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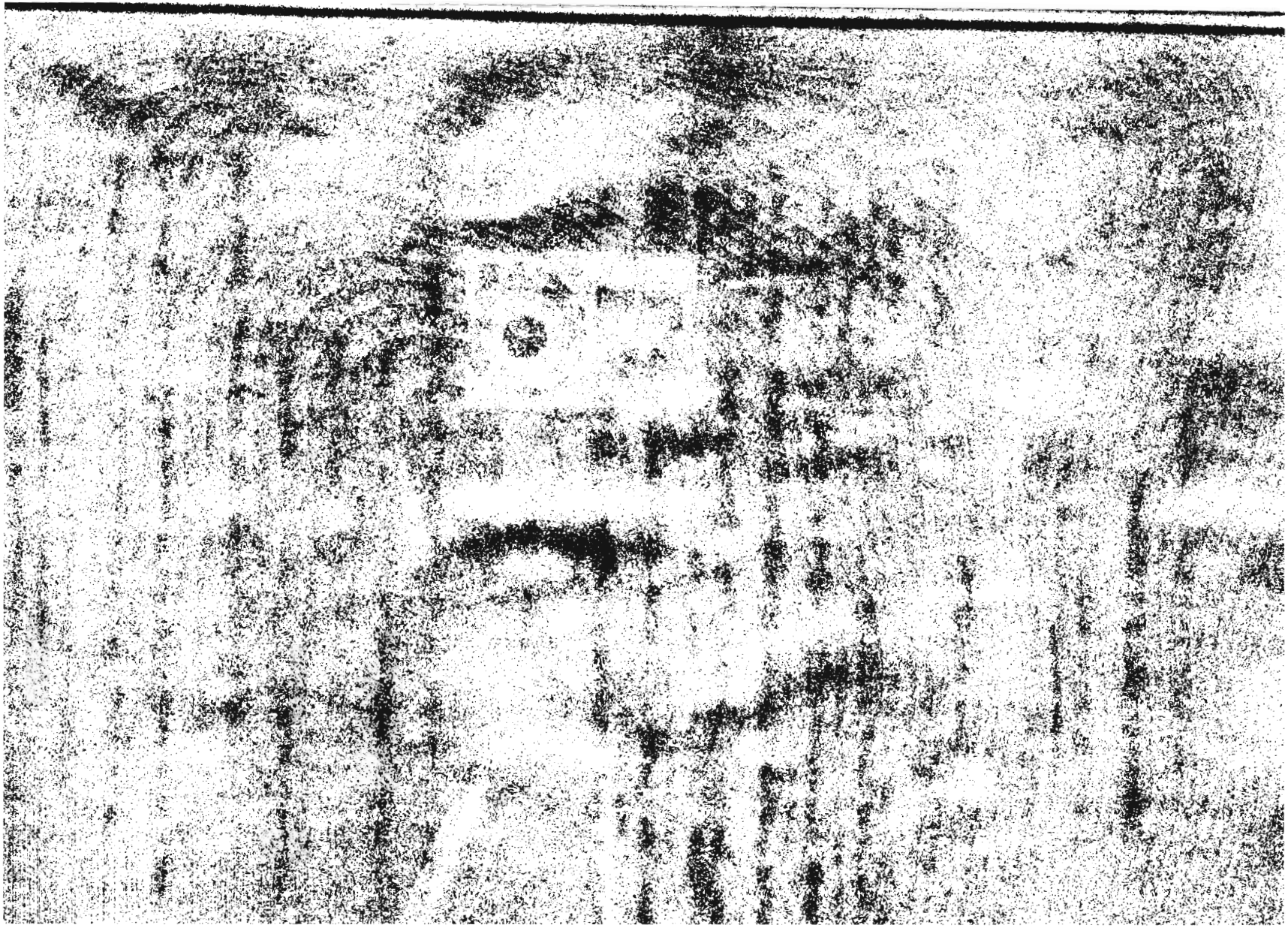

Studies in African Linguistics
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THE HAUSA NEGATIVE MARKERS[1]

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1. Introduction

Modern standard Hausa marks negation in six different ways, five involving some variant or variants of the morph ba(a), the sixth employing the morph kádà. In traditional treatments of Hausa these variants are listed individually as the negative of one or another affirmative construction. No previous attempts have been made to relate these variants to one another nor to explain their similarities and differences. The aim of this paper is to provide a systematic account of the negative markers found in modern Hausa in terms of their historical derivation from a reconstructed negative marking system. While the historical analysis presented in this paper has implications for synchronic studies of negation in Hausa, it does not purport to be a generative/transformational description of the language as it now stands.

2. Hausa negative types

The Hausa negative (henceforth 'Neg') markers are as follows:

(1) bàa...bá	e.g.	shí bàa sárkí bá nèe 'he is not chief'
(2) bà...bá	e.g.	gíwáa bà tà jáa bá 'the elephant didn't pull it'
(3) báa...	e.g.	báa yàa fìtáa 'he is not going out'
(4) bàà...	e.g.	bàà sú dà kóomée 'they do not have anything' bàà míyàa 'there isn't any soup'

[1]This work was supported by a National Science Foundation grant GS-2279. I am indebted to Russell Schuh for comments on an earlier version of this paper.

(Note: The tonal sequence High-Low in the same syllable is realized as a fall, i.e. báà = [◝].)

(5) báabù... e.g. báabù mſyàa
'there isn't any soup'

(6) kádà... e.g. kádà kà máǹtáa
'don't forget'

Neg type (1) is used to negate equational sentences, individual words, and sentences as a whole (i.e. 'It is not the case that...'). Neg type (2) is used with verbal sentences in all tenses except the continuous and the subjunctive. It co-occurs with a short unmarked preverbal pronoun set. In addition to the past (illustrated above), Neg type (2) is used in the future, the second future (or potential), and the habitual. Neg types (1) and (2) are the only ones in Hausa that use discontinuous markers. In both cases, the initial marker (Neg_i) goes at the beginning of the sentence and the final marker (Neg_f) goes at the end. Neg type (3) is used with a long/low pronoun set to form the negative of verbal sentences in the continuous. Some speakers also use this Neg type in preference to Neg type (4) in "have" sentences, e.g. báa swàa dà kóomée 'they do not have anything'. Neg type (4) is used in two different constructions. First, it occurs with the high tone "object" pronoun set in "have" sentences and in the parallel sentences with gà, e.g. báà mú gà sárkſi 'we are not with (i.e. partisans of) the chief'. In northern dialects of Hausa, this construction replaces Neg type (3) as the normal means of forming the negative of the continuous, e.g. báà shſ fìtáa 'he is not going out'. Secondly, Neg type (4) functions as a negative existential marker equivalent to Neg type (5) in sentences with overt complements. It is never used by itself, i.e. one may say báà kúɗſi 'there isn't any money' but not ??báà 'there isn't any'.[2] Neg type

[2]The double question mark ?? is used to indicate ungrammaticality. The asterisk * is used in accordance with standard practice in historical linguistics to indicate reconstructed or hypothetical forms.

(5) functions solely as a negative existential marker meaning 'there is no...'. It may be used either with a complement or by itself, e.g. the complete sentence báabù 'there isn't any'. Neg type (6) kádà serves as the negative of the subjunctive and the imperative. It co-occurs with the short pronoun set normally used in the subjuntive. Unlike the Neg_i ba(a) markers, kádà can optionally be separated from its pronoun and shifted in front of the subject, e.g.:

(7) ...yáaròo kádà yà fìtá = ...kádà yáaròo yà fìtá
'lest the boy go out'

(8) Cf. yáaròo báa yàa fìtáa ≠ ?? báa yáaròo yàa fìtaá
'the boy is not going out'

Syntactic facts such as the one just described plus the obvious phonological difference between ba(a) and kádà suggest that the two forms are etymologically distinct. Therefore, in the historical discussion that follows, Neg types (1) to (5), which make use of the morph ba(a), will be treated as a group while Neg type (6) kádà will receive separate treatment.

3. The reconstructed proto-form

The proto-form from which the five Neg types (1) to (5) are historically derived can be reconstructed as *bàa...bá. This reconstruction embodies three claims:

(a) The proto-Hausa Neg in all morpho-syntactic environments was discontinuous and included a Neg_f in addition to a Neg_i. This Neg_f was *bá.

(b) The vowel of Neg_i in the proto-language was long.

(c) The tone of Neg_i in the proto-language was low.

Claim (a) is based primarily on comparative evidence from other languages in the Chadic family to which Hausa belongs.[3] Throughout Chadic, one finds two common Neg marking systems, namely (i) Neg_i... Neg_f, and (ii) ...Neg_f. In addition to Hausa, languages with discon-

[3]For the composition of the Chadic family and Hausa's position in it, see Greenberg [1963], Newman and Ma [1966], and Hoffman [1971].

tinuous Neg markers include Kanakuru, where Neg_i and Neg_f are indicated by variants of the same morph (wóí...(w)u), and Jegu, where Neg_i and Neg_f morphs are distinct (báà...dó). A larger number of Chadic languages (e.g. Bolewa, Ngizim, Angas, Ron (Bokkos), Gisiga, and Higi) make use of only a single Neg marker at the end of the sentence. Neg marking by the use of a single Neg at the beginning of the sentence--such as is the case with Hausa Neg types (3), (4), and (5)--is not found elsewhere in Chadic. It thus must represent a Hausa innovation rather than an archaic feature. The most likely explanation is that the anomalous Hausa Neg types (3), (4), and (5) came about through the loss of the Neg_f component of what at an earlier time was a discontinuous morpheme. As far as the shape of Neg_f is concerned, there seems to be no reason to reconstruct it other than as *bá.

The Neg_i is reconstructed as *bàa with a long vowel for both internal and comparative reasons. The internal reason is that all of the present-day Neg_i markers except one are long. Moreover, the environments in which the long vowel Neg_i's are found are too disparate to lend themselves to a general lengthening rule whereas the short Neg_i is limited to an easily specifiable environment. The comparative evidence is provided by Sura and Kanakuru, two languages closely related to Hausa that also have discontinuous Neg markers. In both of these languages the Neg_i marker is long, i.e. Sura bàa... kás and Kanakuru wóí...(w)u.

The reconstruction of Neg_i as *bàa with low tone is based primarily on the discovery of what I believe to be the historical change that in some environments resulted in the original low tone being replaced by high. This rule is presented in (17) below.

4. Derivation of the Hausa negative types (1) to (5)

Given the reconstructed proto-form *bàa...bá, we are now ready to derive the Neg variants found in present-day Hausa.

(9) *bàa...bá > bàa...bá

Neg type (1), used in equational sentences, has retained the form of the proto Neg marker without change.

(10) *bàa...bá > bà...bá / ___[CV]$_{pp}$

[pp = pronominal prefix]

In modern Hausa most tenses are formed with the help of a set of short vowel pronominal prefixes (nì, kà, kì, shì/yà, tà, mù, kù, sù, 'à).[4] The historical shortening of *bàa to bà took place when and only when the initial *bàa was attached to an immediately following pronominal suffix, e.g.:

(11) *bàa tà fìtá bá > bà-tà fìtá bá
'she did not go out'

(12) *bàa mú kàn fìtá bá > bà-mú kàn fìtá bá
'we don't go out'

(13) *bàa náà (< ní + à) fìtá bá > bà-náà fìtá bá
'I will not go out'

Although ultimately derived from a sequence of a pronominal prefix plus a tense marker àa, the continuous tense forms (nàa, kàa, kyàa, etc.) had already coalesced into inseparable pronouns by the time of the Neg shortening rule and thus the Neg marker occurring with them was not affected by it, i.e.:

(14) *bàa swàa fìtáa bá ⊁ ?? bà-swàa fìtáa ba
'they are not going out'

Interestingly, Kanakuru has a synchronic Neg shortening rule which is remarkably similar to the Hausa rule (10), namely:

(15) wóì ===> wo (with polar tone) / ____pronoun

E.g.:

(16) ámná wóì nénó ù = ámná wó-shì nénó ù
'the chief is not there'

gúnyòi wóì pórá-tá ù = gúnyòi wò-shée pòrà-tá ù
'the girl did not go out'

---

[4]The low tone in the underlying representations is automatically raised to high under certain conditions. A detailed study of Hausa preverbal pronouns by Russell Schuh and myself is now in preparation.

(Use of the pronoun after the noun subject is optional, but if chosen, the shortening of the Neg marker is obligatory.)

