitch ascensions on succeeding syllables: Low plus High and Low plus Rising. We investigate the phonetic implementation of this contrast in section 9.

4. Epenthesis

The Low Tone Spread and Rising Tone Absorption processes interact in an interesting way with a vowel-zero alternation prevalent in Buli. We treat this alternation as epenthesis; see Akanlig-Pare (to appear) for further discussion. Examine the paradigms for 'person' below. In (11a,b) we see /núr/ 'person' with the optional epenthesis. Epenthesis is more common at slower speech tempi. In (11c,d) these forms are preceded by the possessive *wà* 'his' that spreads its low tone to the following stem.

(11)	a.	*núr*	'person'	*núrbà*	pl.
		núrwá	def.	*núrmá*	pl. def.
	b.	*núrú*	'person'	*núrúbà*	pl.
		núrúwá	def.	*núrúmá*	pl. def.
	c.	*wà nŭr*	'his person'	*wà nŭrbà*	pl.
		wà nùrwá	def.	*wà nùrmá*	pl. def.
	d.	*wà nùrú*	'his person'	*wà nùrúbà*	pl.
		wà nùrùwá	def.	*wà nùrùmá*	pl. def.

The epenthetic vowel is a high vowel that is typically front but may agree in rounding and backness with the preceding vowel. It generally copies the tone of the preceding syllable. However, there is one complication in its interaction with the tonal spreading and absorption processes that is evident in the paradigms of (11c,d). When followed by a high tone syllable both the stem vowel and the inserted vowel appear as low: *wà nùrùwá*, *wà nùrùmá*. This suggests that epenthesis follows Low Tone Spread and Rising Tone Absorption. The epenthetic vowel takes the tone of the preceding syllable.

(12)	*wà núrwá*	underlying
	wà nŭrwá	Low Tone Spread
	wà nùrwá	Rising Tone Absorption
	wà nùrùwá	Epenthesis and Tone Copy

The problem with this solution is that we appear to be unable to account for the cases where the epenthetic vowel is prepausal (*wà nùrú*) or precedes a low (*wà nùrúbà*). Here the inserted vowel shows the underlying high tone of the stem vowel. If this high absorbs the H component of the preceding rise then epenthesis

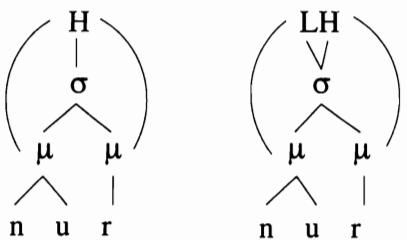
must apparently precede Rising Tone Absorption—contrary to the ordering established in (12).

(13)	*wà núr*	underlying
	wà nŭr	Low Tone Spread
	wà nŭrú	Epenthesis and Tone Copy
	wà nùrú	Rising Tone Absorption

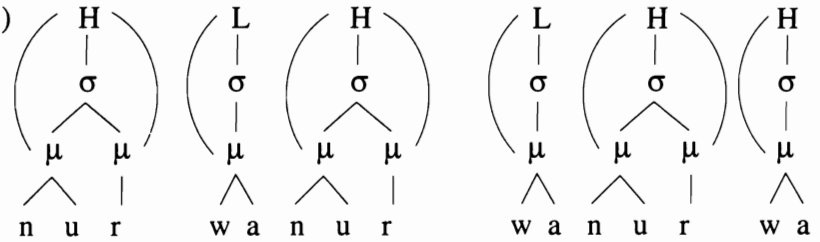
In order to resolve this dilemma we suggest that after the Low Tone Spreading process creates a rising tone, the H component of the rise tone lodges on the second mora of the syllable that is projected from the coda consonant. Rising Tone Absorption will delete this high tone when the following syllable bears a H. But if the following syllable bears a L or if there is no following syllable then Rising Tone Absorption fails to apply. When epenthesis occurs this coda consonant becomes the onset of the epenthetic syllable and supplies the tone for this syllable. If we assume that both moras of a Buli CVC syllable are associated with the tone of the syllable by a kind of inheritance or secondary association [Pierrehumbert & Beckman 1988], as shown in (14), then the epenthetic syllable of *núrú* can acquire its high tone via resyllabification as well. The derivations in (15) illustrate our proposed solution.

The key step in the derivation is at Epenthesis. The mora associated with the coda consonant [r] is reassigned to the epenthetic syllable and drags its tonal association along with it.

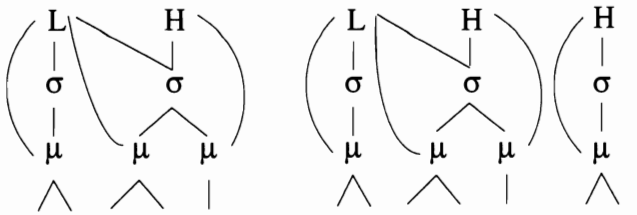
(14)



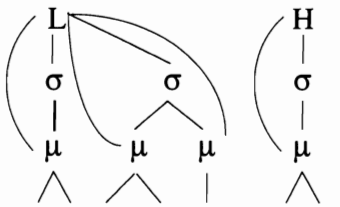
(15)



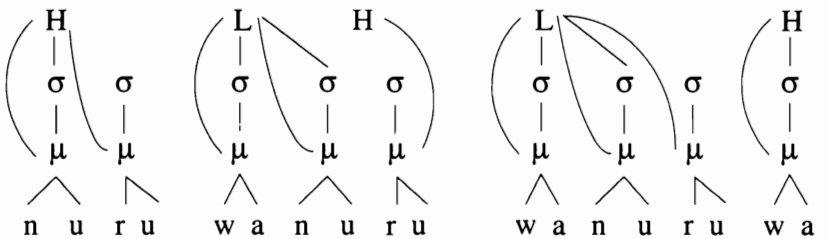
underlying



inappl. Low Tone spread



inappl. inappl. Absorption



Epenthesis

Functionally speaking, the epenthetic syllable wants to be as unobtrusive as possible, presumably because its input source (correspondent) is zero. Promoting the tone of the resyllabified onset is perhaps the perceptually minimal modification of the input that obtains a tone for the emergent syllable. A similar phenomenon in which the epenthetic vowel copies the tone of the preceding syllable is found in Gurma [Rialland 1981].

5. Tonal Correspondences

Buli is unusual among Gur languages in having three levels of tonal contrast and in lacking a downstep. Most other Gur languages we are familiar with—Dagaare [Somé 1995, Bodomo 1997, Anttila & Bodomo 2002], Dagbani [Hyman 1993], Konni [Cahill 1999], Lama [Ourso 1989], and Moore [Kenstowicz, Nikiema, & Ourso 1988]—contrast just high and low tones. But they have extensive downstep. All but Konni also have a rule spreading high tones to a following low tone syllable that produces a downstep. This process is absent in Buli as well.[2]

To illustrate, in (16) we cite data from Moore [Kenstowicz, Nikiema, & Ourso 1988]. Simple nouns fall into three tonal classes: L+H, H+L, and H+H. Conspicuously absent is the L+L pattern.

(16)

	Sg.	Pl.	
L-H	*kòr-gó*	*kòr-dó*	'sack'
	kẹ̀ː-gá	*kẹ̀ː-sé*	'green'
H-L	*wób-gò*	*wób-dò*	'elephant'
	sáː-gà	*sáː-sè*	'broom'
H-H	*móː-gó*	*móː-dó*	'straw'
	báː-gá	*báː-sé*	'dog'

The tone of the noun class suffix is polar with respect to the stem in the L+H and H+L patterns. But what about the H+H pattern? The key to the proper analysis of these data lies in the following fact: when modified by an adjective, the noun loses its noun class suffix. The root tone of L+H and H+L nouns is stable in this context while the root tone of H+H nouns systematically shifts to L.

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2 Typologically this state of affairs could be described in the Optimality Theory Framework by differential ranking of markedness constraints prohibiting floating and contour tones with faithfulness constraints requiring input tones to appear in the output.

(17)	*kòr bédà*	'big sacks'	cf.	*kòr-gó*	'sack'
	sá bédà	'big brooms'		*sáː-gà*	'broom'
	bà bédà	'big dogs'		*báː-gá*	'dog'

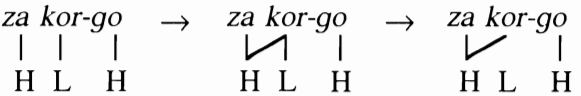
Kenstowicz, Nikiema, & Ourso [1988] propose that the underlying tonal contrast in Moore is a three-way H vs. L vs. Ø opposition. The noun class suffix is underlying H. It dissimilates with a preceding root H by the OCP (tonal polarity). Toneless roots such as *báː-gá* 'dog' copy the tone of the suffix. In the noun+adjective construction when the noun class suffix of the head noun is suppressed, the toneless root is assigned a default low tone. The derivation in (18) illustrates the analysis.

(18)	*kòr-gó*	*sáː-gá*	*baː-gá*	*ba bé-dá*	underlying
	inappl.	*sáː-gà*	inappl.	*ba bé-dà*	Polarity
	inappl.	inappl.	*báː-gá*	inappl.	Tone Copy
	inappl.	inappl.	inappl.	*bà bé-dà*	Default L
	kòr-gó	*sáː-gà*	*báː-gá*	*bà bé-dà*	output
	'sack'	'broom'	'dog'	'big dogs'	

The Moore paradigms in (19) illustrate the rule spreading a H tone to a following L tone syllable. Since Moore lacks falling tones the underlying low tone delinks to create a downstep. The derivation of *zá kór-ꜜgó* 'bring a sack' is illustrated in (20).

(19)	*kò sáː-gà*	'give a broom'
	kò kòr-gó	'give a sack'
	zá sáː-gà	'bring a broom'
	zá kór-ꜜgó	'bring a sack'

(20)



The High Tone Spread process in Moore is restricted to apply across word boundaries. In Dagbani [Hyman 1993], the rule also applies word-internally so that underlying H+L nouns surface as H+H!. They contrast with Ø+H → H+H nouns by downstepping a H that begins the next word.

With this background we return in (21) to Buli where we collect some cognate nouns from Buli and Dagaare (data from Bodomo [1997]). Dagaare shows traces

of the tonal polarity that is more apparent on the surface in Moore. As in Moore, there are three principal tonal patterns on Dagaare nouns: H+L, L+H, and H+H. It is evident that there is a systematic correspondence between Dagaare and Buli: H+L in Dagaare corresponds to H in Buli; L+H in Dagaare corresponds to L in Buli; and H+H in Dagaare corresponds to M in Buli. Buli has lost all trace of the suffixal tone as well as suffered severe segmental erosion of the noun class suffixes. When another vowel appears (as in *núrú* 'person') it is a high vowel that typically harmonizes with the preceding vowel and copies its tone in the manner discussed earlier.

(21)

Dagaare	Buli	
H+L	H	
yírì	*yérí*	'house'
níè	*núrú*	'person'
kógò	*kók*	'mahogany'
zû	*zúk*	'head'
nû	*nísí*	'hand'
bírì	*bírí*	'seed'
nóɔ̀	*núbí*	'chicken'
kyúù	*cí:k*	'month, moon'
mírì	*mí:k*	'rope'
gánì	*gbáŋ*	'hide, book'
káà	*kpá:m*	'oil'
náá'ú	*ná:b*	'cow'
wáá'ú	*wá:b*	'snake'
kpáá'ú	*kpóŋ*	'guinea fowl'
L+H	L	
tìɛ́	*tìb*	'tree'
dìé	*dòk*	'room'
dùó	*dèrì, dwòk*	'pig' (pl)
dòɔ́	*duòk*	fruit sp.
wìrí	*wùsùm*	'horse'
kùùrí	*kuì, kùrì*	'hoe'
bɔ̀ŋɔ́	*bàŋ*	'lizard'
tìì^{n}	*tì:m*	'medicine'
bìrùŋ	*bìsìm*	'milk'
zìì^{n}	*zí:m*	'blood' (exception)
tɔ̀ɔ̀rí	*tūrī*	'ear' (exception)

H+H	M	
dɔ́ɔ́	*dʷōk*	'man, male'
búɔ́, búúrí	*bū:kʷ, bʷō*	'goat'
pégí	*pāwk, pāk*	'shell, tree bark'
váálí	*vā:lī*	'field rubbish'
píé	*pī*	'ten'
pógɔ́	*pōk*	'woman, wife'
tíŋé	*tēŋ*	'town, land'
nyuórí	*ŋʷērī*	'nose'
báagá (Moore)	*bʸāk*	'dog'
kɔ́ɔ́rí	*kōbī*	'bone'
kyííní	*cīn*	'calabash, musical instrument'
támmú	*tōm*	'bow'
móogó (Moore)	*mū:b*	'straw'
íílí	*ŋílī*	'horn' (exception)
bíé	*bí:k*	'child' (exception)

Several explanations are possible for the H+H ≈ M correspondence between Dagaare and Buli. One states that with the erosion of the noun class suffixes and the general prohibition against floating tones, the tonal specification for Buli nouns depended solely on the root tone. Since the root tone in Dagaare H+H nouns derives from the tone of the noun class suffix, the Buli root would have become deprived of a tone and have to seek its tonal specification from another source. The most plausible source is the default rule that inserted a low tone. But in order to maintain the underlying three-way H vs. L. vs. Ø contrast, the default rule was modified to insert a mid tone instead of low. (22) outlines this scenario.

(22)

CVC + V	CVC + V	CVC + V	
H H	L H	H	
CVC	CVC	CVC	loss of final V and tone
H	L		
inappl.	inappl.	CVC	default mid
		M	

The major problem with this analysis is that it cannot explain why the default M did not also appear in the noun-modifier construction where the noun shows up as a bare root. In present-day Buli the mid tone nouns have a low in this

construction—the tone that they must have had all along. The data in (23) illustrate.

(23)	*kpá:m*	'oil'	*kpá nàlɪŋ*	'nice oil'
	tì:m	'medicine'	*tì nàlɪŋ*	'nice medicine'
	tōm	'bow'	*tòm nàlɪŋ*	'nice bow'
	bāŋ	'bangle'	*bàŋ fí:k*	'small bangle'
	mū:b	'straw'	*mù nàlɪŋ*	'nice straw'
	tōm	'bow'	*tòm fí:k*	'small bow'

A plausible alternative explanation appeals to phonetics. In numerous tonal languages, including Hausa [Maddieson 1977], Yoruba [Laniran 1992] and Mandarin [Xu 1993], a high tone is implemented at a higher F0 value before a low tone than in other contexts. Suppose that this phonetic process operated in the earlier history of Buli. The H of a H+L noun would be implemented at a higher F0 value that the tone of the H+H nouns. Upon the erosion of the vowel of the noun-class suffix and loss of suffixal tone, suppose that the higher F0 of the erstwhile H+L nouns is recategorized as underlying. The result is a three-way tonal contrast. Rialland [1983] proposes a similar evolution of the super-high tone in Moba. This historical scenario is sketched out in (24).

(24)	/H+L/	[¯ ˍ]	/H+H/	[- -]	/L+H/	[ˍ -]	before vowel deletion
	/H/	[¯]	/H/	[-]	/L/	[ˍ]	after vowel deletion
	/H/	[¯]	/M/	[-]	/L/	[ˍ]	recategorization

If the mid tone arose from the phonologization process sketched in (24) rather than from a modification of the default rule, then there is no reason to expect a mid to appear on the bare root in the modifier construction of (23). The low tone appearing there in the contemporary language will have to be the product of a systematic but synchronically arbitrary rule changing mid tone to low in this construction.

As far as the relationship between Konni [Cahill 1999] and Buli is concerned, we find a systematic correspondence between high tone roots in the two languages. But Buli mid and low tone roots turn up as low in Konni. Konni has thus largely merged the former three-way H vs. L vs. Ø Gur distinction in root tone into a binary H vs. L opposition. Cahill finds that the majority of Konni nouns in their citation form end in a velar nasal with a floating high tone that docks to the final syllable of the stem. The tone of the plural suffix is polar to the root tone in Konni. In Buli the plural suffix *–e* that appears on nouns in the *–ri*

class copies the tone of the root while the *–a* plural is underlyingly low and changes to mid after a mid tone.

(25)

Konni		Buli		
singular	plural	singular	plural	
H		H		
túŋ	*túò*	*túrí*	*túé*	'bean'
wíŋ	*wíè*	*wírí*	*wíé*	'face mark'
níːŋ	*níè*	*nírí*	*níé*	'grinding stone'
díːŋ	*díè*	*dírí*	*díé*	'forehead'
múgúŋ	*múgà*	*mógí*	*mógà*	'river'
L		M		
dŭŋ	*dùnné*	*dūnūŋ*	*dūnā*	'knee'
sàːmíŋ	*sàːmá*	*sāin*	*sāːmā*	'porcupine'
tăŋ	*tàná*	*tāin*	*tānī*	'stone'
jŭŋ	*jùnní*	*jiūk*	*jiūtā*	'tail'
chìáŋ	*chìàsí*	*chiāk*	*chāːsā*	'waist'
L		L		
bĭŋ	*bìná*	*bèin*	*bènà*	'year'
kŭːŋ	*kùrá*	*kùi*	*kùè*	'hoe'
bìːsíŋ	*bìːsá*	*bĭːsìrì*	*bìːsà*	'female breast'
tĭːŋ	*tìːsí*	*tĭːb*	*tìːsà*	'tree'
dòmíŋ	*dònsí*	*duìŋ*	*duìŋsà*	'mosquito'

Konni shows traces of the former Gur ternary tonal distinction. Cahill reports a score of disyllabic roots with a LH tonal contour that have distinctive behavior in the Konni associative construction that reflects their earlier toneless status. The majority of Konni LH nouns show an internal downstep in the associative due to a rule that docks a floating H tone to the head of the phrase. The paradigms in (26) illustrate.

(26)

tìːsí	'trees' pl.	
hàːgín tíːˈsī	'bushes' trees'	from /*hàːgín ´ tìːsí* /
dăːŋ	'stick'	
bòàwá dáˈáŋ	'the child's stick'	from /*bòàwá ´ dà áŋ* /

But there are some twenty disyllabic LH nouns that fail to produce a downstep in the associative. Cahill analyzes them as underlying /ØH/ with Ø replaced by a default low tone in the isolation form. In the few cases where we have been able to find cognates for these nouns in Buli, the roots have a mid tone that corroborates their toneless ancestry, as in (27). But a significant number of Konni LH nouns with a M correspondent in Buli do show an internal downstep in the associative (28), suggesting that they have been reanalyzed from /ØH/ to /LH/, presumably on the basis of the isolation form.

(27)

kɔ̀bá	'bones'	cf. Buli *kōbī, kōbā* pl.
kpáˈáŋ kɔ́bà	'guinea fowl's bones'	*kpóŋ kōbā*
hɔ̀gú	'wife'	cf. Buli *pōk, pōːbā* pl.
dàːwá hɔ́gù	'husband's wife'	*chōroā pōk*
chùrú	'husband'	cf. Buli *chōrō, chōroābā* pl.
ǹ zùá chúrù	'my friend's husband'	*ǹ duā chōroā*

(28)

Konni		Buli		
singular	plural	singular	plural	
sǎːŋ	*sàːtí*	*sāːb*	*sīrā*	'porridge'
sàːbú (def.)		*sāːmú*		
hɔ̀wwá sáːˈbú		*núpōːmá sīrā*		'woman's porridge'
chìáŋ	*chìàsí*	*chiāk*	*chāːsā*	'waist, bottom'
kúrúbâ		*kúrúbà*		'bowl'
kúrúbáˈ chíˈáŋ		*kúrúbà chiāk*		'bowl's bottom'
jìbíŋ	*jìbìsí*	*gēbīk*	*gēbsā*	'knife'
bùá		*bíːk*		'child'
bùá jíˈbíŋ		*bíː gēbīk*		'child's knife'

One final comparative remark. As we shall see in section 7, Buli has lost lexical tonal contrasts in the verb. However, various nominalizations of the verb exhibit lexical contrasts. Although much more study is required, a preliminary

survey suggests that the contrasting tones in Buli nominalizations correspond to the verbal tone in Dagaare.[3]

(29)

Buli		Dagaare	
Verb	Nominal	Verb	
dā	*dìak dà:sà*	*dà*	'buy, sale'
mī	*mí:k mí:sà*	*mí*	'weave, rope'
kīsī	*kísúk kísítà*	*kyí:rì*	'forbid, taboo'
zū	*zúm*	*zú*	'steal, theft'

6. Nominal Inflection

Nouns in Buli appear in five singular-plural pairs that form a noun class system marked by suffixes. There is no agreement with modifiers, which have their own inherent noun class specification. In many cases the noun stems have fused in various ways with the suffixes creating considerable disparity between the singular and plural. In addition, each noun occurs in a definite form marked by a suffix that is high in tone. In (30) we illustrate each of the noun classes, following the numbering in Kröger [1992].

Several generalizations can be made about the tonology of the nominal inflection. The plural suffix typically terminates in *-à* with a low tone. It is raised to mid after a mid tone: cf. *bàŋsà* 'lizards' vs. *bāŋsā* 'bangles'. It is also raised to high when followed by the definite suffix *–ŋá* and preceded by a high toned root: cf. *bísà* 'children', *bísáŋá* (def.). In other words, the tone of this suffix raises to high between high tones.[4] We formulate these minor rules in (31a). The derivations in (31b) show that they both must precede the general Low Tone Spread rule.

[3] Thanks to Adams Bodomo for supplying us with the Dagaare cognates. Cahill [1999] makes a similar point for Konni.

[4] A reflex of this process also appears in Konni [Cahill 1999] where a HLH tonal sequence is realized as H$^{!}$HH: *ɲúrà* 'chest' pl., *ɲú$^{!}$rá-há* 'chest' (pl. def.).

(30)

CLASS I	SG	PL	
indef.	*bíːk*	*bísà*	'child'
def.	*bíːká*	*bísáŋá*	
pronoun	*wà*	*bà*	
indef.	*pōk*	*pōːbā*	'wife'
def.	*pōːwá*	*pōːmá*	
pronoun	*wà*	*bà*	
indef.	*nàːb*	*nàl ìmà*	'chief'
def.	*nàːwǎ*	*nàl ìmàŋǎ*	
pronoun	*wà*	*bà*	

CLASS II	SG	PL	
indef.	*yérí*	*yié*	'house'
def.	*yénní*	*yiéŋá*	
pronoun	*dì*	*ŋà*	
indef.	*tūrī*	*tʷē*	'ear'
def.	*tūnní*	*tʷēŋá*	
pronoun	*dì*	*ŋà*	
indef.	*bèin*	*bènà*	'year'
def.	*bènǐ*	*bènàŋǎ*	
pronoun	*dì*	*ŋà*	

CLASS III	SG	PL	
indef.	*cíːk*	*cíːsà*	'moon'
def.	*cíːká*	*cíːsáŋá*	
pronoun	*kà*	*sì*	
indef.	*bāŋ*	*bāŋsā*	'bangle'
def.	*bāŋká*	*bāŋsāŋá*	
pronoun	*kà*	*sì*	
indef.	*bàŋ*	*bàŋsà*	'lizard'
def.	*bàŋkǎ*	*bàŋsàŋǎ*	
pronoun	*kà*	*sì*	

CLASS IV	SG	PL	
indef.	*kpóŋ*	*kpí:nà*	'guinea fowl'
def.	*kpóŋkú*	*kpí:náŋá*	
pronoun	*kù*	*ŋà*	
indef.	*bū:k^{w}*	*b^{w}ō*	'goat'
def.	*būkú*	*b^{w}ōŋá*	
pronoun	*kù*	*ŋà*	
indef.	*dòk*	*dì:nà*	'room'
def.	*dòkŭ*	*dì:nàŋă*	
pronoun	*kù*	*ŋá*	

CLASS V	SG	PL	
indef.	*ná:b*	*ní:gà*	'cow'
def.	*ná:mú*	*ní:ŋá*	
pronoun	*bù*	*ŋà*	
indef.	*tōm*	*tīmā*	'bow'
def.	*tōmmú*	*tīmāŋá*	
pronoun	*bù*	*ŋà*	
indef.	*tù:m*	*tù:tà*	'medicine'
def.	*tù:mŭ*	*tùtàŋă*	
pronoun	*bù*	*ŋà*	

(31) a. L → M / M + ___
L → H / H + __ + H

b.

cí:-sà-ŋá	*bāŋ-sà-ŋá*	*bàŋ-sà-ŋá*	underlying
inappl.	*bāŋ-sā-ŋá*	inappl.	L → M / M + ___
cí:-sá-ŋá	inappl.	inappl.	L → H / H + __ + H
inappl.	inappl.	*bàŋ-sà-ŋă*	Low Tone Spread
cí:-sá-ŋá	*bāŋ-sā-ŋá*	*bàŋ-sà-ŋă*	output
'moons' def.	'bangles' def.	'lizards' def.	

Finally, all of the pronouns are low in tone. The only exceptions are the emphatic forms of the first and second person singular, which have a high tone. The non-emphatic form of the first person singular pronoun is a syllabic nasal with low tone that assimilates the point of articulation of a following consonant: *ǹ lă* 'I laughed'. When it precedes a vowel the two syllables contract into a single syllable whose onset is [m] and whose nucleus is a long vowel composed of the mora of the underlying syllabic /m̩̀/ and the mora of the following vowel: /m̩̀ à nágí wâ → *mà: nàgí wáI* hit him'. In direct object position a non-emphatic pronoun is cliticized to the preceding verb. Pronouns of the shape *Ci* such as the first per-son singular pronoun /mi/ reduce their vowel to schwa when cliticized.

(32)

SG	PL	emphatic	
m̀	*tì*	*mí*	first person
fì	*nì*	*fí*	second person
wà	*bà*		third person
đì	*ŋà*		
kà	*sì*		
kù	*tì*		
bù			

The paradigms in (33) illustrate the tonal effect of the pronouns on a following noun. A low tone spreads to a following high creating a rising tone that simplifies to low before a high by the absorption process.

(33)

bí:k	'child'	*m̀ bĭ:k*	'my child'
bísà	pl.	*m̀ bĭsà*	pl
bí:ká	def.	*m̀ bì:ká*	def.
bísáŋá	def. pl.	*m̀ bìsáŋá*	def. pl.
ná:b	'cow'	*ná:mú*	'cow' (def.)
ǹ nă:b	'my cow'	*ǹ nà:mú*	'my cow' (def.)
fì nă:b	'your cow'	*fì nà:mú*	'your cow' (def.)
wà nă:b	'his cow'	*wà nà:mú*	'his cow' (def.)
tì nă:b	'our cow'	*tì nà:mú*	'our cow' (def.)
nì nă:b	'your (pl.) cow'	*nì nà:mú*	'your (pl.) cow' (def.)
bà nă:b	'their cow'	*bà nà:mú*	'their cow' (def.)
mí ná:b	'my (emph) cow'	*mí ná:mú*	'my (emph) cow' (def.)
fí ná:b	'your (emph) cow'	*fí ná:mú*	'your (emph) cow' (def.)
nāgī mí	'hit me (emph)'	*nāgī-mə*	'hit me'

7. Verbal Tone

While tone is lexically contrastive in nouns, adjectives and particles, there is no lexical contrast in verbs. Verbs display a considerable variety of tonal patterns depending on tense and aspect as well as the person of the subject. Cahill [1999] documents a similar state of affairs in Konni. In what follows we present the tonal patterns for the major inflectional categories. We note the major generalizations. After the data have been introduced and tabulated, we turn to a tentative analysis.

7.1 Perfect. In (34) we give paradigms for the verbs /la/ 'laugh' and /nag/ 'hit'. The latter has the optional epenthetic vowel [i]. It is transitive; we show it also when followed by the object suffix *-wa* 'him'.

(34)

ǹ lă	'I laughed'	*tì lă*	'we laughed'
fì lă	'you laughed'	*nì lă*	'you (pl.) laughed'
wà là	'he laughed'	*bà là*	'they laughed'
ǹ nàgí	'I hit'	*tì nàgí*	'we hit'
fì nàgí	'you hit'	*nì nàgí*	'you (pl.) hit'
wà nàgì	'he hit'	*bà nàgì*	'they hit'
ǹ nàgí-wà	'I hit him'	*tì nàgí-wà*	'we hit him'
fì nàgí-wà	'you hit him'	*nì nàgí-wà*	'you (pl.) hit him'
wà nàgì-wā	'he hit him'	*bà nàgì-wā*	'they hit him'

It is apparent that in the third person the verb has low tone while in the first and second it has high tone. The processes of Low Tone Spread and Rising Tone Absorption then derive the surface forms: / ǹ lá / → *ǹ lă* and / ǹ nágí / → *ǹ nàgí*. Anticipating the analysis to be proposed later, let us refer to this tonal alternation between the first and second versus third person as "agreement". In the transitive verbs, the object pronoun suffix appears with a low tone after a high tone root (i.e., in the first and second person) and with a mid tone after the low tone of the third person.[5]

[5] In Konni [Cahill 1999:440] we find the cognate paradigm below for the verb /si/ 'bathe' in the perfective. There is a low in the third person and a H + floating L that downsteps the completive particle *yá* in the first and second person. The Konni and Buli paradigms thus appear to be identical at an abstract level: HL in first and second person and L in third.

ŋ̀ sí ꜜyá	'I bathed'	*tĭ sí ꜜyá*	'we bathed'
sí ꜜyá	'you bathed'	*nì sí ꜜyá*	'you (pl.) bathed'
ù sì yá	'he, she bathed'	*bà sì yá*	'they bathed'

The corresponding negative form of the perfect is marked by the particle *àn* (35). It is associated with an underlying H on the following verb. Any object suffix is L. The "agreement" alternation (low in third person high in first and second) is absent in the negative. This represents a broader generalization: generally when a preverbal particle is present, it blocks this alternation.

(35) *àtì:m àn lă yà* 'Atim did not laugh' (*yà* is a completive particle)
mí àn lă yà 'I (emph.) did not laugh'
màn lă yà 'I did not laugh'
àtì:m àn nàgí-wà 'Atim did not hit him'
mí àn nàgí-wà 'I (emph.) did not hit him'
màn nàgí-wà 'I did not hit him'

7.2 Present. The present tense is marked by the preverbal particle *à*. It has an habitual sense. The following verb is mid in tone except when it is suffixed with an object pronoun. In this case the verb has an underlying high tone and the object suffix a low tone. The corresponding negatives are marked by *kàn*; the verb

(36) *àtì:m à lā* 'Atim laughs'
mí à lā 'I (emph.) laugh'
wà à lā 'he laughs'

àtì:m kàn lā 'Atim does not laugh'
mí kàn lā 'I (emph.) do not laugh'
wà kàn lā 'he does not laugh'

àtì:m à nāgī ná:b 'Atim hits a cow'
mí à nāgī ná:b 'I (emph.) hit a cow'
wà à nāgī ná:b 'he hits a cow'

àtì:m kàn nāgī ná:b 'Atim does not hit a cow'
mí kàn nāgī ná:b 'I (emph.) do not hit a cow'
wà kàn nāgī ná:b 'he does not hit a cow'

àtì:m à nàgí-wà 'Atim hits him'
mí à nàgí-wà 'I (emph.) hit him'
mà: nàgí-wà 'I hit him'

àtì:m kàn nàgí-wà 'Atim does not hit him'
mí kàn nàgí-wà 'I (emph.) do not hit him'
ŋ̀ kàn nàgí-wà 'I do not hit him'

is mid unless it carries an object suffix, in which case the high-low contour appears.

7.3 Imperative. The imperative is characterized by a mid tone on the verb and the object suffix. In the negative imperative the negator is *kán* with a low tone on the following verb and a mid on any object suffix. The negator has an emphatic sense: 'do nót laugh, hit him'.

(37)	*lā*	'laugh!'	*nāgī-wā*	'hit him!'
	kán là	'do not laugh!'	*kán nàgì-wā*	'do not hit him!'

Buli also has an imperative that inflects for continuous aspect. It is marked by the particle *á*. The following verb is mid in tone unless it bears an enclitic, in which case it is high and the clitic is low.

(38)	*á lā*	'keep on laughing'	*á nāgī*	'keep on hitting'
			á nágí-wà	'keep on hitting him'
	kán á lā	'don't keep on laughing'	*kán á nágí-wà*	'don't keep on hitting him'

7.4 Future. The future particle is *lì*. It induces a mid tone on the following verb and hence we have the same verbal tone patterns as in the imperative. There is no future negative form, the present negative being used instead.

(39)	*àtù:m lì lā*	'Atim will laugh'
	àtù:m lì nāgī-wā	'Atim will hit him'

7.5 Stative. Stative verbs consist of a root plus a suffix *–a*. The verb has a mid tone.

(40)	*mí nāl-ā*	'I (emph.) am nice'	*tì nāl-ā*	'we are nice'
	fì nāl-ā	'you are nice'	*nì nāl-ā*	'you (pl.) are nice'
	wà nāl-ā	'he is nice'	*bà nāl-ā*	'they are nice'
	mí àn nāl-ă	'I (emph.) am not nice'	*tì àn nāl-ā*	'we are not nice'
	fì àn nāl-ă	'you are not nice'	*nì àn nāl-ă*	'you (pl.) are not nice'
	wà àn nāl-ā	'he is not nice'	*bà àn nāl-ā*	'they are not nice'

There is an alternative inflection for the stative in which the verb bears an underlying high tone on the root in the first and second (but not the third) person.

The suffix has a low tone. This form has an emphatic interpretation (41). While English distinguishes 'I *am* nice' vs. 'I am *nice'*, Buli lacks this distinction.

(41)

ǹ nǎl-à	'I *am nice'*	*tì nǎl-à*	'we *are nice'*
fí nǎl-à	'you *are nice'*	*nì nǎl-à*	'you (pl.) *are nice'*
wà nāl-ā	'he *is nice'*	*bà nāl-ā*	'they *are nice'*
màːn nǎl-à	'I *am not nice'*	*tì àn nǎl-à*	'we *are not nice'*
fí àn nǎl-à	'you *are not nice'*	*nì àn nǎl-à*	'you (pl.) *are not nice'*
wà àn nǎl-à	'he *is not nice'*	*bà àn nǎl-à*	'they *are not nice'*

The following chart summarizes the tone of the verbal inflection. When the suffix tone is in parentheses this means that it may be absent (as in an intransitive verb or a transitive verb whose object is not a pronominal enclitic).

(42)

	Affirmative			Negative		
	particle	verb	suffix	particle	verb	suffix
perfect 3rd		L	(M)	*àn*	H	(L)
1st, 2nd		H	(L)	*àn*	H	(L)
present	*à*	M		*kàn*	M	
	à	H	L	*kàn*	H	L
imperative		M	(M)	*kán*	L	(M)
contin.	*á*	M		*kán á*	M	
	á	H	L	*kán á*	H	L
future	*lì*	M	(M)	*kàn*	M	
				kàn	H	L
stative		M	M	*àn*	M	M
emphatic		H	L	*àn*	H	L

7.6 Analysis. As is often the case in the analysis of inflectional morphology, the Buli data are limited and thus the analysis is considerably underdetermined by the facts. One runs the risk of drawing parallels that may later turn out to be spurious. With this caveat, we offer the following interpretation of the data that tries to

impose some order on what otherwise appear to be rather arbitrary and chaotic tonal changes.

The imperative, future, and stative seem to form a system separate from the perfect and present. The verbal tone is generally mid in these inflectional categories, which we will assume to be the default tone—at least for the verbs. In the stative the appearance of the HL tonal pattern is associated with an emphatic interpretation. The association of high tone and focus or more general foregrounding pervades Buli phonology: the definite of nouns is marked by a high; the focus marker *ká* has a high tone; and the emphatic form of a pronoun has a high tone. For the stative, recall that the emphatic high tone does not appear when the verb is third person: cf. *fì nǎlà* 'you *are nice'* emphatic but *wà nālā* (**wà nǎlà*) 'he *is nice'*. The HL of the stative thus has a distribution comparable to the H(L) in the perfect, which is also absent in the third person. The parallel is further strengthened by the fact that in the negative the verb is HL in the perfect regardless of the person of the subject. And the same is true for the emphatic form of the stative. This suggests that the emphatic HL of the stative is really the agreement H(L) morpheme found in the perfect. In the affirmative form of both the perfect and the stative the agreement H(L) is absent in the third person. Cross-linguistically third person often has unmarked inflection, as opposed to first and second. Also, first and second person stand out from the background as participants in the speech act and so the agreement morpheme shares a family resemblance with the definite and focus forms.

Let us formalize these observations by postulating an agreement morpheme Agr consisting of a H+L tonal sequence. It appears in the preverbal INFL position. We postulate a rule deleting this morpheme when it immediately follows a third person [-participant] subject. The rule fails to apply in the negative because the negative morpheme intervenes between Agr and the subject. In the stative the Agr morpheme is normally absent but can be inserted when the verb is emphatic (focused).

The tense markers *à* and *lì* have a low tone. And in the perfect a low tone appears on the verb in the third person: *wà là* 'he laughed' (cf. *ǹ lǎ* < /ǹ lá/ 'I laughed'). It seems reasonable to identify this low tone as an exponent of the tense morpheme. Any following suffix is mid—presumably a default tone.

Collecting all these ingredients together, we postulate the underlying structure of (43a) for the verb in Buli. The rule of (43b) deletes the Agr following a [-participant] (i.e., third person) morpheme. Rule (43c) assigns a default mid tone when the verb fails to receive a tone from the Infl node.

(43) a. Neg [Agr Tns]$_{INFL}$ Verb
L H+L L

b. Agr → Ø / [-participant] ____

c. default: Ø → M

Let us sketch some derivations utilizing the transitive verb /ŋma/'blame'. In the perfect there is no segmental spell out of the Tns node. If the subject is third person, the Agr morpheme deletes leaving just the Tns L. It associates to the verb. Any object suffix gets the default mid.

(44) morphosyntax:

wà [H+L]$_{Agr}$ [L]$_{Tns}$	*ŋma-wa*	underlying
wà [L]$_{Tns}$	*ŋma-wa*	Agr Deletion
wà	*ŋma-wa*	Tone Association
	[L]$_{Tns}$	

phonology:

wà	*ŋma-wa*	Default Mid
	[L]$_{Tns}$ M	
wà ŋmà-wā		output
'he blamed him'		

In the first or second person of the perfect, the Agr morpheme is not deleted. Under left-to-right association the Agr H associates to the verb and any object suffix receives a L.

(45) morphosyntax:

fì [H+L]$_{Agr}$ [L]$_{Tns}$	*ŋma-wa*	underlying
fì	*ŋma-wa*	Tone Association
	[H+L]$_{Agr}$ [L]$_{Tns}$	

phonology:

fì	*ŋma wa*	Floating Tone Deletion
	H L	
fì ŋmă wà		Low Tone Spread
'you blamed him'		

In the negative of the perfect, the negator *án* intervenes between the subject and the verb blocking deletion of the Agr H+L. This morpheme persists in the representation and maps to the verb to produce a H(L) contour.

(46) morphosyntax:

wà àn	$[H+L]_{Agr}$ $[L]_{Tns}$	*ŋma-wa*	underlying
inappl.			Agr Deletion
wà àn		*ŋma-wa*	Tone Association
		$[H+L]_{Agr}$ $[L]_{Tns}$	

phonology:

wà àn	*ŋma-wa*	Floating Tone Deletion
	H L	
wà àn ŋmă-wà		Low Tone Spread
'he did not blame him'		

In the stative the INFL node normally deletes (or is not spelled out). The verb thus receives a default mid tone, as in (47). But under emphasis the INFL node is retained (cf. English emphatic *do*). We then derive the familiar H(L) contour (48).