An apparent failing of rule (10) is that it does not account for the use of the short Neg_i with the standard Hausa future construction in which the Neg_i is separated from the pronominal prefix by an intervening tense marker záa, e.g. bà záa tà fìtá bá 'she will not go out'. One would not, however, expect to explain the use of bà...bá with the záa future by rule (10) since it is unlikely that this form of the future even existed at the time the rule was in operation. The future construction formed with záa plus a pronominal prefix (e.g. záa tà fìtá 'she will go out', bà záa sù yàrdá bá 'they will not agree') appears to be a very recent innovation limited to standard Nigerian Hausa. While it has established itself with great success throughout this dialect area, it has failed so far to spread to northern and western dialects. Considering the young age of this tense construction, the form of the Neg used with it must have been adopted from the other tenses that form negatives with bà...bá rather than being derived from proto *bàa...bá via a historical shortening rule:

(17) *bàa...bá > bàa...Ø > báa...
Condition: Blocked in equational sentences.

Except in equational sentences, Negs with an initial long *bàa (i.e. those not having undergone rule (10)) underwent a complex change in which the final Neg was dropped and the tone of the Neg_i marker was raised, e.g.:

(18) *bàa mwàa dáfàawáa bá > báa mwàa dáfàawáa
'we are not cooking it'

(19) *bàa shí dà dóokìi bá > *báa shí dà dóokìi
'he doesn't have a horse'

(20) *bàa dà rúwáa bá > *báa dà rúwáa
'there isn't any water'

The subsequent change of the Neg_i from báa to báà in the latter two examples will be accounted for below (cf. (21) - (26)).

Rule (17) is proposed to account for what I think is a non-accidental correlation in Hausa, namely that Neg_i is absent in just those cases where Neg_i is long an has an initial high tone. At this point, I have no explanation as to why the Neg_f was dropped nor why the deletion failed to take place in equational sentences. The claim I wish to make is that when the Neg_f was dropped, its high tone survived and was shifted to the initial *bàa, the resultant báa in effect constituting a compressed Neg_i/Neg_f marker.

Neg type (4) is presumed to have undergone rule (17) along with Neg type (3), thereby ending up with a high tone Neg_i and no Neg_f. What remains to be accounted for is the change from the hypothetical form *báa to the present form báà. Here I would suggest that there was not one derivation, but two--the change *báa to báà occurring independently in the case of the two distinct Neg (4) constructions. The first:

(21) *báa > báà / ____ $[CV]_{op}$

Under the influence of an immediately following high tone "object" pronoun, the Neg_i marker *báa weakened to báà. It is assumed that this change was due to a depressing effect exerted by the pronoun set in question on the length component of the preceding *báa. This process also explains the future tense and locative constructions formed with záà plus this same pronoun set, e.g.:

(21) *báa shí dà dóokìi > báà shí dà dóokìi
'he doesn't have a horse'

(22) *báa mú gà sárkíi > báà mú gà sárkíi
'we are not partisans of the chief'

(23) Cf. *záa ní gídáa > záà ní gídáa
'I'm going home'

While the second:

(24) *báa dà > báà

In modern Hausa the negative existential markers báà and báabù

are generally regarded as replacements for the corresponding affirmative forms dà and 'akwai. Historically, existential sentences in Hausa were undoubtedly negated like all other sentence types by being enclosed in *bàa...bá.[5] After the loss of the Neg_f by rule (17), negative existential sentences would still have been formed by Neg_i + S, e.g. *báa dà rúwáa 'there is no water' vs. dà rúwáa 'there is water'. The claim embodied in the above rule is that the marker dà was not actually deleted in negative sentences, but rather that it fused with the Neg_i marker. The low tone on the second mora of báà thus represents the contribution of the underlying dà to the present day portmanteau negative-existential marker, e.g.:

(25) *báa dà rúwáa > báà rúwáa
'there is no water'

(26) *báa dà kóowáa yànzú > báà kóowáa yànzú
'there is no one now'

Now, consider Neg type (5):

(27) *báà + *àbù > *báabù

The negative existential form báabù 'there is not/are not' is historically derived from a fusion of the Neg_i marker *báà with the noun *àbù 'thing'.[6] This rule must necessarily have followed the

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[5]This analysis was prompted by comparative evidence from other Chadic languages, e.g. Bolewa: ga dodo 'there is money' vs. ga dodo sa 'there isn't any money', Kanakuru: ayim yiki 'there is water' vs. woi ayim yik-u 'there isn't any water', Tera: a nde 'there is (some)' vs. a nde ɓa 'there isn't (any)'. Eulenberg [1971] correctly came to this same analysis on internal, synchronic grounds.

[6]As far as I am aware, this traditional analysis of báabù as being derived from *báà plus *àbù has always been thought of in historical terms. When Eulenberg [1971] purports to challenge this analysis--suggesting instead "that baà is a contracted form of baabù"--it is not clear whether he is questioning the historical facts or whether he has mistakenly attributed a synchronic significance to the analysis never imputed by its adherents.

incorporation of dà into the Neg form báà described above. Originally báabù was probably in complementary distribution with báà, the former being used in place of the latter only when there was no overt complement following the negative, i.e. (a) báà náamàa 'there is no meat', or (b) báabù 'there isn't (any)', but not (c) ??báabù náamàa. The use of báabù in constructions with a complement, such as in the now grammatical sentence (c), must be the result of a subsequent innovation.[7]

5. The negative type (6)

The remaining Neg type to be accounted for, type (6), is the construction with kádà, which is used in the subjunctive (including the negative imperative), e.g.:

(28) kádà kà shìgá
'don't enter'

(29) náa ɓúuyá kádà yáaròo yà bí ni
'I hid lest the boy follow me'

From a synchronic point of view, this construction is peculiar in two ways: (i) it makes use of an entirely unrelated morph kádà instead of the normal Neg_i ba(a); and (ii) it lacks a Neg_f. Neither of these factors, however, seems particularly strange or unusual when Hausa is compared with other Chadic languages. In fact, the present-day kádà negative construction lends itself to a straightforward explanation when related to a reconstructed West Chadic negative construction of the form *LEST...Neg_f.

It was pointed out in section 3 that Chadic languages generally have one of two Neg types: (a) Neg_i...Neg_f, and (b) ...Neg_f, the

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[7]This analysis provides a natural historical explanation for some of the questions concerning báà and báabù raised by Eulenberg [1971], specifically (a) why doesn't báà occur without a complement? and (b) why does báabù permit a complement without the normal changes associated with N + N constructions? The answer to (a) is that báà should no more occur by itself than the affirmative existential marker dà, of which it is composed, or a preposition such as gà. When not generated with any other complement, báà came to take the non-specific noun

latter being the more common. However, in the negative subjunctive and the negative imperative, even languages that have no Neg_i use some kind of marker at the beginning of the sentence in addition to the Neg_f occurring at the end. This marker, which I will label LEST (a term by which it can often be translated), is structurally a type of adverbial-conjunction. Though inherently semantically negative, it is not a true Neg marker. The existence of such negative adverbials is common in Chadic and their usage is similar wherever they are found. Although the forms match closely in terms of syntactic function, they vary widely in terms of phonological shape, cognate forms being the exception rather than the rule. In the following examples drawn from closely related West Chadic languages, sentences of the form LEST...Neg_f, used in the negative subjunctive and imperative, are contrasted with negative sentences in other tenses which do not use the adverbial.

(30) Bolewa:

ka basa su <u>sa</u>	'you didn't shoot them'
	<u>sa</u> = Neg_f
<u>kobo</u> ka bese su <u>sa</u>	'don't shoot them'
	<u>kobo</u> = LEST[8]

Ron (Fyer):

yi hwali <u>naat</u>	'I didn't hear it'
	<u>naat</u> = Neg_f
...<u>kaɗa</u> ti nyi ɗoor <u>naat</u>	'...lest she be annoyed'
	<u>kaɗa</u> = LEST

àbù 'thing' as its obligatory, space-filling complement. Similarly, in Angas the existential marker ɗì always requires a complement. If a specific complement slot, e.g. am ɗì 'there is water', or nyi ɗì 'there is (some)', but not ??ɗì. The answer to (b) is that while báabù <u>historically</u> developed from báà + àbù, it has long since been reinterpreted as a monomorphemic negative-existential marker equivalent to báà and thus in modern Hausa functions accordingly.

[8]kóbò is an older form. Nowadays kádàa (sic), borrowed from Hausa, is more commonly used.

Angas:	
ma met ka	'they have not gone'
	ka = Neg_f
manta a met ka	'don't go'
	manta = LEST[9]
Sura:	
baa wan kə na kas	'I haven't seen it'
	baa = Neg_i, kas = Neg_f
taji wu sat pwoo kas	'don't say it'
	taji = LEST

It should be obvious by comparison with the above that Hausa kádà is also a LEST adverbial syntactically corresponding to kobo, kaɗa, manta, and taji, and not an anomalous Neg_i marker. The examples from languages such as Bolewa that do not use a discontinuous Neg show clearly that the use of LEST is completely independent of the existence of an underlying Neg_i. The examples from Sura, which like Hausa normally employs a discontinuous Neg, point to a basic incompatibility between LEST and Neg_i and suggest that proto-Hausa (like Sura and modern Hausa) also had a rule that prevented the use of Neg_i whenever LEST was present, i.e. LEST Neg_i...Neg_f ===> LEST...Neg_f. Hausa's use of a LEST marker (kádà) in the negative subjunctive and imperative is thus typical of the Chadic subgroup to which it belongs.

A second peculiarity of the Hausa kádà construction is the absence of the final Neg marker. A possible explanation would be to relate the deletion of bá after kádà to the historical deletion of the final Neg_f from Neg types (3), (4), and (5) described earlier. However, there is evidence which indicates that the two deletions represent independent historical changes, the loss of bá after LEST being simply a Hausa manifestation of a tendency found elsewhere in Chadic. In all of the languages cited in (30) above, for example, the use of Neg_f in sentences with LEST is reported to be optional [indicated by ( ) in (31) below]:

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[9]manta has a short variant man. In addition to the normal Neg_f marker ka, Angas also has a special Neg_f marker kat which can only be used in the negative subjunctive.

(31) Bolewa: kóbò...(sá)[10]
Ron (Fyer): kádà/kátà...(nàát)
Angas: (manta)...(kat) [Either or both may be used.]
Sura: tájì...(kás)

It seems clear then that the use of Neg_f with LEST must have already been optional in proto-Hausa times. The Hausa innovation thus consisted not in the development of a new rule but rather in the change in status of an already existing rule from optional to obligatory, with subsequent historical consequences. The sequence can be diagrammed as follows:

(32)

Inherited rule	LEST...Neg_f	optional ==========>	LEST...
New synchronic rule	LEST...Neg_f	obligatory ==========>	LEST...
Resultant historical rule	LEST...Neg_f		LEST...

In the above sections, there has been a conscious attempt to avoid referring to the morph kádà except when specifically discussing modern-day Hausa. While the construction type *LEST...Neg_f can be reconstructed for proto-Hausa with confidence, it is at present not possible to reconstruct the proto-form of that LEST marker nor even to hypothesize whether kádà might be a reflex of it.

6. Summary

Negation in proto-Hausa was indicated in all environments excluding the subjunctive by means of a discontinuous morpheme *bàa...bá. The various means of marking negation in present-day Hausa are all derived from that proto-form. For the negative of the subjunctive and imperative, proto-Hausa employed an inherently negative adverbial LEST in addition to the normal Neg_f marker *bá. The use of this Neg_f was optional. The phonological shape of the LEST morpheme in proto-Hausa has not been reconstructed.

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[10] In my own materials, sá was invariably used in imperative constructions, but was commonly deleted in embedded "lest" clauses.