(47) morphosyntax:

fɪ	$[H+L]_{Agr}$ $[L]_{Tns}$	*nal-a*	underlying
fì		*nal-a*	Infl Deletion

phonology:

fì nāl-ā	Default Mid
'you are nice'	

(48) morphosyntax:

fɪ	$[H+L]_{Agr}$	*nal-a*	underlying
fì		*nal-a*	Tone Association
		$[H+L]_{Agr}$	

phonology:

fì năl-à	Low Tone Spread
'you *are nice'*	

In the future the tense node is lexicalized with *lì* that takes the low tone. We assume that lexicalization of the Tns node blocks association of the Agr and its H+L tones to the following verb. As a result, the verb gets default mid tone.

(49) morphosyntax:

fì [H+L]$_{Agr}$	*lì ŋma-wa*	underlying
	inappl.	Agr Deletion
	inappl.	Tone Association

phonology:

fì	*lì ŋma-wa*	Floating Tone Deletion
fì	*lì ŋma-wa*	Default Mid
	M M	
fì lì ŋmā-wā		output
'you will blame him'		

As in many other languages the imperative form of the verb consists of the bare stem without any Infl. Thus, only a default mid is inserted: *nāgī-wā* 'hit him'. In the negative imperative, we find *kán* and low tone on the following verb: *kán nàgì-wā* 'don't hit him'. According to the first author, this form of the imperative has an emphatic sense (cf. English *do nót open the door*) and is thus comparable to the emphatic stative. The emphatic sense calls for insertion of the Agr mor-pheme. But the H of Agr H+L associates to the negative [kan] and the L to the verb. Any object suffix receives the default mid.[6]

(50) morphosyntax:

kan	*ŋma-wa*	underlying
[H+L]$_{Ag}$	*kan ŋma-wa*	Emphatic Agr Insertion
kan	*ŋma-wa*	Tone Association
H	L	

phonology:

kan ŋma-wa	Default Mid
H L M	
kán ŋmà-wā	output
'do not blame him'	

6 It is also conceivable that the emphatic negative particle *kán* is some amalgamation of the focus marker *ká* plus the negative *àn*.

The most puzzling tonal contrast is found in the present tense. Recall that it is marked by the tense-aspect morpheme *à*. This morpheme will block association of the Agr tones to the verb, which then receives default mid, just as in the future (49): *mí à nāgī náːb* 'I emphatic hit a cow'. But if the verb is encliticized with an object pronoun suffix then the verb appears as HL. This suggests that the Agr node lowers onto the verb when it contains an "agreeing" object suffix. The verb will then acquire the H+L tonal contour. Agr lowering must precede Agr deletion since it applies even when the subject is third person.

(51) morphosyntax:

wà	$[H+L]_{Agr}$ $[à]_{Tns}$	*ŋma-wa*	underlying
wà	$[à]_{Tns}$ $[H+L]_{Agr}$	*ŋma-wa*	Agr Lowering
	inappl.		Agr Deletion
wà	*à*	*ŋma-wa*	Tone Association
		H L	

phonology:

wà à ŋmă-wà	Low Tone Spread
'he hits him'	

We are unable to explain why Agr Lowering does not occur in the future (or the third person of the perfect). Clearly more study of the complex morphosyntax of the Buli verb is required before this discrepancy can be explained.

8. Other Constructions

In this section we review the tonal patterns of the verbal inflection in several additional constructions.

8.1 Serial Verbs. The serial verb construction consists of two verbs that share an object. (See Lee [2002] for analysis of serial verbs in Buli). The shared object must appear between the two verbs. In what follows, we are interested primarily in how the serial verb inflects for tone. Our paradigms use the canonical serial verb composed of *tūsī* 'push' and *lʷānsī* 'drop'. When combined into a serial verb, the meaning changes to 'push down'.

The paradigm in (52) shows some serial verb constructions in the perfect tense.

(52)

ǹ tùsì bí:k lʷànsì	'I pushed down a child'
ǹ tùsí bāŋ lʷànsì	'I pushed down a bangle'
àtì:m tùsì bāŋ lʷànsì	'Atim pushed down a bangle'
àtì:m àn tùsí bāŋ lʷàsī yà	'Atim did not push down a bangle'[7]
wà tùsì bǐk lʷànsì	'he pushed down a child'
ǹ tùsì wá lʷànsì	'I pushed him down'
mí túsí wá lʷànsì	'I (emph) pushed him down'
wà tùsì mī lʷànsì	'he pushed me emph. down'
fì tùsí mí lʷànsì	'you pushed me down'
mí àn tùsì wá lʷànsì	'I (emph) did not push him down'

We observe that V_1 shows the agreement alternation. It takes an underlying H when the subject is first or second person and L when it is third person. Low Tone Spread and Rising Tone Absorption apply to derive the *tùsì* and *tùsí* alternants. In the perfect tense V_2 is consistently low in tone. This suggests that the underlying structure of the IP in the serial construction is [Subj-Agr-Tns-V_1-Obj-Tns-V_2] with both verbs inflected for tense. The L Tns morpheme appears on V_1 in the third person when the Agr morpheme is deleted. But it is pushed aside in the first and second person by Agr H<L>.

(53) morphosyntax:

mí Agr Tns *tus* Tns *lʷans* HL L L	*wà* Agr Tns *tus* Tns *lʷans* HL L L	underlying
inappl.	*wà* Tns *tus* Tns *lʷans* L L	Agr Deletion
mí tus lʷans H L	*wà tus lʷans* L L	Tone Association

phonology:

mí túsí lʷànsì 'I (emph.) pushed down'	*wà tùsì lʷànsì* 'he pushed down'	Epenthesis

There is one unexplained gap in the paradigm. When the verb is first or second person (and hence has the HL Agr morpheme) it cannot take a cliticized object. Instead the full form of the object must be used.

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7 The negative perfect of the serial must take the sentence final completive particle *yà* that imposes a mid tone on the preceding syllable.

(54) *wà tùsì-mə̄ lʷànsì* 'he pushed me down'
wà tùsì mǐ lʷànsì 'he pushed me (emph) down'
fì tùsí mí lʷànsì 'you pushed me (emph) down'
**fì tùsí-mə̀ lʷànsì* 'you pushed me down'

àtù:m àn tùsì-kú lʷànsī yà 'Atim did not push it [ku] down

In the present each verb takes a segmentally lexicalized tense morpheme: Tns-V_1 Tns-V_2.

(55) a. *àtù:m à tūsī mí á lʷānsī* 'Atim is pushing me down'
b. *mí à tūsī bí:k á lʷānsī* 'I (emph.) am pushing down a child'
c. *mí túsí bí:ká á lʷānsī* 'I (emph.) push down the child'
d. *àtù:m tùsì mì á lʷānsī* 'Atim pushes me (emph.) down'

V_2 consistently has the high toned *á* particle that is found in the imperative (38).[8] The verb itself carries a default mid. When the serial verb has the progressive sense, then V_1 is preceded by the low tone tense-aspect particle *à*. The following verb V_1 has default mid. This is what we expect since the *à* particle blocks the docking of the AGR morpheme on V_1. When the serial verb has a habitual sense then V_1 has no segmental preverbal particle. In this case, the H(L) agreement morpheme can appear on V_1 when the subject is not third person (55c). In the third person, the AGR is deleted and so only the Tense L survives; it docks to the verb (55d).

In the imperative and future forms of the serial verb, V_1 is inflected in the manner of the nonserial construction while V_2 has a Tns low tone, just as in the perfect. The only complication is that in the negative future V_2 must be preceded by the *á* particle that appears in the present tense. Since it occupies the Tns slot, the L tone that might otherwise be expected does not occur. As a result, the verb receives a default mid tone.

(56) *tūsī bàŋ lʷànsì* 'push down a lizard!'
kán tùsì bàŋ lʷànsì 'don't push down a lizard!'
wà ǹ tūsī bàŋ lʷànsì 'he will push down a lizard!'
wà kàn tūsī bí:k á lʷānsī 'he will not push down a child!'

[8] The *á* particle that precedes V_2 appears with a low tone after an object that has a low tone: *mí à tūsī bàŋ à lwānsī* 'I (emph.) am pushing down a lizard'. We do not understand this alternation.

In sum, in the serial verb construction both verbs are inflected for tense-aspect. The Tns node on V_2 is only lexicalized in the present as *á*. Otherwise, the Tns is reflected in the L that appears on the following verb. The Agr HL appears on V_1 (so long as the subject is not third person and the V_1 Tns node is not lexicalized). But for some unknown reason cliticization is blocked when the verb is first or second person. The L portion of the Agr HL is then pruned away.

8.2 Subordinate Clauses. As in some other languages, the relative clause in Buli has more restricted inflection than the main clause. [See Hiraiwa 2002 for analysis of the syntax of Buli relative constructions]. In particular the agreement morpheme is banned from the relative. Hence, as shown in the paradigm of (57), the verb *nàgǐ* of the relative clause does not change its tone as the person of the subject is changed (in contrast to the main clause verb). Instead, the verb of the relative clause receives the L tense marker in all forms. It triggers Low Tone Spread to create a rising tone on the particle *lá* that terminates the relative clause. Subject relatives are introduced by the particle *lī* and nonsubject ones by the particle *tì*.

(57)	*àtù:m nyà bì:ká tì mǐ nàgì lǎ*	'Atim saw the child that I (emph.) hit'
	àtù:m nyà bì:ká tì ǹ nàgì lǎ	'Atim saw the child that I hit'
	ǹ nyà bí:ká tì àtù:m nàgì lǎ	'I saw the child that Atim hit'

Since the agreement morpheme is banned from the relative clause, there can be no Agr Lowering that we find in the main clause of present tense verbs. We can ask what tone an object pronoun will receive in the absence of the Agr morpheme. Other things being equal, we expect a default mid to appear. This is a correct prediction, as shown by the paradigm in (58).

(58)	a.	*ǹ nyà bí:ká lī nàgì-mō lá*	'I saw the child that hit me'
	b.	*ǹ nyà bí:ká lī à nāgī-bā lá*	'I saw the child that hits them'
	c.	*àtù:m à nàgí-bà*	'Atim hits them'

In (58a) the verb of the relative clause is in the perfect tense. Thus, the verb takes the Tns L tone and the enclitic object suffix takes default mid tone. But in (58b) the tense node is lexicalized as *à*. The Infl node thus has no tone to contribute to the verb, which consequently surfaces with default mid. Compare the present tense of the main clause verb in (58c). Here the Agr HL is lured onto the verb by the clitic object.

Finally, Buli has constructions in which the verb of the subordinate clause appears in a nonfinite form. (See Norris [2002] for discussion). One of these is as

complement to the main clause verb *yāːlī* 'want'. If a clause lacks inflection and if inflection is the source of the tone for the verb, then we expect the verb to appear in the default mid tone in this context. The paradigm in (59) shows that this expectation is confirmed.

(59)	*mà: yāːlī (àyĭn) àtùːm nāgī-mə̄*	'I want (that) Atim to hit me'
	àtùːm à: yāːlī (àyĭn) ǹ nāgī-wā	'Atim wants (that) me to hit him'
	mà: yāːlī (àyĭn) àtùːm pā-kū tē-mə̄	'I want (that) Atim to hand it [ku] over to me'

8.3 Reduplication. In Buli the verb can reduplicate to denote repeated action. [See Hsiao 2002 for discussion of reduplication in Buli]. In (60) we show some reduplicated verbs along with their non-reduplicated counterparts.

(60)	*àtùːm nàgì-mə̄*	'Atim hit me'
	àtùːm nàgì-nàgì-mə̄	'Atim kept on hitting me'
	fì nàgí-wà	'you hit him'
	fì nàgí-nàgì-wā	'you kept on hitting him'

One possible analysis goes as follows. In third person, the Agr morpheme deletes; the verb gets the L tense morpheme while the object gets default mid. The verb is then reduplicated, as in (61). But, if reduplication follows Tone Association, then the HL Agr morpheme (when not deleted) should associate to the verb +

(61) morphosyntax:

àtùːm	Agr H+L	Tns L	[*nag-mə*]	underlying
àtùːm		Tns L	[*nag-mə*]	Agr Deletion
			nag-mə L	Tone Association

phonology:

nag-mə L M	Default
nag-nag-mə L L M	Reduplication of verb

obj first to give /nág-wà/ and then reduplicate to /nág-nág-wà/ (and eventually *nágí-nágí-wà*). But this is doubly wrong: the second half of the reduplicant has a low tone and the object has a mid tone: *fì nàgí-nàgì-wā* 'you kept on hitting him'.

The other possible analysis is that the L appearing on the second half of the reduplicated verb is neither copied from the first half nor a reflex of Agr. Instead it is the L that we saw in the serial verb construction where V_2 consistently had the L tense morpheme except in the present where the *á* particle occurs forcing V_2 to get default mid tone unless an object enclitic occurs. In fact, this is the correct analysis as shown by the data in (62). Here the verb is reduplicated and takes two occurrences of the Tns particle. The second one licenses the HL Agr morpheme which can lower onto the verb with the encliticized object suffix.

(62) *àtù:m à nàgí-mə̀* 'Atim hits me (habitually)'
àtù:m à nāg á nágí-mə̀ 'Atim keeps on hitting me (habitually)'
àtù:m à nāg á nāgī mí 'Atim keeps on hitting me (emph.) (habitually)'

Thus, verbal reduplication in Buli takes place at the V' level of the morphology (V' = Tns+V) [cf. Inkelas & Zoll 2002] rather than copying in the phonology or filling out an underspecified CV skeletal slot [cf. Marantz 1982] or RED morpheme [cf. McCarthy & Prince 1995].

9. Phonetics

In this section we report several findings from a study of the phonetic implementation of the tonal data discussed in this paper. This study is based on the speech of a single speaker, the first author.

Buli is unusual among Gur languages in having a three-way distinction in tonal height. The minimal triple in (63) illustrates this difference. In citation forms the low and mid tones are quite regularly implemented at c. 100 Hz and 130 Hz, respectively, while the high tone fluctuates between 150–200 Hz. This might indicate that the high tone belongs to an upper register while the low and mid tones belong to a lower register. There is a modicum of phonological evidence to support this conjecture. Diachronically, there is our hypothesis that the Buli H originates from the raising (enhancement) of a H before L. Synchronically, we have seen two rules that relate low and mid tones in Buli: mid is changed to low in the noun-adjective construction and the low of the plural suffix *–à* is changed to mid after a mid tone. It is true that a low tone changes to high between high tones (31a) but this could arguably reflect phonologization of an undershoot phenomenon.

(63)

sʸúk
'path'

sʸūk
'navel'

sʸùk
'fish sp.'

As we have seen, the syllable is the tone-bearing unit in Buli. There is no underlying phonemic contrast between level and contour tones. Furthermore, the language contrasts CV, CVV, CVC, and CVVC syllable shapes. One might wonder how a tone such as a H is realized on the syllable. Can the peak be located anywhere in the syllable? Or is it achieved at some designated point such as the onset of the vowel or the right edge of the syllable? In fact, the following generalization underlies Buli tonal implementation: the tone stretches over the entire syllable rime producing a plateau. This point is evident in the pitch tracings in (64) showing the realization of a high tone on syllables of various canonical shapes. There is a rapid Fo rise in the onset and then the high tonal level is maintained with a slow decline reflecting prepausal lowering. This plateau structure may aid in the discrimination of three tonal levels by increasing the duration over which the stimulus can be perceived.

(64)

mí
'I (emph.)'

náŋ
'leg'

mí:
'helped'

dá:m
'drink'

The spectrograms in (65) show the transition from H to M and L. In general there is minimal anticipation in the achievement of the tonal targets on syllable rimes. The vast majority of the transition occurs in the syllable onset located between the two rimes.

(65)

náŋ bāŋ
'leg-bangle'

mí dá:m ɲʷè:
'my drink is gone'

Confining the F0 transitions to syllable onsets makes sense. Onsets may contain obstruent consonants, which are not optimal tone-bearing units. Making the F0 transition there allows the more hospitable (i.e. sonorant) syllable rime to host the tone. Also, Xu [1999] argues that it takes time for the relatively sluggish laryngeal articulators to implement a tone. If tonal implementation is aligned with the beginning of the syllable then the onset portion coincides with the inertia that must be overcome to approach the tonal target.

In (66) we illustrate the H≈R≈L alternation on *bí:k* 'child' produced by Low Tone Spread and Rising Tone Absorption. It is clear that in *m̀ bǐ:ká* the low of the pronoun spreads to first part of the rime of *bí:k*. This is followed by a rapid rise on the second mora. It is equally clear from *m̀ bì:ká* that this rise has been suppressed when a H follows. There is instead a rapid transition from the L on [bì:] to the H on [ká] that takes place primarily in the onset.

(66)

bí:k	*m̀ bǐ:k*	*m̀ bì:ká*
'child'	'my child'	'my child' def.

It is well known from the phonetics literature that rising tones take longer to implement than falling tones [Sundberg 1979]. Since Buli has syllables of various sizes we can ask if they behave differently under rising tone creation. In (67) we report the syllable rime durations for underlying high tone syllables in two prepausal contexts: (1) preceded by the high-toned emphatic pronoun *mí* 'my' and (2) preceded by the low-toned nonemphatic counterpart *n̂*. In the former context the H is unchanged while in the latter it turns to rising by Low Tone Spread. The durations of the CVVC, CVV, and CVC syllables remain relatively stable across the two contexts. But the monomoraic CV is significantly longer. It thus appears that in the prepausal context there is an opportunity for phrase-final lengthening. The Buli speaker takes advantage of this opportunity to realize his rise more comfortably. Comparable examples in the durational disparity between rising and falling tones have been reported in the literature. For example, Lehiste and Ivic [1986] found that short vowels with a rising tone are longer in duration than short vowels with a falling tone. Myers (to appear) reports that in Kinyarwanda the bimoraic long vowel under rising tone (H on the second mora) is significantly longer than a comparable bimoraic long vowel under a falling tone (H on the first mora). And Gandour [1977] finds diachronic changes in vowel length in Thai

(67) CVX

	H	R
Mean	306	301
St. dev.	51	48
N	11	11
Min.	210	236
Max.	400	400

t-test: mean diff. 5.2, DF 10, t = 1.05, p = .3183

CV

	H	R
Mean	109	159
St. dev.	26	20
N	15	15
Min.	76	129
Max.	129	203

t-test: mean diff. 49, DF 14, t = 7.63 p = < .0001

(68) CV́X

	Post-L	Post-H
Mean	349	340
St. dev.	39	50
N	13	13
Min.	300	276

t-test: mean diff. 8.4, DF 12, t = .640, p = .534

CV̀

	Post-L	Post-H
Mean	113	130
St. dev.	11	22
N	5	5
Min.	129	155

t-test: mean diff. 16.2, DF 4, t = 1.36, p = .243

dialects that track the direction of contour change: short > long in syllables with rising tones and long > short in syllables with level or falling tones.

Buli has no falling tones and so we cannot test the durational requirements of a rising vs. falling contrast. However, we did measure the duration of prepausal low tone syllables after a high vs. a low tone, shown in (68). The former sequence requires a transition from H to L while the latter does not. In this case neither the CV:, CVC, and CV:C syllables nor the CV syllables showed a significant durational difference in the two contexts.

9. Summary and Conclusion

The principal findings of this study of Buli tone can be summarized as follows. The language contrasts three levels of tone: high, mid, and low. Although Buli combines a vowel length contrast with an open vs. closed syllable contrast, there are no underlying complex tones. A general process spreads a low tone to a following syllable with a high tone to produce a rising tone. The rising tone simplifies to low when followed by a high-tone syllable. These processes apply at the level of the syllable, which is the tone-bearing unit of the language. Buli differs from other Gur languages in lacking a downstep and more generally in banning floating tones. We demonstrated a systematic correspondence between high, low, and toneless roots in Dagaare and high, low, and mid roots in Buli. We suggested that the mid tone in Buli arose from phonologization of the phonetic raising of a high tone before a low. We then surveyed the tonal changes associated with the nominal and verbal inflection. The latter was shown to be unusually complex. We suggested an analysis that made crucial use of an Inflection node that comprises a H+L agreement morpheme and a L tense morpheme that lower onto the verb in various contexts. Certain loose ends of the analysis were left as tasks for future research. The paper closed with a summary of the phonetic implementations of the tonal patterns. The syllable rime is the domain of realization of tones while the onset of the syllable is a zone of F0 transition. Rising tones are consistently distinguished from highs by delay of the peak until the end of the syllable. In the case of a monomoraic CV syllable, a rising tone occasions a significant lengthening before pause.

We hope that this paper will stimulate further study of the tone of Gur languages from both descriptive as well as comparative, typological perspectives.

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Department of Linguistics
University of Ghana
P.O Box LG61
Legon, Ghana
gakanligpare@hotmail.com

Department of Linguistics
MIT
Cambridge, MA 02139
kenstow@mit.edu

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PALATALIZATION IN WEST CHADIC

Russell G. Schuh
UCLA

Morphological palatalization is a phenomenon whereby palatal articulation (fronting of vowels, adding palatalization as a secondary articulation to consonants, changing alveolars to alveopalatals) is a property associated with an entire morpheme, not with individual segments. Within the Chadic language family, morphological palatalization is best documented in the Biu-Mandara branch, but it has been inherited as a feature in the West branch as well. This paper explores palatalization phenomena in the West Branch that conceivably trace their origin to morphological palatalization. In Miya, morphological palatalization operates much as it does in Biu-Mandara languages, affecting entire morphemes and associating with specific morphological processes. Duwai exhibits remnants of morphological palatalization in certain verb alternations. Bole shows alveolar/alveopalatal variations in specific lexical items that have no local phonological explanation. In Hausa, the origin of palatal consonants has long been a source of controversy. The paper argues that local phonological processes of palatalization cannot account for a large number of the palatals in modern Hausa, a claim that has implications for the analysis of the system of high vowels.

1. Morphological Palatalization

Many languages in the Biu-Mandara branch of the Chadic family[1] have a phenomenon which I will refer to as "morphological palatalization". Carl Hoffmann was apparently the first person to describe this phenomenon, writing about Gude in Hoffmann [1972],[2] a paper which I have not seen, cited in Hoskison [1975:5], but the phenomenon is now well-described for a number of other Biu-Mandara languages. Rather than a local effect whereby, say, *s* palatalizes to *š* before a front vowel, morphological palatalization affects a whole word. Typical is the situation in

[1] Newman [1977], in the classification followed here, proposes four major branches in the Chadic family: West, comprising languages spoken in northern Nigeria; Biu-Mandara, comprising languages spoken in northeastern Nigeria and northern Cameroon; Masa, comprising languages spoken in southwestern Chad, extending into eastern Cameroon; and East, comprising languages in western and central Chad.

[2] The title of Hoffmann's paper refers to "Mapuda" [*mapud'a*], a now archaic autonym of the Gude [Hoskison 1975:4].

Podoko, for which Swackhamer [n.d.] says, "Palatalization works as a word level prosody. It affects the central vowels, causing /a/ to be realized as [ɛ] and /ə/ to be realized as [i]. It affects the alveolar consonants, especially the fricatives, and in some environments, the stops and the nasal /n/." Thus, for example, the non-palatalized root /baza/ 'to unearth' is pronounced [baza], but its imperative, which is palatalized, is pronounced [bɛžɛ].

In these languages, it is clear that morphological palatalization is a word level phenomenon rather than a phoneme-level alternation because, first, it affects a word globally, shifting pronunciation of both consonants and vowels, and second, though it potentially affects all the segments of a word, it is often variable in the extent to which it affects specific segments. Hoskison [1975:41] gives the following routine for palatalizing the root consonants of the Gude VENTIVE form of the verb (called "MOTION-TO-SPEAKER" by Hoskison), which consists of changing the stem final vowel to /a/ and palatalizing the word:

- Obligatorily change /ɗ, n, s, z, ts, dz/ to their palatal counterparts ['y, ñ, š, ž, č, ǰ].
- If the root has none of the consonants above but it does contain one or more other coronals, then palatalize at least one of those.
- If the root contains no coronals, then palatalize at least one other consonant other than /ɣ/ (/ɣ/ is not palatalizable, but no roots contain only /ɣ/).
- Optionally palatalize any consonant in addition to the obligatory palatalizations above.

For example, the verb /sə̀ba/ 'drive away' has a "neutral" verbal noun [sə̀bán] and a ventive verbal noun [šə̀bán], with obligatorily palatalized [š] but unpalatalized [b].[3] The "neutral" verbal noun of /tə́ɬ/ 'sew' is [tə́ɬə́n], whereas the ventive verbal noun is [tíɬʸán], with the medial lateral fricative palatalized, but not the initial /t/. The neutral verbal noun of /də̀m/ 'enter' is [də̀mə̀ná], whereas the ventive is [gʸə̀mán], with the coronal /d/ palatalized to [gʸ] but the labial /m/ not palatalized. The root /ɓʷə́/ 'sip', with only a labial consonant has neutral verbal noun [ɓʷʊ́n] but ventive [ɓᶣén]. Note that morphological palatalization also affects vowels. Hoskison, writing in a linear framework, described changes in vowels as assimilations to neighboring palatalized consonants, but if one views morphological palatalization as a word level prosodic pattern, there is no reason to give the consonants priority.

Morphological palatalization in Biu-Mandara languages functions both as a feature of certain morphosyntactic processes, such as the Podoko imperative or the Gude ventive, and as an unpredictable lexical feature of certain words. Swackhamer [n.d.] cites pairs of words such as [patsa] 'sun' vs. [pɛtšɛ] (= /patsa/ + palatalization) 'g-string' or [vula] 'bedbug' vs. [vulɛ] (= /vula/ + palatalization) 'mollusk'. Gude has pairs such as [hə̀ná] 'to shoot' (cf. palatalized perfective form [hʸɪ]) vs. [hʸin] 'millet'.

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[3] Examples are from my own notes on Gude, which I worked on for about a year and a half in the late 1970's.

Although morphological palatalization is fairly well described for a number of Biu-Mandara languages, as far as I know, no one has done any comparative work specifically on palatalization, such as reconstructing certain roots as palatalized and others as non-palatalized or reconstructing particular morphological processes as incorporating palatalization. In fact, the morphological processes associated with palatalization differ from language to language, e.g., in Podoko, verbs in the *imperfective* are palatalized [Jarvis n.d.:42ff.], whereas in Gude, verbs in the *perfective* (= *completive*) are palatalized [Hoskison 1983:83ff.], making it unclear whether we are dealing with analogous processes or true homologs. Despite our current ignorance about comparative aspects of morphological palatalization, it seems likely that this must be reconstructed as a feature of Biu-Mandara. It is too widespread and too systematic among languages that are not particularly closely related and not in contact with each other to be a result of either accidental convergence or areal spread.

The hypothesis that morphological palatalization was a feature of proto-Biu-Mandara raises the question of whether it might be a feature inherited from an even deeper historical level. This paper will suggest that there is evidence that the answer to this question is, "Yes," at least to the level of the shared ancestor of Biu-Mandara and West Chadic. No West Chadic language so far described has morphological palatalization of the systematic and productive nature found in some Biu-Mandara languages. However, at least one West Chadic language, Miya, does have palatalization that works as a word level prosody, much as in Biu-Mandara languages, and if one once thinks of morphological palatalization as having been a feature of proto-West Chadic, a number of apparent anomalies in other languages seem less of a puzzle. I will begin by briefly summarizing the situation in Miya. Next I look at the Bade/Ngizim group, especially Duwai, where certain alternations and other facts are reminiscent of morphological palatalization. Along with Miya, these languages all belong to Newman's [1977] "B" sub-branch of West Chadic. Languages of Newman's "A" sub-branch of West Chadic, which includes Hausa,[4] also have what may be remnants of morphological palatalization. In West Chadic "A", I begin by examining Bole, which has a rather "fluid" phonology, especially in the coronal area, and I finally turn to Hausa and the vexed question of whether the contrasts between words such as *tunyà* 'cactus' vs. *cinyà* 'thigh' reside in the consonants or the vowels.

2. Miya[5]

In this section, I briefly summarize the description of Miya morphological palatalization in Schuh [1998:33-36]. The phonetic effects of morphological palatalization in Miya, a West Chadic "B" language of the North Bauchi subgroup, are essen-

[4] Recent comparative work that I have been doing on West Chadic has caused me to question a close relationship between Hausa and other languages now considered West Chadic "A". There is no question of the West Chadic affiliation of Hausa, however, and its exact place within West Chadic would have no implications for the phenomena discussed in this paper.

[5] Field work on Miya in 1982-83 was supported by a grant from the Wenner-Gren Foundation for Anthropological Research.

tially identical to those in Biu-Mandara languages. In a word with morphological palatalization,

- the [+delayed release] coronals /ts, dz, s, z/ are obligatorily realized as the palatal counterparts [c, j, sh, zh];[6]
- other consonants are optionally palatalized;
- /ə/ is almost always realized as [i] in word final position and frequently in word medial position as well;
- /a/ is often realized as [ɛ] (written "e" here—see footnote);
- /ā/ is usually realized as [ǣ].

As in the Biu-Mandara languages, these effects are somewhat variable from word to word and in repetitions of the same word. In (1) are a few palatalized words, written as I recorded them in my notes. The form between slashes is the segmental form without palatalization.

(1)	*títelúw*	/tətalúw/	'type of flute'	*tyámátyam*	/támátam/	'stench'
	éryúw	/árúw/	'pus'	*ázhìpiy*	/ázəpəy/	'tears'
	mbyæ̆dlí	/mbă̆dlə́/	'cucumber'	*ávyă̆di*	/ávă̆də/	'buttocks'

Also as in Biu-Mandara languages, palatalization is a lexical feature of some words and morphemes but not of others, though lexically palatalized words are very much in the minority [Schuh 1998:35]. There are minimal pairs segmentally distinguished only by palatalization, as in (2), for example.

(2)	*mər*	'sesame'	*mìr*	'money'
	átəm	'song'	*átím*	'nose'
	làbadə	'shoulder'	*lébedi*	a type of basket

Miya differs from Biu-Mandara languages in that morphological palatalization is no longer a productive part of any morphological process. There are, however, a few areas of morphology where a single root may have contrastive palatalized and non-palatalized alternants. The morphological pairing which best illustrates this is verb vs. derived verbal noun. For a number of verbs, the root form is not palatalized but the derived verbal noun is, as in (3).

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6 Here and elsewhere I will use the following orthographic conventions: *c* = [tʃ], *j* = [dʒ], *sh* = [ʃ], *zh* = [ʒ], *tl* = [ɬ], *dl* in Miya and *jl* in Bade = [ɮ]. A palatal co-articulation of consonants other than these will be represented by a *y* following the consonant, e.g., *gy* = [gʸ]. The vowel *ə* = [ɨ]. Medially, the short vowels which I will symbolize as *i*, *u*, *e* tend to have a lax pronunciation, phonetically more like [ɪ, ʊ, ɛ]. A macron over a vowel represents a long vowel, though in Miya, I represent phonetic [iː] and [uː] as *iy* and *uw*, respectively (see Schuh [1998:20-22] for discussion). Grave accent indicates low tone. In Miya, acute accent on a domain initial syllable = high tone. Elsewhere in Miya and Bade, acute accent = downstepped high. In Miya, syllables unmarked for tone retain the tone of the nearest syllable to the left. In other languages, unmarked syllables bear high tone.

(3) *zəza* 'flay' but *ázházhə* 'flaying'
tləma 'shave' *átlyám* 'shaving'
(cf. *tsəga* 'sit', *átságə* 'sitting' without palatalization)

rəvəzə 'be fat' but *ràvazhi* 'fatness'
'əsə 'be sated' *'ísháshi* 'satiation'
(cf. *tənsə* 'itch', *tàmasə* 'itching' without palatalization)

See Schuh [1998:36] for a few other areas where palatalization plays a morphological role, albeit a frozen, lexicalized one.

3. Duwai, Bade, and Ngizim[7]

Duwai, Bade, and Ngizim are three fairly closely related languages of the "B" branch of West Chadic. They are thus first cousins of Miya within West Chadic "B", in contrast to their more distant cousins in the "A" branch of West Chadic, such as Bole and Hausa. Bade and Ngizim are particularly closely related, and in fact, impressionistically, Ngizim resembles the Gashua dialect of Bade more than that dialect resembles other Bade dialects, suggesting that some features shared across Bade but not shared by Ngizim may be the result of areal diffusion rather than shared inheritance (see Schuh [1981] for discussion of Bade dialects). Duwai, on the other hand, is quite distinct from its sisters and clearly represents a separate branch within this group. Bade is dialectally diverse [Schuh 1981] and Duwai appears to be so, though I have little systematic information on Duwai dialects.

Looking at any of these languages purely on internal grounds, one would probably not propose processes of morphological palatalization like those described above for Biu-Mandara languages or Miya. Both Duwai and Ngizim have a productive rule that changes alveolar consonants other than lateral fricatives, *l*, and *r* to their palatal counterparts when an *-i* follows, such as in the examples in (4), contrasting verbs in the perfective in each language with the subjunctive in Duwai and the singular imperative in Ngizim.

This rule is NOT shared by any dialect of Bade (cf. Gashua Bade *màsu* '(he) bought', *amasí* 'buy!'). Since Bade and Ngizim comprise a genetic subgroup separate from Duwai, Duwai and Ngizim must have developed locally conditioned palatalization of alveolars independently and fairly recently rather than having inherited it as a regular process from a common ancestor. Palatalization of alveolars before front vowels is, of course, a natural and widespread process in the world's languages, but it would be a remarkable coincidence if two closely related

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[7] Data from Ngizim comes primarily from work in a comparative Chadic syntax project in 1969-70, supported by a National Science Foundation Grant (GS-2279, Paul Newman, Principal Investigator). Data on Duwai and Bade come from two years field research when I was a Senior Research Fellow in the Centre for the Study of Nigerian Languages of Ahmadu Bello University (Paul Newman, Centre Director).

(4) Phonologically conditioned palatalization in Duwai and Ngizim

Duwai		
Perfective	Subjunctive	
əfto	*àfci*	'lie down'
kə̀do	*kə̀ji*	'bite'
kì̀ɗo	*kì̀'yi*	'eat meat'
mə̀so	*mə̀shi*	'buy'
tù̀zo	*tù̀zhi*	'tip to pour'
wə̀no	*wə̀nyi*	'milk'

Ngizim		
Perfective	Imperative	
rəptu	*a-rəpci*	'open'
zì̀du	*à-zīji*	'slaughter'
kì̀ɗu	*à-kī'yi*	'eat meat'
kə̀su	*à-kāshi*	'sweep'
bəzu	*a-bəzhi*	'leave'
tə̀nu	*à-tānyi*	'remember'

languages would independently initiate this process and, moreover, initiate it for exactly the same set of consonants (a set which differs from that of their distant cousin, Hausa, which palatalizes only *s*, *z*, *t*, and to a lesser extent *d*—see below). I will suggest that the seeds of the process already existed in proto-Duwai/Bade/Ngizim and that the convergent innovation was not to initiate palatalization, but to "focus" it in the form we see it today.

In addition to this process of phonologically conditioned palatalization, Duwai has a process which is more like that of the morphologically conditioned palatalizations of some Biu-Mandara languages. Some, but not all verbs palatalize the root final consonant in the perfective but not in other TAM's (root final alveolars will, of course, palatalize in TAM forms that end in *-i* by the general phonological rule illustrated in (4) above). The table in (5) illustrates verbs in their perfective and imperfective forms. In some of the examples, both perfective and imperfective have phonetically identical endings [-uwo], but they are underlyingly different. The perfective comes, historically, from *-ə-w(u), and is realized as final *-u* in Bade and Ngizim, e.g., Ngizim *ɾə̃̀tu* 'divide', *dəbu* 'erect'. In Duwai, the perfective comes out as *-ùwo* if the final consonant of the verb is a palatal or a labial (a strange natural class!), e.g., *ɾə̃̀cùwo* 'divide', *dəbùwo* 'erect', and as *-o* elsewhere, e.g., *nù̀to* 'pass' (cf. Ngizim *nù̀tu* 'pass'). The imperfective comes, historically, from *-*a-w(u)*, e.g. Ngizim *ɾə̃̀taw* 'will divide', *dəbaw* 'will erect'. In Duwai, the *-a*

becomes -ə if not phrase final, and assimilates to the *-w* suffix to become [u].[8] In my list of 380 Duwai verbs, there are none with palatalized labials, palatalized liquids, or palatalized lateral fricatives.

(5) Duwai verbs with palatal consonant in the perfective

Perfective	Imperfective	
ɾ̃ɛ̃cùwo	*ɾ̃ētùwo*	'divide'
əbjùwo	*əbdùwo*	'greet'
pòkshùwo	*poksà*	'postpone'
gùzhgùzhùwo	*guzgùzùwo*	'teach, learn'
əgvəɗyùwo[9]	*əgvəɗù*	'rot, spoil'
kənyùwo	*kənò*	'spend the day'
əckyùwo	*əckùwo*	'cut in two'
əɗgyùwo	*əɗgù*	'become aware'

Palatalization of Duwai perfective verbs differs in important respects from Biu-Mandara languages where palatalization plays a morphological role. First, as described in sections 1 and 2, palatalization in Biu-Mandara and Miya is a word level prosody. In Duwai, palatalization in the perfective affects only the root final consonant. Second, unlike Biu-Mandara languages, where morphological palatalization is a fixed part of marking particular TAM's, palatalization of verbs in the perfective in Duwai is lexically specific and applies to only a minority of verbs. The table in (6) gives figures for the number of verbs in my data that do and do not alternate.

In addition to these systematic alternations associated with particular phonological or morphological environments, languages of the Duwai/Bade/Ngizim group show apparently unsystematic differences in (non-)palatalization in cognate lexical items. The table in (7) gives a sample. I have included Miya where a cognate is available.

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[8] The *-w(u)* of the perfective and imperfective also have different origins. The perfective probably comes from a perfective marker **-ku*, seen, for example in Bole-Tangale languages such as Kirfi *shan-kò* 'he lay down'. The imperfective is from a definite determiner **ku*, still heard with the stop in Duwai imperfectives in the Dadigir dialect for verb forms ending in a voiceless consonant, e.g., *yì ɗəbət-ko* 'I will sell (it)'.

[9] Note that the phonetic realization of /ɗ/ under perfective palatalization is [ɗʸ], an alveolar with palatal co-articulation, where /ɗ/ palatalized by a following *-i* is ['y], a true palatal with glottal articulation. I would want to check this with a range of speakers over a range of tokens before asserting that this is a consistent distinction, however.

(6) Numbers of Duwai verbs with and without alternating consonants

	Alternate	Only non-palatal	Only palatal
t/c	49	37	1 (only the monoverb *cùwo* 'beget')
d/j	4	16	0
s/sh	1	13	2 (includes 1 monoverb *shùwo* 'lift')
z/zh	1	1	0
d/dy	5	32	0
n/ny	6	23	1 (only the monoverb *nyùwo* 'bathe')
k/ky	1	18	0
g/gy	1	14	1 (the verb 'know'—see (7) below)

(7) West Chadic "B" palatal/alveolar correspondences

Duwai	Ngizim	Bade (Western)[10]	Miya	
ì̀je	*jă*	*jān*	*'íy*	'dog'
zhìmen	*zàmànu*	*zìyàmən*		'ostrich'
kəshèn	*gəzhàn*	*əgzànən*	*gùzəm*	'Nile monitor'
shishî	*(gəzhăw)*	*səsakon*	*áshúwashúw*	'star'
ŋ̀mish (cf. *gəmso* 'laugh')	*gàmas*	*gə̀màsən*	*ghàmatsə*	'laughter'
shirì	*shirin*	*sərən*	*tsər*	'two'
zhìyà	*zhà*	*zìyān*		'war'
ì̀shau	*shau*	*son*		'excrement'
əzgyàwo	*zəgau*	*əzgo*		'know'
dău	*juwâk*	*jùwān*	*átiwìy*	'fly'

The point of these examples is to show cross-language variation in palatalization in roots which does not seem to have a phonological explanation. In these examples, and in general, Duwai has more palatal consonants lexically than do Bade and Ngizim. Bade appears to have undergone DEpalatalizatiion of *sh and *zh. In the list here, the word for 'star' is not only palatalized in Duwai and probably Ngizim (it is not clear exactly how to relate the Ngizim word to the others), but also in Miya. Depalatalization as a process in Bade is evident in borrowed words where words in the source language must have had palatals, e.g., Bade *sənkāfă̄n* 'rice',

[10] In the Western dialect of Bade, all nouns have a suffix *-n* in citation form [Lukas 1968, Schuh 1973/74]. The word for 'star' ends in a productive diminutive suffix *-ako-*.

probably from Hausa *shìnkāfā*. Bade has no words with *sh* or *zh*, but it does have *c* and *j*, e.g., *cəkcəku* 'sift' (cf. Ngizim *cəcku* 'strain'), *jùwân* 'fly' (the insect) (cf. Ngizim *juwâk*). The word for 'fly' is of interest because it is NOT palatalized in Duwai, though it is in Miya, as the vowels indicate (assuming the Miya word is cognate—the *d* ~ *t* correspondence is problematic).

Of particular interest are words where Duwai has both a palatal consonant and a vowel *e*, as in the words 'dog', 'ostrich', 'Nile monitor' in (7). Evidence points against reconstructing mid vowels for early stages of Chadic in general and for West Chadic "B" in particular. In West Chadic "B" languages, virtually all mid vowels transparently come from monophthongization of the diphthongs *ai* and *au*, from borrowings, and, relevant to this study, from palatalization of *a*. Thus, in a word like *kəshèn* 'Nile monitor', we cannot use *-e-* to explain the palatal *sh* if *e is not a reconstructable phonemic vowel, and we cannot explain *sh* as conditioning a change *a > *e* because the original consonant was *z (cf. the Bade word and Miya *gùzəm*—I do not, at the moment, have an explanation for devoicing of the consonant in Duwai). If, however, we assume that this group of languages inherited morphological palatalization as a non-productive, but still present phenomenon, something like what we see in Miya today, we can explain these facts. The different languages have frozen the original word prosody as lexicalized palatal segments in certain words and/or have converted it to a local phonologically conditioned change, as illustrated in (4) for Duwai and Ngizim. Only Duwai preserves more active remnants of the earlier system with palatalization of a subset of verbs in the perfective and in the related pair *gəmso* 'laugh', *ŋmish* 'laughter', a verb/verbal noun pair like those in Miya.[11]

To conclude this section, consider the historical derivations in (8) of a pair of words which, by the hypotheses here, differed only in the presence or absence of morphological palatalization at the proto-Duwai/Ngizim/Bade level.

(8)

	*ədà 'eye'		*ədа$_{[+pal]}$ 'dog'	
	Duwai	Ngizim	Duwai	Ngizim
Palatalization (proto-D/Ng/B)	NA	NA	*ìje*	*ìje*
B/Ng initial V loss	NA	*dà*	NA	*jě*
Duwai V lengthening	*ìdà*	NA	*ìje*	NA
Loss of MP as a prosody	*(ìdà)*	*(dà)*	*(ije)*	*jă*
Modern form	*ìdà*	*dà*	*ìje*	*jă*

[11] A detailed study of Duwai would probably reveal more lexicalized pairs such as this, but I have not yet come across any in my rather limited data.

REMARKS:

(1) These words are cognate with Bole *ìdo* 'eye' and *àdà* 'dog', respectively. The initial *a-* of Bole 'dog' must result from assimilation of *ə- to the final *-a*. At this time I have no explanation for the final *-o/-a* correspondence for 'eye'. 'Dog' is likewise cognate with Miya *'íy*. In the North Bauchi languages, of which Miya is a member, non-initial *d and *t have fairly regularly changed to *y* (cf. Miya *miy* 'die' vs. Bole *motu*, Miya *kìyim* 'crocodile' vs. Bole *kadàm*), and in Miya, all original word final vowels in monomorphemic words have been apocopated.

(2) B/N initial V loss: Initial *ə- in open syllables has regularly been lost in Bade and Ngizim, a shared innovation which groups these languages as distinct from Duwai. This is probably not really a sound change, but rather a historical reinterpretation. Throughout this language group, vowels in hiatus coalesce, e.g., Bade /aci ək̀fu/ → [acək̀fú] 'he entered'. At an earlier stage, in an utterance such as */kùɓə ədà/ → [kùɓədà] '(he) closed (his) eye', the underlying form of 'eye' would have been ambiguous between /əda/ or simply /da/. The immediate ancestor language to Bade and Ngizim selected the latter interpretation across the board for such words—cf. also Duwai *ìshau* vs. Ngizim *shau*, Bade *son* in table (7).

(3) Duwai V lengthening: Duwai has regularly lengthened "real" vowels in non-final open syllables, where by "real" I mean non-epenthetic vowels, i.e., vowels whose presence and quality are not predictable on the basis of syllable structure. This affected both medial vowels, e.g., Duwai *mə̀so* 'buy' (cf. Bade *màsu*), and initial vowels, e.g., Duwai *ə̀zhəmòk* '*Acacia seyal*' (cf. Bade *azəmān*). Lengthened initial *ə > [ɪ] in Duwai, possibly also a remnant of palatalization because, like many Chadic languages, Duwai does tolerate phonetic long [ə̄].

(4) Loss of MP as a prosody: The palatalized variant of /a/ in languages with morphological palatalization is usually [ɛ] (see fn. 6), but /a/ in palatalized words often does not undergo perceptible fronting (see a number of the examples in the section on Miya). Once Bade and Ngizim lost morphological palatalization as a word level prosody, the vowel /a/ emerged in its canonical phonetic realization. In Duwai, assuming we do not want to say that it has true morpholological palatalization, *a seems to have been phonologized as a front vowel, written "e" here, in words that originally had prosodic palatalization.

4. Bole[12]

We now turn to languages of the "A" subgroup of West Chadic. As far as I know, there are no West Chadic "A" languages that have anything resembling prosodic

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12 This section is a write-up of an oral presentation given at the UCLA Linguistics Phonology Seminar, May 15, 2001. That presentation was, in turn, an expansion and refinement of a section of Schuh and Gimba [2000b]. Work on Bole has been supported by a National Science Foundation grant (BCS9905180, Russell G. Schuh, Principal Investigator).

palatalization of whole words. Nonetheless, some West Chadic "A" languages present problems of interpretation with respect to palatalization. In the preceding sections, I have tried to present a credible case for claiming that proto-West Chadic inherited morphological palatalization from its immediate ancestor. This background may give us a way to address some issues that West Chadic "A" languages raise.

The Bole phonetic coronal obstruent inventory includes the following sounds: [t, d, ɗ, c, j, s, z, sh, nd, nj, nz]. There are no active alternations between any of the alveolars and their palatal counterparts, though a few frozen singular/plural alternants in nouns suggest that there was at one time at least a rule palatalizing *z* before front vowels, e.g., *gāzà*, pl. *gajje* 'rooster', *gorzo*, pl. *gorə̀ji* 'man'. In modern Bole, there are no such alternates associating the corresponding voiceless fricative pair *s/sh*, i.e., in a singular/plural pair like *kòsum*, pl. *kosse* 'rat', nor is there any evidence, internal or comparative, to suggest that the alveolar stops ever alternated with their palatal counterparts—cf. Bole *dìshi*-[13] 'grandchild' vs. Hausa *jīkà̃*, Bole *fī* 'eat' vs. Hausa *ci*, where the Hausa cognates DO have palatals before front vowels. Discussion here will thus focus only on the sets *s/sh/c* and *z/j*, assuming a historical relationship between the members of each set.

There is no question that /s, sh/ and /z, j/ represent four separate phonemes in Modern Bole. There are (near) minimal sets of words contrasting the alveolar and palatal counterpart of each pair (9). I include [c] in the palatal column together with [sh]. This sound occurs word initial in Bole in only a few words, always in variation with [sh]. Medially, [c] occurs only as a geminate in variation with [ssh].

(9) Bole words showing a contrast between alveolars and palatals

Alveolar (s, z)		Palatal (sh/c, j)	
sit	ideophone for black	*shit*	ideophone for red
òsi	'fire'	*ə̀̀shi*	'goat'
besì	'shooting, stinging'	*bə̀̀shi*	'pounding a nail'
sa	general negative marker	*shâ*	'circumcision'
sap	ideophone for earliness	*cap, shap*	'all'
dàsa	'jealousy'	*də̀̀shà*	type of sorghum
messè	'remainder'	*mècce*	'travelling'
zə̀̀là	'forked pole'	*jàlà*	*Albizia chevalieri*
zə̀̀ri	'rope'	*jol*	ideophone for jumping
Gə́̀zà	'Goza person'	*sə́̀jà*	'soldier'

13 The plural *dìkkè* 'grandchildren' shows the origin of the medial *sh* < *k. This probably represents an innovation at the proto-Bole-Tangale level—cf. 2nd feminine singular *shi* 'you' as the form for this pronoun in all the Bole-Tangale languages vs. Hausa *ki*.

(10) Variation of palatals and alveolars within the Fika dialect

s ~ sh ~ c		z ~ j	
sònji ~ shònji ~ cònji	'pumpkin'	*zǔ̀lù ~ jǔ̀lù*	'cooked pumpkin'
sansala ~ shanshala ~ cancala	'cattle egret'	*zàutu ~ jàutu*	'combing'
insō ~ inshō ~ incō	'today'	*gòzor ~ gòjor*	'throat'
cap ~ shap	'all'	*zâr ~ jâr*	'a stick of …'
mànsuwò ~ mànshuwò	'he grew old'	*zìrɗuwǒ̀yi ~ jìrɗuwǒ̀yi*	'he tightened it'

(11) Variation of palatals and alveolars across dialects (some of these may also vary within a dialect)

s ~ sh			z ~ j		
Gadaka	Fika		Gadaka	Fika	
sìnsor	*shìnshor*	'dew'	*zo*	*jo*	'running'
sòmsòm	*shòmshòm*	'fermented'	*zànga*	*jànga*	'mud for building'
ɗ̀isa	*ɗ̀isha*	'vulture'	*kanzàu*	*kanjàu*	type of drum
shɛ̀ɗi	*sɛ̀ɗi*	'medicine'	*wājà*	*wāzà*	'mare'

(12) Alveolar ~ palatal variation affecting borrowed words

Bole	Source	
sàidu	*shaidà̀* < Hausa < Arabic	'testify'
shà̀shu ~ sà̀su	*sākɛ̀* < Hausa	'do again'
zànkar (Gadaka)	*cf.* Ngizim *jànkaɾ̌*	'louse'
rìgìjâm ~ rìgìzâm	*rìgìzâm* < Kanuri < Arabic	'bridle'

Despite the clear contrast between /z/ and /j/ and between /s/ and /sh/ (the latter with an allophone [c]), many words allow apparent free variation between alveolars and their palatal counterparts. This variation takes place both within the Fika dialect, the focus of this discussion, and across dialects (see (10)-(12)). Moreover, it affects borrowed words, sometimes depalatalizing an original palatal, sometimes palatalizing an original alveolar, and sometimes allowing variation.

The word meaning 'do again' from Hausa *sākè* (phonetically [sākyè]) is of particular interest. Bole speakers who have acquired Hausa in adulthood as a second language realize Hausa /ky/ and /gy/ as [c] and [j] respectively, e.g., Hausa *dà kyâú* 'good!' (lit: "with goodness") with a "Bole accent" becomes [dàcâu]. In Hausa, /k/ automatically palatalizes to /ky/ before front vowels, meaning that Bole speakers "hear" Hausa [sākyè] as [sācè], but because word medial [c] occurs only as a geminate realization of /sh/, this is reinterpreted as /sāshè/. As we will see below, alveolar and palatal fricatives cannot co-occur in the same word, meaning that the borrowed Hausa root must thus be either [sās-] or [shāsh-].

A number of questions arise from the observations that, on the one hand, the alveolar fricatives and their palatal counterparts are in contrast, whereas on the other hand, they seem to be in free variation in at least some words. The first question is the extent to which alveolar or palatal pronunciation is stable versus variable. Looking only at tokens from the Fika dialect, I compiled the following figures from Schuh and Gimba [2000a]:

Word initial

179	words with initial [s]	114	words with initial [z]
82	words with initial [sh]	91	words with initial [j]
261	TOTAL with s ~ sh	205	TOTAL with initial z ~ j
13	show variation	11	show variation

Word medial (intervocalic C2)

109	words with [s] as C2	39	words with [z] as C2
76	words with [sh] as C2 (includes [cc])	41	words with [j] as C2
185	TOTAL with s ~ sh ~ cc as C2	80	TOTAL with z ~ j as C2
6	show variation	6	show variation

These figures show that the number of words that admit alveolar/palatal variation is only a small percentage of the total of the words containing one of these sounds. The figures represent only those entries for which Schuh and Gimba [2000a] actually list variants. Were we to check every entry for acceptable variation, the figures would be considerably higher, but probably still well below 50%. It is worth noting that no entries with medial geminates show variation within the Fika dialect, suggesting that gemination stabilizes an alveolar or a palatal pronunci-

ation, though some entries with geminates differ dialectally, e.g., Fika *pocco* 'arrow', Gadaka *posso*.

Another question is whether there is any correlation between alveolar or palatal pronunciation and environment. The table in (13) gives figures for the four consonants in initial position before the five vowels of Bole. These figures include all tokens for each of the consonants. Thus, if a word has variants with both *s* and *sh*, it is included with figures for both those consonants.

(13)

	s	sh	z	j
#___i	26	27	8	23
#___e	9	6	10	9
#___a	58	32	42	35
#___u	42	9	20	11
#___o	42	6	30	13
Total:	177	80	110	91

The only figure here that suggests that palatalization might be or have been in part phonologically conditioned is the fairly large difference in numbers of *z* vs. *j* before *i*. The palatals, especially *sh*, seem to be rather strongly DISfavored before the round vowels, but it is unlikely that this reflects a *process* of DEpalatalization, given the fact that /sh/ and /j/ are otherwise common sounds in Bole. In the case of *s/sh* before *i* and all the consonants before *a*, there is no obvious trend.

A final point of interest, alluded to in the discussion of Bole reflexes of the borrowed Hausa word *sākɛ̀*, is co-occurrence restrictions on alveolar fricatives and their palatal counterparts. In words that contain more than one such sound, all tokens of the sound must be either alveolar or palatal, as in (14). I found only two counterexamples to this generalization, viz. *jɛ̀sa* 'mane of a horse' and *sōjà* 'soldier' < Hausa < English.

(14)

shìnshor (Gadaka *sìnsor*)	'dew', but not *sìnshor or *shìnsor
sōsò	'patch on clothes', but not *sōshò or *shōsò
jànja (Gadaka *zànza*)	'star', but not *zànja or *jànza
zɛ̀zoki	'*Pterocarpus erinaceus*', but not *zɛ̀joki or *jɛ̀zoki

The facts regarding Bole alveolars vs. their palatal counterparts are reminiscent of the facts in languages with morphological palatalization: lexical contrasts can depend on the alveolar vs. palatal distinction; one finds alternants of the same root differing with respect to whether a coronal consonant is pronounced with alveolar or palatal articulation; alveolar tokens across the lexicon in general outnumber palatal tokens, and the number of words with alveolar vs. palatal variants is a relatively small percentage of the total words containing coronal consonants;

palatal vs. non-palatal pronunciation tends to be a word level rather than a phoneme level difference.

With respect to this last observation, Bole has morpholexically related word pairs that could, in principle, be interpreted as involving word level prosody. Certain verb classes have verbal nouns and/or subjunctive forms ending in *-e*. When the verb root has an internal /-a-/, that vowel becomes [e], as in (15a). Similarly, in the demonstrative system, the proximal forms systematically have a vowel pattern *-e...e-* whereas the distal forms have a pattern *-a...a-*, as in (15b). Finally, there are a few etymologically related word pairs that are reminiscent of the types of pairing in Biu-Mandara and Miya, as in (15c).

(15) a.	*pàtā-wò*	'he went out'	*pètè*	'going out'
	bàsā-wɔ̀-yi	'he shot (it)'	*bèsē-yì*	'he should shoot (it)'
b.	*amā'*	'that one'	*emɛ̀*	'this one'
	àssā'	'there (it) is'	*èssɛ̂*	'here (it) is'
c.	*wòrdo*	'fart'	*yèrèdì*	'biliousness'
	gompor	'bamboo door closure'	*gèmpìrèm*	'awning over doorway'
	mbàttàm	ideophone for 'fat'	= *mbèccèm*	

It is hard to say, however, whether this is best viewed as a word level prosody or as phonological assimilation. On the side of word level prosody associated with a particular morphological pattern is the fact that the an *a-e* pattern is not phonologically disallowed, e.g., *àrè* 'type, race', *màte* 'them'. On the side of phonological assimilation, borrowed words with an *a-e* pattern in the donor language are usually adapted as *e-e*, e.g., *rèke* 'sugar cane' < Hausa *ràkē*, *gède* 'different' < Kanuri *gàde* 'other'.

There are some important differences between Bole and languages with morphological palatalization. First, in the latter type of language, words are either palatalized or they are not, whereas in Bole, while this is true for some words, other words vary in palatality. Second, a hallmark of morphological palatalization, even in languages like Miya or Duwai, where it is not productive, is that the presence or absence of palatalized consonants is associated with differences in morphology—perfective vs. other TAM's, finite verbs vs. verbal nouns, etc. In Bole, essentially the opposite is the case. Coronal consonants in a given root do not alternate regardless of vocalic context, i.e., the consonants of a root tend to retain a single phonetic identity in all their morphological instantiations. This is particularly clear in verbs, where nearly every verb root has forms ending in each of the five vowels of Bole. The table below shows just one root for each of the root final consonants /s, sh, z, j/, but this list of roots and the range of environments could be greatly expanded. The root final consonants of most verbs are stable, but the few

verbs that have variable consonants can vary in all environments, e.g., *busu-wò* = *bushu-wò* 'he spent the day', *bùsi* = *bùshi* 'spending the day'.[14]

(16) Bole verb forms showing *absence* of consonant alternations with respect to following vowels

Non-front vowel environment		Front vowel environment	
Invariable /s/			
bàsāwòyi	'he shot (it)' / 'he spun (it)'	*besì* (*beshì) / *bèse* (*bèshe)	'shooting' / 'spinning'
Invariable /sh/			
pùshuwòyi / *pùsha* (*pùsa)	'he washed (it)' / 'washing'	*pùshìi*	'wash (it)!'
Invariable /z/			
ùzāwòyi	'he spread (it) to dry'	*ùzè* (*ùjè)	'spreading to dry'
Invariable /j/ (the verb below is the only verb with a root final [j])			
gòjjuwòyi / *gojjo* (*gozzo)	'he bought (it)' / 'buying' (gerund)	*gojjì*	'buying' (DVN)

In summary, Bole clearly does not have morphological palatalization as a productive or even moribund process. However, it shows a type of variation between alveolar consonants and their palatal counterparts that is not conditioned by local phonological environments nor is it a common type of variation cross-linguistically. In the historical context presented in the preceding sections, this rather unusual situation in Bole may find its source in an ancestral language where morphological palatalization created word variants that did not arise from local phonological conditioning. Association of variation in coronal consonants with specific morphological contexts was probably lost well before Bole became an independent language, but the variation itself persists.

5. Hausa

The status of palatalization in Hausa is reminiscent of that in Ngizim. Neither language exhibits the properties of morphological palatalization seen in Biu-Mandara languages or Miya. On the other hand, in both languages, there is a rule

[14] The latter word is used in the common greeting, *Barkà bùshi!* 'Good afternoon!' I never heard this greeting pronounced as *bùsi*. This pronunciation may or may not be used, but if not, this is probably just a case where a specific pronunciation is stabilized in a particular context.

changing alveolar stops and fricatives to their palatal counterparts before front vowels, and there are also lexical palatal consonants that have no apparent explanation in such a rule. Thus, in the same way that no rule of modern Ngizim can explain the relationship of the *j* in *jǎ* 'dog' to the *d* in Bole *àdà*, no rule of Hausa can explain the relationship of *j* in *jā* 'red' to the *d* in Bole *dài*.

In the discussion below, I will first outline the facts of locally conditioned palatalization in Hausa. Next, I will note the existence of palatalized and palatal consonants in Hausa that the language must have inherited rather than developed through a locally conditioned palatalization process. This will provide prima facie evidence that many palatal consonants in Hausa have a source other than phonological assimilation, either synchronic or historical. I will then turn to the question of whether or not medial short [i] and [u] are in phonological contrast. In Modern Hausa, the source of differentiation of word pairs such as *gidā* 'house' vs. *gùdā* 'unit' or *cinyā̀* 'thigh' vs. *tunyā̀* 'cactus' is ambiguous between whether it is a contrast between the vowels, which condition differences in the consonants, or between the consonants, which condition differences in the vowels. I will argue that although the explanation for some palatal consonants in Hausa is undoubtedly palatalization of original alveolars before phonetically fronted high vowels, there is not now, nor has there probably ever been a phonological contrast between medial short [i] and [u] and that at least some palatal consonants before these vowels must have been inherited as palatals. One historical source of those inherited palatals may be morphological palatalization, which I have argued was a part of proto-West Chadic morphophonology.

5.1. Palatalization of alveolars and consonants with palatal coarticulation. Hausa has a well-documented rule that palatalizes alveolar modal obstruents before front vowels (see Newman [2000:414-417] for a fuller discussion). I illustrate this in (17) for all the relevant consonants before both front vowels.

This process is virtually 100% productive[15] for a range of morphological processes where a lexical base has variants with both final back and front vowels. Morphological forms where this arises include noun plurals, verbal nouns, and derived or inflected verbal forms, some of which are illustrated in the table in (17). There are also related forms that do not arise from productive processes but show palatalization, e.g., *gazā̀* 'lack' vs. *gàji* 'be tired', *sanì* = *shinā̀* 'know', *zama* 'remain, stay' vs. *jimā̀* 'spend time'. Note that in the latter two cases, palatalization takes place before an internal vowel.

Despite the productivity of alveolar ~ alveopalatal alternation, Newman [2000: 414] points out that palatalization does not have the status of a productive *phonological* rule in modern Hausa. Alveolar consonants before front vowels in loan-

[15] Newman [2000:415-416] notes that /d/ has a different status from the other consonants. First, /d/ systematically fails to palatalize if preceded by *n*, e.g., *gìndī* 'base' (cf. *hancì* 'nose', pl. *hantunā̀*). Second, there are numerous words in which /d/ does not palatalize in environments where the other consonants would, e.g., *bidā̀* 'thatching needle', pl. *bidōdī* (cf. the singular and plural of 'flag' in the table).

(17) Palatalization of Hausa alveolar obstruents before front vowels

	/___i				/___e			
t → c	*tūtà*	'flag'	*tūtōcī*	'flags'	*sātà*	'theft'	*sācè*	'steal all'
d → j	*gādò*	'inheritance'	*gaɾ̃gājiyā*	'tradition'	*gudù*	'run'	*à gùje*	'at a run'
s → sh	*gasà*	'roast'	*gashì*	'roasted meat'	*dasà*	'transplant'	*dàshē*	'seedlings'
z → j	*kàzā*	'hen'	*kàjī*	'chickens'	*bazà*	'spread'	*bajè*	'scatter'

(18) Contrast between plain, labialized, and palatalized velars

Plain		Labialized		Palatalized	
kanwā	'potash'	*kwanyā*	'occiput'	*kyanwà*	'cat'
gārā	'wedding gifts'	*gwāri*	'grasshopper sp.'	*gyārā*	'repair'
ƙaurī	'smell of burning hair'	*ƙwàurī*	'shin'	*ƙyaurē*	'door panel'

words do not undergo palatalization, even though they are subject to other phonological adaptations such as epenthesis and epheresis, e.g., *tikitì* 'ticket', *tīlàs* 'necessarily' (< Fulfulde), *dìgìrî* '(university) degree', *sìyāsà̀* 'politics' (< Arabic), *zìna* 'fornication' (< Arabic). Alveolars in loanwords do generally palatalize when they participate in one of the regular processes that condition palatalization in native words, e.g., *tikitōcī* 'tickets', with *t* → *c* in the reduplicated plural. In addition to borrowed words, there are some apparent native words, especially with initial *t*, that have not undergone palatalization, e.g. *tīkà̀* 'make a huge thing, such as a granary'. The facts as we have them in modern Hausa therefore do not present unequivocal evidence that palatalization of alveolars before front vowels was ever an automatic phonological rule.

Modern Hausa has a three-way contrast in velar consonants between plain velars, velars with labial co-articulation, and velars with palatal co-articulation, as shown in (18).

Plain velars and velars with labial co-articulation appear universally in Chadic languages and obviously formed part of the proto-Chadic phonological system. Velars with palatal co-articulation, on the other hand, are much less common. Indeed, other than Hausa, the only languages I know of that have palatalized velars in contrast with plain and labialized velars are languages with morphological palatalization or clear remnants of it. Some dialects of Hausa also have a small number of words with palatalized labials in contrast with plain labials, though Standard Hausa has tended to lose the palatalization in such words. (No dialect of Hausa has palatalized *my*.)

(19) Hausa dialectal forms with palatalized labials

Plain		Palatalized	
bàllē	'how much less...'	*byallō* = *ballō*	'a spark'
ɓātà̀	'spoil'	*ɓyà̀sā* = *ɓà̀sā*	'twist or pluck off fruit'
fādà̀	'fall on'	*fyādà̀* = *fādà̀*	'hit with flexible whip'
fà̀cē	'except that'	*fyācè̀* = *fācè̀*	'blow one's nose'

I see no explanation for the existence of palatalized velars and labials in apparently native Hausa words other than inheritance. The fact that palatal co-articulation as a phonological feature in Chadic languages seems to be almost entirely restricted to languages that have morphological palatalization suggests that Hausa has inherited these consonants from an ancestral language that had this property.

5.2. Inherited (alveo)palatal consonants. Hausa does not have any coronal consonants with palatal co-articulation. The palatalized counterparts of alveolar obstruents (*ty*, *dy*, etc.), if they ever existed, have fallen together with the alveopalatal coronals (*c*, *j*, etc.). Palatalized sonorants (*ry*, *ny*, etc.), if they ever existed, have fallen together with their plain counterparts. Although Hausa does have a

conditioned rule palatalizing coronal obstruents, it must also have inherited words with palatal coronals in contrast with alveolars. This is most obvious in words where /a/ or /ā/ follow the palatal, e.g., *shā* 'drink', *jā* 'red', *cafè* 'catch'. In such words, the existence of a palatal has no phonological explanation. To get a rough idea of how alveolars and their palatal counterparts are distributed with respect to following vowels, I counted the number of pages in Bargery [1934] of words beginning in CorV, where Cor = each of the coronal (= alveolar and palatal) obstruent consonants and V = each of the five vowels. In the tables in (20), the numbers under the consonant represent the number of pages in Bargery for each CorV combination. The numbers for *d* are inflated because Bargery mixes modal *d* and implosive *d*.

(20) Number of pages in Bargery [1934] for #[+coronal] V...

Voiceless

Cor___	**t**	**% of t**	**c**	**% of c**	**s**	**% of s**	**sh**	**% of sh**
a	48.00	64.00%	8.00	29.09%	45.00	69.23%	17.00	59.65%
i	4.50	6.00%	12.00	43.64%	4.00	6.15%	7.00	24.56%
u	19.00	25.33%	3.00	10.91%	13.00	20.00%	2.00	7.02%
e	0.50	0.67%	1.50	5.45%	0.00	0.00%	2.50	8.77%
o	3.00	4.00%	3.00	10.91%	3.00	4.62%	0.00	0.00%
Total	75.00		27.50		65.00		28.50	

Voiced

Cor___	**d**	**% of d**	**z**	**% of z**	**j**	**% of j**
a	76.00	67.56%	22.00	30.56%	11.50	40.35%
i	11.50	10.22%	21.00	29.17%	12.00	42.11%
u	17.00	15.11%	9.00	12.50%	2.00	7.02%
e	1.00	0.89%	0.00	0.00%	2.50	8.77%
o	7.00	6.22%	20.00	27.78%	0.50	1.75%
Total	112.50		72.00		28.50	

Of particular interest is the comparison of the numbers for C*a* vs. C*i*. If local palatalization of alveolars were a major factor in accounting for words with initial palatal consonants, then we would expect a strong skewing of alveolars toward a following *a* and palatals toward a following *i*. The alveolar sounds *t*, *s*, and *d* do show much higher figures in /___*a* than in /___*i*, but the palatal counterparts *c*, *sh*, *j* show nothing like a complementary skewing. Indeed, the distribution of *sh* is skewed IN FAVOR OF the /___*a* environment at a level comparable to the alveolars. And though *c* is somewhat skewed toward /___*i* as compared to /___*a*, the total percentage of *c* before the back vowels *u* and *o* (21.82%) is comparable to that for its alveolar counterpart *t* (29.33%). In short, though these counts provide a rather

gross way of estimating CorV distribution, it is obvious that there are far too many words with unconditioned palatals in Hausa to warrant any source other than direct inheritance. The two possible (though not mutually exclusive) sources are the presence of palatals in the original phoneme inventory and the effect of morphologically conditioned palatalization on underlying alveolars.

5.3. Hausa high vowels and the source of phonologically conditioned word initial palatals. Section 5.1 presented an active rule that palatalizes underlying alveolar consonants before front vowels, but this rule is confined almost entirely to word final morphological alternations. In particular, it does not apply to word initial C*i* sequences, e.g., *tikitì* 'ticket', not **cikitì* or **cikicì*. Section 5.2 provided data on the distribution of alveolar and palatal consonants. This data showed that Hausa must have inherited word initial palatal consonants. The distributional patterns show that Hausa has significant numbers of palatals that cannot trace their origin to phonologically conditioned palatalization of erstwhile alveolars.

There is, however, a modern Hausa relationship between coronal consonant types and vowel types: words like *cìka* 'be full', with an initial palatal, are pronounced with an invariable [i], whereas words like *tùƙā/tìƙā* 'ruminating', with an initial alveolar, tend to be pronounced with [u] or to vary dialectally or even idiolectally between [u] and [i]. A not-unreasonable hypothesis would be that pairs like this represent an original distinction between *ti and *tu, that a once fully active palatalization rule changed the former to *ci*, and that only later did the palatalization rule become restricted as it is now. Put differently, pairs of words like those just cited could provide evidence for a proto-Hausa distinction between medial short *i and *u. In the remainder of this paper, I will argue that this is incorrect. Hausa does not now have nor has it ever had a phonemic distinction between medial short /i/ and /u/. The implication of this claim is that NO initial palatals can trace their origin to palatalization of alveolars before an underlying medial /i/. Many, if not most words with initial palatals, such as *cìka*, probably have been inherited as such, and it is the consonant that conditions the invariable front vowel. Vowel variation after alveolars, as in *tùƙā/tìƙā*, reflects the non-contrastive nature of the phonetic vowels. Some word initial palatals may derive from erstwhile alveolars through phonological processes, but a path for this exists without reconstructing a medial contrast between short /i/ and /u/.

5.3.1. The Hausa vowel system. Hausa has a 10 way vowel contrast in word final position, i.e., the five vowels *i*, *e*, *a*, *u*, *o* both long and short, and a five way contrast word medial between the five long vowels (see (21)). There is no contrast between short medial *a*, *e*, and *o*. Medial short mid vowels are neutralized to short [a]. For example, when the "definite article" *-n* is added to the words *karā* 'stalks', *kàrē* 'dog', and *karō* 'collision', closing the final syllables and automatically shortening the final vowels, the words in normal speech are distinguished only by tone, viz. [karâŋ], [kàrâŋ], [karàŋ], respectively.

On these facts, all Hausa language specialists agree as far as I know. The main problems of analysis in Hausa vowel phonology are in the analysis of medial short

(21) Final and medial Hausa vowel contrasts

Final		Medial	
tārì	'a collection, a pile'	*rīmī*	'kapok tree'
fārì	'beginning'		
(tā) tārè	'(she) moved to new house'	*rēmā*	'hyrax'
tàre	'together'		
(yā) tārà	'(he) collected'	*rāmì*	'hole'
tařà	'nine'		
tārū	'fishing net'	*rūɓè*	'spoil'
(sun) tàru	'(they) gathered'		
tàrō	'gathering'	*rōmō*	'broth'
Màiřo	a woman's name		

high vowels. One position, taken most forcefully by Paul Newman [see Newman 1979:175-176, Newman 2000:400, 414], maintains that medial short /i/ and /u/ are in contrast, or at least have been until recently. The other position—the one taken in this paper—is that these vowels are not in contrast, or, put another way, *in non-final position, the only contrastive feature between short vowels is [+high] vs. [-high].*[16]

The traditional method for demonstrating a contrast between segments is to cite minimal pairs. Though this type of argument has been used to support a contrast between medial short high vowels, the evidence is equivocal at best. Some pairs, like *cìka/tùƙa*, cited in the previous section, are not "minimal", in that both the vowels and the consonants differ. Thus, depending on one's point of view, these pairs could support either a position that vowels influence consonants or consonants influence vowels. There are putative pairs like *rigā* 'precede' vs. *rugā* 'Fulani camp', where appeal to consonantal effect is absent, but such examples are hard to come by, and I have seen no such pairs where questions about the validity of the data do not arise. For example, during a recent trip to Nigeria, I heard the word for 'Fulani camp' pronounced [*rigā*] on two different occasions by different speakers in different towns. The dictionaries give *rugā* for 'Fulani camp', but we have no knowledge of the source of this word in terms of speaker, place, or time, much less whether the speaker(s) who provided this word contrasted it with [*rigā*] 'precede'.

16 As in many other areas of Hausa grammar, F.W. Parsons was the pioneer in the analysis of Hausa vowels, and in particular, in the proposal that medial short [i] and [u] are not in contrast. He first laid out his analysis in a massive manuscript, Parsons [n.d.], major ideas of which were published in more succinct form in Parsons [1970]. Parsons' analysis, influenced by the ideas of J. R. Firth, accounted for phonetic realization of words in terms of "prosodies" over domains greater than individual segments. One need not accept Parsons' analytical framework in order to accept his insight that the coloring of medial short high vowels is directly linked to the consonantal environment.

There is one type of apparently true minimal pair where the data are not in dispute. These are pairs of words containing the sequence VELAR + *i* ~ *u*., e.g. *gidā* 'house' and *gùdā* 'lump, unit'. But the standard orthography is deceptive. These words are pronounced [g^{y}idā] and [g^{w}ùdā], respectively. Front vowels condition palatalization of preceding velars and round vowels condition labialization, so one could argue that the vowels contrast and condition the differences in the velars. However, as demonstrated in §5.1, Hausa has an independently required contrast between plain, palatalized, and labialized velars. One can thus argue that it is the velars which contrast here and that they condition fronting or backing and rounding of the following vowel, a process that unambiguously accounts for vowel quality differences in languages like Miya and Ngizim. In Ngizim, *kəru* 'steal' differs minimally from *kùru* 'refuse'. Like Hausa, Ngizim has a contrast between /i/ and /u/ before pause, e.g. *gazabì* 'kite' vs. *gàbābù* 'billygoat', but phrase medial, this contrast is neutralized to [Ø, ə, i, u] depending on the environment, e.g., *gazabə̀ bai* 'not a kite', *gàbābə̀ bai* 'not a billygoat'. The contrast between *kəru* and *kùru* therefore cannot reside in the vowels. It must be a function of the initial consonants, viz. /kəru/ vs. /k^{w}əru/. The only difference between Ngizim and Hausa would thus be the phonetic range that the languages allow for their high vowels.

Newman has another type of argument, first laid out in Newman [1979:175-176], for at least a historical contrast between medial /i/ and /u/. In such words as *cinyà̀* 'thigh' vs. *tunyà̀* = *tinyà̀* 'cactus', he argues that if there were not a contrast between a front and a back high vowel, there would be no explanation for why one word begins with a palatal and the other with an alveolar. He explains non-palatalization of initial *t-* in the variant *tinyà̀* 'cactus', with [i] in the first syllable, by "the ongoing shift of short /u/ to /i/ in various environments" [Newman 2000:414]. My explanation for the pronunciation of the vowels in these words is that the invariant [i] in *cinyà̀* is a result of the strong fronting influence of the preceding palatal, whereas the variation in *tunyà̀* vs. *tinyà̀* comes about because [i] and [u] are not contrastive and the frame *t__nya* does not provide a strong enough fronting or backing influence to stabilize the vowel. This response, of course, begs the question as to where the palatal of *cinyà̀* came from in the first place. My answer, as already suggested, is that it probably has been inherited from *c. Alternatively, it may be the result of phonological palatalization of **t*, but even if this is the source, we are not forced to accept a phonemic contrast between medial /i/ vs. /u/.[17]

There are two facts about medial short high vowels that all Hausa specialists would accept: (1) short high vowels are subject to dialectal and local environmentally conditioned variation, and (2) the short high vowels tend to gravitate

[17] The *cinyà̀/tunyà̀* case may have another explanation. Bargery gives a dialect variant *tumnìyā* for 'cactus', suggesting that an original *-m-* in this word exercised a labializing influence that prevented palatalization of the initial consonant (see below). The facts about these particular words do not, however, invalidate the general principle of Newman's observation about words differing in *ci-* vs. *tu-/ti-* and parallel pairings of other palatals vs. alveolars.

phonetically to either high front unrounded or high back rounded vowel space.[18] On the one hand, these facts about Hausa account for variants such as *bùkī* vs. *bìkī* 'celebration' or *jimầ* vs. *jumầ* 'spend time', and on the other hand, they allow Hausa orthography to get by with just five vowel symbols.[19] The factors influencing vowel quality are complex, but they include at least the following:

- Consonants preceding and following the vowels (note that the illustrative words in the preceding paragraph have an internal conflict between labializing and palatalizing influences, accounting for the variation).
- Vowels in preceding and following syllables (the word *tudù̀* 'hill', with final *-u* has no variant **tidù̀*, but *tinầ/tunầ* 'remember', with final *-a* has *i/u* variation).
- Lexical or other "external" knowledge: Newman [2000:319-321] notes how loanwords have introduced distinctions not part of the original phonology of Hausa, e.g., toleration of short mid vowels in closed syllables in words such as *bencì* 'bench'. Speakers who pronounce the word this way undoubtedly do so because they know the English source. Similar knowledge probably has a dampening effect on expected neutralization or variation. For example, the word *dòmin* 'because' has a shortened variant *don*, typically pronounced with a round mid vowel even though shortened mid vowels usually neutralize to [a]; the plural of *tudù̀* 'hill' is *tùddai*, a frame that should normally admit variation with **tìddai*, though this pronunciation is probably never used because of the invariant pronunciation of the singular with *-u-*.