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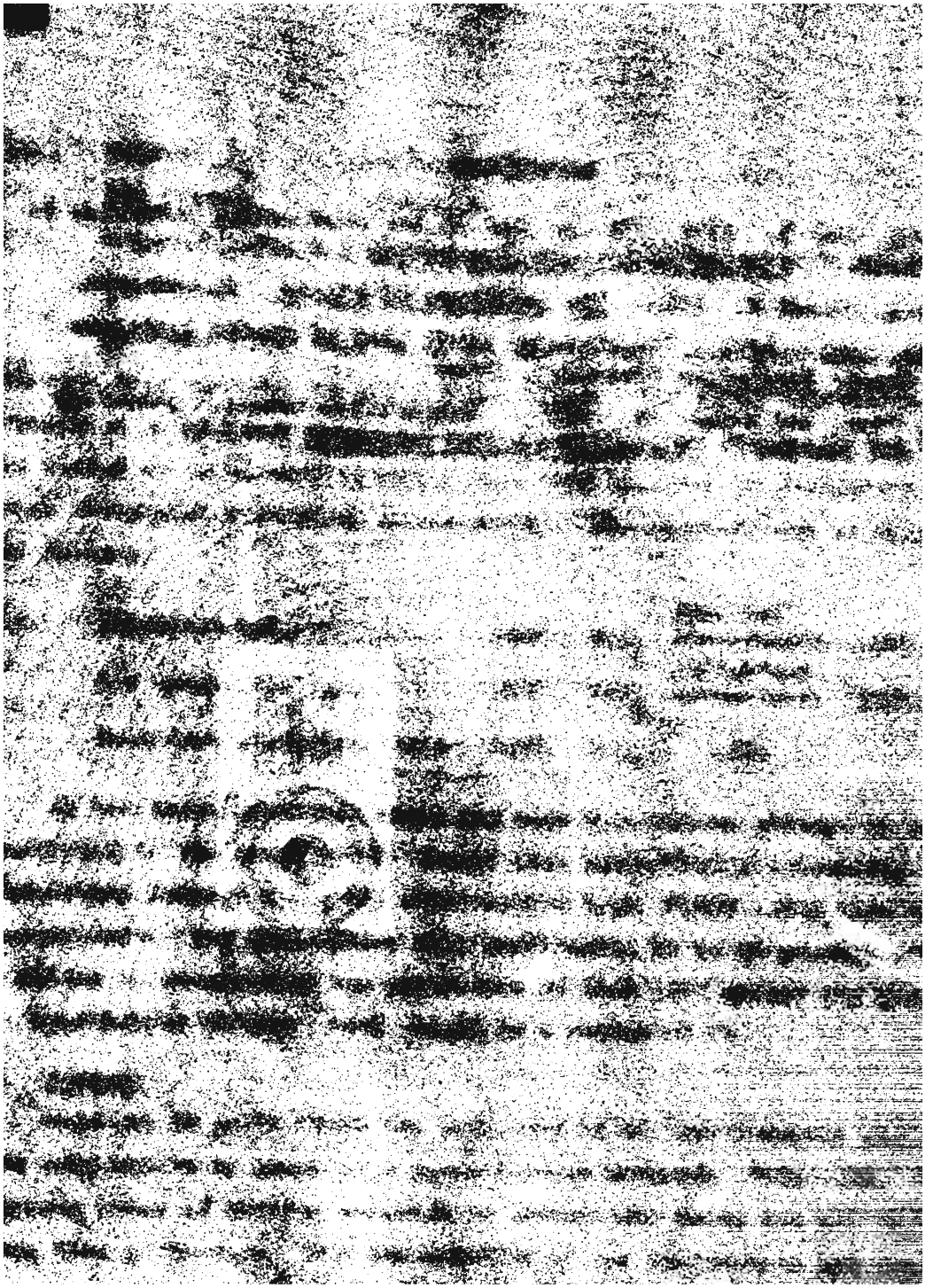

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LEXICALIST HYPOTHESIS AND HAUSA[1]

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Chomsky [1970] challenges Lees' [1960] transformational analysis for the formation of the "derived" nominal and puts forward a new hypothesis. Chomsky's position is that transformations are not the appropriate mechanism for getting the derived nominal. He suggested that the derived nominal be entered directly in the lexicon with its own idiosyncratic features.[2]

The main theoretical aim of this paper is to analyze the various aspects of nominalization in Hausa and to see which of the two positions (Chomsky's lexicalist position or Lees' and later linguists' transformationalist position) it supports.

1. Derived nominal and gerundive nominal in Hausa

The study of nominalization is still a virgin field in Hausa even within the framework of traditional linguistics. To the best of my knowledge, nobody has done any large-scale treatment of this subject in Hausa at all.

For Hausa, I shall use the term nominalization in two distinct ways: (1) to refer to the underlined phrases in the sentences:

(1) karanta littaafin baa wuyaa
reading the book no difficulty
'reading the book is not difficult'

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[1]This paper represents part of the writer's M. Phil thesis, "Some Aspects of Nominalization in Hausa", London University, 1971. The thesis was made possible by a grant from Ahmadu Bello University, Zaria, Nigeria, for which I am extremely grateful. I wish to express my appreciation to Russell Schuh of UCLA for going through this article and offering various comments and suggestions.

[2]We must remember that during Lees' time the theory of T.G.G. had not developed sufficiently to offer any alternative to a transformational derivation for both types of nominal as there was no explicit theory of the lexicon.

(2) daawoowar Audu yanzu yaa baa ni maamaakii
returning of A now it give me surprise
'Audu's returning now surprises me'

(3) karaatun jariidaa ya naa da 'amfaanii
reading of newspaper with usefulness
'newspaper-reading is useful'

(4) rubuutun wasiikaa 'aikii nee mai saukii
writing letter job is with easiness
'letter-writing is an easy job'

and (2) to refer to the transformations which relate these phrases to the structures underlying (5) - (8):

(5) X yaa karanta littaafii
'X read a book'

(6) Audu yaa daawoo yanzu
'Audu has returned now'

(7) 'a naa (yin) karaatun jariidaa
one is doing reading of newspaper
'one does newspaper-reading'

(8) 'a naa (yin) rubuutun wasiikaa
'one does letter-writing'

The main controversy over nominalization (in English) hinges on the question whether the derived nominal is to be entered directly in the lexicon with its own idiosyncratic features or is to be derived transformationally from sentences containing the corresponding verb which alone would occur in the lexicon. Accordingly, it is logical for me to begin my treatment of Hausa nominalization by investigating whether we have derived nominals distinct from gerundive nominals in Hausa. Therefore my first concern here is to try to show that in Hausa there are two grammatically distinct types of verbal noun corresponding to the derived nominal and the gerundive nominal of English.

A great deal has been written on "verbal nouns" by various students

of Hausa. Abraham [1959], for example, divides the verbal nouns in Hausa into two - primary verbal nouns, e.g. karantaawaa 'reading', rubuutaawaa 'writing', kasheewaa 'killing'; and secondary verbal nouns, e.g. karaatuu 'reading', rubuutuu 'writing', kisaa 'killing'. Parsons [1960] also divides them into two - strong and weak. His weak verbal noun corresponds to Abraham's primary, and his strong to Abraham's secondary. Hodge [1947], however, considers only Abraham's secondary (Parsons' strong) as verbal nouns. Hodge considers the verbal noun of the "changing verb" (i.e. Parsons' weak verbal noun) as a verb form which, according to him, is to be treated in the syntax "as regards its nominal function".

In the traditional approaches to Hausa linguistics the nominals in the third column below are analyzed as strong or secondary verbal nouns of the corresponding verbs in the first column:

VERB		GERUNDIVE NOMINAL	DERIVED NOMINAL[3]
kashe	'to kill'	kashe(ewaa)	kisaa
ƙeera	'to forge'	ƙeera(awaa)	ƙiiraa
karanta	'to read'	karanta(awaa)	karaatuu
rubuuta	'to write'	rubuuta(awaa)	rubuutuu
gina	'to build'	gina(awaa)	ginii
rina	'to dye'	rina(awaa)	rinii

What has formerly led people to classify the derived nominal as equivalent to the gerundive is the fact that derived nominals are in some respects similar to the gerundive, e.g. they both have verbal roots and can occur in progressive constructions as in:

(9a) Audu ya naa kashe maciijii
snake
'Audu is killing a snake'

(9b) Audu ya naa kisam maciijii[4]
'Audu is killing a snake'

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[3]I use these terms only as labels at this stage. The justification for their analysis as such will be given in due course.

[4]Here the form of the derived nominal kisam differs from its

and in constructions such as:

(10a) kashe macìjìì Audu ya kee (yìì)

(10b) kisam macìjìì Audu ya kee (yìì)

'killing the snake (is what) Audu is doing'

and in nominalizations such as:

(11a) kashe macìjin Audu

'Audu's killing the snake'

(11b) kisam macìjin Audu

'Audu's killing of the snake'

There is, however, an important semantic difference between the two types of nominal, viz. those in construction (a) denote just a fact while those in (b) denote an action with the additional feature of either [+OCCUPATION] or [+HABIT] or both.[5] There is another (phonological) difference between the two nominals: as in English, the phonetic form of the derived nominal is largely unpredictable. Its form is also more noun-like than the primary verbal noun, especially in tone (the primary verbal noun tones are entirely predictable).

If we took the nominals in (b) to be gerundive like the ones in (a) we would then be assuming that constructions (12) and (13) could be transformationally derived from the same source:

(12) karanta lìttaafin Audu

'Audu's reading/having read the book'

(13) karaatun lìttaafin Audu

'Audu's reading of the book'

which is not true. The source of (12) is the same as the structure

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original form kisaa as shown in column 3 by virtue of the genitive which links it to its object. The long final vowel, characteristic of Hausa common nouns, becomes short in the "nomen regens" before the genitive -n/-r. The -n/-r is normally assimilated to the first consonant of the "nomen rectum" e.g. sarkìì 'a king'; sarkì-n Masar → sarkì-m Masar 'the king of Egypt'; sarauniyaa 'a queen'; sarauniya-r Kano → sarauniya-k Kano 'the queen of Kano'.

[5]The nominals in (a) correspond to Lees' second nominal, i.e. his

which underlies (14),

(14) Audu yaa karanta littaafii
'Audu read a book'

whereas (13) cannot be derived from any underlying source at all. (13) is in fact a simple genitive construction of the same structure as (15), (16) and (17), i.e. a lexical noun modified by a genitive.

(15) dookin sarkii
horse of king
'the king's horse'

(16) ruwan tafkii
water of lake
'water of the lake'

(17) riigar Audu
shirt of Audu
'Audu's shirt'

In support of this claim it can be observed that a number of transformations which operate on genitive constructions such as (15) - (17) can also operate on nominal constructions like (13). For example, when the complement of a copula-sentence contains a genitive, the copula nee/cee can come in between the head noun and the genitive:

(18) ruwa-n[6] tafkii nee → ruwaa nee na tafkii
'it is lake-water'

(19) karaatu-n littaafii nee → karaatuu nee na littaafii
'it is the reading of the book'

but not:

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gerundive nominal [Lees 1960:54], and those in (b) to his first nominal, i.e. the "action nominal" [Lees 1960:56], e.g. karanta littafin 'reading the book', karaatu-n littaafin 'the reading of the book'.

[6]When the head noun and the genitive are separated the genitive link (-n/-r) assumes its full form and becomes na/ta.

(20) karanta littaafii nee → *karanta(awaa) nee na littaafii

where nee intervenes between a gerundive nominal and its object.

In the same way adjectives qualifying the genitive NP which normally come at the end of the whole NP (i.e. head noun plus genitive), can also occur in between the head noun and genitive for emphasis:

(21) ruwan tafkii mai sanyii → ruwaa mai sanyii na tafkii
water of lake possessor of coolness
'cool water of the lake'

(22) karaatun littaafii mai 'amfaanii → karaatuu mai 'amfaanii na littaafii
'the useful reading of the book'

but not:

(23) *karanta mai 'amfaanii na littaafii

where the adjectival phrase intervenes between a gerundive nominal and its object. Likewise a demonstrative can occur at the end of a whole NP or between a head noun and a genitive.

(24) ruwa-n tafkin nan → ruwan nan na tafkii
'this water of the lake'

(25) karaatu-n littaafin nan → karaatun nan na littaafii
'this reading of the book'

but not:

(26) *karanta nan na littaafii

where the demonstrative nan has been moved between a gerundive nominal and its object.

The various constituents of a sentence (VP, object, adverbials) can be front-shifted for emphasis, and this is true even when the sentence is nominalized. Examples are:

(27) karanta littafii (nee) Audu ya yi (VP front-shifted)
'reading the book (was what) Audu did'

(28) jiya (nee) Audu ya karanta littaafii (adverbial front-shifted)
'(it was) yesterday (that) Audu read the book'

(29) ɗaakii Audu ya kee ginaawaa (object front-shifted)
'(it was) a room (that) Audu was building'

When the object of a gerundive nominal is front-shifted the nominal takes the suffix -waa as in ginaawaa. Similarly, when the object is deleted the nominal takes the -waa suffix, e.g.

(29) Audu ya naa ginaawaa
'Audu is building X'

The derived nominal and the gerundive can occur in apparently identical contexts, e.g.