5.3.2. Conditioning factors of medial short high vowels and effects on coronal consonants. This section argues as follows: medial short high vowels are not in contrast—phonetic distinctions in short high vowels result from environment, particularly immediately neighboring consonants, but also segments in neighboring syllables. Nonetheless, vowels can also affect consonants. In particular, if the environment following a vowel is conducive to an "*i*-like" pronunciation of the vowel, the vowel itself may then have an effect on the consonant that precedes it. If the preceding consonant is an alveolar, that affect could be full palatalization. I will adduce distributional evidence drawn from entries in Bargery [1934] to show that there is a moderate skewing toward palatal consonants where the consonant subsequent to the palatal is conducive to an [i] rather than [u] pronunciation of the preceding vowel. Were /i/ and /u/ contrastive segments, with palatalization of an

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[18] In this latter respect, Hausa differs from some of its Chadic cousins, like Ngizim or Miya, which tend to use the entire high vowel space and in which the most "neutral" high vowel pronunciation is a central unrounded [ɨ], written "ə" in the Chadic literature.

[19] Though five written vowels serve quite well in a practical orthography, the exact vowel quality of short high vowels in some environments is often indistinct, serving more as a vocalic transition between consonants than as a clear front or back vowel. On more that one occasion, I have seen Hausa speakers hesitate as to which vowel to write, and one finds considerable spelling variation in modern published works.

alveolar taking place before /i/, we would predict no correlation at all between palatal segments and subsequent consonants. Though I suspect that Hausa inherited most initial palatal segments as palatals, it may thus be the case that at least some palatals are a result of palatalization of alveolars induced by [i] vowels that themselves were the result of environmental conditioning.

Let us work from the following premises:

Premise 1: The vowels [i] and [u] are not in phonological contrast but owe their phonetic realization to the factors listed at the end of the preceding section.

Premise 2: There is a tendency to palatalize alveolar consonants before front vowels.

If these premises are valid we can make two corollary predictions:

Corollary 1: The pronunciation of high vowels will be less variable in strongly fronting or backing environments than in more "neutral" environments.

Corollary 2: There will be more of a tendency to find palatal consonants before vowels in fronting environments than backing environments.

To test these predictions and their corollaries, I made lists of all the words in Bargery [1934] with the consonants *t*, *s*, *c*, and *sh* in word initial position before short *i* and *u*.[20] I excluded borrowed words and phonaesthetic words such as ideophones, which are less subject to the phonological canon than other categories, and I listed words containing the same root in only one form, e.g., I listed *cìka* 'be full' but not *cikà* 'fill', *cikò* 'completion', *cìke* 'filled', *cikàsā* 'complete', etc. Bargery is particularly useful for a study like this because he includes all the phonological variants (dialectal or individual) that he recorded as well as many dialectally restricted words. The figures I assembled must be viewed as approximations—borrowings undoubtedly slipped in, there are probably some repeated listings of the same root (are *sìllā* 'eat large quantity of good *tuwo*', *sillā* 'stalk used as spinning stick', *sillè* 'get free', *sillē* 'wear gown without trousers' somehow related?), and there are surely many cases where Bargery did not list existing variants simply because they did not come to his attention. Nonetheless, the samples are large enough that a fairly compelling picture emerges.

To keep the number of variables under control, I restricted my listings to two environments: those where the CV- of interest was immediately followed by a labial consonant or a labialized velar (abbreviated "P" and "Kw" below) and

[20] I did not make similar counts for the voiced coronals. This was partly because of the tedium of assembling such lists, but the resulting picture would also probably not be as sharp as for the voiceless sounds. As noted above (see fn. 15), *d* has been less subject to palatalizing influence than the other alveolars, and moreover, palatalized *d* and *z* have fallen together as *j*, making it impossible to compare the numbers of words with *d* and *z* with the numbers of words having their palatalized counterparts.

those where the CV- was immediately followed by a coronal or a non-labialized velar (abbreviated "T" and "K" below). In the case of consonant sequences in the following environment, I listed NC (N = nasal homorganic to C) with words having singletons at the same point of articulation. Syllable final liquids and *s/z* turn out to be "transparent" in terms of conditioning effect, so I included words like *turmī* 'mortar', *sulɓī* 'slipperiness', *tusmà* "the evil eye" in the lists with the "P" environment. The table in (22) gives small representative sets of the types of words in the lists. I show variants separated by a slash where Bargery lists them. Bargery shows no variants for the other words. I have taken a few liberties with glosses to make them fit on one line.

Consider first the distribution of the vowels [i] vs. [u] by environment:

- *t*V, *s*V /___T/K: Bargery gives variants with V = *i* and *u* for 10-20% of these. For the remainder he gives roughly half with *i*, half with *u*. Bargery could, of course, give variants only where he actually attested them. I have personally never heard many of the words in these lists, but for at least some of those that I do know, I have heard variants that Bargery does not list. For example, he gives only *surkà* 'mix a liquid or grain into water', but the pronunciation I first heard for this word was *sirkà* (which I included in the table above). My guess is that ALL these words admit variation, though the following syllable may sometimes also exercise an influence.
- *t*V, *s*V /___P/Kw: Out of a list of 50 words for *s*V, Bargery has only 3 with *i*, two of which have variants with *u*. Out of a list of 98 words for *t*V, Bargery gives only two with *i*, one of which has a variant with *u*. The only explanation for this distribution is that the labiality of the following consonant is determining the pronunciation of the vowel.
- *c*V, *sh*V /___T/K: The only vowel in these environments is *i*, i.e. vowel pronunciation correlates directly with preceding consonant.
- *c*V, *sh*V /___P/Kw: The only vowel in /___P is *i*. In /___Kw, the vowel *u* strongly predominates. There are only four words with *sh*VKw, in all of which Kw = *w*.[21] Bargery gives two of these with *i* (cf. *shirwà* in the table above). Out of 17 words with *c*VKw..., Bargery has only 6 where V = *i*, one with a variant *u* (*cukwīkwìyā* = *cikwīkwìyā* 'become tangled').

With a "neutral" consonant (*t*, *s* in this case) preceding and a "neutral" environment following (__T/K in this case), the vowels [i] and [u] are subject to dialectal or idiolectal variation. With a "neutral" consonant (*t*, *s* in this case) preceding and a labializing environment following (__P/Kw in this case), the only vowel is [u]. To claim that the high vowels are now, or at some time in the not-too-distant past have been in contrast would predict relative stability of specific vowels across dialects and a fairly free and unpredictable distribution of the two vowels regardless of environment. The distribution documented here shows that neither of these predictions is borne out.

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[21] I concur with Newman's [2000:392, 416] phonological classification of *w* with the labialized velars.

(22) Sample words with #[+coronal]*i/u* intial syllables

	t		c		s		sh	
__T/K	*tinà/tunà*	'remember'	*cidà*	'thunder'	*siɗà/suɗà*	'wipe bowl'	*shirū*	'silence'
	tirjè	'to squash'	*cìřnākà*	'biting ant'	*sirtàcē*	'strain'	*shillò*	'swinging'
	tikī/tukī	'roof apex'	*cìka*	'be full'	*sirkà/surkà*	'dilute'	*shingàliyà*	'roving'
	tirkè/turkè	'tether post'	*cizgà*	'pull out hair'	*sunƙà*	'stuff mouth'	*shirgà*	'do much'
__P/Kw	*tufà*	'clothes'	*cìbìlbilò*	'bat'	*sìmī/sùmì*	'silence'	*shiɓà*	'tease cotton'
	turmī	'mortar'	*cilmì*	'churn cover'	*surfà*	'remove bran'	*shibcì*	'thatch grass'
	tukunyā	'pot'	*cìʷàlō*	'semi-shade'	*sukùwā*	'galloping'	*shimgē*	'fence'
	tumkìyā	'sheep'	*cìnkōsō*	'traffic'	*sùngumī*	'hoe'	*shirwà*	'kite'

In support of a vowel contrast, one could argue that ALL these cases where the preceding consonant is an alveolar are reconstructable as *Cu-. Original *Ci- is represented by the words beginning with palatals, where *i* is the exclusive vowel except for words with the strongest labializing environment, /___Kw, following. In order to avoid circular reasoning in favor of either the "no vowel contrast" hypothesis or the "/i/ ~/u/ contrast" hypothesis, we need additional evidence. Such evidence can be found in the distribution of syllables following the syllable beginning with a palatal, i.e., whether or not the following environment would be conducive to conditioning a vowel that itself might cause palatalization of an alveolar. The predictions are as follows:

- The "contrast" hypothesis (*i* and *u* are in phonological contrast) predicts that the distribution of initial Π*i*- syllables (Π = palatal consonant) across the lexicon should be unrelated to anything about the phonological form of the rest of the word.
- The "no contrast" hypothesis (*i* and *u* are conditioned variants of a single vowel phoneme) predicts that Π*i*- syllables should be favored where the following environment is conducive to conditioning a preceding [i] and should be disfavored where the following environment is conducive to conditioning a preceding [u].

Data above suggested that the environment /__T/K, while not strongly conditioning preceding [i], is compatible with it. Data for the environment /__P/Kw, on the other hand, essentially precludes [i] except where the preceding consonant is a palatal. For simplicity, we will thus call /__T/K a "fronting" environment and /__P/Kw a "backing" environment. Consider the figures in (23) based on the lists assembled from Bargery.

Syllables beginning with the alveolar segments *t* and *s* though not strongly skewed toward either environment, slightly favor the "backing" environment: 53.9% and 54.3%, respectively, in /__P/Kw vs. 46.1% and 45.7%, respectively, in /__T/K. Syllables beginning with the palatal segments *c* and *sh*, on the other hand, appear nearly twice as often in "fronting" environments as in "backing" ones: 39.2% and 33.9%, respectively, in /__P/Kw vs. 60.8% and 66.1%, respectively, in /__T/K. These figures support the "no vowel contrast" hypothesis, i.e., if palatalization of alveolars were a result solely of the presence of a following underlying /i/, there would be no reason to expect any correlation at all with the environment following the syllable with the palatal, much less a correlation one way with syllables beginning in alveolars as a group vs. a correlation the other way with syllables beginning in palatals as a group. Note furthermore that in terms of absolute numbers, there are over twice as many syllables beginning in alveolars as in palatals, a distribution that is similar to that of languages with morphological palatalization, but not one that would be predicted under the "vowel contrast" hypothesis assuming that there would be about as many words containing internal /i/ as internal /u/.[22]

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[22] I have no vowel counts for Hausa, though even a cursory glance at a dictionary shows *a* (with or without length) to be by far the most frequent vowel. My impression is that *i* is actually more

(23) Distribution of [+coronal] V syllables with respect to the following consonantal environment

t /__P	t /__Kw	t /__T/K	Total *t*	c /__P	c /__Kw	c /__T/K	Total *c*
60 33%	38 20.9%	84	182	12 16.2%	17 23%	45	74
53.9%		46.1%		39.2%		60.8%	
% of all t, c				% of all t, c			Total t,c
38.3%		32.8%		11.3%		17.6%	256

s /__P	s /__Kw	s /__T/K	Total *s*	sh /__P	sh /__Kw	sh /__T/K	Total *sh*
22 23.9%	28 30.4%	42	92	15 26.8%	4 7.1%	37	56
54.3%		45.7%		33.9%		66.1%	
% of all s, sh				% of all s, sh			Total s,sh
33.8%		28.4%		12.8%		25%	148

common than *u*, which, if true, would make an account that derives word initial palatals from alveolars before /i/ even more suspect.

One figure among the palatals in (23) stands out, viz. *sh* in /__P. This configuration represents over a quarter of all the cases of *sh*V syllables. Nine of the 15 tokens of this configuration have closed initial syllables, e.g., *shibcì* 'thatch grass' (> *shūcì* in Kano Hausa), *shibkà* 'plant' (> *shūkà* in Kano Hausa), *shimgē* 'fence' (> *shingē* in Kano Hausa), *shìrɓàcē* 'confusion'. Indeed, there are no words in any dialect of modern Hausa with the form *si/u*PC... (P = any labial consonant, C = any non-labial), a fact that Paul Newman pointed out to me in personal communication. Using ə as a cover symbol for any short high vowel, it appears that the historical development *ə > [i] /s__[+grave]C... and *s > sh /___[i] has the status of regular sound change in the Neogrammarian sense, explaining why all cases of Klingenheben's Law involving syllables of the form *səK/PC have *sh* in modern Hausa, including not only the examples cited above with syllable final labials, but also syllables reconstructed as having been closed by velars as in *shūnà* 'incite' < *shikna (cf. dialect variant *kiznà*, probably also related to *sàkā* 'release'), *shūdà* 'mentally deficient person' < *shikda (cf. doublet *sùkanā*).[23] In other environments, palatalization of alveolars has been more sporadic but has been facilitated or impeded by whether other aspects of a word's phonological make up have tended to draw the following vowel toward the front or the back.

In summary, I find nothing in Hausa to support either a synchronic or a historical contrast between medial short high vowels. Apparent minimal pairs like *gidā* vs. *gùdā* find an explanation in the independently required contrast in velars. Nor is there any reason to appeal to an /i/ vs. /u/ contrast to explain a word initial contrast between palatal vs. alveolar consonants. Hausa must have inherited many palatals as such, but even those that have come about through palatalization of alveolars can probably be explained by high vowels conditioned toward [i] by a following environment, with that conditioned [i] then affecting the preceding consonant.

6. Conclusion

Morphological palatalization, well-documented for a number of languages in the Biu–Mandara branch of the Chadic language family, must be a feature descending from an early period in the history of the family and inherited into both the Biu–Mandara and West Chadic branches. Though this phenomenon is not as widespread in West Chadic as it is in Biu–Mandara, it functions in one documented West Chadic language, Miya, in very much the way as it does in Biu–Mandara languages. In the Bade/Ngizim subgroup of West Chadic, one language, Duwai, exhibits certain alternations that are best explained as being remnants of an earlier, more active process of morphological palatalization. The presence of palatals and rules of palatalization in other West Chadic languages seem to involve lexicalized

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23 The doublet is of interest because it suggests that the word originally had a long *ū* in the first syllable. When the syllable was closed, the automatically shortened *ū* became neutralized as just a "short high vowel" and underwent the regular sound changes proposed here.

palatals and palatalization as a local phonological process. In Bole, relatively free variation between alveolars and palatals in some lexical items is reminiscent of morphological palatalization, which tends to show variable effects on individual segments. In Hausa, there is an active process that palatalizes alveolars before front vowels, but this process is generally restricted to alternations affecting specific morphemes. On the other hand, Hausa appears to have inherited palatal consonants in a large number of words where a source in phonologically conditioned palatalization is not available. Close examination of the distribution of alveolar and palatal consonants in the environment of high vowels suggests that even where a palatal appears before *i*, it is just as likely that the palatal is original and is conditioning the vowel as it is that the vowel is original and caused an erstwhile alveolar to palatalize. The substantial number of apparently underived palatals in Hausa may be a reflex of lexicalized palatals originally resulting from morphological palatalization.

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Department of Linguistics
Box 951543
University of California
Los Angeles, CA 90095-1543
schuh@humnet.ucla.edu

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DERIVATIONAL PROCESSES IN RANGI

Oliver Stegen
SIL

The main object of research described in this paper is Rangi, a scarcely investigated Bantu language of Northern Central Tanzania. Rangi phonology and morphonology are briefly sketched, including a classification with regard to both Vowel Height Harmony and Advanced Tongue Root activity. The main body of the paper consists of a detailed description of Rangi derivational processes, which follows the pattern established in Maganga and Schadeberg's description of Nyamwezi, a closely related language. Both verbal derivation, which exclusively uses the extensional slot of the verb structure, and nominal derivation, which employs noun class prefixes and a few suffixes, are covered.

1. Introduction

It is no secret that despite decades of thorough linguistic work on Bantu languages, there are still a great many descriptive gaps. The aim of this paper is to address one such gap explicitly mentioned in the literature: "little public information is available on Langi" [Nurse 1999:11]. Rangi[1] is a North-Eastern Bantu language, classified as F.33 [Guthrie 1967-71II:48], spoken by 310,000 people [Grimes 2000] in the Kondoa District of Northern Central Tanzania. The data on which the observations reported herein are based was collected during the

[1] While the self-referent of the language is Kɪlaːŋgi, it is usually called Rangi in both English and Swahili. As this paper is written in English, the language will be refered to as Rangi throughout.

author's stay in Rangi-speaking country.[2] Of course, any language description has to be selective, and this one is no exception. The main focus of the paper is the description of verbal and nominal derivation. However, by way of introduction, many phonological and morphonological aspects which could be of particular interest are supplied as well, mainly in subsections 1.1 through 1.3.

Of previous linguistic research on Rangi, only Seidel [1898], Dempwolff [1916] and Akhavan [1990] go beyond phonological aspects and include at least some derivational processes, yet most of this treatment is sketchy and rather general.[3] Considering that Akhavan [1990] uses previously unpublished data collected by Berger in 1935, hardly any morphological data on Rangi younger than sixty years seems to be readily available.[4]

For an outline, Maganga & Schadeberg's [1992] description of Nyamwezi (henceforth M&S92) has been followed as an example, as it is probably the best and most comprehensive publication on another Bantu F language, hence quite relevant to studies in Rangi. It contains a rather detailed section on derivation (M&S92:147-190) which has been very helpful for the organization of this paper. In addition, Schadeberg [2002] was consulted, and phenomena not mentioned in M&S92 were added.

1.1. Phonological considerations. In this subsection, the segmental and suprasegmental inventory of Rangi will be summarized, specifically consonants, vowels, and tones. Table 1 shows the consonant phonemes of Rangi. All conso-

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[2] My stays at Kondoa town from June 1997 to August 1998 and at Mnenya village from September 1998 to June 2000 were made possible by a residence permit, nr. C 42314, at the invitation of the Anglican Diocese of Central Tanganyika to whom I am most grateful. I am indebted to those Rangi who provided information about their mother tongue, foremost among them Rajabu Isangu and Saada Saidi (of Kolo-Mnenya), Mama Bahati (of Kondoa-Ausia), Samweli Ramadhani (of Haubi-Kalamba), and Andrew Lujuo (of Mondo-Soya). Distinctions between the four dialects (Haubi, Kondoa, Kolo, and Mondo) are mainly phonetic and lexical, and hence do not play a significant role in the consideration of derivation. Further, I want to thank Ron Moe (for help with managing the data with the Shoebox software), staff and participants of the SIL AFA morpho-syntax workshop September 2001 at the BTL Ruiru Centre (for providing the perfect environment for writing the first versions of this paper), Rod Casali, Derek Nurse, Thilo Schadeberg, Karen VanOtterloo, and Joost Zwarts, as well as an anonymous reviewer and the editor of SAL (for insightful comments), and my wife Dorothea (for supporting me in every way possible). The usual disclaimers apply, of course.

[3] Dempwolff [1916:121-122] contains a list of functional suffixes following verbal stems, yet does not subsume allomorphs under one morpheme, e.g., *-ir-* and *-er-* under applicative (cf. sections 1.3 and 2.2.3).

[4] Dunham [2001] was not received in time for consideration in this paper.

nants except *w* have been found with labialized, and all consonants except *p, dz, ndz* and *ɲ* with palatalized modification. Absence of *py* results from Proto-Bantu *pi having become Rangi *fy*, e.g., *-píát- corresponds to *-fyáata* 'to seize'.

Table 1: Consonant phoneme chart

	labial		dental-alveolar		palatal		velar		glottal
voicing	–	+	–	+	–	+	–	+	–
plosives									
oral	p	b	t	d	tɕ	dʑ	k	g	
prenas.	mp	mb	nt	nd	ntɕ	ndʑ	ŋk	ŋg	
fricatives	f	v	s						h
nasals		m		n		ɲ		ŋ	
liquids		w		l , r		y			

An unusual feature is the palatalized palatal approximant *yy*. Phonetically, the difference is that between non-syllabic [ɪ] and non-syllabic [i]. Contrasting words are given in (1). Note that palatalized *s* is realized as [ɕ] which, consequently, has not been analyzed as a phoneme in its own right.

(1) a. *lʊsaya* 'cheek' versus *kʊváyya* 'to trip s.o.'
b. *kʊséya* 'to say' versus *kʊséyya* 'to remove'

Care also has to be taken to distinguish the palatalized alveolar nasal *ny*, realized with apical contact, from the palatal nasal *ɲ*, which is realized dorsally. Admittedly, the near-minimal pair shown in (2) exhibits major differences in morphological build-up as well as additional distinctiveness in tone and stress.

(2) a. *kʊlʊ́máɲa* < kʊ+lú+máɲ+a 'to know it (cl.11)'
b. *kʊ'lúmanya* < kʊ+lúman+i+a 'to cause to meet'

The vowel phonemes are charted in Table 2. Note that vowel length is distinctive, as shown in (3), but instances of long vowels after labialized or palatalized consonants and before prenasalized plosives are attributable to compensatory lengthening (cf. section 1.3). In order to facilitate the marking of tone, long vowels will be written with double letters rather than with following ':'.

(3) a. *kʊláva* 'to sprain' versus *kʊláava* 'to wake up early'
b. *mʊkúlʊ* 'father-in-law' versus *mʊkúúlʊ* 'elder brother'

Table 2: Vowel phoneme chart

	front		back	
	short	long	short	long
extra-high (+ATR)	i	iː	u	uː
high (-ATR)	ɪ	ɪː	ʊ	ʊː
mid (-ATR)	ɛ	ɛː	o	oː
low		a	aː	

Table 3: Tones on short and long vowels

short vowel

low tone	high tone
mbava	*ibáta*
'cockroach'	'duck'
mʊkʊvʊ	*mʊkúlʊ*
'navel'	'father-in-law'

long vowel

low tone	high tone	rising tone	falling tone
baanka	*mpááha*	*ibaándɪ*	*ibáanda*
'room'	'fingernail'	'grasshopper'	'hut'
kɪkʊʊngʊ	*mʊkúúlʊ*	*ikʊʊ́ngʊlʊ*	*kɪkúungʊ*
'epidemic'	'elder brother'	'pied crow'	'cockspur'

In Rangi, there are high and low tones (marked with acute accent and unmarked, respectively). As shown in Table 3, short vowels occur with high or low tone whereas long vowels occur with high, low, rising or falling tone. This is an indication of the fact that the mora, and not the syllable, is the tone bearing unit in Rangi.

A phrase-final H tone deletion rule operates in Rangi. All words ending in H tone underlyingly, regardless of how many syllables this H tone spans, are realized as low at the end of an utterance, including in isolation, only retaining their H tones phrase-initially or -medially. Examples of this effect are shown in (4), contrasting nouns in isolation and with following demonstrative pronoun. Example (4a), taking a low tone item from table 3, shows that there are true underlyingly L tone nouns which do not exhibit a H tone if followed by a

demonstrative. This low tone realization of lexical items in isolation, as in (4a-e), could account for the fact that, in the literature, Rangi is often portrayed as having lost at least part of its tonal distinctiveness [e.g., Guthrie 1967-71II:48, Nurse 1999:23]. Examples (4d-e) show that a single H tone can be assigned to more than one mora. Also, two separate H tones can be assigned to a nominal stem underlyingly, as shown in examples (4f-i). Of these, (4h-i) seem to constitute a violation of the Obligatory Contour Principle. Of course, the lexical stems concerned could have been bimorphematic in the past. However, there remains no synchronic evidence of this.

(4)	a.	*mʊkʊvʊ*	versus	*mʊkʊvʊ ʊhʊ*	'(this) navel'
	b.	*mʊdala*	versus	*mʊdalá ʊhʊ*	'(this) old woman'
	c.	*ɲɔrɔrɔɔda*	versus	*ɲɔrɔrɔɔdá ɪhɪ*	'(this) kind of snake'
	d.	*mʊlʊmɛ*	versus	*mʊlúmɛ́ ʊhʊ*	'(this) husband'
	e.	*mbavariri*	versus	*mbávárírí ɪhɪ*	'(this) sorrow'
	f.	*kɪtɕámpɪhɪ*	versus	*kɪtɕámpɪhí ɪkɪ*	'(this) rafter'
	g.	*ibaáhɪra*	versus	*ibaáhɪrá ɪrɪ*	'(this) feather'
	h.	*ŋkóŋgɔɔdʑɔ*	*versus*	*ŋkóŋgɔ́ɔ́dʑɔ́ ɪhɪ*	'(this) butterfly'
	i.	*nteétɛrɛ*	versus	*nteétéré ɪhɪ*	'(this) pumpkin seed'

On verbs, lexical tone distinctions seem to have been lost.[5] Every verbal stem receives one H tone which, as shown in (5), is assigned to the ante-penultimate stem mora and spreading to any preceding stem morae. On stems shorter than three morae, as in (5a-b), the earliest possible stem mora receives the H tone.

(5)	a.	*kʊryá*	'eat'
	b.	*kʊséka*	'laugh'
	c.	*kʊlɔ́ɔla*	'marry'
	d.	*kʊkéŋgéɛdʑa*	'avoid'
	e.	*kʊdáláhala*	'become old'
	f.	*kʊryáánírɪ́ɪrya*	'make even'

Rangi makes use of grammatical tone. As shown in (6), the tone on the imperative is displaced to the right edge compared to the tone on the infinitive.

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[5] In the minor dialect of Kolo, tonal minimal pairs have been recorded for verbs lexically. These are disregarded here, however, as both the two major dialects of Haubi and Kondoa and the other minor dialect of Mondo do not exhibit these.

(6) a. *kʊbɔ́ka* versus *bɔká nɛɛʤa* 'dig (well)'
b. *kʊfyááhɪra* versus *fyaahírá nɛɛʤa* 'sweep (well)'
c. *kʊláhírɪ́ɪrya* versus *lahɪrɪ́ryá nɛɛʤa* 'order (well)'

As shown in (7), the verbal tense-aspect forms for distant past and past habitual are distinguished by tone only. A detailed analysis of verbal tone is beyond the scope of this paper. The interested reader is referred to Akhavan [1990].

(7) a. *nabɔ́kaa* 'I used to dig'
versus
nábɔkáa 'I dug (long ago)'

b. *atɕérévaa* 'he used to be late'
versus
átɕɛrɛváa 'he was late (long ago)'

c. *vasérérékéraa* 'they used to slide down'
versus
vásɛrɛrɛkɛráa 'they slid down (long ago)'

1.2. Morphological considerations. Only two morphological features are relevant to the derivational processes described herein, viz. the structure of the verb and the class prefixes on noun stems. The basic order of components in a verb is (with optional components in brackets):

Subject - Tense/Aspect - (Object) - Root - (Extension) - Final Vowel

A few instances of the verb structure are given in (8). In the following sections, underlying tone is shown on nouns, but surface tone on verbs.[6]

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[6] The following abbreviations are used:

APPL	applicative	IND	indicative	PRES	present
CAUS	causative	NEG	negative	PST	past
CON	consecutive	PASS	passive	SUBJ	subjunctive
CONT	continuous	PFV	perfective	1S, 3S	first, third person singular

A number alone refers to a noun class. Other transcription conventions will be mentioned in section 1.3 according to the morphonological process they relate to.

(8) a. *n-ɔ́ɔ́-mú-tɛ́rɛ́k-ɛr-a*
1S-PRES:CONT-3S-cook-APPL-IND
'I am cooking for him.'

b. *tɕ-á-n-tóríɪnt-y-a*
7-PST-1S-be_crazy-CAUS-IND
'It drove me crazy.'

c. *áá-n-dah-ír-ɛ*
3S:PRES-1S-show-APPL-SUBJ
'He should show me.'

An overview of noun class prefixes is given in table 4.

Table 4: Noun class prefixes

	1/2	3/4	5/6	7/8	9/10	11/10	12/19	14	15
sg	*mʊ-*	*mʊ-*	*i-*	*kɪ-*	N-	*lʊ-*	*ka-*	ʊ-	kʊ-
pl	*va-*	*mɪ-*	*ma-*	*vi-*	N-	N-	*fi-*		

Note that, as is common in Eastern Bantu languages, prefixes of noun classes 9 and 10 consist of an underlyingly unspecified nasal which assimilates in place of articulation to following plosives, as in (9a-c). It elides before other consonants, as in (9d-f),[7] and is realized as [ɲ] when preceding vowel-initial stems, as in (9g).

(9) a. *mbɛrɛ* 'front'
b. *ntɔhɛ* 'dung'
c. *ŋkala* 'mongoose'
d. *fííwa* 'kidney'
e. *haálɪ* 'joke'
f. *sálʊ* 'sand'
g. *ɲɛɛrɛ* 'badger'

1.3. Morphonological considerations. Several morphonological processes are relevant for the description of derivation in Rangi. Most of the processes described in the following concern vowel harmony or vowel coalescence, and

[7] Prenasalized /mv/ was not found in the corpus. Class 9 nouns with initial *v* include *viryo* 'grain' and *vúdʊ* 'dikdik'.

they apply foremost to verbal suffixes and noun class prefixes. In verbal extensions with the vowels *ɪ* and *ʊ*, asymmetric vowel height harmony occurs after stems with the vowels *ɛ* and *ɔ*. That means that *ɪ* is lowered to *ɛ* after both *ɛ* and *ɔ* while *ʊ* is lowered to *ɔ* only after *ɔ*, as shown in (10). The verbal extensions concerned are the Applicative *-ɪr-* and the transitive Separative *-ʊl-*.

(10) a. *-hák-**ɪr**-a* 'smear at/for'
b. *-kɛ́r-**ɛr**-a* 'cut at/for'
c. *-bɔ́k-**ɛr**-a* 'dig at/for'
d. *-hál-**ʊl**-a* 'strip off'
e. *-bɛ́nd-**ʊl**-a* 'break off'
f. *-hɔ́n-**ɔl**-a* 'wipe off'

Vowel harmony has been analyzed in detail and across a substantial proportion of Bantu languages by Hyman [1999], yet that study does not include data on Rangi. Rangi would accordingly be classifiable as a seven vowel language with canonical Vowel Height Harmony, as all five properties of that harmony apply in Rangi: the above shown asymmetry, the facts that *a* neither triggers nor undergoes harmony, and that harmony does not apply to either final vowels or prefix vowels [Hyman 1999:238].

Prefixes with the vowels *ɪ* and *ʊ* either desyllabify on vowel-initial stems leading to compensatory lengthening of the stem-initial vowel, or they coalesce assimilating completely in the process. Such lengthened vowels are transcribed as long. Table 5 shows these processes for the prefixes of noun classes 3 and 4, being singular and plural of the respective noun stems.

Table 5: Vowel coalescence of noun class prefixes 3 and 4

mʊ- (class 3)		*mɪ-* (class 4)	
ʊ+a > waa	*mwaáká* 'year'	ɪ+a > yaa	*myaáká* 'years'
ʊ+ɛ > wɛɛ	*mwɛɛ́rí* 'moon'	ɪ+ɛ > yɛɛ	*myɛɛ́rí* 'months'
ʊ+ɪ > wɪɪ	no example found	ɪ+ɪ > ɪɪ	no example found
ʊ+i > wii	*mwiíwa* 'thorn'	ɪ+i > ii	*miíwa* 'thorns'
ʊ+ɔ > ɔɔ	*mɔɔda* 'medicine'	ɪ+ɔ > yɔɔ	*myɔɔda* 'medicine'
ʊ+ʊ > ʊʊ	*mʊʊ́mbʊ* 'calabash'	ɪ+ʊ > yʊʊ	*myʊʊ́mbʊ* 'calabashs'
ʊ+u > uu	*muumu* 'figtree'	ɪ+u > yuu	*myuumu* 'figtrees'

Even though no example with vowel initial ɪ was found, the outcome is still predictable. Remarkably, the front-back asymmetry shows again, in that ɪ desyllabifies preceding both ɛ and ɔ, while ʊ desyllabifies before ɛ only but assimilates to ɔ.

While most vowels before prenasalized consonants are long, indicating compensatory lengthening, some exceptions as shown in (11) have been found.

(11) a. *mʊsiŋga* 'child'
b. *ŋkúndɛ* 'dove (species)'
c. *iyɔmbɛ́* 'price, trade'

Complementary lengthening due to prenasalized consonants applies predominantly to the penultimate position which, as in many Bantu languages, normally receives stress in Rangi. Examples of lengthening in other positions are given in (12).

(12) a. *mʊkaandála* 'belt'
b. *mʊkúúŋgúdʑʊ* 'firefly'
c. *kamúúntɕúʊrʊ* 'small robe'

Especially in the ante-penultimate position of verbs, vowel length contrasts occur before prenasalized consonants, as shown in (13).

(13) a.	*kʊsééŋgʊla*	'strip'	but	*kʊsóŋgɔla*	'carve'
b.	*kʊsáámbʊla*	'destroy'	but	*kʊsúmpʊla*	'bother'
c.	*kʊtɕúúŋgɪra*	'wrap up'	but	*kʊsúŋgɪra*	'peep'
d.	*kʊyééndɛra*	'visit'	but	*kʊbéndʊla*	'break off'

Another process of vowel harmony is leftward [+ATR] spreading which applies both from stems onto prefixes and from suffixes onto stems. This process has been investigated cross-linguistically by Casali [1998], and Rangi fits in accordingly as a seven [i ɪ ɛ a ɔ ʊ u] vowel system with dominant [+ATR]. The vowels [i] and [u] spread their [+ATR] feature leftward, resulting in [+ATR] variants [i e o u] of the underlyingly [-ATR] vowels [ɪ ɛ ɔ ʊ]. This process seems to be gradient, i.e., having diminished effect with increasing distance from the [+ATR] spreading vowel. Underlying rather than harmonized vowels will be written in all instances. In (14), phonetic realizations of two phonemic forms containing leftward [+ATR] shift are shown.

(14) a. *mʊ-kíɪnd-**i*** 'sorcerer' ⇒ [mʊ̀ˈkʰĩːⁿdɪ]
b. *mʊ-lɔ́ɔl-**i*** 'bridegroom' ⇒ [mʊ̀ˈlo̰ːl̃ɪ]

In root-final position of verbs, the liquids *r* and *l* are found in complementary distribution, with *r* before front, and *l* before back vowels. Consequently, suffixes with front vowels effect a change of *l* to *r* in the last consonant position of the stem. In a second step, inter-liquid front vowels can then be optionally deleted as shown in (15).

(15) *-tɕúúŋgʊla + -ɪr* ⇒ *-tɕúúŋgórɪra* (⇒ *-tɕúúŋgórra*)
'untie' 'untie for'

While other morphonological processes exist, these are not directly relevant for the main body of this paper, i.e., the description of derivation in Rangi.

2. Verbal Derivation

Verbal derivation in Rangi is restricted to the extension slot in the verb structure. It can be differentiated into nonverb-to-verb and verb-to-verb derivation.

2.1. Nonverb-to-verb derivation. Only one nonverb-to-verb derivational morpheme has been observed, namely, the suffix *-ha*[8] in the extensional slot of the verb structure. The morpheme is non-productive, and for some verbs given in (16), the original noun or adjective can no longer be established.

(16) a. *-nénɛha* 'become fat' (cf. *-nénɛ* 'fat')
b. *-rútaha* 'become heavy' (cf. *-rutɔ* 'heavy')
c. *-ángúha* 'become light' (cf. *tɕaŋgʊtɕáaŋgʊ* 'quickly')
d. *-lɔ́ŋgɔha* 'tell a lie' (cf. *ʊlɔ́ɔ́ŋgɔ́* 'lie')
e. *-líɪha* 'be long' (cf. *-lííhɪ* 'long')
f. *-bɔ́ɔha* 'be good'
g. *-víɪha* 'be bad'

[8] The final *-a* of this suffix is actually the final vowel slot of the verb structure. In the literature, this nonverb-to-verb derivational suffix is often called 'inchoative'.

2.2. Extensions. Verb-to-verb derivation is confined to the extensional slot of the verb structure.[9] In the following, productive extensions will be discussed before non-productive ones.

2.2.1 Passive. Passive is marked by the suffix *-w-*.[10] A longer form *-iw-* has only been found in *ríiwa* 'to be eaten'. Passive *-w-* can be affixed to all transitive verbs a few examples of which are shown in (17). The passives in (17d-e) lose their root-final consonant, for which there is no regular explanation. The passive in (17f) does not seem to have a corresponding active form. It should be noted that the combination of passive *-w-* with the perfective suffix *-irɛ* results in *-irwɛ*.

(17) a.	*-lɔ́ɔlwa*	'be married'	(cf. *-lɔ́ɔla* 'marry')
b.	*-lúmwa*	'be bitten'	(cf. *-lúma* 'bite')
c.	*-vyáalwa*	'be born'	(cf. *-vyáala* 'beget, give birth')
d.	*-úlawa*	'be killed'	(cf. *-úlaha* 'kill')
e.	*-héɛwa*	'be given'	(cf. *-héɛra* 'give')
f.	*-vírwa*	'be ripe, ripen'	

One function of passives is to de-emphasize the agent of a transitive phrase. In examples such as those in (18), the agent of the action need not be mentioned at all.

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[9] In Rangi, as in other Bantu F languages, the reciprocal suffix *-an-* has merged semantically with the reflexive marker *-í-* that occupies the object marker slot of the verb structure. Some forms with *-an-* have survived, although these are now non-productive (cf. section 2.2.6). While the reciprocal/ reflexive prefix *-í-* is inflectional, several examples are given below in which some seem to have become lexicalized. Whether Rangi employs devices for distinguishing between those two meanings has not been established.

a.	*-íhála*	'scratch oneself'	(cf. *-hála* 'scrape')
b.	*-ítɛ́ɛra*	'feel'	(cf. *-tɛ́ɛra* 'hear')
c.	*-ívísa*	'hide oneself'	(cf. *-vísa* 'hide')
d.	*-ísúka*	'plait own hair'	(cf. *-súka* 'plait hair')
e.	*-íláha*	'take an oath'	(cf. *-láha* 'promise')
f.	*-ídʑíiŋga*	'assemble'	(cf. *-dʑíiŋga* 'collect')
g.	*-ílɔ́ɔla*	'marry each other'	(cf. *-lɔ́ɔla* 'marry')
h.	*-íréka*	'leave each other'	(cf. *-réka* 'leave')
i.	*-íváa*	'hit each other, fight'	(cf. *-váa* 'hit')

[10] Whether *-w-* is underlyingly *-ʊ-* which subsequently desyllabifies cannot be decided from synchronic evidence.

(18) *idʑó ɲʊʊmbá y-a-táás-irwɛ*
yesterday house 9-PRES-plaster-PFV:PASS
'Yesterday, the house was plastered.'

2.2.2. Causative. Causative is marked by the suffix *-y-*. Underlyingly, this *-y-* must be *-i-*, as it spreads [+ATR] to the left, e.g., (10b) *-líɪhya* is phonetically [ɬi:hʲà]. The longer form *-isy-* has been observed in *-ríisya* 'to feed' from *-ryá* 'to eat'. Like the passive, causative *-y-* is incorporated into the perfective suffix *-irɛ*, resulting in *-íiryɛ*. Most causatives, as shown in (19), are transparent with regard to their derivation. Others, as in (20a-c), seem to have undergone a semantic shift or, as in (20d-e), are no longer connected to a form used synchronically.

(19) a. *-ɔ́fya* 'frighten' (cf. *-ɔ́fa* 'fear')
b. *-líɪhya* 'lengthen' (cf. *-líɪha* 'be long')
c. *-kíimya* 'lower down' (cf. *-kíima* 'descend')
d. *-mémya* 'fill' (cf. *-méma* 'be full')

(20) a. *-láhya* 'show' (cf. *-láha* 'promise')
b. *-kéɛhya* 'reduce' (cf. *-kéɛha* 'breathe')
c. *-bɔ́ɔya* 'do/think' (possibly related to *-bɔ́ɔha* 'be good')
d. *-úrya* 'ask'
e. *-ɲéyya* 'sleep'

At least one non-causative verb borrowed from Swahili, viz. *-tosha* with [ʃ] in root-final position, has been reinterpreted as causative, i.e., *-tɔ́ɔɕa* 'to be sufficient'.[11]

2.2.3. Applicative. The Applicative is marked with the suffix *-ɪr-/-ɛr-*. It is a productive morpheme which is heavily used in everyday language, adding a participant to a verb's action or event. The two most common uses which can be applied to most verbs are benefactive and locational, as shown in (21). Note that (21e) is locational only. Other uses include intensive (22a-b), instrumental (22c-d), directional (22e-f), and circumstantial or reason (22g).

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[11] This reinterpretation becomes evident in the perfective form *yatɔ́ɔsíiryɛ* 'it has been enough' where the causative *-y-* is incorporated into the perfective suffix *-irɛ*. Unlike in Swahili, [ʃ] does not exist in the Rangi phoneme inventory, the closest sound being [c], which is the realization of palatalized /s/.

(21) a.	*-bɔ́kɛra*	'dig at/for'	(cf. *-bɔ́ka* 'dig')
b.	*-táhɪra*	'draw (water) at/for'	(cf. *-táha* 'draw (water)')
c.	*-fúrɪra*	'wash (clothes) at/for'	(cf. *-fúla* 'wash (clothes)')
d.	*-tɕúúŋgɪra*	'tie at/for'	(cf. *-tɕúuŋga* 'tie')
e.	*-wíira*	'fall at'	(cf. *-wyá* 'fall')
(22) a.	*-tɕúrɪra*	'smash completely'	(cf. *-tɕúla* 'smash')
b.	*-íímbɪra*	'sing a lot'	(cf. *-ɪmba* 'sing')
c.	*-kámɪra*	'milk (cow) using'	(cf. *-káma* 'milk (cow)')
d.	*-kɛ́rɛra*	'cut using'	(cf. *-kɛ́ra* 'cut')
e.	*-kíbírɪra*	'run towards'	(cf. *-kíbɪra* 'run')
f.	*-tɕwíɪra*	'spit onto'	(cf. *-tɕwá* 'spit')
g.	*-wúmɪra*	'dry up concerning'	(cf. *-wúma* 'dry up')

As shown in (23), frozen forms indicated by semantic shift (23a-c) or by lost basic form (23d-g) occur rather frequently.

(23) a.	*-láhɪra*	'believe'	(cf. *-láha* 'promise')
b.	*-ímɪra*	'start'	(cf. *-íma* 'stand')
c.	*-túmɪra*	'be engaged'	(cf. *-túma* 'send')
d.	*-wɔ́ɔ́dʑɛra*	'wait'	
e.	*-súndɪra*	'kiss'	
f.	*-ákɪra*	'have in mouth'	
g.	*-húúvɪra*	'fan'	

2.2.4. Separative. The Separative is marked with the suffix *-ʊl-/-ɔl-*. It is not a productive morpheme, most instances given in (24) having lost any connection to corresponding basic forms.

(24) a.	*-tɕúúŋgʊla*	'untie'	(cf. *-tɕúuŋga* 'tie')
b.	*-kwáátʊla*	'let slip'	(cf. *-kwáata* 'seize')
c.	*-ɔ́kɔla*	'redeem'	(cf. *-ɔ́ka* 'burn')
d.	*-tɛ́ɛ́ŋgʊla*	'accompany after visit'	(cf. *-tɛ́ɛŋga* 'invite for visit')
e.	*-pɔ́tɕɔla*	'pierce'	
f.	*-súlʊla*	'bleed'	
g.	*-sátʊla*	'split lengthwise'	
h.	*-rɛ́ɛ́ŋgʊla*	'inspect'	
i.	*-púɲʊla*	'shave'	

2.2.5. Neuters. Neuters are marked with the suffix *-ɪk-/-ɛk-* in general, and the suffix *-ʊk-/-ɔk-* for intransitive forms of the Separative. Neither of these forms is productive, yet there are only a few forms which cannot be traced to a corresponding base.

(25) a.	*-ónɛka*	'be visible'	(cf. *-óna* 'see')
b.	*-únɪka*	'be broken'	(cf. *-úna* 'break')
c.	*-túrɪka*	'be cracked'	(cf. *-túla* 'crack s.th.')
d.	*-yírɪka*	'be unconscious'	
e.	*-sáámbʊka*	'be harmed'	(cf. *-sáámbʊla* 'harm, destroy')
f.	*-dúmʊka*	'be torn'	(cf. *-dúmʊla* 'tear')
g.	*-hííndʊka*	'return (intrans.)'	(cf. *-hííndʊla* 'return sth.')

A number of instances of *-ɪk-* seem to have a causative (or impositive) meaning. None of those shown in (26) can with certainty be related to corresponding verbs.

(26) a.	*-lúmɪka*	'bleed by cupping'	(cf. *-lúma* 'bite')
b.	*-láárɪka*	'invite'	(cf. *-láala* 'lie down')
c.	*-árɪka*	'circumcise'	(cf. *-ála* 'spread')
d.	*-vérɛka*	'carry on back'	

2.2.6. Other Non-Productive Extensions. The four non-productive extensions with low vowels listed by M&S92 [p.163-165] for Nyamwezi, viz. *-al-*, *-am-*, *-an-*, and *-at-*, are all found in Rangi as well. M&S92 give the following reason for calling the suffix *-al-* active-positional and the suffix *-am-* passive-positional:

> "Although this extension is not particularly infrequent, its meaning is somewhat obscure. The only case where a corresponding underived verb exists is obviously an old, lexicalized derivation. If 'to sit' is derived from 'to go down', then this suggests that the subject of a verb with the extension *-al-* has completed the action expressed by the underived verb and is now in the position resulting from it. Some other examples support the hypothesis that this extension describes a position of the body, but the subjects are generally more active than in verbs with the extension *-am-*." [Maganga & Schadeberg 1992:163]

Rangi examples of both extensions are given in (27).

(27) a.	*-fálala*	'fly'	(cf. *-fála* 'go up (moon)')
b.	*-íkala*	'sit'	(cf. *-íka* 'go down, flow')
c.	*-lwáala*	'fall ill'	(cf. *-láʊla* 'cure')
d.	*-láala*	'lie down'	
e.	*-páala*	'inherit'	
f.	*-váala*	'carry on shoulder'	
g.	*-tɕáala*	'remain'	
h.	*-ínama*	'incline'	(cf. *-ínʊla* 'lift')
i.	*-túmama*	'work'	(cf. *-túma* 'send')
j.	*-ásama*	'open mouth'	
k.	*-tɕwáama*	'kneel'	
l.	*-sáama*	'move (house)'	

A non-productive form of the Reciprocal is *-an-* (see footnote 9 for reference to its productive equivalent). As evident in (28), however, establishing corresponding basic forms is difficult at best. Although in (28b-c) both basic forms 'bite' and 'grind' include the idea of 'coming into contact', namely teeth and grinding stones, respectively, such an etymology for the corresponding reciprocals cannot be proven on synchronic grounds.

(28) a.	*-hákana*	'border on'	(cf. *mʊhaká* 'border')
b.	*-lúmana*	'meet'	(cf. *-lúma* 'bite')
c.	*-ɕáana*	'meet'	(cf. *–ɕa* 'grind')
d.	*-tɕáana*	'forge'	(cf. *-tɕúla* 'hit, strike')
e.	*-ífyáana*[12]	'resemble'	

The non-productive extension *-at-* marks the Contactive, as shown in (29).

(29) a.	*-kwáata*	'seize, hold'
b.	*-lwáata*	'tread on'
c.	*-fyáata*	'hold'
d.	*-fínáata*	'rub, massage'
e.	*-ábábáata*	'stroke'

2.3. Co-occurences. Unlike any other slot in the Rangi verb structure, the extensional slot can be occupied by more than one marker. The usual order in

[12] This form probably includes the reflexive/reciprocal prefix *-í-*, yet without a basic form, that is difficult to determine.

which extensional markers follow each other is given in (30).[13] Table 6 then gives examples of each case of two successive extensional markers.

(30) Separative/Neuter - Applicative - Causative - Passive

Additionally, as shown by the examples in (31), most extensions can co-occur with the Reflexive/Reciprocal *-i-*, which, of course, is not successive, as it precedes the verb root.

Table 6: Successive extensions

	Separative	Neuter	Applicative	Causative	Passive
Separative	*-páŋgólʊla* 'put in disorder'	*-húmúlʊka* 'rest'	*-lɔ́ŋgɔ́rɛra* 'lead s.o. to'	*-túmbʊrya* 'wake s.o.'	*-lɔ́ɔlwa* 'be married'
Separative-Neuter			*-hííndɔ́kɪra* 'return for'	*-mɔ́ndɔkya* 'flatten'	*-kálʊkwa* 'be thirsty'
Neuter			*-íníkɪra* 'go down'	*-ɔ́nɛkya* 'make visible'	*-tɛ́rɛkwa* 'be cooked'
Applicative			*-ɔ́yɛ́rɛra* 'swim'	*-rímɪrya* 'forget'	*-dʊ́ʊ́mbɪrwa* 'be praised'
Causative					*-váíwa* 'be blown away'
Passive					

(31) a. *-ítɕúúŋgʊla* 'give birth' (lit. 'untie oneself')
b. *-ítíɪka* 'carry on one's own head'
c. *-ífáfɪra* 'defend oneself' (cf. *-fáfa* 'be difficult')
d. *-írúmɪra* 'agree with each other' (cf. *-rúma* 'assent')
e. *-ídʑúvɪra* 'get used to'
f. *-íyérya* 'dance in contest with other men' (cf. *-yéra* 'measure')
g. *-íláaŋgya* 'advise' (lit.: cause to watch oneself)

A few causatives of words containing the non-productive extensions *-al-* and *-an-* were found, as shown in (32).

(32) a. *-tɕáarya* 'leave behind' (cf. *-tɕáala* 'remain')
b. *-lwáarya* 'wound s.o.' (cf. *-lwáala* 'fall ill')
c. *-lúmanya* 'make others meet' (cf. *-lúmana* 'meet')
d. *-ásákánya* 'trade, exchange'

[13] So far, no counter-examples have been found.

Examples of more than two successive extensions are given in (33).

(33) a. *-kúníkírɪra* 'cover' [Neuter + double Applicative]
b. *-márɪ́kɪrya* 'finish' [Neuter + Applicative + Causative]
c. *-láhírírya* 'order' [double Applicative + Causative]

The repetition of an extensional marker (observed only for Separative and Applicative) might indicate an intensification of the action. However, a definite semantic difference with the same stem bearing only a single instance of the extension could not be established.

(34) a. *-sámbúlula* 'spoil' (cf. *-sáámbula* 'harm, destroy')
b. *-sáwúlula* 'choose' (cf. *-sáwula* 'choose')
c. *-téérɛra* 'listen' (cf. *-téɛra* 'hear')
d. *-fɔ́ɔ́kérɛra* 'spill' (cf. *-fɔ́ɔka* 'flow over' and *-fɔ́ɔ́kɛra* 'scald')
e. *-ryáánírɪra* 'be equal'

3. Nominal Derivation

Nominal derivation, by the very nature of the structure of the noun, makes heavy use of noun class prefixes. However, a few suffixes do occur. As in the section on verbal derivation, productive processes will be discussed before non-productive ones.

3.1. Verbal nouns. As in most Bantu languages, the verb infinitive is formed with *kʊ-*, the prefix of noun class 15. This form can function as an argument of a verb as shown in (35a), yet retains some verbal qualities like the inclusion of an object marker, as in (35b).

(35) a. *I-sisi rí-sá-náa-va Fɔɔlita maá mi-ísɔɔri ya-ka-ánda* ***kʊ-****fúma.*
5-moment 5-NEG-PST-be Folita then 6-tear 6-CON-begin 15-occur
'A little while had not yet passed Folita, and (his) tears started (their) occurrence.'

b. *Na-sáák-ítɪɛ kʊ-í-ɔ́na.*
1S:PRES-want-APPL:PFV 15-9-see
'I have searched for seeing it.' (refering to a lost arrow)

As shown in (36), these infinitives can stand in subject or object position of a phrase. No other forms of verbal nouns were observed in the Rangi corpus.

(36) a. ***Kʊ***-*túkɪra vaa-ntʊ kw-á-vɪɪha.*
15-insult 2-person 15-PRES-be bad
'Insulting people is bad.'

b. *Mɔ-ɔsí é-énd-irɛ* ***kʊ***-*séka kw-aaɲu maátʊkʊ.*
1-old man 3S-love-PFV 15-laugh 15-your(pl) very much
'The old man loved your laughing very much.'

3.2. Agent nouns. Verbs are commonly nominalized by prefixing *mʊ-*, the prefix of noun class 1, and suffixing *-i* an agentive marker. Two indications that this process is still productive are that class 1 agentive nouns bear the same tone as the verbs they are derived from, and that the process is applicable to words like the basic verb of (37d) which has been borrowed from a neighbouring Cushitic language.

(37) a.	*mʊtɕúundi*	'moral teacher'	(cf. *-tɕúunda*	'teach morals')
b.	*mʊkíɪndi*	'sorcerer'	(cf. *-kíɪnda*	'bewitch')
c.	*mʊtɕáani*	'blacksmith'	(cf. *-tɕáana*	'forge')
d.	*musákaati*	'hunter'	(cf. *-sákaata*	'hunt')
e.	*mʊlɔ́ɔli*	'bridegroom'	(cf. *-lɔ́ɔla*	'marry')
f.	*mwiívi*	'thief'	(cf. *-íva*	'steal')

There are tentative indications that agentivization with the *-i* suffix was historically applied to other noun classes too, as shown in (38). However, in these cases, tone does not remain stable during the process, i.e., the lexical tone of the noun does not reflect the tone of the original verb.

(38) a.	*mwɛɛ́rí* (cl.3)	'moon'	(cf. *-éra*	'become light, bright')
b.	*mɪkírí* (cl.4)	'soot'	(cf. *-kíra*	'make dull')
c.	*kɪsuri* (cl.7)	'fart'	(cf. *-súla*	'fart')
d.	*kɪfwíírɪrí* (cl.7)	'storm'	(cf. *-fwíɪra*	'blow')
e.	*kɪlɔɔŋgi* (cl.7)	'advice'	(cf. *-lɔ́ɔnga*	'reconcile')
f.	*ʊpaari* (cl.14)	'inheritance'	(cf. *-páala*	'inherit')

3.3. Diminutives and augmentatives. The prefix *ka-* of class 12 (with plural *fi-* in 19) is used to form diminutives. While the morpheme is mostly productive, note that (39d) seems to have lexicalized. No derogatory uses of diminutives were found in the corpus.

(39) a. *kaɲaáwu* 'kitten' (cf. *ɲaáwu* 'cat')
b. *kaána* 'infant' (cf. *mwaána* 'child')
c. *katáampi* 'twig' (cf. *itáampi* 'branch')
d. *kasʊʊlá* 'foreskin' (cf. *isʊʊlá* 'shell, skin')

The prefix *i-* of class 5 (with plural *ma-* in 6) is regularly used to form augmentatives. Again, cases of lexicalization like (40d) are observed, whereas no derogatory uses occurred in the corpus.

(40) a. *idaafu* 'big billy-goat' (cf. *ndaafu* 'billy-goat')
b. *ikabaakʊ* 'big bull' (cf. *ŋkabaakʊ* 'bull')
c. *isaárɪ* 'coarse sand' (cf. *lʊsaárɪ* 'sand')
d. *itɔhɛ* 'mud' (cf. *ntɔhɛ* 'cow dung')

3.4. Qualitative. Noun class 14 with prefix *ʊ-* contains mainly abstract nouns. One derivational process involves the nominalization of adjectives as shown in (41). As adjectives are presumably a closed class in Rangi, the productivity of the process is limited even though it applies to all members of the adjectival class. Note that (41f-g) are related to the verbs *-ɛ́ra* 'be(come) white' and *-íra* 'be(come) dark', respectively, but are here analyzed as nominalizations of adjectives and not of verbs.

(41) a. *ʊkʊ́ʊ́lʊ* 'bigness, size' (cf. *-kʊ́ʊ́lʊ* 'big')
b. *ʊdʊ́ʊ́di* 'smallness' (cf. *-dʊ́ʊ́di* 'small')
c. *ʊlííhɪ* 'length' (cf. *-lííhɪ* 'long')
d. *ʊkʊ́fĩ* 'shortness' (cf. *-kʊ́fĩ* 'short')
e. *ʊrutɔ* 'weight' (cf. *–rutɔ* 'heavy')
f. *wɛɛrʊ* 'whiteness, light' (cf. *–ɛrʊ* 'white, light')
g. *wiiru* 'blackness, darkness' (cf. *–iru* 'black, dark')

It is also possible, however, to replace the prefixes of nouns from other classes with class 14 prefix *ʊ-*, thus forming an abstract noun, as shown in (42). This does not seem to be a productive process, however.

(42) a. *wɔɔsi* 'old age' (cf. *mɔɔsi* 'elder')
b. *ʊkabaakʊ* 'strength' (cf. *ŋkabaakʊ* 'bull')
c. *ʊsáví* 'witchcraft' (cf. *mʊsáví* 'witch')
d. *ʊʊntʊ* 'being, personhood' (cf. *mʊʊntʊ* 'person')

3.5. Peoples, languages, and countries. There is a regular relationship between people groups in classes 1/2, and their languages and countries in classes 7 and 14, respectively, as shown in (43). Note, however, the exception of the Rangi country in (43c).[14]

(43) a. *mʊmbʊʊwɛ, vambʊʊwɛ* 'Mbugwe man, people'
kɪmbʊʊwɛ, ʊmbʊʊwɛ 'Mbugwe language, country'

b. *mʊfyɔ́ɔmɪ, vafyɔ́ɔmɪ* 'Gorowa man, people'
kɪfyɔ́ɔmɪ, ʊfyɔ́ɔmɪ 'Gorowa language, country'

c. *mʊlaaŋgi, valaaŋgi* 'Rangi man, people'
kɪlaaŋgi, iraaŋgi 'Rangi language, country'

3.6. Non-productive processes. The nominal derivational processes which are described in the following two sections are no longer productive in Rangi.

3.6.1. Verb-to-noun derivation. As in many East African Bantu languages, the most common non-productive verb-to-noun derivational process makes use of the suffix *-ɔ* which may have carried a meaning of 'instrumental'. It is found throughout all noun classes except classes 1/2. Note that some words include the applicative suffix *-ɪr-*, especially body parts in classes 5/6 (44i and l, the latter plus causative *-y-*) and instruments (44h, k, o, r, v), whereas other words denoting instruments are formed directly from the underlying verb (44a, b, q). A possible explanation could be that the former words necessarily include the notion of movement which the latter lack.

(44) **classes 3/4**

a.	*mʊkwáatɔ*	'tongs'	(cf. *-kwáata* 'seize')
b.	*mʊtíɪkɔ*	'ladle'	(cf. *-tíɪka* 'put up on another')
c.	*mʊkɔ́ɔdʑɔ*	'urine'	(cf. *-kɔ́ɔdʑa* 'urinate')
d.	*mʊrɪmɔ*	'work'	(cf. *-ríma* 'farm')
e.	*mʊfʊlɔ*	'river'	(cf. *-fʊ́la* 'move')
f.	*mʊgíritɔ*	'slope'	(cf. *-gírita* 'descend')

class 4

g.	*mɪrwyáalɔ*	'clothes'	(cf. *-rwyáala* 'wear')

[14] An explanation of this irregularity could be found in possible influence from Bantu F languages further to the West in which the respective countries' self-referents are Irimi, Iramba and Isanzu.

classes 5/6

h.	*ifyaahɪrɔ*	'broom'	(cf. *-fyááhɪra* 'sweep')
i.	*itɕwáámɪrɔ*	'knee'	(cf. *-tɕwáama* 'kneel')
j.	*ikááŋgʊlɔ*	'scraping tool'	(cf. *-kááŋgʊla* 'scrape clean')
k.	*ikúlúsɪrɔ*	'whetstone'	(cf. *-kúlʊsa* 'scrape')
l.	*ilwaatɪryɔ*	'foot'	(cf. *-lwáata* 'tread on')
m.	*ipɔ́tɕɔ*	'broken eye'	(cf. *-pɔ́tɕɔla* 'pierce')
n.	*irɪhɔ*	'payment'	(cf. *-ríha* 'pay')
o.	*iɕiírɔ*	'grinding stone'	(cf. *–ɕa* 'grind')

class 6

p.	*malɔ́lɔ́sɔ*	'quarrel'	(cf. *-lɔ́lɔ́sa* 'quarrel')

classes 7/8

q.	*kɪkálaaŋgɔ*	'frying pan'	(cf. *-kálaaŋga* 'roast, fry')
r.	*kɪlááŋgɪrɔ*	'mirror'	(cf. *-láaŋga* 'watch')
s.	*kɪrɪrɔ*	'mourning wail'	(cf. *-ríra* 'cry')

classes 9/10

t.	*fɪrɪrɔ*	'other side'	(cf. *-fírɪra* 'jump')
u.	*mpɛrɔ*	'end'	(cf. *-hérya* 'finish')
v.	*ŋkulʊŋgírɔ*	'pottery tool'	(cf. *-lúŋgɪra* 'make even')

classes 11/10

w.	*lʊsɛkɔ*	'laughter'	(cf. *-séka* 'laugh')
x.	*lʊsímɔ*	'tale, story'	(cf. *-síma* 'tell a story')
y.	*lʊhíɪndɔ*	'barrier'	(cf. *-híɪnda* 'put across')

class 14

z.	*ʊfúmɔ*	'rising (of sun), origin'	(cf. *-fúma* 'come out')

The remainder of verb-to-noun derivation hardly shows any pattern. Identifiable suffixes might be *-ɪ* with class 1, as in (45a-c), *-wa* as in (45d-h), which originates from passive verb forms, and *-ya* as in (45i-j) from causative verb forms.

(45)	a.	*mʊlwíɪrɪ*	'sick person (cl.1)'	(cf. *-lwáala* 'fall ill')
	b.	*mʊvyíɪrɪ*	'parent (cl.1)'	(cf. *-vyáala* 'beget, give birth')
	c.	*mʊsúŋgaatɪ*	'rich person (cl.1)'	(cf. *sʊ̱ŋgaata* 'become rich')
	d.	*mʊrɛrwá*	'dependent (cl.1)'	(cf. *-rɛ́ra* 'raise (child)')
	e.	*mʊtúmwa*	'slave (cl.1)'	(cf. *-túma* 'send')
	f.	*kɪyʊʊlwa*	'evening meal (cl.7)'	(cf. *-yúʊla* 'open')

g.	*ndííwá*	'food (cl.9)'	(cf. *-ryá* 'eat')
h.	*lʊʊmbwa*	'earthenware (cl.11)'	(cf. *-úmba* 'make pottery')
i.	*raávya*	'caterpillar species (cl.5)'	(cf. *-áva* 'itch')
j.	*kɪlwíírya*	'darkness (cl.7)'	(cf. *-íra* 'become dark')
k.	*itambaala*	'snail (cl.5)'	(cf. *-támbaala* 'spread, crawl')
l.	*ŋkwya*	'death (cl.9)'	(cf. *–kwya* 'die')
m.	*bwɪɪtú*	'game (cl.9)'	(cf. *-bwíɪta* 'play')
n.	*ŋkalaru*	'anger (cl.9)'	(cf. *-kálala* 'become angry')

3.6.2. Noun-to-noun derivation. There are three kinds of non-regular relationships between items of noun classes, one between plants and their fruits, another relating human beings with nouns of other classes, and a third one involving pairs of nouns without a regular pattern of relation. The plant-fruit relationship exhibits three categories, the first with the plant in class 3 and its fruit in class 5, as shown in (46a), the second with the plant in class 3 and its fruit in class 9, as in (46b), and the third with the plant in class 11 and its fruit in class 5, as in (46c).

(46)	a.	*mʊtúnénɛ́*	*itúnénɛ́*	'Caesalpiniaceae tree species'
		mʊvíru	*ivíru*	'Vangeria tree species'
		mʊmbandʑírú	*ibandʑírú*	'tree species'
		mʊpɛɛ́ra	*ipɛɛ́ra*	'guava'
		mwiíwi	*riíwi*	'baobab'
	b.	*mʊdíisi*	*ndíisi*	'banana'
		mʊpúru	*mpúru*	'Macrolobium coeruleum tree species'
		mʊsaambú	*saambú*	'fig-tree species'
		mʊsʊʊlú	*sʊʊlú*	'castor plant'
		mʊtʊʊlá	*ntʊʊlá*	'egg-plant'
		mʊtɛ́ɛndɛ	*ntɛ́ɛndɛ*	'date-palm'
	c	*lʊdʑóvya*	*idʑóvya*	'tree species'
		lʊrɪmírwa	*irɪmírwa*	'pumpkin species'
		lʊtaambu	*itaambu*	'gherkin species'
		lʊtaaŋgá	*itaaŋgá*	'pumpkin species'
		lwaándzwa	*raándʑwa*	'bean species'
		lʊúŋgʊ	*rʊúŋgʊ*	'pumpkin species'

Some nouns of class 1 can be linked to members of other noun classes. However, it is not possible to establish with certainty which direction a derivational process took, if these are indeed cases of derivation.

(47) a. *mʊkaáya* 'neighbour' (cf. cl.9 *kaáya* 'homestead')[15]
b. *mʊmaka* 'guy' (cf. cl.9 *maka* 'animal')
c. *mʊndʊ́ʊ́* 'relative' (cf. cl.9 *ndʊ́ʊ́* 'relative in general')
d. *mʊʊntʊ* 'person' (cf. cl.7 *kɪɪntʊ* 'thing')

For the noun pairs shown in (48), no rule of relationship can be established. The items in (48d-f) might be due to lexicalized augmentatives, though.

(48) a. cl.3 *mɔɔŋgɔ* 'back' versus cl.7 *kɪɔɔŋgɔ* 'mountain ridge'
b. cl.7 *kɪdɛdu* 'chin' versus cl.9 *ndɛdu* 'beard'
c. cl.9 *ndʑʊkɪ* 'bee' versus cl.14 *ʊʊkɪ* 'honey'
d. cl.5 *itímá* 'liver' versus cl.3 *mʊtímá* 'heart'
e. cl.5 *ivaru* 'body side' versus cl.11 *lʊvaru* 'rib'
f. cl.5 *itɔ́ɔ́mbɔ́* 'breast' versus cl.11 *lutɔ́ɔ́mbɔ́* 'udder'

4. Conclusion

In addition to filling a descriptive gap in Bantu linguistics, it is hoped that this paper also has given indications of the place of Rangi within the bigger picture. First, it was shown that, contrary to reports in previous publications, Rangi nouns are tonally fully distinctive. Second, Rangi was classified as exhibiting canonical, i.e. asymmetric Vowel Height Harmony as defined by Hyman [1999], and as having a seven [i ɪ ɛ a ɔ ʊ u] vowel system with regular [+ATR] dominance as predicted by Casali [1998]. Third, Rangi's derivational processes have been described in detail. Most of the derivational processes reported by M&S92 for Nyamwezi could be found in Rangi. The most common processes include the wide range of verbal extensions from the productive Passive, Causative and Applicative to a number of cognate non-productive suffixes, as well as agentive *-i* suffix, diminutives and augmentatives formed with prefixes of noun classes 12 and 5 respectively, and widespread vestiges of an instrumental *-ɔ* suffix. Of course, all of these phenomena are indicative of many Eastern Bantu languages and, indeed, can be traced to Proto-Bantu [Guthrie 1967-71IV:215-218]. The description as such may serve as a first step in solving the puzzle of Rangi's genetic affiliation, viz. that it is "not obviously unambiguously related to any other East African group" [Nurse 1999:11]. Providing more insights by way of a detailed comparison with other related, though not immediately neighbouring

15 *Kaáya* is probably the original word as cognates of it are found in many Bantu languages, but not of the form *mʊkaáya*.

languages to the West (Bantu F), to the North (Bantu E) and to the South-East (Bantu G), will have to be left to further studies.

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S.I.L.
P. O. Box 21
Kondoa, Tanzania
Oliver_Stegen@sil.org

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FROM PREPOSITION TO PLURAL MARKER AND MORE: GRAMMATICALIZATION OF KUCHE *bānà*

Janet Wilson
University of Texas

While most Benue-Congo languages of West Africa retain only vestiges of a noun class system, Kuche, a language of Central Nigeria, has an extensive system similar in many ways to Bantu systems. One unusual feature of the system is the form *bān(à)*, used to pluralize, for example, kin terms such as 'mother' and 'father'. Although it has been analyzed elsewhere as a noun class prefix, detailed analysis demonstrates that it is not a class prefix but rather a grammaticalized compound consisting of the class 2 pronoun *bā* plus the preposition *nà* 'with'. Not only has this grammaticalized form come to be used as a pluralizer, it also functions as a type of comitative marker. The author shows that *nà* has also combined with agreement prefixes *a-* and *ba-* (classes 1 and 2), and has grammaticalized with multiple functions: associative marker, directional marker, focus and topic marker.

1. Introduction

Kuche is spoken by about 50,000 people in at least 17 villages northwest of Jos, Plateau State, in Northern Nigeria [Crozier and Blench 1992: 28]. The people call themselves Bache and their territory Kiche; however, the Hausa people call them Rukuba ("people of the rocks"), and that is the name by which their language is widely known. Recent editions of the *Ethnologue* [Grimes 1992] dispense with the noun class prefix and list it simply as "Che" (an alternate spelling, "Ce," can be found in literature produced by Blench [2001], for instance).

Kuche is a Plateau language of the Benue-Congo branch of Niger-Congo. Like the Bantu languages, it features an extensive noun class system pairing singular and plural inflectional classes. This study presents evidence that a handful of plural nouns, previously analyzed as prefix plus noun stem [Bouquiaux 1967; Wilson 1996, 1997], are, in fact, syntactic plurals. That is, what has been analyzed heretofore as a class prefix is a prepositional element, and what was analyzed as the noun root is actually the singular noun form, comprising a class prefix and root. The plurals of these particular nouns are marked, not morphologically, but syntac-

tically. They closely resemble Bantu class 2a nouns both semantically and phonetically.

The similarities in the noun systems of Kuche and Bantu languages have been recognized at least since Bouquiaux [1967]. Hoffmann [1976] and Gerhardt [1983] also present extensive descriptions of Kuche's noun system, though they do not number their noun classes to match the conventions of Bantu descriptions. In an earlier analysis of Kuche nouns [Wilson 1997:4], I followed Bouquiaux's paradigm. (See Table A in the Appendix, which compares noun classes in Kuche with noun classes in Bantu).

2. Vowels, vowel harmony, and syllable structure in Kuche

Two phonological aspects of Kuche—vowel harmony and the structure of word stems—require comment before consideration in detail of plural nouns. As in many African languages, vowels in affixes agree, or harmonize, with vowels in the stem to which they attach. The harmony feature is possibly Advanced Tongue Root [±ATR], but until a definitive phonetic analysis is completed, I label them tense (rather than [+ATR]) and lax (rather than [–ATR]). Part of the problem is that the semi-vowels also participate in the harmony process, possibly by blocking or interfering with the spreading of the harmony feature. There is only one labio-velar semi-vowel, which is transcribed here as [w], but it is phonetically more velar and less voiced than IPA [w]; it is the tense correlate, for the lax [w] seems to be non-existent. There are two palatal semi-vowels: the tense one is transcribed [ʏ], the lax one [y]; the lax [y] corresponds to IPA [j] and the tense one is similar to it but less voiced and more strident. The vowels of the harmony groups are displayed in Table 1.

Table 1. Tense and lax vowels in Kuche

Tense		Lax	
i	u	ɪ	ʊ
		ɛ	ɔ
ɐ		a	

The tense and lax vowels are contrastive in lexical items but alternate in affixes, depending on the tenseness of the stem vowel. The mid-vowels [ɛ] and [ɔ]—which have no tense correlates—do not occur in any affixes.

Although most Kuche stems and words are consonant-initial, many words begin with a vowel, typically a prefixal element on a noun, adjective, or verb, which itself constitutes a syllable. However, most syllables are CV. Closed CVC syllables do occur: word-internally with a nasal coda, and word-finally with a wide range of consonants (where they are usually elided except when also phrase-final).

3. Noun Classes

Although linguists such as Bouquiaux [1967] and Wilson [1996, 1997] have proposed a class 2a for Kuche, similar to that found in many Bantu languages, evidence from extensive language data suggests that the apparent noun class prefix is really part of a prepositional phrase. This change in analysis, based on data collected during the summer of 2001, eliminates classes 1a and 2a, the former merged with class 1. This new analysis is reflected in Table 2 (cf. Kuche classes with Bantu in the Table A in the Appendix). Class 6, although superficially similar to the grammaticalized plural *bān-*, is a true class prefix.

Table 2. Kuche Noun Classes

Class	N/Agr Pfx	Typical Semantic Content	Example	English Gloss
1	ū/à/ā	human	*ūnīt*	'person'
2	bā	plural of 1	*bānīt*	'people'
3	ū	long and thin items	*ūkɔ̄t*	'throat/voice'
4	ì(N)	pl of 3 & a few cl 12 nouns	*ìŋkɔ̄t*	'throats/voices'
5	kī	compact shape	*kīg͡bàāt*	'hillock'
6	bà(N)	liquids;	*bàɲyīī*	'urine'
		pl of a few cl 12 nouns	*bàntʃū*	'places'
7	à	artifacts; misc.	*àk͡pàtàk*	'shoe'
8	ā	pl of 5, 7, 15	*āk͡pàtàk*	'shoes'
9	ì	animals; misc.; verb infinitive	*ìwúl*	'goat'
10	ī	pl of 9	*īwúl*	'goats'
12	kā	misc.; time expressions	*kātʃū*	'place'
13	kù	pl of a few class 3 nouns	*kùŋgī*	'arrows'
15	kū	bowl-shaped; abstractions	*kūntʃāk*	'spoon'

The noun class prefix harmonizes with the vowel of the noun root for tenseness; however, the lax vowels are far more common than the tense ones, so column 2 shows the lax prefixes only.

The prefix for common nouns of class 1 is *ū-;* the prefix for men's personal names, as well as borrowed titles (*àdīrēktɔ̀* 'director', *àmīsēs* 'Mrs.') is low-tone *à-*; the prefix for women's personal names is mid-tone *ā-*. Most noun concord

elements are segmentally identical to the noun prefixes; tones vary depending on the tense/aspect of the verb. There are a few irregular nouns whose semantics and agreement pattern suggest one class, but whose noun prefix suggests another. Consequently, I classify nouns according to their semantic category and agreement pattern so that the irregularity is only in the form of the noun prefix. Consider the examples in (1) and (2), in which the noun has a prefix *ì-*, but whose semantics and agreement pattern suggest a noun of either class 2 or class 6, respectively.[1]

(1) ***ī-ŋ͡mín-ì*** ***bāà-blɔ̀.***
2-child-DEF 2-go
'The children went.'

(2) *ú-tū ū-hí* ***ì-mà*** ***bā-nìŋī*** ***bɛ̀-ʃìt-ì,*** *à-ŋɔ́* *gārā.*
2S-if 2S-find 6-water 6-that 6-black-DEF then-2S.IND pass.
'If you find the black water, pass by.'

Agreement with class 1 nouns varies. Adjectives (and cardinal numbers) that modify class 1 nouns take the nominal prefix *ʊ-*, while verbs and demonstrative, interrogative, and possessive qualifiers take the "pronominal" concord prefix *a-* [see Hoffmann 1976: 36-37]. Thus, contrasts such as the one depicted in (3) are noted: every word in the sentence has a class 1 prefix, but that prefix is *ʊ-* for the noun and adjective and *a-* for the demonstrative and the verb.

(3) ***ū-tù*** ***ā-wâī*** ***à-ʃī*** ***ū-hás.***
1-chief 1-this 1-be 1-new
'This chief is a new one.'

Forms of all the independent pronouns and relative pronouns are not as easily predicted from the noun prefix, but there is still a fairly consistent pattern. First and second person pronouns and concord elements, as well as those for third person human, are discussed in section 4 below.

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[1] Abbreviations used in glossing the transcriptions are as follows:
Numbers refer to noun classes, as in table 2, either noun prefixes or concord prefixes.
Names of people are indicated as NAME and names of places are indicated as PLACE.

ASSOC	associative	IND	independ. pronoun	1S/1P	1st pers. singular/plural
COMP	complementizer	P or PL	plural	2S/2P	2nd pers. singular/plural
DEF	definite suffix	PFV	perfective aspect	3HS	3rd pers. human singular
DO	direct object	PREP	preposition	3HP	3rd pers. human plural
FOC	focus	PROG	present participle	3IO	3rd pers. human sing. dative
HAB	habitual	S	singular	3DO	3rd pers. human sing. direct object
INF	infinitive prefix	TOP	topic		

3. The ostensible Class 2a

In Kuche some nouns referring to humans form their plurals differently than other class 1 nouns. Earlier descriptions of Kuche (see Wilson [1996: 16] and Bouquiaux [1967: 147]) analyzed these nouns as belonging in classes labeled 1a/2a, citing examples such as those for 'mother' and 'father' in (a) and (b) of Table 3, where the singular form was considered unanalyzable, while the plural form was analyzed as having a prefix *bān-* attached to the singular noun stem. This prefix differs from the class 6 prefix in that it is always mid-tone (the class 6 noun prefix is low) and in that the /n/ is not optional—it always appears in these plural nouns, but it only appears in a few nouns of class 6.

Table 3. "Irregular" nouns of ostensible classes 1a/2a

a.	*ɪʏɛ̄*	'mother'	*bānīʏɛ̄*	'mothers'
b.	*ātī*	'father'	*bānātī*	'fathers'
c.	*àtī-yàāŋ*	'husband'	*bānātī-yàāŋ*	'husbands'
d.	*àtī-àgɔ̄*	'grandfather'	*bānātī-àgɔ̄*	'grandfathers'
e.	*ɪʏɛ̄-āgɔ̄*	'grandmother'	*bānīʏɛ̄-āgɔ̄*	'grandmothers'

Note that the word for 'wife' is not included among the nouns in Table 3. There is not a unique word for 'wife'; rather, the same word refers to both 'woman' and 'wife' (*ūwā* singular, *ɪmbā* plural). Apart from these kinship terms, no other common nouns are known to form their plurals by prefixing *bān-* to the entire singular form. However, personal names may form plurals, as shown in (4).