(30) Audu ya na ƙeeraawaa/rinaawaa
'Audu is forging/dying X'

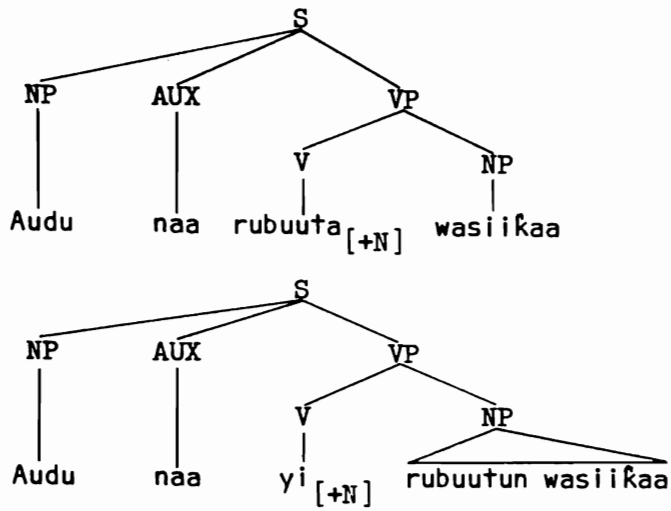
(31) Audu ya naa ƙiiraa/rinii

In constructions containing gerundive nominals, as in (30), there is always a deleted object implied while in the case of constructions containing the other type of nominal the fact is that we are specifying an occupation that he is engaged in, i.e. he is doing (the activity of) manufacturing/dying. There is no object implied.

Front-shifting of objects is not permissible with the derived nominal. Thus (32) is ungrammatical.

(32) *wasiiƙaa Audu ya kee rubuutuu

The two sentences Audu ya naa rubuuta wasiiƙaa and Audu ya naa rubuutun wasiiƙaa are two simple sentences whose main verbs have been obligatorily nominalized because of the continuative aspect auxiliary. The two sentences can be characterized by the following (partially derived) structures. The feature [+N] has been added to the verbs because of the continuative aspect AUX.



Front-shifting is prevented in the second tree because this would involve ripping part of an NP away. In the case of the first tree, the entire object NP is moved, however.

All these examples show clearly that the derived nominal plus its semantic object or subject has similar syntactic behavior to the genitival NP in Hausa. This means that the nominals karaatuu 'reading', rubuutuu 'writing' (and all other derived nominals) are entered in the lexicon as simple nouns such as ruwaa 'water' and dookii 'horse'.

It might be argued that karaatu-n Audu 'the reading of Audu' can have (33) as its source:

(33) Audu yaa yi karaatuu
'Audu did (some) reading'

with yi-karaatuu 'to do-reading' analyzed as a verbal unit. Derived nominals in Hausa do in fact have some syntactic behavior in common with the so-called dynamic nouns. For example, there is the possibility of inserting (a) and indirect object or (b) a particle such as har 'even', dai (emphasis), etc. between the verb yi 'to do' and the derived nominal:

(34) Audu yaa yi dai karaatuu
'Audu did (some) reading'

(35) Audu yaa yi ma Garba karaatuu
'Audu did (some) reading for Garba'

The derived nominal can also be qualified by an adjective:[7]

(36) Audu yaa yi kyakkyaawan karaatuu
'Audu did a good reading'

It is true that there are compound forms in Hausa, but these are normally indivisible. For example, no particles, adjectives, or adverbs can occur in between the constituents of the following compound forms:

(37) babba-da-jakaa
'a kind of bird'

(38) babba-da-tsoolaa
'untasty broth'

(39) kaamaa-karyaa
'oppressive rule'

(40) faadi-ka-mutu
'china ware'

(41) kaama-kanda
'a kind of sweet'

The elements of compound forms are inseparable; this is not true with yi plus its derived nominal as shown above.

The verbal noun yii plus the genitive link which connects it with

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[7]When the object of the gerundive nominal is front-shifted or deleted (and the verb is in the progressive tense), the nominal takes the suffix -waa but the derived nominal never takes the suffix, e.g.

wasiikaa Audu ya kee rubuutaawaa
'it was/is a letter that Audu was/is writing'

(object of gerundive nominal front-shifted);

Audu ya naa rubuutaawaa
'Audu was/is writing X'

(gerundive nominal with deleted object).

its object in the progressive construction is normally deleted, e.g.:

(42) Audu ya naa (yi-n) karaatuu
'Audu is doing (some) reading'

In the same way, the verbal noun can be deleted when the sentence is nominalized, e.g.:

(43) $[[$Audu yaa yi karaatuu$]_S]_{NP}$ ===>

(44) $[$yi-n karaatu-n Audu$]_{NP}$ ===> karaatu-n Audu
'Audu's (doing the) reading'

When the verbal noun plus the genitive is deleted in constructions such as (44), the reduced version has the same surface form as the derived nominal construction. This is why karaatu-n Audu can be ambiguous: it can mean either (1) 'Audu's (manner of) reading', which is analogous to ruwa-n tafkii 'lake-water', i.e. a simple genitive, or (2) it can mean 'Audu's reading/having read' which is a reduced form of yi-n karaatu-n Audu 'Audu's doing/having done reading'. The claim that this is indeed ambiguous in this fashion is supported by certain syntactic facts. For example, the reduced transformational version can be followed by certain adverbials while the derived nominal version cannot be followed by any adverbials:

(45) $[[$Audu yaa yi karaatuu <u>da raana</u>$]_S]_{NP}$ ===>
'Audu has read in the afternoon'

(46) yi-n karaatu-n Audu da raana
'Audu's having read in the afternoon'

but not:

(47) *karaatu-n Audu da raana

The point here is that the derived nominal does not admit adverbial extentions which are possible with the gerundive nominal because the gerundive nominal is a transformed sentence and the derived nominal is not.

Another syntactic difference between the two nominals is that the object of a gerundive nominal always follows it without a genitive link while the derived nominal is always linked to its object by a genitive link, e.g.:

(48) kaama dookii (gerundive)
'catching a horse'

(49) ƙeera fartanyaa (gerundive)
'forging a hoe'

(50) kaamu-n dookii (derived)
'horse-catching'

(51) ƙiira-r fartanyaa (derived)
'hoe-forging'

Our discussions above show explicitly that the syntactic behavior of the derived nominal is not at all the same as that of the gerundive nominal: the gerundive nominal behaves more or less in the same way as a sentence, e.g. it has a subject and an object, and adverbs, each of which can be front-shifted in the same way as each of these items can be front-shifted in a sentence; but the derived nominal is more like an ordinary noun (rather than a nominalized sentence) and as such it is better treated like an ordinary noun, i.e. to be put directly in the lexicon.

I shall now return to the gerundive nominal. In sentences which contain gerundive nominals, such as

(52) ban soo zaunaawar Audu minti 'uku a kan kujera-r maalam ba
'I did not like Audu's sitting for three minutes on the teacher's chair'

(53) daawoowar Audu gidaa kullum da ƭsaka-r dare baa shi da kyau
'Audu's always returning home at midnight is not good'

it is desirable to consider the gerundive nominal complex (i.e. the verbal noun, subject, object(s), adverbials, etc.) as an embedded sentence, since deriving it from a head noun plus a great variety of

optional categories (especially the various adverbials which are normally found in finite clauses) would be extremely complicated and redundant.[8]

I shall now look into the operations which reorder the various elements of the embedded sentence under nominalization. It is essential that we consider the whole sentence here and not the VP alone because by doing so we shall expose more clearly the syntactic differences between the two types of nominal under observation. I shall, however, lay some emphasis on the VP with regard to its area of domination in order to see how the various adverbials are related to the VP within the nominalized sentence and to see whether this will bring any evidence for or against putting some of the adverbials within the VP.[9]

Tense and aspect are normally neutralized in the nominalized sentence.[10] Thus the embedded sentences in examples (54) - (56) are all rewritten as zuwa-n Audu 'Audu's coming' in examples (57) - (59).

(54) n naa zaɓo(-n) [[Audu zaɨ zoo]$_S$]$_{NP}$
'I think Audu will come'

(55) naa ɗabbaɗaa [[Audu yaa zoo]$_S$]$_{NP}$
'I am certain that Audu has come'

(56) baa naa so(-n) [[Audu ya zoo]$_S$]$_{NP}$
'I do not want Audu to come'

(57) n naa zaɓo-n zuwa-n Audu
'I anticipate Audu's coming'

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[8]Cf. Galadanci [1969].

[9]Cf. Chomsky [1965:102] who suggests that the VP contains, in addition to certain other elements, adverbs of manner but not temporal adverbs. Lakoff and Ross [1966] suggest that adverbs of manner are also outside the VP.

[10]Cf. Section 2.c. Relatival nominalization, below, in which the gerund is modified by a relative clause.

(58) naa tabbataa da zuwa-n Audu
'I am certain of Audu's having come'

(59) baa naa so-n zuwa-n Audu
'I do not like Audu's coming'

Adverbs of time, manner, place, etc., can occur freely with the gerundive nominal together with the other elements of the VP (i.e. the object(s), adverbials of duration, frequency, etc.) e.g.

(60) daawoowa-r Audu yanzu yaa baa ni maamaakii
'Audu's having returned now has surprised me'

(61) karantaawa-r Audu da-karfii yaa firgitaa ni
with vigour frighten
'Audu's reading loudly frightened me'

(62) zaunaawa-r Audu a kan kujeera-r maalam baa daidai ba nee
right
'Audu's sitting on the teacher's chair is ill-mannered (is not right)'

The various adverbials can co-occur and exchange places among themselves in the nominalized sentence exactly as in the base sentence without effecting any major change in the meaning or emphasis of the sentence. But their sphere of free exchanging is restricted to the end of the construction only, i.e. they cannot come before the major constituents of the sentence (viz. the subject, the object(s) and the nominalized verb). Thus examples (63a - f) all have the same meaning (with perhaps a slightly different focus of emphasis with some speakers).

(63a) (i) zaman Audu wataa 'uku 'a Kano baara
month 3 last year
'Audu's staying for 3 months at Kano last year'

(ii) Audu yaa zaunaa wataa 'uku 'a Kano baara
'Audu stayed for 3 months at Kano last year'

(63b) (i) zaman Audu wataa 'uku baara 'a Kano
'Audu's staying for 3 months last year at Kano'

(ii) Audu yaa zaunaa wataa 'uku baara 'a Kano
'Audu stayed for 3 months last year at Kano'

(63c) (i) zaman Audu 'a Kano baara wataa 'uku
'Audu's staying at Kano last year for 3 months'

(ii) Audu yaa zaunaa 'a Kano baara wataa 'uku
'Audu stayed at Kano last year for 3 months'

(63d) (i) zaman Audu 'a Kano wataa 'uku baara
'Audu's staying at Kano for 3 months last year'

(ii) Audu yaa zaunaa 'a Kano wataa 'uku baara
'Audu stayed at Kano for 3 months last year'

(63e) (i) zaman Audu baara 'a Kano wataa 'uku
'Audu's staying last year at Kano for 3 months'

(ii) Audu yaa zaunaa baara 'a Kano wataa 'uku
'Audu stayed last year at Kano for 3 months'

(63f) (i) zaman Audu baara wataa 'uku 'a Kano
'Audu's staying last year for 3 months at Kano'

(ii) Audu yaa zaunaa baara wataa 'uku 'a Kano
'Audu stayed last year for 3 months at Kano'

Most Hausa speakers will generally accept (63a - f) as perfect. Perhaps some may assign different degrees of acceptability, but none will reject any of them as ungrammatical.

One exception to the generalization that adverbials function identically in simple and embedded sentences is that none of the adverbials can occur before the verbal noun in a nominalized sentence although some of them can precede the verb in a non-nominalized sentence. (In fact only time adverbials can be front-shifted but not other adverbials; place, frequency, and sometimes duration adverbials can also be front-shifted in poetic or figurative speech to give extra emphasis.) Accordingly, the (a) sentences below are grammatical while the (b) ones are not.

(64a) jiya Audu yaa komaa Kano
'yesterday Audu returned to Kano'

(64b) *jiya koomaawa-r Audu Kano
'yesterday Audu's returning to Kano'

(65a) 'a Kano Audu yaa yi sheekaraa 'uku
'at Kano Audu spent three years'

(65b) *'a Kano yi-n Audu sheekaraa 'uku
'at Kano Audu's staying for three months'

However, I shall assume that in Hausa, the natural place for all the adverbials (where they are generated by PS rules) is at the end of the sentence after the VP proper, and that when a sentence is nominalized all adverbials must remain in their natural place. The difference in grammaticality of (64a, 65a) and (64b, 65b) is then naturally accounted for if we assume that nominalization is cyclic and that adverb shift is last cyclic.