(4) a. *ū-dɛ́ à-rūkū* a man's name
bān' ū-dɛ́ à-rūkū 'Ude Aruku and people like him'

b. *ūʏɔ́* name of a personified rabbit
bānūʏɔ́ 'Uyho and his wife' [interpretation from context of story]

Even though this "plural prefix" was limited to such a narrow range of nouns, this analysis had much to recommend it. First of all, it seemed reasonable to consider the *bān-* plurals to be a subclass of class 2 because the form is very like the class 2 prefix *bā-*, even commanding class 2 concord prefixes on verbs and modifiers (see example 9). Consider also that the forms are parallel to Bantu class 1a/2a nouns (see Table A comparing Bantu and Kuche class prefixes and semantic content in the appendix). Furthermore, the semantics of the nouns to which this process most frequently applies overlaps a great deal with Bantu nouns that are typically classified as 1a/2a; Doke [1927:197] lists common class 1a/2a nouns as kinship terms, personal names, words borrowed from European languages, and personified animals.

However, as a larger corpus of language data has become available, four shortcomings in this analysis have become evident. First, the terms for 'father' and 'mother' given in Table 3 above refer strictly to the parents of the speaker. In order to refer to some other mother and father, the speaker must specify 'your mother/father' or 'his/her/their mother/father'; a difference in the initial vowel contributes to the differentiation between the 1st, 2nd, and 3rd person terms. That is, the singular form has a prefix, one that alternates on the basis of meaning.

Second, native speakers do not consider *bān* a prefix at all, but a separate word, which they often write with a final vowel (*bānà* or *bānù* or *bānì*). In normal speech, the final vowel assimilates to the vowel of the next syllable if the following word begins with a consonant, or it is elided if the following word begins with a vowel (the more frequent situation). Its similarity to a noun prefix is apparent to analysts of the language, but not necessarily to native speakers of the language.

Third, although *bān'* occurs with great frequency before personal names, before 'mother' and 'father', and before compound nouns built on 'mother' and father', there is actually no restriction on the nouns that may occur after *ban'*. Furthermore, when *bān'* collocates with other nouns, the new form may have more than just plural meaning. In such cases, it functions more like part of a prepositional phrase.

Fourth, there is a corresponding singular prepositional construction that forms a pair with the *bān'* construction. More specifically, some functions of *bān'* (or, in its non-elided form, *bānà/bānù/bānì*) correspond to a singular construction employing a morphologically analogous word *ānà/ānù/ānì*. The plural *bānà/bānù/bānì* is used as one pluralizing strategy, in a topicalizing construction, as a comitative construction, in an existential construction, and as a possessive construction. The singular *ānà/ānù/ānì* is used only as a possessive construction. Of course, it is to be expected that the singular form would have no function that corresponds to a pluralizing strategy, but the lack of corresponding singular comitative, topicalizing, and existential constructions suggests that there may be two homophonous forms: one (*bānà/bānù/bānì*) that forms a pair with *ānà/ānù/ānì* and another (also *bānà/bānù/bānì*) that has a unique morphological analysis.

These four observations suggest that the construction under consideration is not a case of morphological affixation; that is, there are no nouns constituting classes 1a/2a. Rather, its collocation with certain nouns of class 1, where its salient semantic feature is plurality, has resulted in "frozen" plural forms. In other cases, the evidence suggests that *bān'*, though distinct from ordinary, morphologically simple prespositions in Kuche, still functions like a syntactic construction and may have several different grammatical functions, of which pluralization is only one.

4. Mother/father paradigms

During early research on Kuche, I assumed the pluralizing strategy to be the primary use of *bān'*, probably because of its similarity to the Bantu noun class 2a prefix. Besides that, in response to word form elicitation, informants gave the forms in (a) and (b) of Table 3 above for 'mother/mothers' and 'father/ fathers'.

However, those plural forms only mean 'mothers' and 'fathers' in a roundabout way: a more literal rendering would be 'people like our father and including our father'.[2] The phrase seems to be similar in meaning and usage to the Hausa construction *su audu* 'Audu & his associates'; in English it might be parallel to *guys like Billy* or *Billy and them*. The English pronoun *them* and the third person pronoun *su* in the Hausa phrase have no anaphoric reference: the speaker has no intention of being specific, but he shares enough experience with the listener that he can leave him to imagine who *them* might refer to. Meeussen (1975:4) appears to have been the first to note this kind of construction, which he labeled "totalization", as relatively common in African languages.

This kind of plural construction is also used, as noted above, with personal names, illustrated in context in (5). When she translated the sentence in (5), my informant emphasized to me, "It is not just Ude Aruku, it is him and people like him. Not him alone."

(5) *kū-nī-tā-wɔ̄* ***bānū*** *ū-dé* *à-rūkū*
1P-PFV-HAB-hear **PL** 1-NAME 1-NAME
'We used to hear of ones (people) like Ude Aruku.'

The semantics of such a plural differs from the more typical concept of plural; that is *bān'ūdé* does not mean 'more than one Ude', as if the man had been cloned, or even as if the term referred to more than one man named Ude. It means one man, Ude, plus a group of people associated with him in some way. Meeussen [1975:4] remarks that African languages are unique among the world's languages in the way they reflect a preference for "a predominantly group approach."

The semantics of "pluralizing" a personal name have been extended to "pluralization" of 'mother' and 'father', as illustrated by the example in (6). Although an individual has only one biological father, the plural form of 'father' suggests that, in Kuche culture, other male kin are perceived as "like father"; hence, the plural form might be more literally understood as "father and people with like characteristics".

(6) *ɔ̀ɔ̀, tùtì ì-wɔ̄ŋ-ì* *nā* *tūt* *kū-nà-wɔ̄ŋ* *nà* ***bān'*** *ā-tì.*
yes, like INF-hear-DEF that 1P.IND 1P-PFV-hear of **PL** 1-father
'Yes, we heard it like that from our fathers.'

Since the forms for 'mother/mothers' are far more complex than the forms for 'father/fathers', they will be considered first. Table 4 (next page) provides a list of the forms for 'mother/mothers'.

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[2] For a morpheme-by-morpheme analysis, see section 6.

Table 4. Paradigm for 'mother'

'my mother'	1.	*ɪʏɛ̄*			
'(our) mother'	2.	*ɪʏɛ̄ (āmɔ́t)*	'(our) mothers'	7.	*bānì ɪʏɛ̄ (bāmɔ́t-ì)*
'your mother'	3.	*ūvīrìk-ì*			
'(your [pl]) mother'	4.	*ūvìrì (āmín-ī)*	'your [pl] mothers'	8.	*bānù ūvìrìk-ì*
'his/her mother'	5.	*āʏímɛ̄ŋ-ì*			
'(their) mother'	6.	*āʏímɛ̄ (āmá-ī)*	'their mothers'	9.	*bānà āʏímɛ̀ŋ-ì*

The *-ì/-ì* suffix in forms 3, 5, 8, and 9 of Table 4 is a definite marker, usually translated 'the', as in *kūhū/kūhūì* 'mat/the mat'. It attaches only to the default interpretation of each form and is optional, except for form #1, where it never occurs. "Default" in this case means singular mother for singular possessor and plural mother for plural possessor—that is, the default meaning of 3rd person singular 'mother' is 'his mother', and the default meaning of 3rd person plural 'mothers' is 'their mothers'. The personal pronouns in parentheses (forms 2, 4, 6, and 7) may be dispensed with if the meaning is clear from context or if ambiguity can be tolerated.

The final /k/ in forms 3 and 8 and the final /ŋ/ in forms 5 and 9 are not pronounced word-finally—they only appear here in forms that include the definite suffix.

There is no semantic or grammatical difference between *bānì, bānà* and *bānò*; it is a phonological alternation. The example in (7) shows how the speaker hesitates when he comes upon a man's name that starts with /ū/ instead of the far more common /à/.

(7) *ò-tá-wɔ̄* ***bānā . . .bānū*** *ū-dɛ́* *kì* *ī-bā* *ì-ŋkūŋʸ-ì*
2S-HAB-hear **2.with** **2.with** 1-NAME PREP 10-matter 9-war-DEF
'You always hear of people like. . .people like Ude in the matters of war.'

The transcription in (7), which follows the informal transcription written by a native speaker, is morphologically accurate, but does not represent spoken speech accurately. A more precise phonetic transcription would eliminate the word-final vowel of *bānā* and *bānū* because it is elided when the next word is vowel-initial.[3] When the vowel is elided, its low tone may also be lost (note that not all phonological processes involving tone have been fully analyzed as yet). The tones in the paradigm are marked as the morphology requires, but tone marking in the examples is faithful to the data, even if it cannot be explained.

The singular terms in Table 4 select class 1 concord elements, the plural terms class 2, as shown in (8) and (9).

(8) ***ūvīrìk-ì*** ***à-ʃī*** *kì-ɲɛ̄* *kī-kɔ̀* *kī-mū-ì*
your.mother-DEF 1-be PROG-come 5-house 5-my-DEF
'Is your mother coming to my house?'

(9) ***bān'*** *īʏɛ̄* ***bā****-mɔ́t-ī* ***bā****-ʃī bā-vánā.*
PL mother 2-our-DEF 2-be 2-sister
'Our mothers are sisters.'

[3] The final vowel is not always elided, though, because this construction has application in contexts where it precedes words that are consonant-initial. In those contexts, the vowel of *bānì/bānà/bānò* still assimilates to the vowel of the next syllable, but it does not elide.

One feature of Table 4 is not as easy to explain: Why there are three different initial vowels in the paradigm for 'mother'. Of all the kinship terms in my data, only the terms for 'mother' and 'father' have these distinct initial vowels based on the grammatical person of the "possessor". I interpret these initial vowels as prefixes, that is, *ī-*, *ū-*, *ā-*. Since no other noun stems in the language are vowel-initial, it is reasonable to assume that the stems for 'mother' are consonant-initial: *ʏɛ̄* 'my mother', *vìrìk* 'your mother', *ʏímɛ̄ŋ* 'his/her mother'. Thus, the "possessive" aspect of the relationship in these words appears to be signaled both by the alternation in prefix and the alternation in stem form. Alternation of the prefix is not typical of genitive constructions in Kuche, as shown by the possessive forms for 'wife' in (10) and 'hat' in (11). In this case, a possessive pronoun following the noun requires agreement with the noun.

(10) a. *ūwā ɛ̄-mù* 'my wife'
b. *ūwā ā-mì* 'your wife'
c. *ūwā ā-mā* 'his wife'

(11) a. *kīŋg͡bɔk kī-mù* 'my hat'
b. *kīŋg͡bɔk kī-mì* 'your hat'
c. *kīŋg͡bɔk kī-mā* 'his hat'

The three vowel prefixes noted for 'mother' are, inexplicably, nearly identical to the singular verb agreement prefixes for marking person. First, second, and third person singular agreement prefixes are, respectively, *iN-*, *u-*, and (for humans) *a-*, as illustrated in examples (12) and (13). Although the first person prefix for 'my mother' lacks the nasal consonant, the set of prefixes is otherwise identical to the verb agreement prefixes. While it is not clear why words for parents (and not others) would be marked in a similar manner as verbs, the patterns are comparable.

(12) *wà* **ā-**tī **ɪn-**sɔ́k kū-hú-ī **ɪm-**bī-wàsàŋ-á.
3HS.Ind **3HS**-say **1S**-take 15-mat-DEF **1S**-should-wash-3IO
'She told me to take the mat and wash it for her.'

(13) *kūí, kúū-wɔ̄ bā-tà* **ù-**ʃī *kì-ɲyɛ̄* *ì-bín-ɪ̄ɪ́-ŋā. . .*
well, 1PL-hear 3HP-say **2S**-be PROG-come INF-greet-1SDO-even
'Well, we heard that you were coming to greet *me*. . .'

The term for 'father' (Table 5) alternates between an *ā-* prefix and an *ū-* prefix, still echoing the verb agreement prefixes. Only first person 'my father' is not like a first person verb, having, instead, the same prefix as the third person 'his/her father'. The singular forms, like those for 'mother', can be analyzed as prefix plus root. However, unlike the case of 'mother', the noun stem is the same throughout the paradigm.

Table 5. Paradigm of terms for 'father'

a.	(my) father	*āfī (ēmù)*			
b.	(our) father	*āfī (āmɔ́t)*	g.	(our) fathers	*bānà āfī (bāmɔ́t-ì)*
c.	(your) father	*ūfī (āmí)*			
d.	(your [pl]) father	*ūfī (āmín-ī)*	h.	(your [pl]) fathers	*bānù ūfī (bāmín-ì)*
e.	(his/her) father	*āfī (àmā-ī)*			
f.	(their) father	*āfī (āmá-ī)*	i.	(their) fathers	*bānà āfī (bāmá-ī)*

Since the Kuche noun system tolerates irregularity in noun prefixes (as discussed in section 2 above), there is no reason to classify the singular terms for 'mother' and 'father' (and compounds based on them) as anything other than class 1 nouns. It remains to be demonstrated that *bānì/bānà/bānù* is a separate word; native speaker intuition notwithstanding, the arguments thus far only show that the plural morpheme precedes a singular prefix rather than preceding an unanalyzable singular noun.

One reason to consider the plural morpheme a separate word in this instance is a semantic one: *plural* is not a concept that easily attaches to unique entities like personal names. Besides personal names, only 'father' and 'mother' and compounds incorporating them rely on *bānì/bānà/bānù* as a pluralizing strategy.[4] This suggests that the Bache people consider 'mother' and 'father' to be unique entities but that there are others in kinship relations who are like them. Hence, for example, to refer to more than one male relative of father's or preceding generation, the Bache say *bān' āfī* 'father and people like him'.

There is evidence from the texts that speakers keep the concept of plurality separate from the concept of 'father', as one might expect if the concepts are embodied in separate words. Consider the brief exchange between a Storyteller and Listener in (14).

(14) Storyteller: *bā-nì-hīlɛ̀ mīnìŋì kà* ***bānā*** ***ā-fī***
3HP-PFV-return like.that PREP 2.PREP 1-father

ū-nī ā-nìŋʸī nī ín-tɛ̄tí
1-person 1-that that 1S-tell

'It happened like that to people **like** our father,
the person I'm talking about.'

[4] Other kinship terms form their plurals more regularly, though the noun stem varies depending on the grammatical person of the "owner" (see table B in the Appendix).

Listener: *ā-fī* *ū-tá*
1-father 1-who
'Which father?'

Storyteller: *ā-fī* *ū-dɛ́ŋʸ-ì*
1-father 1-NAME-DEF
'Father Ude'

Notice that the Listener does not say "Which person?" in response to the Storyteller's last comment "the person (singular) that I'm talking about." Nor does she say "Which fathers?" as if *bānā ātī*—the group of people all associated with 'father'—were an integral unit (i.e., a plural word). She focuses on the singular 'father' *ātī*, more consistent with extracting a word from a phrase than with extracting a morpheme from a word.

Furthermore, there is evidence that *bānā* has functions other than pluralizing a few class 1 nouns. For instance, it may occur before nouns that are not class 1—indeed, before nouns that are not even singular, as in (15) and (16). It is clearly not a pluralizing strategy here because class 8 is already a plural class: *ā-ntʃílí* 'roads'; the singular is class 15 *kū-tʃílí* 'road'.

(15) *à-bā-ʏɪ* ***bānā*** *ā-ntʃílíŋʸ-ì*
then-3HP-know BANA 8-road-DEF
'So that they would know about the roads.'

(16) ***bānā*** *ā-ntʃílí bā-nì-ʃì* *bà-tàāt*
BANA 8-road 2-PFV-be 2-three
'There were three routes.' [Lit. concerning roads, they were three]

These examples indicate not only that *bān'* is a separate word, but also that it has functions beyond just marking plurality; many of those functions suggest that it is prepositional. Though constructions like (15) and (16)—where *bānà* functions like a preposition—are not as common as constructions like (4)-(9)—where *bānà* functions like a plural morpheme—they are not rare.

Unlike most Kuche prepositions, though, *bānà* is not morphologically simple; it can be analyzed as *bā* + *nà*. *nà* (and its phonologically conditioned variants *nù* and *nì*) is identified as the preposition 'with'. The source of the form *bā* is unclear: it is doubtless some form of class 2 marker, but it could be analyzed either as the class 2 independent pronoun *bā* or a class 2 concord prefix *bā-*. I propose an analysis incorporating both sources: the class 2 prefix in the one construction where there is a corresponding singular prefix, the pronoun in the constructions where there is no singular counterpart. As a preposition with some type of associative function, translated loosely as "of", it forms a pair with the singular word *ā-nà* (and phonologically conditioned variants *ānù* and *ānì*). In comitative, existential, and pluralizing constructions, it is analyzed as the class 2 (i.e., human plural) indepen-

dent pronoun bound to the preposition *nà*. Section 6 gives examples of *bā* + *nà* as a compound word while section 7 gives examples of *ā-nà/bā-nà* as a singular/plural preposition.

6. *bān'* as a compound word: pronoun + preposition

The data presented so far have shown that *bān'* has some nominal-like characteristics. For instance, its form suggests a prefix resembling class 2 concord elements and it commands class 2 concord on verbs and modifiers (see (9)). However, *bān'* also has many characteristics of a preposition. For example, the phonological interaction with the following word—the vowel assimilation or elision, a process that seems to be similar to English contraction, such as that in *isn't*—is typical of Kuche prepositions.

Table 6 provides a comparative list of *nà/nù/nì* and the other two morphologically simple prepositions of Kuche, *bà/bù/bì* 'to, at, from' and *kà/kù/kì* 'in, at'. The meanings of all three of these prepositions are broader than indicated by the glosses, but these are common meanings illustrated in the example sentences. Note that the vowel of *bà/bù/bì* completely elides under the influence of the vowel of the following noun prefix, while the vowel of *kà/kù/kì* is preserved, perhaps because of the difference in tone between it and the initial vowel of following noun. When the following noun begins with a consonant, as with *nà/nù/nì*, the vowel is preserved.

Table 6. Kuche Prepositions

bì/bù/bà	'to, at, from'	*ū-zànà* ***b***-*ì-láí* *í-sá á-ní-dū-ú* 1-his.friend **from**-9-Beromland it-be 3HS-PFV-tell-3HS 'It was his friend from Berom territory who told him?'
kì/kù/kà	'in, at'	*à-bā-nà-tī* ***kù*** *ū-mbà ànà ū-dɛ́* then-3HP-PFV-do **in** 3-time of 1-NAME 'and they did it (the war) during the time of Ude'
nì/nù/nà	'with'	*ā-tá-nā* *íŋ-ɲyɛ́* ***nì*** *kī-zànà* *ín-sā-ɲyɛ́* 3HS-say-that 1S-come **with** 5-friendship 1S-NEG-come ***nù*** *kù-lūī* **with** 15-anger 'he says, "I have come with friendship not with anger"'

The form *bā-nā* is composed of two parts: *bā-*, identical to the class 2 (plural human) independent pronoun and, as noted previously, commanding class 2 (human plural) concord prefixes on verbs and modifiers, and *-nà*, identical to *nà/nù/nì* 'with'. Hence, a morpheme-by-morpheme gloss of *bā-nà* would be

'those-with'. Semantically, it has lost the association with "humanness" in cases like (15) and (16) above; instead, it indicates only plurality.

Because of its broad range of meaning, *nì/nù/nà* cannot always be idiomatically translated into English as 'with'. The sentences in (17)-(19) illustrate some of its uses. Its range of use includes several functions that Heine et. al. [1993] predict for the evolution of a comitative marker: temporal marker [51] as in example (17); manner marker [50] as in example (18); and verbal possession marker [52] as in example (19).

(17) *tút-ī* *bā-yī* *nā* *kú-nā-tí* ***nà*** *g͡bēŋg͡bēŋ-ì. . .*
1PLInd-DEF 2-REL that 1PL-PFV-do with long.ago
'We who did it long ago. . .'

(18) *ā-tá* *nā* *íŋ-ɲyé* ***nì*** *kī-zànà ìn-sā-ɲyè* ***nù*** *kù.lūī.*
3HS-say that 1S-come with 5-friend 1S-NEG-come with 15-anger
'He said, "I have come in friendship,[5] not in anger."'

(19) *īn-ʃī* ***nà*** *ā-tākārādā ā-tāát.*
1S-be with 8-book 8-three
'I have three books.'

Some uses are not as easy to classify, such as that in (20), which can be considered a type of instrumental use (cf. Heine et al. 1993: 49).

(20) *à-mí* *ín-tʃó* ***nù*** *kù-tʃèɛ̄. . .* *ànī* *īn-hīlì* *īn-yā-dɪ̀rì*
then-1S.IND 1S-write with 15-Kuche. . .and.then 1S-return 1S-also turn

nù *kù-nāsārāŋʸ-ì,* ***nù*** *kù-k͡pīsèk.*
with 15-English, with 15-Hausa.

'I will write in [using] Kuche. . .and then I will translate [it] into [using] English and Hausa.'

Whatever its history may be, the simple preposition *nà* does not currently have a comitative function in Kuche expressing a relationship involving HUMAN 'with' HUMAN. For that, speakers use either the preposition *bì/bù/bà* or the complex preposition *bānà*, as in (21) and (22).

(21) *ū-vīn* *ū-tʃāāp ā-tá-làtì* ***bē*** *è-ʏímèŋ-ì.*
1-child 1-little 3HS-HAB-sleep LOC 1-her.mother-DEF
'The baby sleeps **with** her mother.'

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[5] Class 5 prefix *kī-* marks many abstracts. For instance *ūzànà* is 'friend', *bāzànà* is 'friends', and *kīzànà* is 'friendship'.

(22) *kū-lílí kū-sɔ̀, tút-ì bā-yīī nā kū-nì-tì ì-tɔ́ɔ̄ kē-dìsì*
1P-get.up 1P-sit, 1P.IND 2-which that 1P-ASP-do INF-work 12-teach

à-mákárántáŋ-ì ***bā-nā*** *wú-ì nā ā-tī ì-tɔ́ɔ̄ ì-dīrīŋ̀,*
7-school-DEF PL-with 3HS.IND-DEF that 3HS-do INF-work INF-turn,

à-kū-zīrī kū-sɔ̀ kū-pātāk ā-tù...
then-1P-go.down 1P-sit 1P-put.together 8-head

'We will sit down, we who are teachers **with** her who translates, and we will put our heads together...'

The comitative function is not the only function that *bā-nā* has. Another is its use as a kind of topic marker, a function identified by Heine et al. [1993] as evolving from comitative markers. In Kuche, it may indicate "on the subject of N" or "concerning N", as illustrated previously in (15)-(16), repeated here in (23)-(24). It may occur as a complement of certain mental activity verbs, such as 'know' in (23), or it may occur in sentence-initial position (24), where it controls verb and modifier agreement. This is a highly marked construction, since Kuche's rigid word order seldom allows the fronting of any element.

(23) *à-bā-yɪ* ***bānā*** *ā-ntʃílíŋʸ-ì*
then-3HP-know PL-TOP 8-road-DEF
'So that they would know about the roads.'

(24) ***bānā*** *ā-ntʃílí bā-nì-ʃì bà-tàāt*
PL-TOP 8-road 2-PFV-be 2-three
'There were three routes.' [Lit. concerning roads, they were three]

Although at first it appears that the speaker in (23) and (24) selects the plural preposition because the object is plural, the discussion in section 5 suggests that this is not the case. It should be noted that, in all the examples up to this point (see (4) through (9) especially), the plural preposition is used even when the object is singular—or, I should say, especially when the object is singular. In most of the examples in sections 4 and 5, *bān'* is used as a pluralizing strategy; that is, the plurality of the pronoun in the compound word has the direct result of making a plural noun out of its singular object. In fact, *bā-nà* can be followed by either singular or plural nouns. The plural *bā-* of the compound *bā-nà* does not agree with its object; it is a pronoun whose reference is vague.

A related discourse function seems to be that of focus marker, as illustrated in (25), in which 'sister' and 'brother' are emphasized in comparison to 'father' and 'mother'. Note that the words for 'sister' and 'brother' are already plural in form (see Table B in Appendix), hence, use of *bānà* does not have the pluralizing function that it has for 'father' and 'mother'.

(25) *ā-hīk bā-nī bā-māá nā bē-nì-kūsù ŋē bā-n' ā-fī*
3HS-find 2-person 2-3S.POSS that 3HS-PFV-die even PL-with 1-father

bā-n' à-ʏīmà ŋī ***bā-nà*** *bā-vānàŋ-ì* ***bā-nà***
PL-with 1-mother even PL-FOC 2-his/her.sister-DEF PL-FOC

bà-zīyāŋ-ì bā-ʃɛ̄.
2-his/her.brother-DEF 3HPL-be.there

'She found her own people who had died, even her fathers and mothers, (and) even her sisters and brothers, there were.'

In sum, *bānà* can be analyzed as a compound word derived from pronominal *bā* plus preposition *na* 'with'. This origin is still transparent in its comitative function '[those] together with', as in (22). From this, it appears to have acquired discourse functions, grammaticalizing either as a kind of topic marker or as a kind of focus marker. In none of these cases does it appear to have a singular counterpart.

7. *bānà* as agreement marker + preposition

There is another Kuche word whose form is indistinguishable from the compound *bā-nà* discussed in section 6: it is the preposition *nà* marked for number agreement. Even though it is semantically similar and formally identical to the compound *bā-nà*, it is distinct in two respects: it always follows an overt, plural noun phrase and it has a corresponding singular form.

Although the concept of singular/plural prepositions is unusual, it should be noted that agreement in Kuche is ubiquitous. As the examples in (26)-(27) attest, *nà* takes a plural or singular agreement marking according to the number of the antecedent noun. In (26), for example, *nà* agrees with the noun *bà-nī* 'people',[6] while in (27) it agrees with *à-yɔ̄* 'group'. In this form, it has acquired a general "associative" function, no longer being limited to the sense of 'with'.

(26) *à-ā-wūtā kʷ-ɔ̀k kà* ***bà-nī*** ***bā-nà*** *è-zèlìì. . .*
then-3HS-extend 15-arm PREP **2**-person **PL**-ASSOC 7-east
'Then he pointed towards the people of the East.'

(27) *tɔ̀,* ***à-yɔ̄*** ***ā-nà*** *à-dɔ̀s kàgɔ̀ á-gárá*
well, **7**-group **S**-ASSOC 1-NAME NAME 7-pass
'Well, Ados Kago's group passed.'

---

[6] The citation form of 'person' is *ō-nīt* and of 'people' *bā-nīt*; not *bà-nī* as in (26). The elision of a word final consonant is common in Kuche. The tone of the first syllable appears to be influenced by the preceding low tone of *kà*.

Although the agreement prefixes in (26) and (27) appear to be copies of the class 2 and class 7 noun class prefixes, respectively, in fact they are not; the example in (28) illustrates agreement in which the singular class 3 noun *ū-mbà* takes the same agreement marker as the class 7 noun. There are, in fact, only two agreement prefixes for this construction found in the data, agreeing only in number with the noun. The plural prefix is modeled on the class 2 concord prefix (which just happens to be identical to the class 2 independent pronoun) and the singular prefix is modeled on the class 1 concord prefix (which is phonetically identical to the class 7 concord prefix).

(28) *à-bā-nà-fī kù ū-mbà **à**-nà ū-dɛ́*
then-3HPL-PFV-do in **3**-time **S**-ASSOC 1-NAME
'and they did it [the war] during the time of Ude'

In addition to its associative function, this AGR+*nà* construction also has a directional function similar to what Heine et al. refer to as an allative function. In this case, the direction may be either from, as in (29), or to, as in (30), the location indicated. Note, again, the agreement in number, plural in (29), singular in (30).

(29) *bá-ʃī **bā-nā** ā-sāk-ì*
3HPL-be **PL-DIR** PLACE-DEF
'they were from Assak.'

(30) *ī-tì ì-yī bā-ʃī kì-ɲɛ̄ bā-ʃī kì-yū kū-tʃílí **ā-nà***
it-if it-mean 3HP-be PROG-come 3HP-be PROG-follow 15-road **S-DIR**

kà-kɛ́k, à-ā-tɔ̀
12-PLACE, then-3HS-see

'If it so happened that they were coming following the Kakkek road, then he would see.'

8. Conclusion

What initially appeared in Kuche to be a simple morphological plural prefix for the kin terms like 'mother' and 'father' and for personal names has been shown to have derived from a syntactic construction, a compound word composed of *ba* (class 2 pronoun) + *nà* 'with' followed by a singlular noun. Although plurality is, perhaps, the most salient feature of this form, it also has a complementary sense of group, Meeussen's "totalization"; it functions as well as a comitative marker, a focus marker, and a topic marker.

In addition to this compound form, there is a formally identical inflected form derived from an agreement prefix marking number, *bā* - or *ā*-, plural and singular,

respectively, + *nà*. This construction, too, has grammaticalized in various ways, as an associative marker and as a directional marker.

The distinction between the compound and inflected forms clarifies a confusing asymmetry: the singular form, i.e., *ānà*, always agrees with an antecedent noun phrase, plurals rarely do. Those plurals that require agreement are the inflected counterparts of the singular form; those that do not have derived from the compound form.

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2728 S. Hillsboro Ave.
Springfield, MO 65804
jaw300t@smsu.edu

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APPENDIX

The information in table A is adapted from Guthrie [1971: 144], Welmers [1973: 165-167], Denny & Creider [1986: 219], Maho [1999: 61], and (for Kuche) Wilson [1997].

It may be observed that some "cognates" are less than ideally matched forms, most notably the forms for classes 5, 7, and 8. Comparison of Kuche forms to established Bantu classes is based as much on the semantic content of noun classes as form. Until future researchers refine the historical reconstruction of this portion of the language family, I will leave these forms as they are represented here. I have made a couple of changes to this analysis since Wilson 1997. Most importantly, the prefix *kò-* was left unnumbered in that paper because it was not clear which Bantu class it was analogous to—now it is numbered 13.

Table A. A Comparison of Kuche and Bantu Noun Prefixes

Kuche	Class	Proto-Bantu	Nkutšu	LoNkundo	Semantic Description
ó-/à-/ā-	1	mù-	ʊ-	bɔ-	humans
Ø	1a	Ø		Ø	kinship terms
bā-	2	βà-	wa-	ba-	plural of 1
bān-	2a	βà-/βɔ̀-		baa-	plural of 1a
ō-	3	mù-	u-	bo-	trees/plants; extended (& mass)
ì(N)-	4	mì-	(w)i-	be-	plural of 3
kī	5	ĩì-	di-	li-	misc., paired items
bà(N)-	6	mà-	wa-~ma-	ba-	plural of 5; liquids
à-	7	kì-	ɛ-~ì-	e	misc. artifacts
ā-	8	βị̀-	di-	bi-	plural of 7
ì-	9	nì-	n-	N-	animals (& misc)
ī-	10	ĩì-nì	n-	N-	plural of 9 & 11
	11	lù-	lu-	lo-	long, thin objects
kā-	12	kà-			diminutives
kò-	13	tù-	tu-	to-	plural of 12
	14	βù-			abstract
kō-	15	kù-		o-	infinitives

Table B. Singular/Plural of Three Human Relationship Terms

Person & number of "possessor"	Brother	Sister	Friend
1. my	*ūzùùt*	*ūvándūt*	*ūzí*
our		*ūvándūt (āmɔ́t-ì)*	
2. your	*ūzìĩn-ì or ūzìn*	*ūvánīŋʸ-ì*	*ūzìnī*
your[pl]		*ūvánì (àmín-ì)*	
3. her/his	*ūzìyà (àmā-ì)*	*ūvánāŋʸ-ì*	*ūzânâ*
their		*ūvánà (āmá-ī)*	
1. my	*bāzùūt-ì*	*bāvándùt*	
our	*bāzùūt-ì or bāzùùt bāmɔ́t-ì*	*bāvándùt (bāmɔ́t-ì)*	
2. your	*bāzìĩn-ì*	*bāvánìŋʸ-ì*	
your [pl]	*bāzìĩn-ì or bāzìn bāmín-ì*	*bāvánī (bāmín-ī)*	
3. his/her	*bāzìyáŋ-ì*	*bāvánàŋʸ-ì*	
their	*bāzìyā (bāmá-ī)*	*bāvánà (bāmá-ī)*	*bāzànà*

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From the edge:

Aspects of the phonetics of Cambap

Bruce Connell

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ASPECTS OF THE PHONETICS OF CAMBAP*

Bruce Connell
York University

Increasingly, the need to document endangered languages before they cease to be spoken and disappear is being recognized. Corresponding acknowledgement of the importance of detailed descriptions of the phonetics of such languages, however, is lagging behind. This study examines the phonetics of Cambap, a Bantoid language spoken in the Nigeria-Cameroon borderland by approximately 30 people. The focus is on describing how its phonological contrasts are realized, and as such this study represents only a stage in a more complete description of Cambap phonetics, their relation to the phonology of Cambap and to more general aspects of the language and culture of the Camba.

1. Introduction

The growing endangerment and disappearance of languages throughout the world has become a matter of concern not only to the speakers of these languages and linguists, but also to the many people who recognize the importance of linguistic and cultural diversity. Efforts to revitalize endangered languages, or at least to provide adequate documentation of them before they disappear, are increasing. Even among such efforts, however, too frequently insufficient importance is placed on the phonetics of the language in question, the result being that only a partial understanding can ever be attained, not only of the phonology of the language, but of the language as a whole, and its place as an integral part of the culture of its speakers. The aim of the present study is to describe details of the phonetic

* I am grateful to the Cambap community for their interest and enthusiasm in participating in the research of which this paper forms a partial report, and for their kind hospitality. Pastor Ndi Samuel deserves special mention in this respect. Thanks are also due to Joan and Martin Weber for their hospitality, to Wawa Jérémie, Bekimi Jean, and Huom Nuar for their assistance, and to Robert Botne and an anonymous SAL reviewer for their comments and suggestions. Research in Cameroon was conducted under the auspices of the Ministry of Scientific and Technical Research and with the financial support of Economic and Social Research Council (UK) grant R000237450 'Language Death in the Nigeria-Cameroon Borderland'.

characteristics of Cambap, following the practice established by some of those scholars who have explicitly recognized the importance of documenting the phonetic structures of endangered languages (e.g., Shryock, Ladefoged & Williamson [1996/97]; Sands, Maddieson & Ladefoged [1993]; Maddieson, Smith & Bessell [2001]). Work presented here is by no means meant to be an exhaustive description of the phonetics of Cambap, but does aim to provide some insight first, into how its phonological contrasts are realized, and second how Cambap conforms to or deviates from expectations based on observations of other languages found in the literature. For some aspects of speech production, e.g., VOT of fricatives, very little information is available in the literature and data is reported here simply to address such lacunae. It is hoped, then, that the description presented here will allow this language to contribute to the set of facts on which crosslinguistic generalizations are based.

1.1. Background. The Camba inhabit the Bankim sub-division of Adamawa Province in Cameroon (approximately 6° 28' N, 11° 27' E), near the Nigerian frontier. They and their language first found mention in the literature [Risnes & Starr 1989, Blench 1993] under the name by which they are known to their neighbours, Twendi or Toenba. They refer to themselves as Camba and call their language Cambap. The Camba are no longer a cohesive and homogeneous group, their small population being dispersed among six villages: Sanga, Camba, Ndem Ndem, Mbondjanga, Nyamboya, and Yimbéré. All of these are now Kwanja villages, though the first two are formerly Camba. Kwanja is spoken by approximately 10,000 people. There are fewer than 300 Camba, and Cambap is spoken by only a small percentage of these—30 or so people, the youngest of whom was about 45 years old at the time the data contributing to this report was collected. For those who do speak it, it is generally used on a daily basis as they normally speak it among themselves when together, though it is no longer anyone's primary language. Living among the Kwanja, the Camba have come to see themselves as ethnically Kwanja; many, however, recognize their language as being closer to Mambila, and particularly the varieties of Mambila spoken somewhat to the north and northeast of their present location, such as Langa, but also Kabri and other lects on the Mambila Plateau in Nigeria (see Connell [2000]). The Camba recognize no particular relationship to the Chamba people (Daka or Leeko) who inhabit the region further north, and of whom the Leeko are believed to have invaded the present Mambila/Kwanja area some two centuries ago, reaching as far south as the Grassfields region [Fardon 1988]. It is unlikely, then, that the Camba are a remnant population of the invading Chamba, though at least one such group does exist further south. Regarding linguistic affiliation, Leeko belongs to the Adamawa family, while Cambap is a Bantoid language.

2. Methodology

Description and analysis presented here are based both on impressionistic phonetic work, listening to and observing speakers, and on acoustic analysis of recordings made in the field. Seven native speakers of Cambap ranging in age from mid-

forties to mid-eighties contributed to the data used in this study. Five were men and two were women; of the men, four are brothers, while the two women are mother and daughter. The brothers are of mixed Camba-Kwanja parentage; the parents of the other male speaker were both Camba. The older woman is also of mixed Camba-Kwanja parentage, but married a Camba, so both of the younger woman's parents are Camba.

Comparable material consisting mainly of wordlists was collected from the seven speakers; slightly less material is available from the older woman, while for three of the men considerably more material was collected, including recorded texts. The wordlist used was based on a much larger list collected earlier from one these, Pastor Nyagandji Ndi Samuel, who is considered by others to be the best speaker of the language, despite being one of its youngest speakers. As it happens, he took a greater interest in the language—and in language generally—and hence spoke it more frequently.

Recordings were done using a Sony TCD-D7 DAT recorder and an Audio-technica headset microphone. These were uploaded to a Macintosh G3 Powerbook at sampling rate of 22.05 kHz. Subsequent processing and analysis of the recordings were done using Macquirer software. Statistical analyses were done using SPSS v 10 for Macintosh. Further methodological details are given in the relevant sections below. The test items used for the various acoustic analyses, all natural words, are included in the appendix.

It should be pointed out that there is a considerable amount of variation, especially at the phonetic level, both within and across speakers of Cambap, and the description that follows must be understood in that light. This variation is discussed in detail elsewhere [Connell 2002a], with a view to establishing, first, whether or to what extent it is attributable to influence from Kwanja and/or Mambila, and second, whether it is a characteristic process of language contrac-tion (e.g., Dressler [1988] among others). Consequently, I do not concentrate directly on the variation here, but bring it into the discussion only as necessary. Conclusions presented in Connell [2002a] are that most of the observed variation is not due to interference from neighbouring languages, nor can it convincingly be considered a process specifically associated with language endanger-ment; rather, it is argued to be a characteristic of small and relatively isolated language communities, within which the pressure for standardization, maintenance, or even development, of strict sociolinguistic norms may be negligible.

3. Syllable Structures

The segmental structure of the syllable in Cambap is uncomplicated. CV and CVC forms predominate, though CV:C and CVV are also found. Of these last two possibilities, V occurs only as an affix, i.e., some CVV structures are interpretable as CV-V, while others are best seen as CV:, or CVG or CGV sequences. With respect to word structure, more than 62% of all nouns (free morphemes) are disyllabic (CVCV and CVCVC). Approximately 35% are monosyllabic, with the remaining few being longer, polysyllabic, words.