The category (Neg) is realized, under nominalization, by the negatival-noun rashii 'lack (of)', and not by the negatival particle(s) ba ... (ba). The negatival noun always precedes the gerundive nominal to which it is joined by the genitive -n.

(68) $[[\text{Audu bai daawoo ba}]_S]_{NP}$ ===>
'Audu has not returned'

(69) rashi-n daawoowa-r Audu
'Audu's having not returned'

Emphatic elements such as har 'abadaa 'never', har yanzu 'not yet', koo kaɗan '(not) at all', etc., which can occur with the category (Neg) in non-nominalized sentences, are not retained at all, in any form, under nominalization.

2. Nominalization rules

There are three types of nominalization rule which can operate on a sentence to turn it into an NP. I shall label these transformations as

(i) T-Nom_1 (T-Nominalization One)
(ii) T-Nom_2 (T-Nominalization Two)
(iii) T-Rel. Nom (T-Relatival Nominalization)

a. $\underline{\text{T-Nominalization}_1}$. This rule can operate on any type of sentence in Hausa regardless of whether it is transitive (with one or more objects) or intransitive. When this transformation operates on a sentence

the gerundive nominal always comes first and the underlying NP subject always separates the gerundive nominal and its object(s). The subject is joined to the gerundive nominal by the genitive link, but the object(s) always follow without the genitive link. This transformation can be formalized in the following way:

$T\text{-}Nom_1$

SD:	X[[NP		AUX	V	Y]$_S$]$_{NP}$		Z	
	1	2	3	4	5		6	
SC:	1	Ø	Ø	4 [+NOM]	+r	2	5	6

Condition: 5 cannot contain Emphasis.

Examples:

(70a) Audu yaa zaunaa 'a kan kujeeraa ===>
'Audu sat on a chair'

(70b) zaunaawa-r Audu 'a kan kujeeraa
'Audu's sitting on the chair'

(71a) Audu yaa ƙeera fartanyaa ===>
'Audu made a hoe'

(71b) ƙeeraawa-r Audu fartanyaa
'Audu's making the hoe'

(72a) Audu yaa yarda da Garba
'Audu trusts Garba'

(72b) yarda-r Audu da Garba
'Audu's trusting Garba'

(73a) sarkii yaa naɗa Audu haakimii
appoint lord
'the king made Audu a lord'

(73b) naɗaawa-r sarkii Audu haakimii
'the king's making Audu a lord'

(74a) Audu yaa sayar da dookii wa Garba
sell
'Audu sold a horse for Garba'

(74b) sayarwa-r Audu dookii wa Garba
'Audu's selling the horse for Garba'

In the unmarked case, this transformation operates on intransitive verbs. It may operate on transitive verbs too (as shown), but the other two transformations are more natural with transitive verbs.

b. T-Nominalization$_2$. This rule is restricted to single transitive verbs only, i.e. to sentences with verbs which take only one object. Here the whole VP is considered as a single item and nominalized accordingly. The nominalized VP occurs as the left most element of the embedded sentence, the subject is joined to it by the genitive link and the various adverbials follow the subject. This rule can be formalized in the following way:

T-Nom$_2$

SD:	X	[[NP	AUX	V (da N)$_{NP}$	(ADV)]$_S$]$_{NP}$	Y
	1	2	3	4	5	6
SC:	1	∅	∅	4 [+NOM]	+ GL +	2	5	6

Conditions: (1) the object NP contains no modifiers
(2) the embedded sentence does not contain emphasis

Examples:

(75a) Audu yaa ƙeera fartanyaa ===>
'Audu made a hoe'

(75b) ƙeera fartanya-r Audu
'Audu's making the hoe'

(76a) Audu yaa yarda da Garba ===>
'Audu trusts Garba'

(76b) yarda da Garba-n Audu
'Audu's trusting Garba'

When any kind of modifier follows the object this transformation is not possible. Therefore (77) is ungrammatical.

(77) *ƙeera fartanyaa kyakkyaawa-r Audu
'Audu's making the beautiful hoe'

from Audu yaa ƙeera fartanyaa kyakkyaawaa 'Audu made a beautiful hoe'. The occurrence of a modifier necessitates the application of T-Rel. Nom.

c. T-Relatival Nominalization. This rule, like $T\text{-}Nom_1$, also operates on double transitive, single transitive, and intransitive sentences. But here it is the whole VP (as in $T\text{-}Nom_2$) that is nominalized and front-shifted and not the verb alone.

The surface characterization of the nominalized sentence after the application of T-Rel. Nom is quite different from that realized after the application of $T\text{-}Nom_1$ or $T\text{-}Nom_2$. In $T\text{-}Nom_1$ or $T\text{-}Nom_2$ the subject is joined to the gerundive nominal by the genitive link while in T-Rel. Nom the gerundive nominal (the nominalized VP) is modified by a relative clause. This rule can be formalized in the following way:

T-Rel. Nom

SD:	X	$[[NP_1$	AUX	V	$NP_2]_S]_{NP}$			Y
	1	2	3	4	5			6
SC:	1	5	da +	2	3	4	Ø	6

Examples:

(78) koomaawaa gidaa da Audu zai yi
'returning home which Audu will do'

from Audu zai (yi) koomaa gidaa 'Audu will do return home'.

(79) ƙeera fartanyaa da Audu ya yi
'making the hoe which Audu did'

from Audu yaa (yi) ƙeera fartanyaa 'Audu did make a hoe' (cf. (71)).

(80) naɗa Audu haakimii da sarkii ya yi
'making Audu a lord which the king did'

from sarkii yaa (yi) naɗa Audu haakimii (cf. (73)). The relative clause retains the tense of the embedded sentence, as shown in the examples above.

If the nominalized sentence contained adverbials, these adverbials will occur either just before or just after the relative clause which modifies the gerundive nominal, e.g.

(81a) ƙeera fartanyaa da Audu zai yi goobe
'making the hoe which Audu will do tomorrow'

(81b) ƙeera fartanyaa goobe da Audu zai yi
(same meaning as (81a))

Although all sorts of adverbials can occur either immediately before or after the relative clause, time and place adverbials seem more natural when they occur after the relative clause (i.e. away from the VP) while all other adverbials seem more natural when they are before the relative clause (i.e. when they are near the VP). This obviously suggests that place and time adverbials are different from the rest of the adverbials, and since time and place are more acceptable when they are at the furthest position away from the gerundive nominal (the nominalized VP), and the others are more acceptable when they are near it, this fact can be cited as evidence for putting all adverbials other than time and place within the VP.

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SPECIFICITY AND DEFINITENESS IN DZAMBA[1]

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1. Introduction

It has been assumed in the past that the initial vowel and/or CV-type noun pre-prefixes (hereafter NPP) of the Bantu concordial system corresponds to the definite article (Def. Art.) in Indo-European languages. As a result of this, certain significant generalizations concerning the notions definiteness, specificity, and presuppositions in Bantu grammar have been missed.

The purpose of this paper is to explore the interrelationship of syntax and semantics with regard to the notion of specificity in Dzamba, and to examine the extent to which it correlates with the contrast involving the presence vs. the absence of the NPP. Specifically, I would like to argue that the specific vs. nonspecific contrast for Dzamba noun phrases depends on presuppositions associated with various verbs, other lexical items and construction types. Dzamba is a Bantu language spoken in the northwestern region of Congo-Kinshasa.[2]

An NP is said to be [+SPEC] if it has referentiality; that is, if the existence of the referent is presupposed. Further, an NP is said to be definite ([+DEF]) only if it is preceded by a NPP which may be a vowel or CV-type prefix. This distinction gives us a four-way contrast, viz. [+SPEC]/[-SPEC] and [+DEF]/[-DEF] as in:

(1a) [-DEF, +SPEC]
mo-konzi mɔɔ mo-lamu anyɔlɔki ondaku
chief one handsome entered in the house
'A handsome chief entered the house.'

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[1]I am grateful to Professors C. Bird, T. Givón, and E. Voeltz for their invaluable comments on this paper. I alone am responsible for the views expressed here.

[2]There are two Congo's, the Democratic Republic of the Congo (usually abbreviated, Congo-Kinshasa) and the Republic of Congo (Congo-Brazzaville). The two countries should not be confused.

(1b) [+DEF, +SPEC]

omo-konzi omo-lamu anyɔlɔkí ondaku

'The {handsome / good} chief entered the house.'

2. Environment of full [+DEF]/[-DEF] contrast

The diagnostic environments for the [+DEF]/[-DEF] contrast in Dzamba are the subject and object NP's. The various manifestations of this contrast upon which the analysis will be centered are summarized in Table 1 below, where the second column indicates the occurrence of NPP, and the third indicates its non-occurrence. (C)V and CVCV* represent the NPP, the noun stem and its prefix respectively as follows:

(2a) bà - bá - tò (i.e. bàbátò)[3] 'the people'

NPP = bà (CV); noun prefix = bá; stem = tò (C CVCV)

(2b) bá-tò 'people'

CVCV

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[3]Although all of the examples given in this paper contain nouns that are preceded by an initial vowel NPP, they should not be construed as the only forms of NPP that occur in Dzamba. CV-type NPP do exist in the language, but I have avoided introducing them because I would have been compelled to introduce phonological discussion into a syntax paper. The entire repertoire of Dzamba NPP's may be summarized as follows:

(a) o/ba- occur before nouns of class 1/2 singular and plural respectively;
(b) i- occurs before classes 3/4, 5/6, and 14 singular, and before plurals of classes 3/4, 7/8 and 9/10;
(c) e- occurs before singular nouns of classes 7/8 and 9/6;
(d) ma- occurs before plural nouns of classes 5/6 and 9/6.

It should be pointed out in this connection that the NPP's ba- and ma- can occur before non-monosyllabics only after the application of rule (e), except if the noun begins with a vowel.

(e) CV-CVCV* ===> CVCV* / {ba / ma}⌋ NPP———

For example, bákonzi 'chiefs', bà-bákonzi ===> bàkonzi 'the chiefs'. Vowel-stem non-monosyllabics behave like monosyllabics.

Table 1

Contrast involving the occurrence of the noun pre-prefix in Dzamba

	Type of Np's	(C)V-CVCV*	CVCV*
I.	Subj. of affirmative S	+	+
	Subj. of Neg: VP scope	+	+
	Subj. of Neg: S scope	-	+
	Subj. of Passive	+	+
II.	Obj. of affirmative S	+	+
	Obj. of Neg.	+	+
	Obj. of Passive	+	+
III.	Subj. NP Dem	+	-
	Subj. of Mtx S in Rel.	+	-
	Topicalized NP	+	-
	Subj. NP in Topic. const	+	-
IV.	Obj. NP + Dem	+	-
	Obj. NP of Mtx S in Rel.	+	-

Further, in groups I and II the subject or object NP is optionally [+DEF], but in III and IV it is obligatorily [+DEF]. When the NPP does not occur the noun phrase is interpreted as [-DEF]. Compare, for instance, sentences (3a, b) and (3c, d) below.

a. Subject NP of affirmative S

(3a) [-DEF, -SPEC]
mo-ibi (mɔɔ) akoki nanyɔlɔ ondaku
a thief (one) can and enter in the house
'A thief can enter the house.'

(3b) [-DEF, +SPEC]
mo-ibi (mɔɔ) anyɔlɔki ondaku
a thief (one) entered in the house
'A thief entered the house.'

(3c) [+DEF, +SPEC]
omo-ibi (*mɔɔ) akoki nanyɔlɔ ondaku
the thief (*one) can and enter in the house
'The thief can enter the house.'

(3d) [+DEF, +SPEC]
omo-ibi (*mɔɔ) anyɔlɔki ondaku
'The thief (*one) entered the house.'

Notice that the difference between (3a) and (3b) is that the verb in the latter is in the past tense, asserting that the event described has already taken place. Thus the subject noun phrase must have referentiality, i.e., it is specific. In contrast, the verb 'can' in (3a) makes no assertions of this kind, so that the existence of 'thief' is not presupposed. The AUX akoki 'can' merely implies that if there were a thief around the neighborhood, "he can enter the house." This contrast does not hold between (3c) and (3d) where both subject NP's are [+DEF] and [+SPEC]. The semantic content of the AUX akoki seems to be neutralized here with respect to the specificity of the subject noun phrase, because of the presence of the NPP. Observe further that the indefinite article and numeral mɔɔ can only co-occur with the [-DEF] noun mo-ibi in (3a, b), but not with the [+DEF] noun

in (3c, d). With regard to the [+SPEC]/[-SPEC] contrast, sentences (3b-d) tag the thief as a specific thief by virtue of deed and known fact. In (3a) the thief is left unspecified and no claim is made about his existence.

b. Subject of negative constructions

Similarly, the subject of a negative construction may be either [+DEF] or [-DEF] depending on the scope of the negation. If the scope is phrasal (VP), the subject NP can be optionally [+DEF], but if it is sentential there is no contrast, the NP is obligatorily [-DEF]. Consider sentences (4a, b) and (4c, d):

(4a) [-DEF, -SPEC]
mo-ɪbɪ (mɔɔ) tanyɔlɔkɪ ondaku emba[4]
a thief (one) not did enter in the house not
'A thief (*one) did not enter the house.'

(4b) [+DEF, +SPEC]
omo-ɪbɪ (*mɔɔ) tanyɔlɔkɪ ondaku emba
'The thief (*one) did not enter the house.'

(4c) [-DEF, -SPEC]
Toonyɔlɔkɪ nà mo-ɪbɪ (mɔɔ) ondaku emba
not enter did even a thief (one) in the house not
'No (single) thief entered the house.'

(4d) [+DEF, +SPEC]
*Toonyɔlɔkɪ nà omo-ɪbɪ (mɔɔ) ondaku emba
Meaningless

The scope of negation in (4a, b) is phrasal, i.e. only the VP is being negated here. What is denied here is not the existence of the thief, but rather the act of his entering the house. In (4c), on the other hand, the scope of negation is sentential as a result of a focus construction which inverts the subject and the verb. The speaker here

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[4]The formatives ta- and emba in Dzamba constitute a single negative entity which is similar to the French ne....pas, except that in Dzamba it must always occur at the end of the sentence irrespective of its length.

is insisting that 'No single thief', to his knowledge, 'entered the house'. In other words, (4c) can be a perfect reply to

(5) [-DEF, +SPEC]
mo-ibi (mɔɔ) anyɔiɔki ondaku waabo?
'Did one thief enter this house?'

or to

(6) [-DEF, -SPEC]
mo-ibi mɔɔ tanyɔiɔki ondaku waabo emba?
a thief one not enter did in the house here not
'Didn't one thief enter this house?'

Unlike in (4a, b), the 'thief' in (4c) has no referential identity, i.e. (4c) implies that 'there is no thief such that he entered the house'.

c. Subject of passivized verbs

The deep subject of a passive construction may be optionally [+Def] as in

(7a) [-DEF, +SPEC]
mu-ndimo mwimbamaki na mw-ana mɔɔ
an orange it was plucked by a child one
'An orange was plucked by a child.'

(7b) [+DEF, +SPEC]
mu-ndimo mwimbamaki n'omw-ana (*mɔɔ)
'An orange was plucked by the child.'

The same situation obtains for the surface subject of the passive as illustrated by the following sentences:

(8a) [-DEF, +SPEC]
mu-ndimo mwimbamaki n'omw-ana
'An orange was plucked by the child.'

(8b) [+DEF, +SPEC]
imu-ndimo mwimbamaki n'omw-ana
'The orange was plucked by the child.'

Observe here that whether or not the NP is [±DEF], the tense (past) of the

verb implies that action has taken place, and the NP must therefore be [+SPEC]. Further evidence for this type of contrast may be found in the object NP's of other constructions.

d. Object NP of affirmative S

As Givón [1970] correctly points out, verbs such as 'see', 'hear', 'eat', 'drink', but not their negatives, generally imply referentiality of their objects.[5] Consider, for instance, sentences (9) and (10) below:

(9a) [-DEF, +SPEC]
oSalomi aɛnɛki mw-ana wa mbongo
Sally ([+DEF]) saw a child of an elephant
'Sally saw a baby-elephant.'

(9b) [+DEF, +SPEC]
oSalomi aɛnɛki omw-ana wa mbongo
'Sally saw the baby-elephant.'

(10a) [-DEF, -SPEC]
oSalomi tɛɛnɛki mw-ana wa mbongo emba
'Sally did not see a (any) baby-elephant.'

(10b) [+DEF, +SPEC]
oSalomi tɛɛnɛki omw-ana wa mbongo emba
'Sally did not see the baby-elephant.'

First, note that the NP mw-ana wa mbongo in sentences (9a) and (9b) is [+SPEC] irrespective of the occurrence of the NPP. This fact is due to the nature of the predicate -ɛnɛ 'see', which, as stated above, implies the existence of the object NP. Second, the sentences in (10) do not have the same truth-value as their affirmative counterparts in (9). For instance, (10a) does not imply the existence of the baby-elephant such that it was seen by Sally, but (9a) does. And while (10b) does not deny the existence of the baby-elephant, it does not preclude the possibility of Sally seeing 'something else' in place of the baby-elephant. In other words, sentence (11a) is an acceptable extension of (10b), but cannot be

[5]Givón [1970:42ff.] and personal communication also.

an extension of (9b) because the second conjunct contradicts the first:

(11a) [+DEF, +SPEC]
oSalomi tɛɛnɛkɪ omw-ana wa mbongo emba, kasɪ owa ngbeya
Sally not did see the child of an elephant, but the one of a pig
'Sally did not see the baby-elephant, but that of a pig.'

(11b) [+DEF, +SPEC]
*oSalomi aɛnɛkɪ omw-ana wa mbongo, kasɪ owa ngbeya
*'Sally saw a baby elephant, but that of a pig.'

Further, the [+DEF]/[-DEF] contrast is maintained up to this point. Note here that (10b) is [+SPEC] not because of the presuppositions of the verb, but rather because of the presence of the NPP on omw-ana 'the child'.

A similar situation obtains in constructions involving conditionals and inherently negative predicates such as laangana 'to deny', lobaa na ntembe 'to doubt' (literally 'to be with doubt'), and counter-factual conditionals. Consider first the conditional construction.

(12a) [-DEF, -SPEC]
oSalomi aɛnɛ̀kɛ̀ mw-ana wa mbongo abikela bolo?
Sally if she sees a baby elephant she'll do what
'What will Sally do if she sees a baby elephant?'

(12b) [+DEF, +SPEC]
oSalomi aɛnɛ̀kɛ̀ omw-ana wa mbongo abikela bolo?
'What will Sally do if she sees the baby elephant?'

(12a) does not presuppose the existence of the baby elephant, but (12b) does in that the NP omw-ana is [+DEF]. Note that the verb alone in no way presupposes the existnece of the baby-elephant. The same contrast holds in constructions involving inherently negative predicates. Consider

(13a) [-DEF, -SPEC]
oPetelo aangani kibo akomaki mu-nkanda
'Peter denied that he wrote a (any) letter.'

(13b) [+DEF, +SPEC]

oPetelo aangani kibo akomaki imu-nkanda

'Peter denied that he wrote the letter.'

(13a) does not imply that the 'letter' for which Peter is being accused of writing exists, while (13b) does. As in the preceding sentence (12b), the surface marking of the [±SPEC] contrast (as well as the [±DEF] contrast, in this case) involves the presence of the NPP.

e. Object NP of a passive

The deep object of the passive is similar to the subject NP of this construction in that it can accommodate a [+DEF]/[-DEF] contrast as exemplified in (8) above and (14) below.

(14a) [-DEF, +SPEC]

mu-nkanda mukomamaki n'oPetelo lɔɔme

'A letter was written by Peter today.'

(14b) [+DEF, +SPEC]

imu-nkanda mukomamaki n'oPetelo lɔɔme

'The letter was written by Peter today.'

What is important to note here is that (1): So far the notion of specificity in Dzamba does not always depend on the presence of the NPP, so that a noun phrase may under many conditions be [+SPEC] whether it is [+DEF] or not; and (2): The presuppositions of existence associated with various verbs and construction types are crucial in understanding the interaction of definiteness and specificity in Dzamba. If this hypothesis is correct, then we should get further support for it in environments where specificity or definitivization are obligatory.

3. Environments of no [+DEF]/[-DEF] contrast

As indicated in Table 1, environments which do not accommodate a [+DEF]/[-DEF] contrast in Dzamba include demonstratives, relative and topicalized constructions. Each of these will be examined briefly in this section.

a. Subject NP + demonstrative pronoun

A demonstrative in Dzamba may follow or precede the subject NP it

modifies, though it may only follow the object NP. When relativization is present, a demonstrative may seem to precede the subject NP. Compare in this regard sentences (15a) and (15c):

(15a) [+DEF, +SPEC]
ɪzɪ-bata zɪ-ɪbo zɪ-kòmɛlakɪ ɪlɔsɔ
the duck this ate the rice
'This duck ate the rice.'

(15b) [-DEF, +SPEC]
*zɪ-bata zɪ-ɪbo zɪ-kòmɛlakɪ ɪlɔsɔ
*a duck this ate the rice
*"This (a) duck ate the rice.'

(15c) [+DEF, +SPEC] [+REL]
zɪ-ɪbo ɪzɪ-bata ɪzɪ-kòmɛlakɪ ɪlɔsɔ
this the duck REL ate the rice
'This (is) the duck that ate the rice.'

(15d) [+DEF, +SPEC] [-REL]
*zɪ-ɪbo ɪzɪ-bata zɪ-komɛlake ɪlɔsɔ

First, observe that all the NP's in the above sentences are [+SPEC]. Second, sentence (15b) is ungrammatical because it violates, in both English and Dzamba, the rule which stipulates that any noun modified by a demonstrative must be [+SPEC] and [+DEF]. This rule is seemingly violated by (15c). However, with the basic word order in Dzamba (in unembedded constructions), conforming to:

(16) NP_1 + Dem - V - NP_2

one may quickly note that the demonstrative in (15c) does not modify the head noun of the NP, but is rather the anaphoric pronoun of the subject NP. Indeed, the missing copula zɪndo 'is' may be supplied, yielding (17) below, which is a paraphrase of (15c):

(17) zɪ-ɪbo zɪndo ɪzɪ-bata ɪzɪ-kòmɛlakɪ ɪlɔsɔ
'This is the duck that ate the rice.'

The ungrammaticality of (15d) can now be ascribed to the violation of the

word order constraint in (16) above.

b. Subject of matrix S in relative construction

Similarly, the subject NP modified by a relative clause (REL) is obligatorily [+DEF]. This explains why (18b) is ungrammatical. Further, notice that the relative pronoun must be marked on the verb that immediately follows the NP that is being modified. I shall return to this point below.

(18a) [+DEF, +SPEC]
omo-to ɔ́nyɔlɔkɪ ondaku autakɪ Bomaɪ
'The man who entered the house came from Bomai.'

(18b) [-DEF, +SPEC]
*mo-to ɔ́nyɔlɔkɪ ondaku autakɪ Bomaɪ
?'A man who entered the house came from Bomai.'

It has been generally claimed that a speaker presupposes the truth-value of an embedded relative clause, and therefore the referentiality of the matrix S subject.[6] But note that in English the subject NP of a matrix S is not always [+DEF] as exemplified in

(19) [-DEF, +SPEC]
Someone who identified himself as a friend of yours took my bike.

While this sentence is perfectly grammatical in English, it is unacceptable in Dzamba where the syntactic rules involved in relativization require the head NP to become [+DEF].

Note, further, that modifying adjectives, as in (20a) below, much like modifying relative clauses, require an NPP:

(20a) [+DEF, +SPEC]
omo-to omw-anda ɔ́nyɔlɔkɪ ondaku autakɪ Bomaɪ
the man tall REL entered in the house came from Bomai
'The tall man who entered the house came from Bomai.'

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[6]Kiparsky and Kiparsky [1968:4].

(20b) [+DEF, +SPEC]

omw-anda ónyɔlɔkí ondaku autaki Bomai

'The tall (one) who entered the house came from Bomai.'

When the head noun is anaphorically deleted, as in (20b), the adjective may function as the anaphoric pronoun, preserving the definiteness of the deleted head noun.

By contrast, given a non-relativized construction such as (21a), with an indefinite head noun, we cannot get (21b), because the adjective mw-anda 'tall' is not understood as referring to any deleted noun for which the noun class agreement is marked on the verb as class (1/2) singular.

(21a) [-DEF, +SPEC]

mo-to mw-anda anyɔlɔkí ondaku

'A tall man entered the house.'