Table 1. The Cambap phonetic consonant inventory.
(Entries in parentheses represent free variants or minimally occurring phones.)

	bilabial		*labio-dental*		*alveolar*		*post-alveolar*		*velar*		*labialized velar*		*labial-velar*		*glottal*
plosive	p	b			t	d			k	g	k^w	g^w	k͡p	g͡b	
nasal		m				n		ɲ		ŋ					
prenasal	(mp)	mb		mv	(nt)	nd		ndʒ	(ŋk)	ŋg		$ŋg^w$		ŋ͡mg͡b	
fricative			f	(v)	s		(ʃ)								h
lateral						(ɮ)									
affricate							tʃ	dʒ							
approx						(r)		j						w	
lateral						l									

4. Consonants

4.1. Inventory and contrasts. The phonemic inventory of Cambap varies somewhat across speakers, as indicated earlier. The consonant chart in Table 1 contains all contrastive consonants; those not found for all speakers, as well as major allophonic variants, are included in parentheses. Some occur only rarely, viz: /p, v, mv, ŋg^{w}, k͡p, g͡b, ŋ͡mg͡b/.

Table 2: Examples of consonant contrasts

p	*pàːrì*	'hut'	f	*fàɾā̂*	'to untie'
b	*bàrì*	'wound (n.)'	v	*vərān*	'sky'
m	*màr*	'clay'	mv	*mvuúnēn*	'brain'
mb	*mbâr*	'witch'			
t	*tárā̂*	'to shoot'	s	*sárā̂*	'to sew'
d	*dáɾè*	'near'	l	*làn*	'intestine'
n	*nárā̂*	'to cook'			
nd	*ndăr*	'argument'			
tʃ	*tʃàɾé*	'basket (type)'	j	*járā̂*	'to eat'
dʒ	*dʒàɾé*	'work (n.)'			
ɲ	*ɲārâ*	'to defecate'			
ndʒ	*ndʒàɾà*	'claw, nail'			
k	*kárā*	'man's hunting bag'			
g	*gàɾā̂*	'to divide, share'			
ŋg	*ŋgár*	'shin'			
k^{w}	*k^{w}āɾāp*	'fish scales'			
g^{w}	*g^{w}ànɯ́*	'news'			
ŋ^{w}	*ŋ^{w}árā̂*	'to drink'			
ŋg^{w}	*ŋg^{w}árā̂*	'to hear, perceive'			
k͡p	*k͡păkpâ*	'grey parrot'	w	*wàrā̂*	'to return'
g͡b	*g͡bá*	'calabash'			
ŋ͡mg͡b	*ŋ͡mg͡bárīâ*	'to push'			
h	*hārēn*	'town'			

Ladefoged and Maddieson (1996) indicate that, with respect to place of articulation, there are ten target regions among which languages choose in forming phonological contrasts. Cambap utilizes six of these—labial, dental, alveolar, postalveolar, velar and glottal—together with combinations of four classes of active articulator (labial, coronal, dorsal, laryngeal) in creating contrasts at the eight places of articulation shown in Table 1. From available surveys [for example, Maddieson 1984], it would appear that this strategy is more commonly employed among languages of the world than the alternative of utilizing a greater number of target regions, and thereby potentially creating contrasts between, for example, postalveolar and palatal, which would be perceptually more difficult to maintain. Examples of consonant contrasts in Cambap are given in Table 2.

4.2. Distribution of consonants. In Cambap the greatest number of consonant contrasts is found in initial position, a fact which also accords with what is generally found in languages of the world [Ohala & Kawasaki 1984]. All con-sonants are found initially, as shown in Table 2, though /p, v, mv, k͡p, g͡b, ŋ͡mg͡b/ are all relatively rare.

In medial position, consonant distribution is restricted; generally only /b, t, d, m, n, ŋ, mb, nd, ŋg/ are found, with /d/ being realized as [ɾ]. Occurrences of medial /b, t/ are rare and most, though apparently not all, may ultimately result from historical processes of reduplication or affixation. Other consonants appear in compounds, reduplications, and borrowings (e.g., /d/ = [d], /s, l/). Examples of consonants in medial position are given in Table 3.

Table 3. Examples of consonants occurring in medial position

b	*bàbā*	'elder sister'
m	*kàmà*	'chest'
mb	*kámbá*	'crab'
t	*tàtā*	'father'
d	*káɾā*	'men's bag'
n	*ŋgànà*	'kola'
nd	*fàndā*	'skin'
ŋg	*bāŋgā*	'agama lizard'

In final position, the distribution is still more restricted, with only the nasals /m, n, ŋ/, the voiceless plosives /p, t/ and /d/ permitted. Of these, /p/ occurs primarily as a plural marker; /t/ is very rare and it may be that all occurrences of it in final position are in borrowed words, or ideophones; /d/ is typically realized as a voiced apical trill, [r], though it may be voiceless, or a fricative, [ɹ̝], the variation being

personal and sporadic (Connell 2002a). Final /k/ has been noted, but only in borrowings. Examples of consonants occurring in final position are found in Table 4.

Two notes may be added with regard to the above distributions. First [ŋʷ] and [ŋ] are in complementary distribution, with the former only occurring initially and the latter only finally. They may therefore be said to comprise one phoneme, /ŋ/. Second, although the occurrence of [ɾ] and [r] medially and finally are analyzed here as realizations of /d/, the evidence for this is ambiguous and they could equally be said to represent /l/ or a neutralization of these two phonemes.

Table 4: Examples of consonants occurring in final position.

p	*táp*	'war'
t	*pát*	'all'
d	*táár*	'three'
m	*tàm*	'hat'
n	*tán*	'stone'
ŋ	*tàŋ*	'hippopotamus'

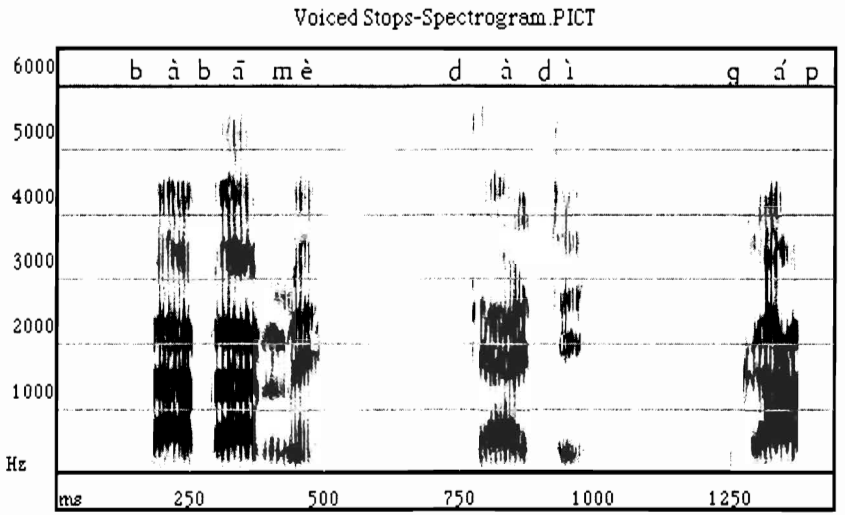
Cambap has a vowel inventory of /i, e, a, ɯ, u, o, ɔ/ (see section 5). While most consonants combine freely with following vowels, certain of them are restricted in their distribution. Those noted above as being rare, viz, /p, v, mv, k͡p, g͡b, ŋ͡mg͡b/, are most affected in this regard, occurring only before /a, ɯ/, while initial /ŋgʷ/ is only slightly less uncommon and occurs only followed by /a/. This may be partially a result of their rarity, but it is unlikely to be accidental that these consonants all involve a labial element and do not occur followed by rounded vowels. To these can be added /kʷ, gʷ/, both of which occur relatively frequently, but similarly are not found followed by rounded vowels. Restrictions of this nature have been noted elsewhere; cf. Kelly [1974] on the restricted occurrence of labial-velars in Fang and Mutaka & Ebobissé [1996/97] on labial-velars in the Sawabantu group, where in both cases labial-velars are found only preceding front (i.e. unrounded) vowels. Ohala & Kawasaki [1984] give a general statement on this constraint against the co-occurrence of labial consonants and rounded vowels. Given this, it is worth noting that /b, m, mb/ all apparently combine freely with rounded vowels in Cambap.

4.3. Plosives. Plosives are found at five places of articulation, labial, alveolar, velar, labialized velar, and labial-velar. A voicing contrast exists at each of these (see Table 2 for examples). The nature of this contrast in Cambap is interesting, first for its symmetry, as there is a tendency to an asymmetry in voicing tied to place of articulation, whereby labials show a greater propensity to voicing (Maddieson 1984). This is usually attributed to the fact that the larger oral cavity present in the production of labials will permit a longer period before the transglottal pressure

differential, required to maintain voicing, is neutralized. Maddieson's discussion, however, focuses on phonological contrast, rather than the actual phonetics of voicing contrasts. In Cambap, voiced plosives may be said to be fully voiced, whereas in many languages phonologically 'voiced' plosives are phonetically voiceless, In the following sections, the voicing characteristics of Cambap plosives are examined with respect to the presence or absence of closure voicing and voice onset time.

4.3.1. Voicing characteristics of plosives. The voiced plosives are typically fully voiced during closure, whether occurring initially or between vowels. Spectrograms in Figure 1 of *bàbā mè* 'my elder sister', *dàdì* 'vein, tendon', and *gáp* 'peelings', illustrate this for labials, alveolars and velars, respectively. Although these stops are characterized as being fully voiced, voicing frequently appears to cease, or at least weaken, slightly before or just at release, prior to the commencement of the vowel, for all voiced stops except /g͡b/. This break in voicing typically lasts for approximately 20 ms. The fact that it appears to be tied to or timed with the release, rather than with the onset of closure, suggests it results from an active gesture abducting the vocal folds and is not a passive result of aerodynamic factors. The voiced stops in Figures 1 and 2 illustrate this curtailment of voicing, most noticeably in /g^{w}/, which may be compared with /g͡b/.

Figure 1. Spectrograms of voiced consonants /b, d/ in both initial and medial positions and /g/ in initial position. (Speaker 5)



Voiceless plosives are unaspirated. For most speakers only a slight VOT delay occurs, though some variation has been observed, especially with /p/. Two speakers varied between a realization of /p/ as unaspirated or with noticeable aspiration.

To examine voice onset time, voicing in voiced plosives was measured from the onset of consonant closure to consonant release. In those cases where voicing clearly ceased before release, as described above, this was taken as the end point of the measurement. That is, the measurement given for voiced plosives is essentially a measurement of closure voicing. For the voiceless plosives, measurements represent the period from the consonant release to the onset of voicing. At least two repetitions of two words containing each of the plosives in initial position and followed by a low vowel were recorded by each of the seven speakers. A small number of tokens were discarded, leaving an average of 26 tokens of each consonant. Examples of /g^{w}/ were not available from all speakers; the measurement for /g^{w}/ provided here is based on tokens of word initial /g^{w}/ from six different words from a single speaker (/g^{w}/ was therefore not included in the subsequent analysis of variance). Mean values of VOT for the five different places of articulation are shown in Table 5. Comparison between voiced and voiceless at each place of articulation shows clearly the difference between the two series of consonants, with a mean difference across places of articulation of 125.2 ms.

These reflect the expected hierarchy as reported in the literature on voicing for comparable languages (i.e., languages with a two-way contrast involving one series of stops which features closure voicing; e.g., Lisker & Abramson [1964]): velars are the shortest, labials longest, and alveolars are closer to labials than velars. An analysis of variance followed by post hoc tests (Tukey's), however, showed only /g͡b/ to be significantly different ($p < 0.000$ for all three comparisons).

Voice onset times for voiceless unaspirated /p, t, k, k^{w}, k͡p/ also reflect universal trends in that the labial and alveolar values are relatively similar, with the velars being longer than these two [Lisker & Abramson 1964, Cho & Ladefoged 1999]. The labial-velars are discussed in detail below. The high standard deviation observed for /p/ reflects variation across speakers, as noted. The differences in means between labials and alveolars on one hand, and velars and labialized velars on the other were significant (for /p/ vs /k/, $p = 0.02$; for all other comparisons, $p < 0.000$. The labial-velar is significantly different from each of the other four stops ($p < 0.000$ for all four comparisons).

In summary, the values given in Table 5 correspond generally to those found elsewhere for comparable stops in other languages, both in absolute terms and with respect to relations between places of articulation.

4.3.2 Labial-velars. Given the relative paucity of phonetic data available on labial-velars, it is worthwhile examining these in greater detail, to assess how they differ from other stops. The preceding section has drawn attention to one aspect of this difference: labial-velars each differ from other stops of the same series, voiced or voiceless, in an obvious important respect. Unlike other voiced stops, /g͡b/ is fully voiced throughout, with no weakening or curtailment of voicing during closure. And, unlike other voiceless stops, /k͡p/ does not exhibit any delay in VOT; indeed, as seen for other West African languages with labial-velars [Ladefoged 1964,

Table 5. Voice onset times in ms for initial plosives by place of articulation, with standard deviations in parentheses.

	Bilabial	*Alveolar*	*Velar*	*Labialized-Velar*	*Labial-velar*	*Mean*
+Vce	– 110.7 (24.2)	– 101.9 (22.4)	– 97.4 (27.1)	– 85.4 (19.5)	– 146.5 (38.6)	– 108.4
–Vce	18.2 (18.9)	15.7 (4.8)	30.1 (11.5)	33.4 (10.8)	– 13.3 (9.1)	16.8

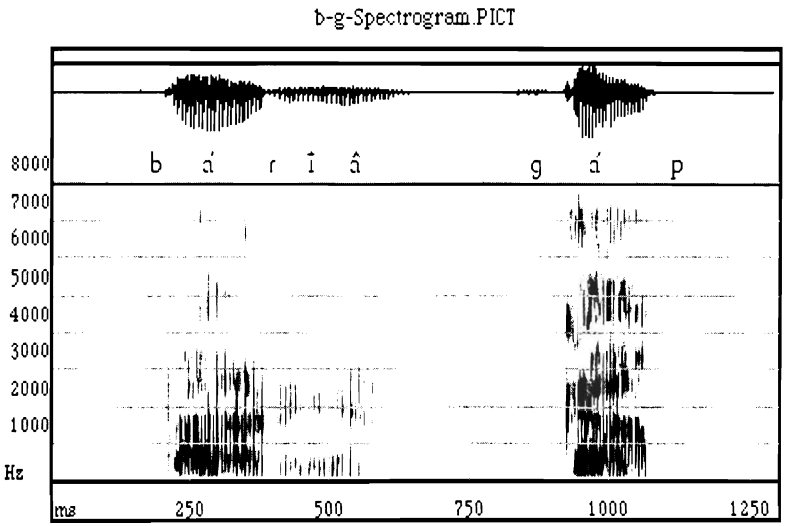
Connell 1994], there is a degree of pre-voicing associated with its release. The voice bar in these cases typically consists of two or three pitch periods only and ranges in duration from 0 to 32 ms.

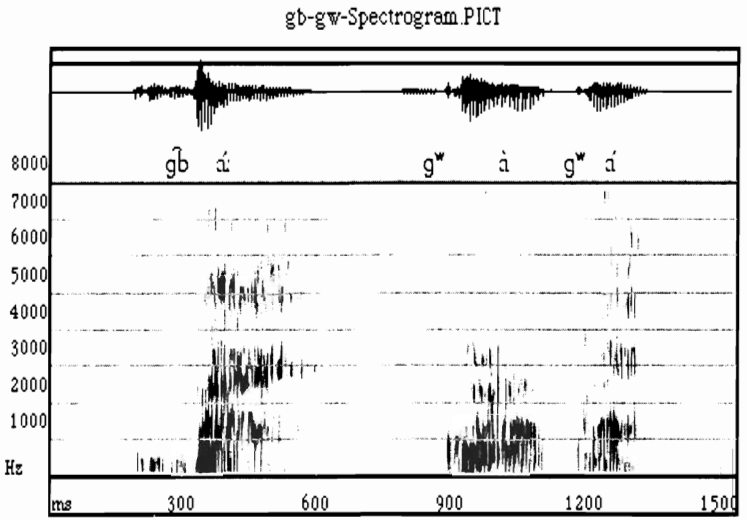
Similar to descriptions of labial-velars reported elsewhere, there is an asynchronicity in the timing of the release of the two closures such that the labial release is subsequent to that of the velar. This may be responsible for the voicing characteristics of the labial-velars, since an early lowering of the tongue associated with the velar release would have the effect of expanding the oral cavity allowing voicing to be maintained, in the case of [g͡b], or to begin, in the case of [k͡p].

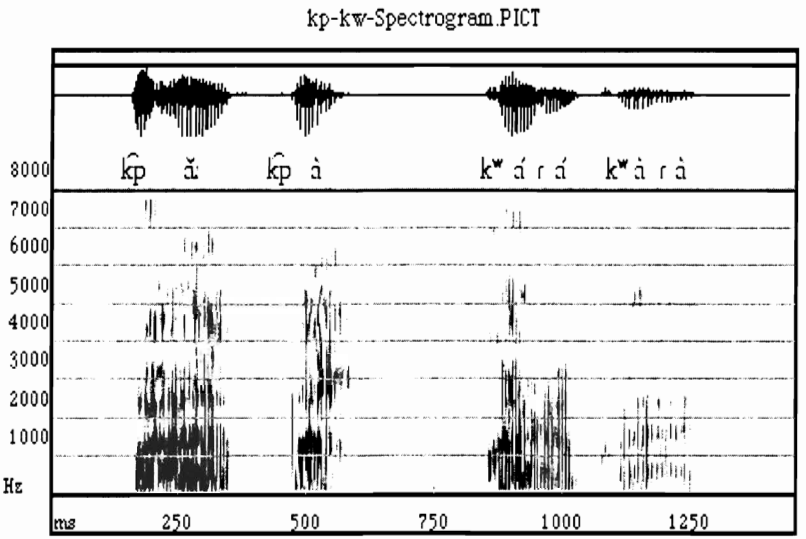
The asynchrony between the velar and labial elements is reflected in the formant transitions associated with the release of the consonant, which for labials are rising for the second formant while for velars F2 falls. Spectrograms of [b] and [g] in Figure 2 show this difference between labials and velars and may be compared to those of the labial-velars which differ from velars, and resemble labials, showing a rising transition for F2.

It is of interest to compare the labial-velars with the labialized velars to assess which of their characteristics may be salient to their contrastiveness. As mentioned, the spectrograms of /g͡b/ and /k͡p/ in Figure 2 show clearly the labial release transitions associated with labial-velars, though the transitions for /gʷ/ and /kʷ/ are less well defined. One may note a number of other features, in addition to this, which may also serve as distinguishing acoustic cues: first, the C-to-V transitions are considerably steeper for the labial-velars; second, the spike associated with the

Figure 2: Spectrograms of [b] and [g]; [g͡b] and [gʷ], top of next page; and [k͡p] and [kʷ], bottom. (Speaker 5)







release burst of the labial-velar is sharper than that of the labialized-velar; and finally, their voicing characteristics are different, as noted above.

4.4. Nasals and prenasalized consonants. Cambap has contrastive nasals occurring initially at four places of articulation, labial, alveolar, postalveolar, and velar. Two aspects of the nasals bear mention at this point; first, what is called here

postalveolar is, in terms of its actual place of articulation, best described as prepalatal; it is represented with [ɲ]. Second, in initial position the velar nasal is realized with accompanying labialization, [ŋʷ]. Prenasalized consonants (NCs) are found at seven places of articulation initially, /mb, mv, nd, ndʒ, ŋg, ŋgʷ, n͡mg͡b/, and at four places of articulation medially, /mb, nd, ndʒ, ŋg/. Of initial NCs, /mv/ and /n͡mg͡b/ occur only very rarely, and the labiodental not with all speakers. Approximately 90% of all initial NCs occur with nouns, suggesting that they may have developed from an earlier nasal noun class prefix that fused to the root as this system of noun classification degenerated. Medial NCs occur with about equal frequency in both nouns and verbs. One speaker consistently produced the initial prenasalized consonants (though not medial ones) devoiced, i.e. with the oral portion of the consonant voiceless, though the nasal remained fully voiced. For other speakers, voicing carried on throughout the oral portion of the consonant, but as with the voiced plosives, it often terminated at about release.

A number of interesting issues arise with respect to NCs in Cambap. First is whether there is any phonetic evidence for analyzing these consonants as unitary phonemes as opposed to sequences of nasal and oral consonants. This is of interest from both a general perspective, and one specific to Cambap. Generally, given that relatively little phonetic analysis has been conducted on NCs, it is important to discover whether any such evidence exists for Cambap. And, given the presumed origin of initial NCs in Cambap suggested above, it is of interest to compare these with medial NCs, whose origin, although uncertain, is clearly different. In both cases the overall duration of NCs and the relative durations of their component parts are potentially relevant. With respect to their phonological status, unit or cluster, one might expect clusters to demonstrate longer durations than single phonemes [cf. Herbert 1975, 1986]. This apart, if it is the case that Cambap initial NCs evolved in the manner described in the previous paragraph, they might be expected to have different duration characteristics than their medial counterparts.

4.4.1 Nasals. Duration measurements are given in Table 6 for nasals at the three anterior places of articulation Measurements are based on up to four tokens of /m, n/ from each of the seven speakers and two tokens of /ɲ/ from five speakers. Comparison with nasal portions of the prenasalized consonants is given below. It may be noted in passing that there are no significant differences across place of articulation, and the relation between labial and alveolar nasals is of the same order

Table 6. Duration measurements for initial /m, n, ɲ/ in ms.

	Mean	*SD*	*N*
m	118	31.7	24
n	107.58	21.8	26
ɲ	124.61	30.4	10
Mean	116.56		

as that seen in Table 5 for the voiced stops (other comparisons are not possible on the data available).

4.4.2 Initial NCs. Table 7 compares the durations of nasal and oral portions and the total duration of prenasalized consonants in initial position at four places of articulation, for four of the seven speakers. Of the other three, comparable material was not available for two and the third didn't produce the prenasalized consonants consistently; i.e., for her they were frequently simply plain oral consonants. The total number of tokens of each consonant is given in the table. These are based on up to five repetitions of at least two words for each consonant. The usual environment was a following low front vowel, e.g., *mbâr* 'witch'. Where this was not possible, or when productions of words with this vowel were substandard, another word was substituted. Measurements were made on the basis of spectrograms; the end of the oral portion of the consonant was marked at the moment of closure release, rather than at vowel onset.

Table 7. Mean durations in ms of nasal and oral portions of prenasalized consonants in initial position, with standard deviations in parentheses; 4 speakers, 3 M, 1 F.

	Nasal	*Oral*	*Total Duration*	*N*
mb-	96.85 (26.42)	39.01 (10.73)	135.86 (31.62)	37
nd-	93.83 (37.88)	33.17 (13.21)	127.02 (42.24)	35
ndʒ-	92.97 (23.96)	50.53 (13.34)	143.49 (32.95)	29
ŋg-	97.35 (24.15)	34.74 (9.95)	132.09 (26.84)	26
Mean	95.25	39.37	134.62	

Analysis of variance and post hoc tests (Tukey) showed no significant difference among durations for nasal portions as a group and oral portions as a group. The exception to this is the postalveolar /ndʒ/, where the oral portion was significantly longer than that of the other consonants ($p < 0.000$ for all comparisons). This is not unexpected, given the slower release associated with the affricate. These findings carried over when considering the relative length of nasal as compared to oral components, the mean of Nasal = 71% and Oral = 29% was matched fairly closely at three of the four places of articulation, the exception again being the postalveolar.

4.4.3 Medial NCs. In looking for duration differences between initial and medial NCs, the important comparison, given the expectation that medial consonants generally are shorter than initial ones, is not their overall durations, but rather the ratio of nasal to oral components. Table 8 compares medially occurring pre-

nasalized consonants. Again, analysis of variance and Tukey's post hoc tests revealed no significant differences among durations for nasal portions as a group and oral portions as a group. However, with respect to total duration, -mb- was significantly longer than -nd- (p = 0.045). In comparing medially occurring NCs with those in initial position, it will be seen that the medial are noticeably shorter in each case than initial. This fits with the general expectation that medial consonants are shorter than initial consonants of the same type, but interestingly the relative length of nasal to oral components as a portion of the overall duration of the consonant was identical to that found for initial NCs, with the nasal component 71% and the oral component 29% of the total duration when averaged across places of articulation. This suggests that if any reflection at all can be gained of the history of NCs in Cambap from their current structure, the indication is that once having lost their functionality as noun class markers, the nasal element fused to the following oral C, following a template that determines the relative durations of component gestures.

Table 8. Mean durations of prenasal, nasal and oral consonants in medial position; with standard deviations in parentheses.

	Nasal	*Oral*	*Total Duration*	*N*
-mb-	81.57 (22.56)	32.60 (12.57)	113.79 (28.82)	32
-nd-	65.33 (11.67)	26.87 (5.72)	92.2 (12.83)	33
-ŋg-	70.26 (16.30)	28.46 (7.81)	98.96 (18.04)	36
Mean	72.39	29.31	101.65	

4.4.4. Discussion. As mentioned, evidence of duration has previously been presented as evidence in favour of a cluster or unitary analysis of NCs (e.g., Herbert 1975, 1986). In Cambap, however, the evidence from duration would appear to be ambiguous in this regard: initial nasals (Table 6) have a mean duration of 116.6 ms and oral stops of approximately 108.4 ms (Table 5), while prenasalized Cs are somewhat longer, averaging 134.6 ms across place of articulation (Table 7). It could be argued that this is sufficiently short as to warrant considering them unitary, and it may be noted that this duration is less than that reported above for /g͡b/, which is uncontroversially unitary. Browman & Goldstein [1986], endorsed by Burton, Blumstein & Stevens [1992] and Ladefoged & Maddieson [1996], argue that duration is an inappropriate criterion since, in languages such as English, where independent evidence favours a sequential N+C analysis, durations of these sequences are often comparable to durations reported for languages where an NC analysis is preferable. As durations of NCs in Cambap do not approach those of combined simple nasal and oral stops, they could be argued to be consonants in sequence, having substantial overlap as Browman & Goldstein suggest. So this fact does not rule out the possibility that they are clusters. At present in Cambap, the most convincing evidence that these consonants are unitary is phonological and is found on two fronts; first, no other consonant sequences or clusters are permissible

in the language, in either initial or medial position. Second, and particularly with regard to initial position, if they were to be analyzed as sequences, the nasal would need to be considered either as syllabic or as part of a syllable onset. In the former case, they would be expected to be tone bearing (they aren't), while in the latter case they would contradict expectations based on the sonority hierarchy.

Finally the fact that NCs maintain a consistent ratio between nasal and oral components in both initial and medial position, despite differences in overall durations in the two contexts, suggests the possibility of a template governing the timing relations of the two components in production of these stops.

4.5. Fricatives. Cambap has only two fricatives that occur with any degree of frequency, non-sibilant /f/ and sibilant /s/; /v/ also exists, but only with some speakers, and even for these speakers apparently only in a very small number of lexical items. I report here characteristics of the two that occur with all speakers, looking first at their spectral characteristics, then their durational and voicing characteristics.

4.5.1. Spectral characteristics of fricatives. The main acoustic cue for place of articulation of fricatives is said to lie in the location and distribution of energy in the spectrum. Labiodental fricatives are typically found to have weak energy distributed relatively evenly throughout the spectrum, while for alveolar fricatives a concentration of energy in the region of 4 kHz and above is characteristic, and for the more retracted palato-alveolar fricatives there is a concentration beginning as low as 2 kHz to 2.5 kHz. Spectrograms for /f/ and /s/ may be compared in Figures 3 and 4.

The alveolar fricative in Cambap is noteworthy for its variation. It is sometimes somewhat palatalized, giving an articulation close to [ʃ]; one speaker exhibits this realization consistently, though other speakers do so only occasionally. Figure 4 illustrates representative tokens of initial /s/ from each of four male speakers produced in the word *sàn* 'grave'. A lower concentration of energy, beginning at around 2.2 kHz, may be noticed in particular for S2, reflecting his more retracted articulation, whereas for the other three speakers the more prominent energy is located above 4kHz. The acoustic effect found for S2 is possibly a result of irregular dentition creating a larger cavity anterior to the constriction which could have the effect of lowering the concentration of energy in the spectrum; however evidence from the formant transitions are indicative of a more palatal articulation, in that the locus of the F2 transition is higher, and the transitions longer, than for the [s] articulations. In addition, as Connell [2002a] notes, the [s] ~ [ʃ] variation is not uncommon in the Mambiloid region generally, though in languages such as Ba-Mambila it appears to be environmentally conditioned. Nevertheless, despite the variation in /s/, its acoustic structure is clearly different from that of /f/.

4.5.2. Durations of fricatives. With the focus generally being on the spectral characteristics of different fricatives as the main cue to place of articulation, their durations are rarely reported. (Maddieson, Smith & Bessell's [2001] investigation

Figure 3: Spectrogram of initial /f/ in *fàrà*.

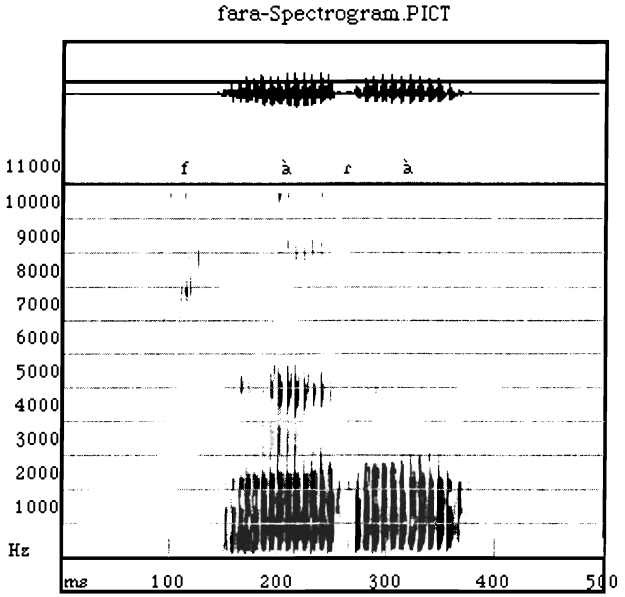
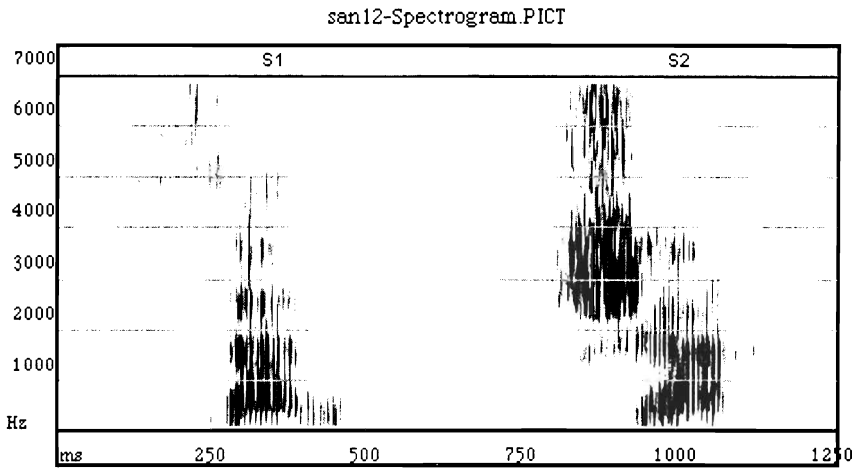
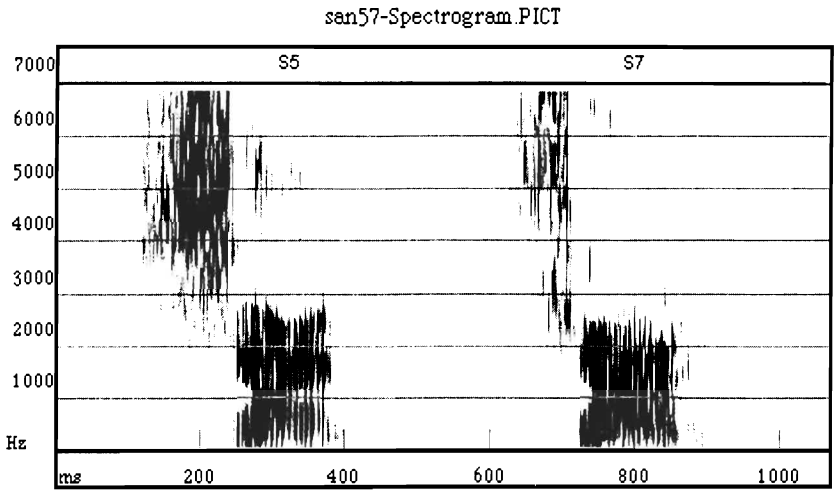


Figure 4: Spectrograms of *sàn* 'grave' from 4 speakers, illustrating variation in production of initial /s/.





of plain and ejective fricatives in Tlingit is one notable exception.) It is not inconceivable, however, that duration may also serve as a cue to place of articulation, and it is, in any case, of interest to ascertain whether or to what extent fricatives follow the same durational patterns with respect to place of articulation as plosives. Duration measurements given here are for the period of frication associated with the two fricatives and are based on two repetitions of two words by each of the seven speakers. For one speaker there were no tokens of /f/, whereas for another there were no tokens of /s/, so data from six speakers is available for each of the consonants. The test words contained the fricatives in initial position followed by /a/. Results are presented in Table 9. Contrary to what was observed for the plosives, it is notable that /s/ is longer than /f/, and this difference is significant (F (1, 45) = 16.183; $p < 0.000$).

Table 9. Durations of voiceless fricatives.

	Duration	*SD*	*N*
f	86.35	24.9	23
s	115.16	24.2	24

4.5.3. Voicing characteristics of fricatives. Except for those few items for certain speakers that contain, /v/, it can fairly be said that Cambap does not have a contrast in voicing with fricatives, to parallel that seen for plosives. For both /f/ and /s/, for all but one speaker however, there is frequently a short delay in the onset of voicing following the end of frication, similar to that seen with the voiceless plo-

sives. This occurs more consistently with /s/. As a VOT lag has rarely been reported as being associated with voiceless fricatives, we report values for this here; Table 10 gives VOT measures for tokens in which this lag occurred. As can be seen, it very closely matches VOTs reported above in Table 5 for voiceless stops of related places of articulation.

Table 10. Voice onset times for voiceless fricatives.

	VOT	*SD*	*N*
f	17.12	5.98	10
s	15.54	6.72	18

5. Vowels

5.1. Inventory and contrasts in vowels. The phonemic inventory of Cambap consists maximally of seven vowels: /i, e, a, ɯ, u, o, ɔ/. (The status of the /o/ - /ɔ/ contrast is questionable, as discussed below.) All occur in both open and closed syllables, with closed syllable realizations of /i, e, u/ typically being more open and slightly centralized in closed syllables, and /a/ somewhat raised and centralized ([ɐ]) when followed by /ŋ/. The presence of /ɯ/ in a seven-vowel system is unexpected. The usual inventory for such systems, particularly in Africa and for Bantoid languages, is /i, e, ɛ, a, u, o, ɔ/. The realization of /ɯ/ is variable, falling in the range described by [ə, ɨ, ɯ]. A vowel length contrast also exists, but it is not clear on the available data how extensive it is. This is discussed below.

Table 11. Examples of vowel contrasts.

/i/	*bǐ*	'you' (pl)	*tʃínī*	'one'
/e/	*bē*	'hand'	*tʃébā̂*	'to look at'
/a/	*bàbā*	'elder sister'	*tʃàŋ*	'spirit, god, soul'
/ɯ/	*bɯ̀*	'hill, slope'	*tʃɯ̄*	'death'
/u/	*bù*	'knife'	*tʃúŋgò*	'walking stick'
/o/	*bó*	'they'	*tʃòwò*	'slowly'
/ɔ/	*wɔ̀râ*	'open, uncover'	*tʃɔ́ŋgā̂*	'steal' (v.)

There are both systemic and realizational differences across speakers which bear mention. First, it should be acknowledged that the variation in the phonetic realization of these vowels makes phonemicization difficult. This is particularly true of the mid back vowels and the central vowel, where there appear to be differences in the number of contrasts found across speakers; in particular, the /o/ – /ɔ/

distinction doesn't exist for all seven speakers, leaving some with a six vowel system. For those who do have it, its functional load is apparently low. At least one speaker seems to have lost the /u/ – /o/ contrast, in at least some environments where it is present for the others. Both types of variation, systemic and realizational, are discussed in depth from a sociophonetic perspective elsewhere [Connell 2002a].

5.2. Vowel length. In the material collected from all speakers, only one vowel quality, [a], exhibits a length contrast. It seems unlikely that these are to be analysed as vowel sequences comprising two syllables, as would result in an otherwise unattested syllable structure of VC in words such as *kaːn* 'anger' (i.e., *kà.àn*), or a syllable consisting of V only word internally, in words such as *paːri* (i.e., *pà.à.rì*). Syllables consisting of a lone V otherwise only occur as affixes. Duration measurements were done to compare the vowels of *pàm* 'mat' and *pààrì* 'hut', based on three repetitions of each word from each of five speakers. The average duration of [a] was 118.1 ms, and of [aː] 200.8 ms. Maddieson's [1984] survey indicates that a low central vowel is among the least likely vowels to participate in a length contrast, so it is worth noting that, at least for the one speaker for whom the most material is available, other vowel qualities also appear to contrast length. These include: [i], *míːn* house; [e] *gēːn* egg; [ɯ] *ndɯ́ːdú* garden egg (*Solanum melongena*); [o] *kòːrō* cock. However, such examples are few, while there are many to illustrate [aː].

5.3. Acoustic characteristics of vowels. Acoustic analysis of the vowels was based on recordings of all seven speakers. Words were elicited containing each of the vowels preceded by an initial bilabial consonant, i.e., essentially the list in the first column of Table 11 was used. One of these words, *wɔ̀râ*, was not included, having an initial labial-velar. Instances of /o/ – /ɔ/ in this environment were not found in the data available. Four tokens of each word were recorded by each speaker. In a small number of cases it was necessary to reject tokens; in these cases it was possible to substitute another word containing the desired bV sequence. Recordings were made in the field as described above, and were later re-digitized for the spectral analysis at a sampling rate of 11.025 kHz. Spectrograms were produced and formant measurements taken at or near the midpoint of the vowel. Formant values were estimated automatically from LPC power spectra, and compared visually with measurements taken from wideband spectrograms. Measurements from a small number of tokens were rejected because the values produced by LPC analysis could not be reconciled with those taken visually from the spectrogram. Mean F1 (first formant) and F2 (second formant) values are presented in Table 12 for the two female speakers and in Table 13 for the five male speakers. Figure 5 (p. 200) gives formant plots for the vowel space of the two female speakers (left) and the five male speakers (right). F1 is plotted on the y–axis and F2 on the x–axis; means are represented by the vowel symbol and the radius of the ellipses represents two standard deviations of the mean.

Table 12. Mean formant values and standard deviations for 2 female speakers.

Vowel	*F1*	*SD*	*F2*	*SD*
i	341	41	2438	111
e	428	50	2221	123
a	698	52	1502	62
o	478	60	1040	114
u	336	57	858	35
ɯ	374	39	1312	139

Table 13. Mean formant values and standard deviations for 5 male speakers.