(21b) [-DEF, +SPEC]

*mw-anda anyɔlɔkí ondaku

We may thus conclude that the use of an adjective as an anaphoric pronoun in Dzamba is possible only if the head noun was definite, so that the NPP is obligatory in this case.

c. Topicalized NP's

Further instances of the obligatory occurrence of the NPP may be found in topicalized constructions. Consider in this regard the sentences (23a, b) whose underlying word order is:

(22) NP_1 - V - NP_2 - NP_3

In them, NP_1 functions as the subject, NP_2 as the dative, and NP_3 as the patient (or direct object). In other words, NP_2 is the goal and NP_3 is the theme.

(23a) [-DEF, +SPEC]

Petelo akómelaki $\left\{\begin{matrix}\text{mo-konzi mɔɔ}\\ \text{omo-konzi}\end{matrix}\right\}$ mu-nkanda

'Peter wrote a letter to $\left\{\begin{matrix}\text{a}\\ \text{the}\end{matrix}\right\}$ chief.'

(23b) [-DEF, +SPEC]

*Petelo akómelaki mu-nkanda omo-konzi

(23c) [+DEF, +SPEC]

imu-nkanda, oPetelo a-mu-kómelaki {omo-konzi / mo-konzi mɔɔ}

'As for the letter, Peter wrote it to/for {the / a} chief.'

(23d) [-DEF, -SPEC]

*mu-nkanda, oPetelo a-mu-kómelaki {omo-konzi / mo-konzi mɔɔ}

*As to a letter, Peter wrote it to {the / a} chief.'

The ungrammaticality of (23b) stems from the fact that it violates the basic word order given in (22) where the goal must precede the theme. This order is crucially fixed, and therefore cannot be reversed. The contrast between (23c) and (23d) is simply one of [+DEF] vs. [-DEF]. (23c) shows that the deep subject of the topicalized construction must be [+DEF] (though the untopicalized goal may also be [-DEF]). It is also possible to topicalize the goal (i.e. the NP omo-konzi 'chief') and in that case too the topicalized NP must be [+DEF]. The preposed NP is brought into focus (it must have been previously mentioned) and therefore it is obligatorily marked [+DEF]. Given this fact, it is not surprising that the topicalized NP's are also [+SEPC].

d. Object NP + demonstrative pronoun

As in the case of the subject NP, any object NP modified by a demonstrative is obligatorily [+DEF]. Compare for instance the following sentences:

(24a) [+DEF, +SPEC]

ombɛkɛlɛ imu-nkanda munabona

'Give me that book over there.'

(24b) [-DEF, +SPEC]

*ombɛkɛlɛ mu-nkanda munabona

e. Object NP of a matrix S in relative construction

Similarly, the object noun modified by a relative clause in Dzamba

can only be [+DEF] and [+SPEC]. In addition, relativization in Dzamba is unique in a number of ways, due to an NP permutation rule, that I will call subject postposing, which occurs in the embedded relative clause. I shall restrict myself in this section only to those parts of the analysis that are relevant for this paper.[7]

If we assume that the speaker presupposes the truth-value of the embedded relative clause, it becomes clear why the object NP modified by a relative clause must be marked [+SPEC]. Compare in this regard the two sentences in (25), whose deep structure is roughly given in (26). The ungrammaticality of (25b) obviously arises from the absence of the NPP on the noun mo-kondo 'alligator'.

(25a) [+DEF, +SPEC]
oPetelo anyamozi imo-kondo imu-bundaki Zaki
Peter just sold the alligator that caught Jack
'Peter just sold the alligator that Jack caught'

(25b) [-DEF, +SPEC]
*oPetelo anyamozi mo-kondo imu-bundaki aki
'Peter just sold an alligator that Jack caught.'

In English it is possible to have a specific noun take the indefinite article and still be modified by a relative clause. This explains the grammaticality of the English gloss of (25b). In Dzamba, however, in this construction it is not only definitiveness but also specificity (referentiality) that is here marked by the NPP. Hence the ungrammaticality of (25b) in Dzamba.

Ignoring the unnecessary details, the DS for (25) may be represented

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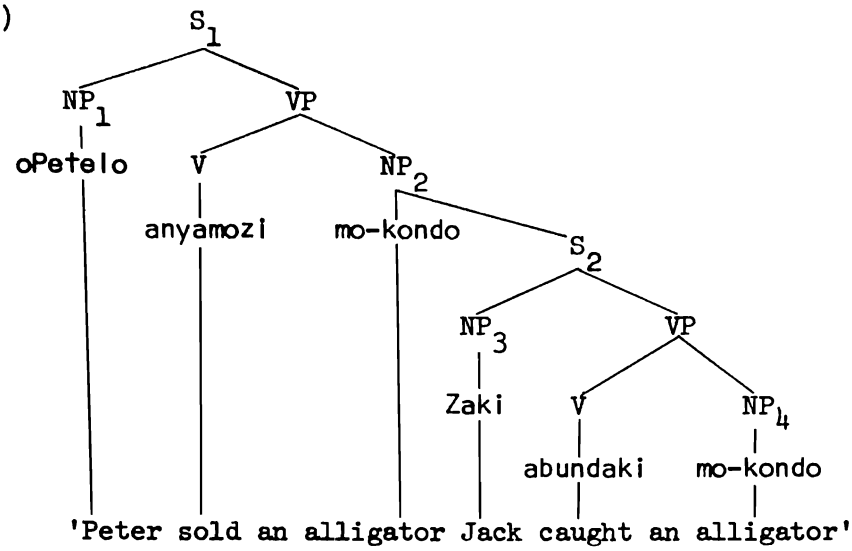
[7]In a forthcoming [1972] paper that I have written on relativization in Dzamba for the Third Annual African Linguistics Conference, to be held at Indiana University, I have argued not only for the necessity of the object NP Preposing and subject NP Postposing movement rules, but also that these movement rules are structure-preserving in that they permute constituents that have already been provided by the base rules. Further, I have shown that the second permuted NP or PP moves into the space vacated by the first element. The structure-preserving arguments have been omitted from this paper because they are largely irrelevant to the central topic.

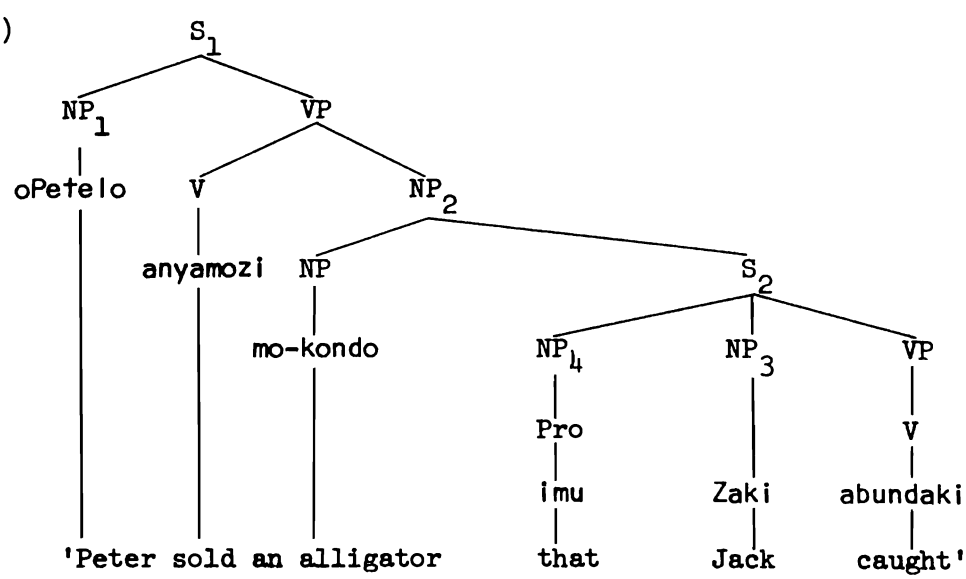
as follows:

(26)



Since S_1 and S_2 share an identical NP ($NP_2 = NP_4$), the construction meets the conditions for relativization, which in Dzamba involves the attraction of the equi-NP of the embedded clause from its original position to a position directly following the head noun (NP_2). Relativization in Dzamba also involves pronominalization, in this case, the insertion of the relative pronoun imu- 'that', 'which'.[8] Following these two steps we obtain the intermediate structure:

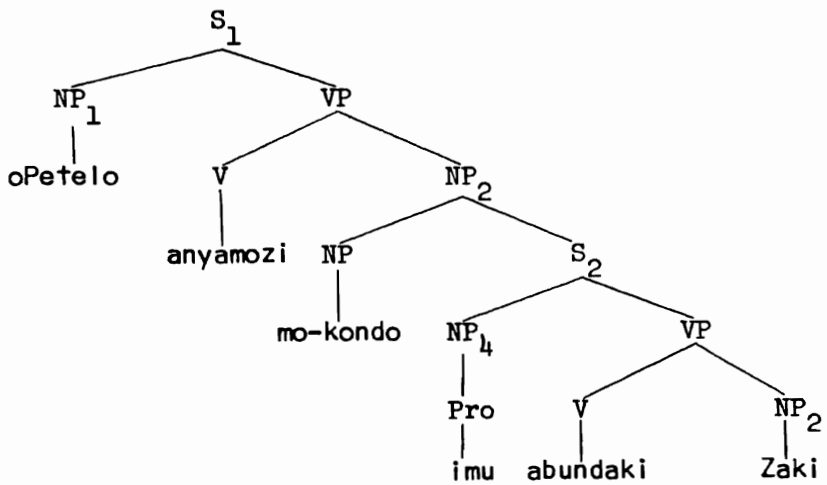
(27)



[8]imu- and other (C)V-type NPP's have as their basic meaning, 'the

A specific rule of Dzamba now disallows the occurrence of two NP's before the verb (i.e., in subject position), unless they are separated by a conjunction or an intonation break (cf. (23c)). Subject postposing within S_2 must now follow, yielding (28) below, where NP_3 is adjoined as a right-hand sister of the verb. It is clear that this subject postposing rule must follow the rule of agreement in the embedded S_2, since the verb in S_2 still agrees with its deep subject, Zaki 'Jack' (cl. 1/2, sg.), and not with the preposed (and pronominalized) 'alligator' (cl. 3/4, sg.).

(28)



Eventually a definitivization rule must also apply, by which the indefinite mo- in NP_2, the head of the object-NP construction, is changed to the definite imo-. Further, the agreement of the verb in S_2 must also change. The original subject-agreement morpheme a-, agreeing with Zaki, is dropped, and the relative pronoun imu-, (referring to the deep object of S_2, mo-kondo 'alligator') is finally affixed as a prefix to the verb, yielding (29):

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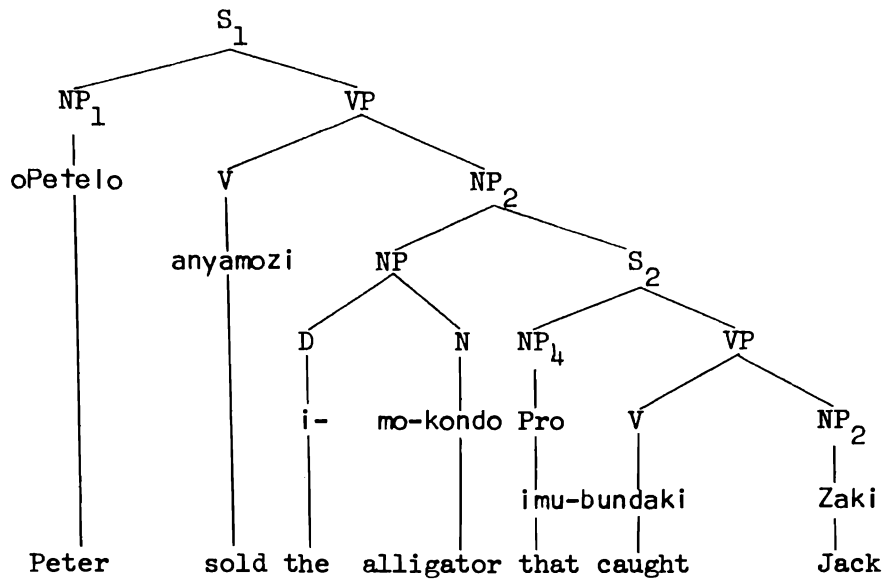
one (previously referred to object)'. In this regard the only context that allows us to distinguish a regular NPP and a Rel Pro is that the latter occurs in embedded S and is prefixed to the verb that immediately follows the NP that is being relativized.