Vowel	*F1*	*SD*	*F2*	*SD*
i	306	17	1942	84
e	390	33	1881	60
a	664	43	1302	87
o	425	40	914	114
u	302	41	728	35
ɯ	399	52	1312	132

For the female speakers, a degree of overlap between vowels can be seen, especially for /u/ – /o/, and to a lesser extent also for /i/ – /e/ and /o/ – /ɯ/. Analysis of variance and Tukey's post hoc tests showed means for these vowels for the relevant parameter (i.e. F1, for each of the three pairs) to be significantly different (/i/ – /e/, $p = 0.039$; /u/ – /o/, $p < 0.000$; /o/ – /ɯ/, $p = 0.017$). Overall, there is greater variation in F1 than F2. Inspection of the raw data suggests that the variation in F1 may be due to the fact that one speaker has a generally higher F1 than the other. However a t-test comparing F1 means for the two speakers showed this difference is not significant ($t = -1.906$; df, 42; $p = 0.063$), so it is pos-sible that within speaker variation contributes substantially to the variation in F1.

Again, for the five male speakers, overlap between high and mid-high vowels, both front and back, exists, though means for F1 are, as expected, significantly different (/i/ – /e/, $p < 0.000$; /u/ – /o/, $p < 0.000$).

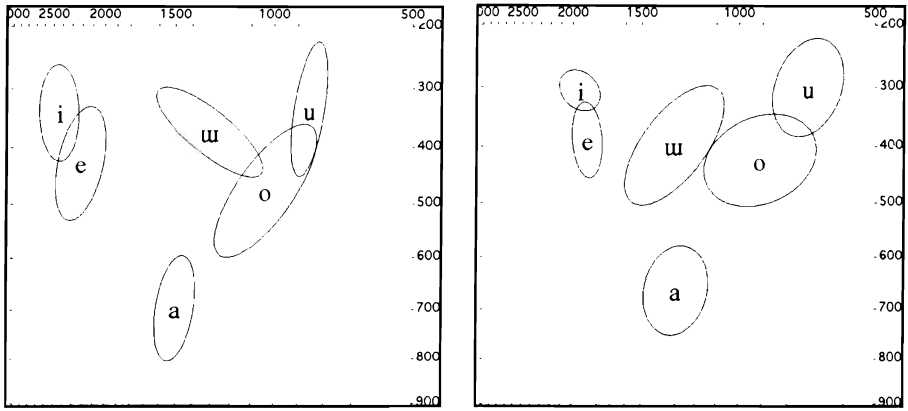


Figure 5. F1 x F2 plot for 2 female speakers, left, and 5 male speakers, right.

Two other characteristics revealed by the acoustic analysis bear mention. First, there is an interesting difference between males and females with respect to /ɯ/; for the female speakers, /ɯ/ is a high central vowel; this is confirmed by the statistical analysis (Tukey's) which reveals /i, ɯ, u/ as a homogeneous subset with respect to height; F1 means for these three vowels were not significantly different (p = 0.763). For the male speakers, however, F1 means show /ɯ/ groups with /e, o/, as a mid or mid-close vowel (p = 0.319). This difference may be due to differences in words used for the two groups. For both, *bɯ̀* 'hill, slope' was the primary word used, but for each a number of tokens of *bɯ̀ŋgá* were also included, and the proportion of the latter was greater for the female speakers. It is possible that the following velar has the effect of raising the tongue position, thereby lowering F1.

Finally, it is interesting to comment on spacing within the vowel system. For both males and females, the mid-high back vowel /o/ shows a greater range of variation than its front counterpart, /e/. It is not clear why this should be the case, though it could be related to the loss of contrast between /o/ and /ɔ/ in some speakers as observed above. I note that at least one neighbouring language (Ba-Mambila) has undergone a shift whereby /ɛ/ has centralized, i.e., /ɛ/ > /ə/, in specifiable conditions. Joan Weber (personal communication) suggests the opposite appears to be the case in Ndung-Kwanja, i.e. /ə/ > /ɛ/.

5.4. Intrinsic F0 of vowels. It is widely recognized that vowels of different heights have correlated differences in intrinsic fundamental frequency, often referred to as intrinsic vowel pitch, or simply IF0. This is generally agreed to be a universal phonetic phenomenon [Whalen & Levitt 1995]. The general claim is that high vowels [i, u] have a higher F0 than low vowels [a], and Whalen & Levitt's survey results, converted to semitones to permit grouping male and female speakers together, showed an average difference between high and low vowels of 1.65 semitones. It is, however, reasonable to assume that IF0 may be controllable and is constrained in tone languages, where variations in F0 might threaten the

robustness of tonal contrasts. Connell [2002b] argues that this is the case with tone languages examined in his study, all of which showed a substantially lower IF0 than the mean reported by Whalen & Levitt. In particular Mambila, a four toned language closely related to Cambap, showed no evidence at all of IF0, so it is of interest to look at this phenomenon in Cambap. As the materials collected for Cambap were not specifically selected to examine this question, a preliminary view only can be offered. F0 values from natural words containing the high vowel [i] (*tʃínī* 'one', *jámí* 'cockroach') were compared to words containing the low vowel [a] (*tʃámíâ* 'to bud', *jámí* 'cockroach'). Since IF0 in tone languages has previously been found to be strongest with High tones and frequently neutralized with Low tones, only the vowels with High tone were examined. Four speakers, three male and one female, contributed to this aspect of the research, each giving at least two repetitions of the words used. As the F0 range used by all speakers, male and female, was similar, results are grouped together. Results given in Table 14 show that in Cambap, F0 values of High tone vowels do indeed follow expectations, with the mean difference between [i] and [a] being 10.9 Hz, equivalent to 1.1 semitones. A t-test comparing these means shows the difference to be marginally significant ($t = 1.999$; $df = 31.88$; $p = 0.054$).

Table 14. F0 values for [i] and [a], with standard deviations in parentheses; means for 4 speakers, 3 male and 1 female.

Vowel	*Mean*	*N*
i	177.41 (15.4)	17
a	166.53 (16.4)	17

6. Tone

6.1. Inventory, contrasts and functions. Cambap has three level tones, High (H), Mid (M) and Low (L). In citation forms one normally finds one tone per syllable; contours are also attested, though on monosyllables they are rare. Contours are readily analyzable as sequences of level tones. That all possible combinations of H, M, and L are attested on both monosyllabic and disyllabic words provides strong evidence for this analysis. In addition to this, the endpoints of rises and falls approximate the endpoints of the steady state pitch levels of the level tones (some evidence for this is found in Table 16, below). In addition to these arguments, Figure 7, below, provides phonetic evidence for this analysis. Contours on individual syllables of disyllabic words are, with one known exception, found only on the second syllable, e.g., *kʉ̀rê* 'riddle', (the single exception is *kâjā* 'charcoal'). All of these end with L, suggesting this contour (specifically, the final L) may reflect a former suffix. Tone functions both lexically and grammatically, and contours may also come about through the application of grammatical tone (discussed below). Examples of tone melodies and tonal contrasts in Table 15.

Table 15. Examples of tonal contrasts.

	CV(C)		CVCV(C)	
H, HH	*bú*	'dream'	*búrún*	'bundle'
	bóŋ	'latrine'	*kúŋgú*	'cooking pot'
	mbán	'breast'	*kámbá*	'crab'
M, MM	*wū*	'fire'	*būndū*	'dog'
	ŋʷē	'sugarcane'	*kūmā*	'hoe'
	gē:n	'egg'	*bāŋgā*	'lizard'
L, LL	*bù*	'knife'	*bùndù*	'well'
	bòŋ	'community, ethnic group'	*bàbà*	'area'
	pàm	'mat'	*kàmà*	'chest'
HM	*kúm̄n*	'fireplace (stone)'	*kúmbūn*	'navel'
	ɲé̄	'tooth'	*kárā*	'men's bag'
HL	*mbâr*	'witch'	*mándì*	'boil' (n.)
	kâ	'compound'	*wárì*	'comb'
MH	*wěn*	'rope'	*lūlóó*	'throat'
			mātú	'stomach'
ML	*ɲɔ̀n*	'nose'	*kōmbò*	'penis'
	mbà̄ŋ	'water pot'	*kwā:gò*	'fence'
LH	*bǐ*	'you' (pl.)	*bùŋgá*	'pigeon'
	ndʒǎŋ	'sorrel (*Hibiscus sabdariffa*)'	*gʷànú*	'news'
LM	*ɲò̄ŋ*	'guinea fowl'	*kàmā*	'back'
			bàbā	'elder sister'

H and M in citation form are generally level. L, however, is typically falling in citation, as has frequently been observed for L in other African languages. This roughly parallels the behaviour of phrase final Lows, suggesting an analysis that citation forms are equivalent to one word phrases, and the fall may be a result of a Low boundary tone. L, M, and H tones on disyllabic words are illustrated in Figure 6.

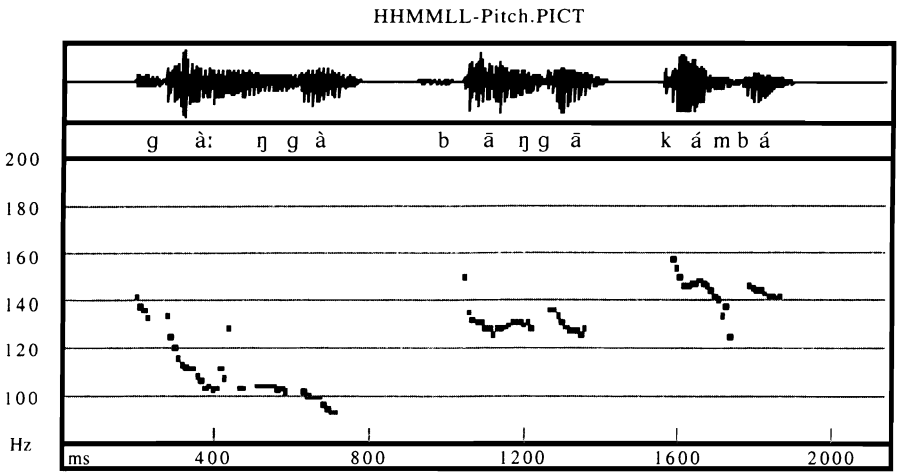


Figure 6: Low, Mid and High tones on the disyllabic words *gà:ŋgà* 'okra'; *bāŋgā* 'agama lizard'; and *kámbá* 'crab'. (Speaker 6)

Sequences of LH and HL, whether on single syllables or two syllable sequences are not obligatorily realized as Low-Rising and High-Falling tones in Cambap, as is found in other three-tone languages, for example Yoruba [Welmers 1973] or Kunama [Connell, Hayward & Abraha 2000], but rather, may show substantial plateaus of each of H and L (see Figure 7).

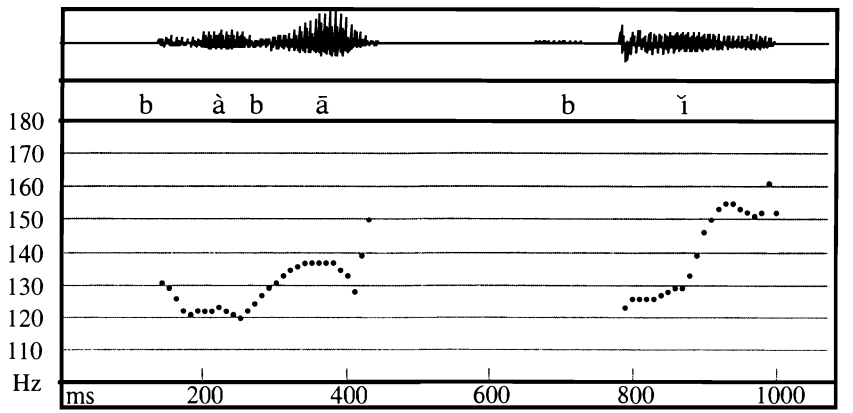


Figure 7: Low-Mid combination on *bàbā* 'elder sister'; Low-High on *bĭ*, 'you' (pl). (Speaker 7).

6.2. Measurements of tones. Measurements have been done on several of the tonal melodies listed in Table 15. Data from five of the seven speakers, three male and two female, contribute to this part of the study. An analysis of variance showed differences between speakers to be non-significant, so results have been grouped, male and female together. (The female speakers' F0 range was in fact encompassed by that of the male speakers.) Average values in Hz for these four speakers are presented in Table 16.

As with Cambap segmentals, there is variation in tone realization across speakers, and possibly systemic differences. One of the main sources of variance appears to be the effect of L on a following H or M, such that not all speakers maintain a clear difference between H and M in this context. This is reflected in the higher standard deviations reported in these cases. The pitch traces in Figure 7 are from one speaker who does maintain a difference between LM and LH.

Table 16. Average F0 values of Cambap tones in Hz for 5 speakers, 3 male and 2 female. Standard deviations are given in parentheses. Lf indicates the final value for L in citation.

Melody	*Mean*	*N*
H	180.7 (13.3)	20
M	162.2 (15.3)	16
L – Lf	139.4 (9.1) – 120.7 (8.6)	36–36
L – H	139.1 (13.4) – 176.5 (21.1)	22–23
L – M	133.9 (9.8) – 158.1 (21.2)	18–19
H – M	189.2 (15.8) – 158.1 (17.5)	12–12

Differences between tones, i.e. their spacing within the register, can be expressed in semitones, giving some indication as to the nature of the tonal register in Cambap, and the space (tonal space) accorded each tone. These values are given in Table 17. The average overall normal range for Cambap, excluding the fall associated with L in citation form, is 4.4. semitones.

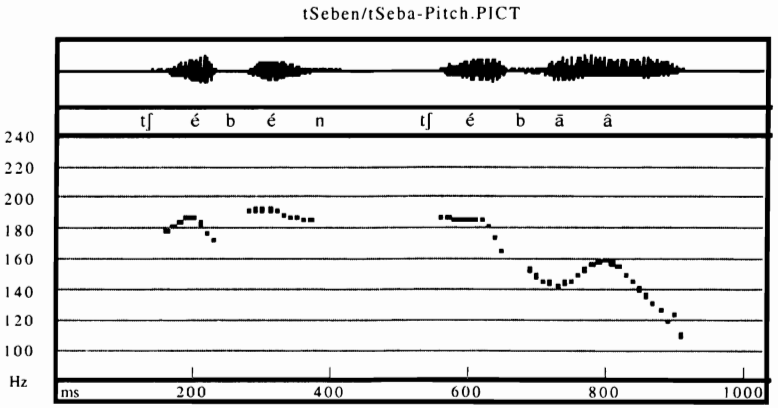
Table 17. Range and spacing of Cambap tones expressed in semitones.

Tonal Step	*H–L*	*H–M*	*M–L*
Distance	4.4 ST	1.6 ST	2.8 ST

6.3. Grammatical use of tone. The grammatical functions of tone in Cambap are as yet not well researched, but the most significant feature with respect to the

phonetics of Cambap is that the use of tone for certain grammatical functions results in the creation of tonal contours, sometimes consisting of not just two, but three tones on one syllable. Such tone modifications seem only to affect the final syllable of the word in question. Infinitive forms are distinguished from imperatives through a tonal change of this nature, whereby a H or M on the final syllable of a disyllabic verb in the infinitive carries a MHL tone in the imperative form. Segmental modifications may also be involved. This is illustrated in Figure 8, where it is also apparent that the vowel increases substantially in duration—at least in citation form—to accommodate the complex tone.

Figure 8: Pitch traces of *tʃébén* 'look at!' and tʃébầ 'to look at' illustrating tone changes between imperative and infinitive verb forms. (Speaker 5.)



Finally, tone is used as a locative marker. In the following examples, location is indicated by means of a tonal alternation, with the High tone of the non-locative form being replaced by Mid in the locative in each case. Data is not available on possible alternations involving M or L tones.

Table 18: Locative use of tone.

tánú	'market'	*tānū*	'in the market'
wūmɔ́n	'forest'	*wūmū*	'in the forest'

7. Summary

This paper represents only a first step towards adequately describing the phonetics, and consequently the phonology, of Cambap. Most conspicuous in its absence is any discussion of phenomena associated with longer stretches of speech, whether

at the segmental or suprasegmental level, and the prosodic organization of the language, but other of aspects the phonetics of Cambap, for example sound symbolism and the use of ideophones also remain to be examined. It is hoped that it will be possible to carry out work on these facets of the language while it is still spoken. Nevertheless, the data provided here on the segmental and tonal structure of Cambap do provide some record of the phonetics of this language and how its phonological contrasts are realized, and allow this language to contribute to the set of facts on which crosslinguistic generalizations are based. Perhaps more important, they will ultimately allow, in the words of one Cambap speaker, "our grandchildren to know we once had our own language".

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Dept. of Languages, Literatures and Linguistics
York University
4700 Keele St.
Toronto, Ont.
Canada M3J 1P3
email: bconnell@yorku.ca

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Appendix: Cambap wordlist and test items

A. 1. Consonants

pàm	'mat'	*kpáɾá*	'stool'
pàːɾì	'hut'	*kpăːkpà*	'parrot'
tàm	'hat'	*màr*	'clay'
táɾā̂	'to shoot'	*màɾā̂*	'to build'
káɾá	'bag'	*nàmà*	'mask'
kàmà	'chest'	*náɾā̂*	'to cook'
bàrì	'wound' (n.)	*ɲàŋgā̂*	'to wash'
bátì	'gourd rattle'	*ɲàɾā̂*	'to defecate'
dáɾè	'near'	*mbátʃì*	'friend'
dámīâ	'to complain'	*mbâr*	'witch'
gàɾā̂	'to divide'	*mbù*	'beehive'
gáp	'peelings'	*ndăr*	'argument'
sàn	'grave'	*ndāːmbà*	'slingshot'
sáɾā̂	'sew'	*ndùkò*	'rat'
fàp	'sheath'	*ndʒàm*	'laughter'
fàɾā̂	'untie'	*ndʒàɾà*	'nail, claw'
kwáɾáp	'scales (fish)'	*ŋgàm*	'because'
kwàndī	'slave'	*ŋgár*	'shin'
gʷàgʷá	'duck'	*làmbā̂*	'to cover'
gʷē	'cow-itch'	*kúmbúín*	'navel'
gwùnà	'in-law'	*būndū*	'dog'
gwījā	'leg, foot'	*fàndā*	'skin'
gwījāp	'legs, feet'	*nūŋgū*	'pepper'
gbá	'calabash'	*bāŋgā*	'agama lizard'
gbén	'tail'		

A. 2. Vowels

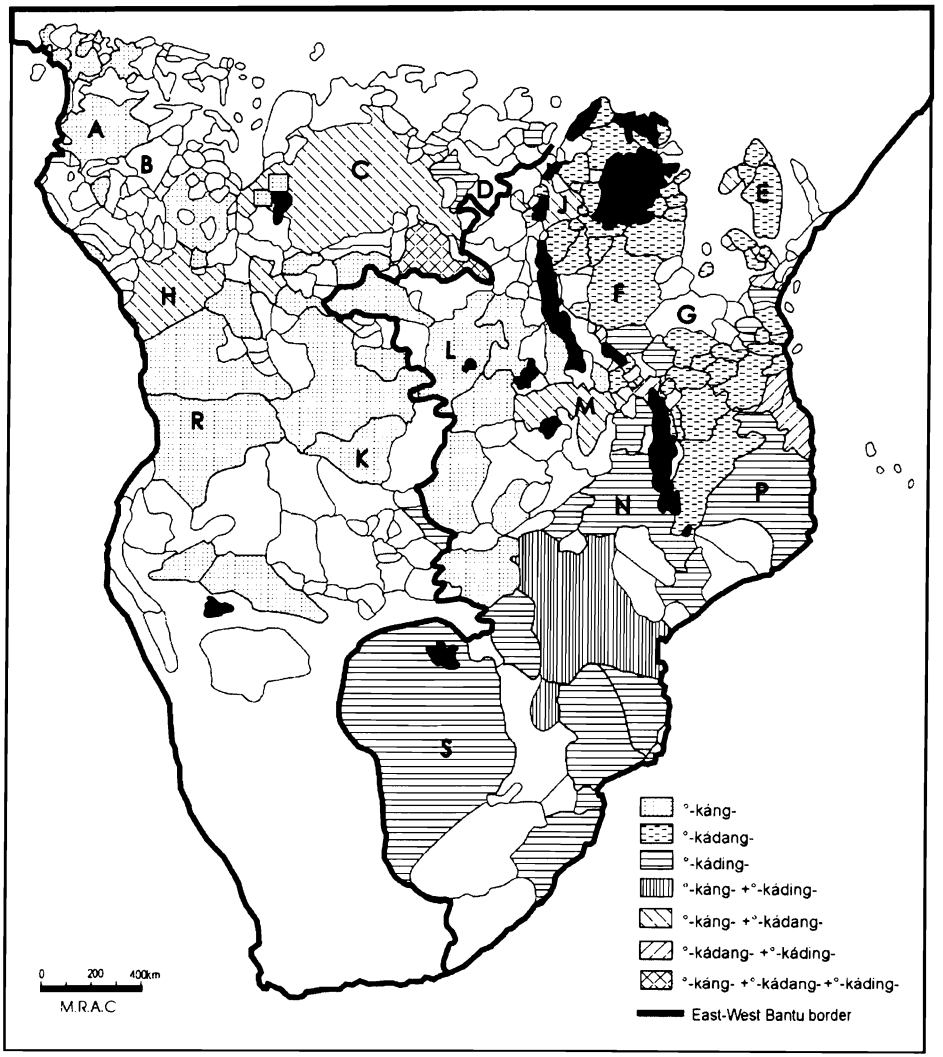
bǐ	'you' (pl)
bē	'hand'
bàbā	'elder sister'
bɯ̄	'hill, slope'
bɯ̀ŋgá	'pigeon'
bó	'they'
bòŋ	'group'
bù	'dream'
bɯ̀ŋ	'cloud'

A. 3. Tone

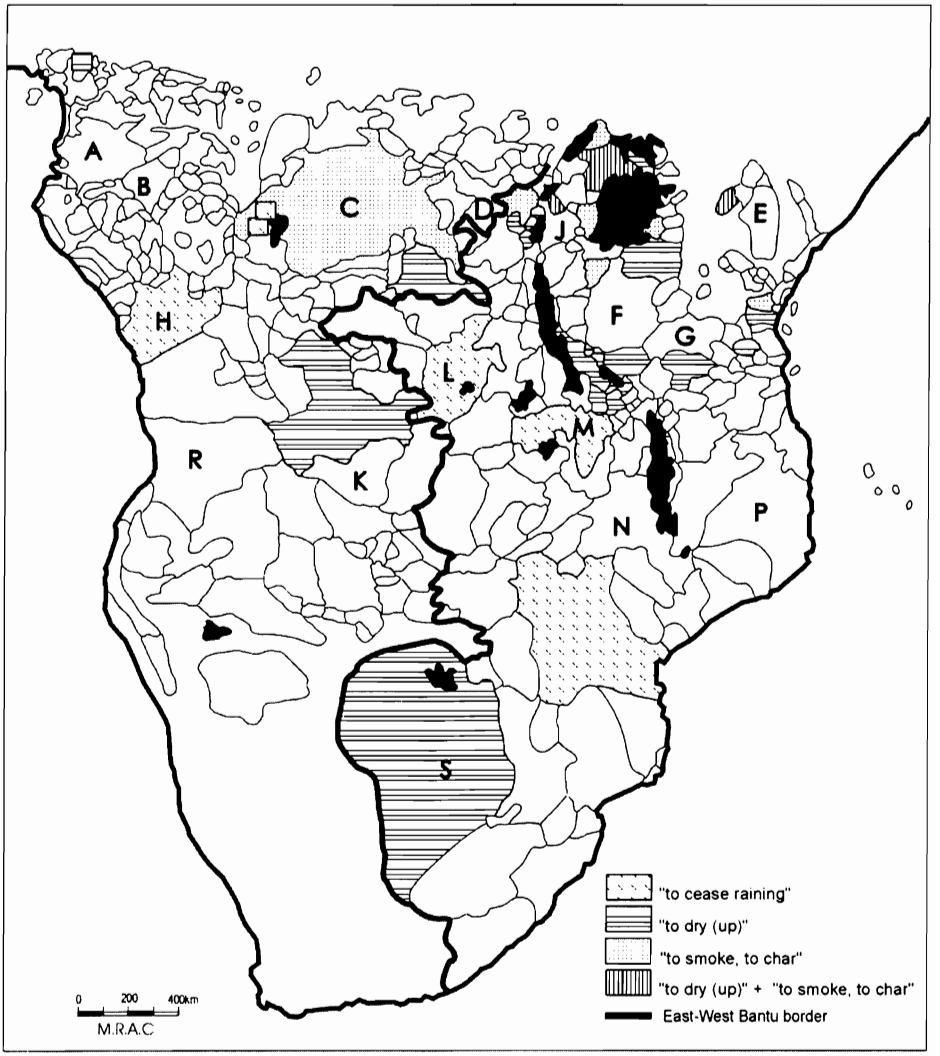
bɯ́	H
bē	M
bù	L
bɯ̀ŋ	L
bòŋ	L
bǐ	LH
bàbā	LM
bɯ̀ŋgā	LM
tʃínī	HM

ERRATA

Koen Bostoen's article "Osculance in Bantu reconstructions: A case study of the pair °-kádang-/°-káng- ('fry', 'roast') and its historical implications" [Volume 30, 2: 121-146] included two maps in which the shading of lexical distributions was indistinct and uninterpretable. These maps have been reprinted here.



MAP 1: Distribution of °-káng-/-kádang-/-káding-



Map 2: distrubution of °-kád- reflexes according to their meaning

Studies in African Linguistics
Volume 31, Numbers 1/2, 2002

FROM THE EDITOR

Twelve years ago I assumed the role of Editor of *Studies in African Linguistics*. With publication of this issue I will be stepping down from that role. I am grateful to have had the opportunity to serve the Africanist community in this capacity. However, the journal could not function without the contributions of many individuals. I acknowledge my debt to the all those who have assisted me over the years. I extend my gratitude to all of those who have served as Associate Editors over that period: Akinbiyi Akinlabi, Tucker Childs, Bruce Connell, Katherine Demuth, Omar Ka, Carolyn Harford, John Hutchison, Larry Hyman, Salikoko Mufwene, Paul Newman, David Odden, Ron Schaefer, and John Singler. In particular, I acknowledge the extensive contributions of Ron Schaefer, Dave Odden, and Bruce Connell. I also wish to acknowledge and thank the many individuals who reviewed one or more manuscripts for the journal. Several of these individuals were called upon numerous times and always accepted willingly: Laura Downing, Scott Myers, Sam Mchombo. Finally, my appreciation goes out to the administrative assistants who have kept the journal running smoothly: John Roleke, June Wickboldt, Elizabeth Peterson, Mikael Thompson, Jennifer Day, Arwen Reiter, Leslie Gabriele, Kelsey Botne, and Tara Callis.

The new Editor is David Odden, who assumes the position with volume 32.

Studies in African Linguistics
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PUBLICATIONS RECEIVED

Elders, Stefan. *Grammaire Mundang.* (CNWS Publications 97). Leiden: Research School CNWS Publications, Universiteit Leiden. 2000. Pp. xix, 633. ISBN 90-5789-054-2. Paper.

This volume presents the first grammatical description of the northern dialect of Mundang, an Adamawa language spoken in Cameroon and Chad. It consists of nineteen chapters that are divided into three large sections following the introduction: phonology, morphology, syntax. Chapter one provides an introduction to the Mundang people and to the dialectal, socio-linguistic, and genetic situation of the language.

The first section—Phonologie—comprises four chapters each addressing a separate aspect of the sound system. Chapter 2 (pp. 23-38) describes the consonants, Chapter 3 (pp. 39-60) the vowels, Chapter 4 (pp. 61-72) nasality, Chapter 5 (pp. 73-96) tonal behavior. The second part, labeled "Morphologie", provides descriptions of four major word categories: the noun (Chapter 6, pp. 99-155), the pronoun (Chapter 7, pp. 156-167), the verb (Chapter 8, pp. 168-200), and adverbs and ideophones (Chapter 9, pp. 201-226). The third section focuses on syntax. This section is the largest of the three, constituting nearly two-thirds of the book. Material in this section is organized into ten chapters: the nominal syntagm (Chapter 10), the non-verbal proposition (Chapter 11), transitivity (Chapter 12), verb categories (Chapter 13), the order of constituents in the proposition (Chapter 14), particles (Chapter 15), negation (Chapter 16), interrogatives (Chapter 17), complex utterances, including serial verbs, coordination, and subordination (Chapter 18), and minor propositions (Chapter 19).

In addition to the descriptive material, the volume includes in an appendix a variety of texts: one folktale, four descriptive texts, six proverbs, and one song. Finally, the volume includes an extensive reference section.

Amha, Azeb. *The Maale Language.* (CNWS Publications 99). Leiden: Research School CNWS Publications, Universiteit Leiden. 2001. Pp. viii, 317; 2 maps. ISBN 90-5789-056-9. Paper: € 27.23 (US $26.38), excluding postage and handling.

This book provides a description of Maale, a previously undescribed language of the Omotic family, spoken in southern Ethiopia. Material is organized into thirteen chapters. The first chapter presents an overview of the people and the language, including issues of classification and dialects. The second chapter focuses on phonology, including tonal phenomena. Chapters 3-5 describe major word categories, nouns, pronouns, and verbs, respectively. Chapter 6 describes nominal and verbal modifiers. The next two chapters (Chapters 7 and 8) describe various sentence types, both simple and complex, and modality, while Chapter 9 discusses transitivity. Chapters 10 and 11 describe interrogatives and negatives, respectively. Word order in phrases, clauses, and complex sentences is the topic of Chapter 12. Finally Chapter 13 addresses ideophones and interjections. An appendix includes three glossed texts. The volume concludes with an extensive reference section.

Among the unusual phenomena discussed are clause-chaining and switch-reference, the marking of case on dependent verbs, and the morphological marking of declaratives.

Maho, Jouni Filip and Bonny Sands. *The Languages of Tanzania: A Bibliography*. Göteborg: Acta Universitatis Gothoburgensis. 2002. Pp. 428. ISSN 1404-3556; ISBN 91-7346-454-6. Paper: €300.00

This bibliography provides an extensive listing of the linguistic literature for languages other than Swahili spoken in Tanzania. References are listed for each language individually. Languages are organized alphabetically according to origin or genetic affiliation. Hence, non-indigenous languages from the Arabian Peninsula and the Indian sub-continent (Arabic, Balochi, Punjabi, for example) are grouped together under "Asian Languages". Bantu languages comprise the largest section. Three other sections include Cushitic languages, Khoesan languages, and Nilotic languages. Other languages include English, Hamba, and Tanzanian sign language. The indexes provide access to language and personal names.

References include not only strictly linguistic works, but also anthropological and ethnographic items that contain useful lexical or linguistic material.

Nibagwire, Louise and R. David Zorc. *Rwanda and Rundi (Ikinyarwanda and Ikirundi) Newspaper Reader*. Springfield, VA: Dunwoody Press. 2002. Pp. xiv, 431. ISBN 1-881265-89-7. Hardcover.

The book consists of forty selections—twenty from each language—from periodicals published in Rwanda and Burundi between 1999 and 2001. They are geared towards the advanced beginner or intermediate student, ranging in length from a few sentences to a full page of text. Although intended for self-study, the material could be readily adapted to classroom use.

There are five sections to the book. The first section consists of front matter, including sources of the reading selections, a word frequency list, and a list of linguistic resources on the two languages. Part 1 consists of the reading selections. Part 2 provides English translations of each selection. Part 3 presents a glossary (~260 pp.) including vocabulary from all selections and grammatical information on all forms that appear in the readings.

Mous, Maarten, Martha Qorro, and Roland Kießling. *Iraqw-English Dictionary with an English and a Thesaurus Index*. (Kuschitische Sprachstudien 18) Cologne: Rüdiger Köppe Verlag. 2002. Pp. viii, 203. ISBN 3-89645-065-4. Paper.

Iraqw is a Cushitic language spoken in northern Tanzania. An introduction to the dictionary provides a brief overview of the language and people, and the orthography. It discusses clearly the organization of the head entries and of the English and Thesaurus indexes. There is also a list of references. The Iraqw-English Dictionary itself contains approximately 3600 head entries. As the authors point out, the English Index is not a lexicon, but simply a guide to finding the closest approximation in the Iraqw-English section. The Thesaurus Index groups lexical items according to semantic fields. There are eleven fields—from the human body to the cosmos—each subcategorized. A table of contents provides a guide to this section.

Möhlig, Wilhelm J. G., Lutz Marten, and Jekura U. Kavari. *A Grammatical Sketch of Herero (Otjiherero)*. (Grammatical Analyses in African Languages, vol. 19) Cologne: Rüdiger Köppe Verlag. 2002. Pp. 127; 1 map; num. tables; word list. ISBN 3-89645-044-1. Paper. €19.80.

Herero is a SW Bantu language (R.31 in Guthrie's classification) spoken in Namibia, Angola, and Botswana. The sketch is divided into seven chapters. A brief introduction (Ch. 1) provides an overview of the language and its setting, including a map locating the dialect areas. Chapter 2 describes the phonology, including phonotactics, phonological processes, tone and intonation. Chapters 3 and 4 address the morphology of the noun phrase and verb phrase, respectively. The former outlines the noun classes and agreement, modifiers (adjectives and numbers), and pronouns. The latter describes verb derivation and inflection. Of particular interest are the descriptions of tense forms, which include tone patterns for five different verb types with and without complements. Chapter 5 provides a short description of some syntactic features: copula and existential sentences, question formation, valency changing operations (applicative and locative inversion), and relative clauses. Chapter 6 provides two glossed texts, Chapter 7 a Herero-English and English-Herero word list. The book also includes a selected bibliography of work on Herero as well as an index.

McGrath, Donovan and Lutz Marten. *Colloquial Swahili: The Complete Course for Beginners*. London and New York: Routledge. 2003. Pp. ix, 297. ISBN 0-415-22161-7. Paper: US $22.95. [Tapes ISBN 0-415-221625; CD ISBN 0-415-289475; Package ISBN 0-415-221633].

The book consists of fourteen chapters, or units, each based on three dialogues. The dialogues describe various situations and features of life in East Africa, introducing relevant vocabulary and grammatical structure appropriate to the context. Apart from the usual topics for introductory books, this one includes a unit on sickness and medical treatment, doing social research, communications, and music. Half of the dialogues (through Chapter 7) are translated into English; dialogues in the final half of the book are not. Each chapter includes multiple exercises, with answers provided at the back. The book includes both Swahili-English and English-Swahili glossaries, as well as an index.

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UPCOMING MEETINGS ON AFRICAN LANGUAGES/LINGUISTICS

2002

February 6-8
COLLOQUE INTERNATIONAL: THÉORIES LINGUISTIQUES ET LANGUES SUB-SAHARIENNES, Université Paris VIII, France.

March 21-23
ANNUAL CONFERENCE OF THE AFRICAN LANGUAGE TEACHERS ASSOCIATION (ALTA), 6TH. Ohio University, Athens, Ohio. (Contact: John Mugane, ALTA Conference Chair, Gordy Hall 349, Ohio University, Athens, OH 45701; Tel: 740-597-2595/740-593-4564; Fax: 740-593-2967; e-mail: mugane@ohio.edu; website: http://www.ohiou.edu/alta/ACAL_2002conf.htm)

March 22-24
ANNUAL CONFERENCE ON AFRICAN LINGUISTICS (ACAL), 33RD. Ohio University, Athens, Ohio. (Contact: John Mugane, 33rd ACAL Conference Chair, Gordy Hall 349, Ohio University, Athens, OH 45701; Tel: 740-597-2595/740-593-4564; Fax: 740-593-2967; e-mail: mugane@ohio.edu; website: http://www.ohiou.edu/alta/ACAL_2002conf.htm)

JUNE 12-15
INTERDISCIPLINARY SYMPOSIUM ON FIELDWORK IN AFRICA. West African Research Center, Dakar, Senegal.
(Contact: In Africa: Wendy Wilson Fall, WARC Director, Rue E x Leon G. Damas, Fann Residence, BP 5456, Dakar, Senegal; Tel.: (221) 8-24-20-62; Fax: (221) 8-24-20-58; e-mail: assist@ucad.sn
In the USA: Leigh Swigart, WARA US Director, African Studies Center, Boston University, 270 Bay State Road, Boston, MA; Tel.: 617-353-3673; Fax: 617-353-4975; e-mail: leighswigart@hotmail.com)

June 16-21
MANDE STUDIES ASSOCIATION (MANSA) CONFERENCE, University of Leiden, The Netherlands.

August 7-10
WEST AFRICAN LINGUISTICS SOCIETY CONGRESS, 23rd. University of Buea, Yaounde, Cameroon. (Contact: Ngessimo Mutaka, Department of Linguistics, University of Yaounde 1, Cameroon; e-mail: pmutaka@yahoo.com)

August 26-28
COLLOQUIUM ON AFRICAN LANGUAGES AND LINGUISTICS, 32nd. Leiden, The Netherlands. (Contact: The Organizer, CALL, Dept. of African Linguistics, Leiden University, P. O. Box 9515, 2300 RA Leiden, The Netherlands; e-mail: CALL@let.leidenuniv.nl; website: www.let.leidenuniv.nl/tca/atk/call.html)

September 30-October 2
AFRIKANISTENTAG, 15TH. Frankfurt, Germany. (Contact: Dr. Anne Storch, Institut für Afrikanische Sprachwissenschaften, J. W. Goethe University, Frankfurt, Germany; Tel: 069-79828263; Fax: 069-79825133; e-mail: ifas@uni-frankfurt.de)

November 2
INTERNATIONAL PHONOLOGY MEETING, 9TH. Workshop on the phonology of African Languages. Vienna, Austria. (Contact: Dr. John R. Rennison, Institut für Sprachwissenschaft der Universität Wien, Berggasse 11, A-1090, Vienna, Austria; Tel: 43 1 4277-41714; Fax: 43 1 4277-9417; e-mail: john.rennison@univie.ac.at; website: www.univie.ac.at/linguistics/conferences/phon02/wopal/index.html)

2003

April 10-12
INTERNATIONAL CONFERENCE OF CUSHITIC AND OMOTIC LANGUAGES, 4TH. Leiden University, The Netherlands. (Contact: Dept. of African Linguistics, Leiden University, P. O. Box 9515, 2300 RA Leiden, The Netherlands)

June 17-22
ANNUAL CONFERENCE ON AFRICAN LINGUISTICS, 34TH. Rutgers University, New Brunswick, New Jersey. (Contact: WOCAL4, Department of Linguistics, Rutgers University, 18 Seminary Place, New Brunswick, NJ 08901; Website: www.wocal4.rutgers.edu/acal34)

June 17-22
WORLD CONGRESS OF AFRICAN LINGUISTICS, 4TH. Rutgers University, New Brunswick, New Jersey. (Contact: WOCAL4, Department of Linguistics, Rutgers University, 18 Seminary Place, New Brunswick, NJ 08901; Website: www.wocal4.rutgers.edu/)

June 17-22
INTERNATIONAL SYMPOSIUM ON THE MARGINALIZED LANGUAGES OF AFRICA. Rutgers University, New Brunswick, New Jersey. (Contact: e-mail: Matthias.Brenzinger@uni-koeln.de)