(29)



'Peter sold the alligator that Jack caught'

To sum up, relativization in Dzamba involves two movement rules, (a) object attraction, and (b) subject postposing. The first rule is extremely widespread and probably universal (cf. the English gloss in (29) above). The second is highly specific, although other Bantu languages related to Dzamba are reported to show a similar pattern (see Meeussen [1971]). One may argue that this rule in Dzamba is motivated by the prefixing of the relative object pronoun directly to the verb, and therefore by a desire to prevent a conflict of concordial agreement. If this type of analysis is indeed correct, one may wish to argue that in Dzamba and related Bantu languages, the rule of subject postposing precedes, rather than follows, the rule of subject-verb agreement. Finally, relativization in Dzamba involves an obligatory definitivization of the head noun modified by the relative clause.[9]

We have seen in this section that noun phrases involving demonstratives, relative clauses or topicalization do not accomodate a [±DEF] contrast, but are all obligatorily [+DEF].

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[9]It is really an open question whether definitivization precedes or follows relativization. A more plausible alternative would be to propose that the two rules apply simultaneously.

4. Discussion

The noun pre-prefixes in Bantu languages, wherever they occur, are similar but not identical to determiners. In modern linguistic theory, determiners in Indo-European languages and the noun pre-prefixes in Bantu languages have been treated by various grammarians in the past with divergent views. For instance, traditional Bantuists have dealt with the NPP only on morphological grounds. Needless to say, the evidence I have presented above shows the inadequacy of such an approach, especially for a grammar which strives to account for meaning as well as grammatical well-formedness.

Assuming that my treatment of the noun pre-prefixes is correct, we might turn to the Indo-European languages such as English for a solution. But here again there seems to be no satisfactory solution. Views on the treatment of determiners are widely divergent, and there seems to be very little agreement. For instance, both in Syntactic Structures [1957] and Aspects of the Theory of Syntax [1965], Chomsky treats the determiners exactly as other lexical items where ART is a terminal category of the PS-rules. An important modification introduced in Aspects to this effect required that determiners be inserted into appropriate P-markers from the lexicon matching the subcategorization features of the terminal node.

Postal [1970], on the other hand, recognized no category such as ART; instead he postulated that determiners be represented in the DS as syntactic features of nouns (features analogous to [+animate], [+human],[10] ...) from which the features relevant to them are in part copied, and others are transformationally derived. Then a second lexical lookup would spell out the phonological shapes of the specified items.

Aside from Postal's approach in treating pronouns as determiners, one should point out that the transformational (or second-lexical) treatment of determiners does indeed mesh with the facts of Dzamba relativization, where the head of an NP containing a relative modifier must be definitivized. His solution is nevertheless not sufficient to account

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[10]Postal [1970:58].

for the facts presented in this paper.

An approach taken by Baker [1966], Bach [1968] and Dean [1968] seems to better approximate what I am looking for. Baker's theory would derive specific NP's from embedded existential clauses which do not surface. For instance the DS of one reading of the sentence

(30) John wants to catch a fish.

would be

(31) There is a fish, and John wants to catch it.

My main objection to Baker's theory is that the embedding becomes too complex for the grammar, and in fact it does not work when there are more than one indefinite NP's to account for.

Bach's theory is similar to Baker's except that he uses variables and quantifiesrs such as "x" and "SOME x" which are devoid of any syntactic, phonological and semantic content; they are simply referential. This theory would derive specific NP's from underlying non-restrictive relative clauses. Both of these approaches seem to be steps in the right direction.

The solution I have been leaning toward in this paper, and which seems to account nicely for the facts in Dzamba, has been proposed by Givón [1970]. Givón has shown, for Bemba, that the CV/VCV contrast is not a matter of [-DEF]/[+DEF], but rather of [+SPEC]/[-SPEC]. He has shown that this contrast can in many environments be predicted from the presuppositions or implications governing referentiality of the NP. Such an approach, as I have tried to show in the course of this presentation, accounts nicely for the difference between an affirmative S and a negative one containing the same verb. The presence of the noun pre-prefix bears crucially on presuppositions of <u>existence</u> (referentiality. This explains in part why NP's in constructions involving Dem Pro, Rel Pro and topicalization are obligatorily marked [+DEF].

5. <u>Conclusion</u>

On the basis of the preceding discusiion, it is evident that the noun pre-prefixes in Dzamba are similar, but not identical to the English

DEF ART, in that they have a wider scope of meaning, and involve presuppositions which have no correspondence in English. Further, the lack of existential presuppositions in the case of inherently negative verbs, conditionals, counterfactual conditionals, non-factive verbs, and negatives of factives explains why these environments involve a [±DEF] contrast in Dzamba, since they do not obligatorily require referentiality.

Definiteness in Dzamba is an optional subcategory of specificity. As I stated above, the latter is not equivalent to the former, because in some environments of [+SPEC] one can get the contrast [±DEF]. Obviously, in environments allowing [±SPEC], one may also get [±DEF] for the [+SPEC], but only [-DEF] for the [-SPEC]. Given these facts, the two notions, <u>definiteness</u> and <u>specificity</u> (referentiality), should not be taken as equivalent or interchangeable. And, while [-REF] $\supset$ [-DEF] is always the case, the converse is not.

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YORUBA: A 'TERRACED-LEVEL' LANGUAGE WITH THREE TONEMES

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1. Introduction to Yoruba tone

Like most Niger-Kordofanian languages, Yoruba has phonemic tone. Tone is particularly interesting in Yoruba for two reasons: first, its very high functional load; and second, the unusual combination of three phonemic tones and a pervasive system of gliding allotones with a 'terracing' effect similar to that in many two-tone Niger-Kordofanian languages such as Igbo, Bambara, and Tiv.

The three 'basic' tones, high (symbolized here by ´ over a vowel), mid (vowel left unmarked), and low (`), can be illustrated by the following:

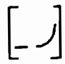
(1a)	lɔ́	'to be lukewarm'
	lɔ	'to go'
	lɔ̀	'to grind, smooth'
(1b)	dĺ	'to block'
	dl	'to become'
	dl̀	'to tie'
(1c)	ɔkɔ́	'hoe'
	ɔkɔ	'husband'
	ɔkɔ̀	'vehicle'
	ɔ̀kɔ̀	'spear'
(1d)	awó	'guinea fowl'
	awo	'secret'
	awò	'eyeglasses, seine'
	àwo	'plate'
(1e)	ĺwɔ́	'umbilical cord'
	lwɔ	'poison'
	ĺwɔ̀	'hook'
	ĺwɔ	'you (sg.)'

Even with the restriction that a noun cannot begin with a high tone

vowel, there is obviously a heavy functional load borne by tone in distinguishing utterances. The frequent tonal contractions and assimilations made in spoken Yoruba complicate the situation still further.

For native speakers at least, many African languages can be written with tone diacritics omitted without rendering a text unintelligible to the reader. However, tone is so essential in Yoruba that even native speakers often use tone marks in especially ambiguous cases. Furthermore, a Yoruba reads his language with difficulty and with many hesitations when all tone marks are omitted.

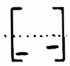
The gliding allotones referred to above are two: low tone is realized as a glide from high to low immediately following a high tone; high tone is realized as a glide from low to high immediately following a low tone syllable. When either of these two 'extreme' tones follows a mid or itself, however, it remains a level pitch. Examples of glides:

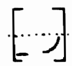
(2a) ìwɔ́ 'umbilical cord' is realized as 

(2b) mɔ́tɔ̀ 'car' is realized as 

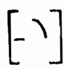
'Terracing' refers to an automatic lowering of both high and mid tones after a low tone; in the case of high, as mentioned above, the tone takes the form of a glide starting at low but ending a little lower than a preceding high. (It ends especially low in utterance-final position or before another high tone.)

Examples:

(3a) àwo 'plate' is realized as 

(3b) ìwɔ́ 'umbilical cord' is realized as 

These considerations, combined with the fact that two different tones on succeeding vowels of identical quality produce other phonetic glides, e.g.:

(4a) Mo rí ì 'I saw it' may be realized as 

(4b) Mo jɛ ɛ́ 'I ate it' may be realized as 

and that a basic low tone may be pronounced with a slight falling glide,

have led one investigator [Olmstead 1951] to propose nine basic tonemes for Yoruba. It will shortly become clear that the situation is considerably simpler; but the tonal system of Yoruba cannot be understood without a fairly extensive knowledge of the language, including the remainder of the phonology and the syntax. Yoruba tonal assimilations and contractions, in particular, depend to a large extent upon syntax.

2. Typology of tone languages

Kenneth Pike, in Tone Languages [1948:3-13] has attempted to divide the tone languages of the world into two basic types, 'register' and 'contour' languages. The first type comprises tonal phonemes which are level in pitch; the second, tonemes of a gliding type. Phonetically, few languages can be found which exhibit one of these tonal types exclusively. However, phonetic glides in a register language can be analyzed into combinations of or transitions between two or more level tones; the end points of such glides can be identified with different level tonemes in the language or may be allotones of level tonemes. Glides in a contour language are basic tonemes; the end points of such glides cannot be equated with level tonemes even if the language possesses one or more level tones.

Yoruba may at first sight seem to fall into some category midway between these two types, since it has on the phonetic level both several level tones and several contour tones. I shall establish, however, that on the level of systematic phonemics Yoruba is a pure register-tone type, and not a 'mixture' or a 'split-level' language.

Pike based his now classic work largely on American Indian and Oriental languages; Africanists have long recognized that some revision or supplementation must be made to account for certain features of many African languages. I do not think, however, that it has yet been conclusively shown that at the systematic phonemic level African languages are sufficiently different in their tonal structures to merit having a new type or subtype set up for them. Yet something of this sort has been proposed in different ways by several scholars [Welmers 1959; Schachter 1961; Arnott 1964; Stewart 1965], and some of them have suggested that Yoruba is a special case of this new type, called first by

Welmers a 'terraced-level' system.

Let us see first how a 'terraced-level' tone system differs phonetically from the kind of register tone language called 'discrete-level' by Welmers [1959]. He gives us as an example of a sentence in a discrete-level language the following utterance in Jukun, a language of northern Nigeria:

(5) áni zè súrà à syi nǐ bi[1]

'Who bought these yams?'

(I have changed the tone marking system slightly to correspond with that which I have used for Yoruba.) The pitches of this sentence may be diagrammed as follows:

(6)

3	á		sú		nǐ	
2		ni		syi		bi
1		zè	rà	à		

Each high pitch is essentially the same as every other high tone in the sentence; the same is true for each low pitch and each mid pitch. Yoruba may seem to be of this same type when one examines a carefully chosen sentence such as the following:

(7) wɔ́n lǐn bú ramúramù

'They (e.g. airplane engines) are making a very loud noise'

diagrammed as:

(8)

3	wɔ́n	lǐn	bú		mú		
2				ra	ra		
1						mù	

Again, each tone identified as the same toneme (high, mid, or low) is realized on the same pitch level throughout the sentence. However,

[1]Welmers states now [personal communication] that this particular Jukun sentence is grammatically not very well-formed, though perhaps acceptable. At any rate, this information has no bearing on the discussion of the Jukun tone system.

if there were a low tone in this sentence anywhere but at the very end as in this example, a different picture would emerge; and Yoruba would then appear to be a language of the sort to be illustrated next: 'terraced-level'. It is this sort of 'split personality' which has led Welmers facetiously to call Yoruba a 'split-level' language. The tonal assimilations and contractions complicate the situation still further.

3. Terraced-level languages

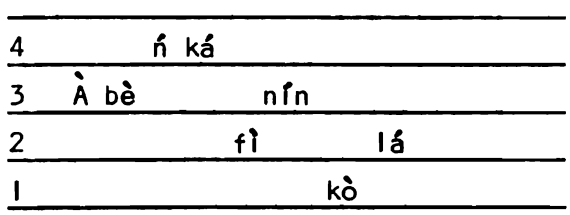
For an introduction to terraced-level languages, a Bamako dialect of Bambara, a Mande language with only two tonemes, will serve since it presents less complications in the general area of tone than many languages:

(9) À bè ń ká fìnín kò lá

'She is washing my clothing'

The phonetic pitches in this sentence may be diagrammed as follows:

(10)



The rule for such pitches is simple enough: high tone is lowered one step immediately following a low tone, while a high tone following another high remains at the same level as that preceding high. It is a corollary of this rule that once a high is lowered in a given breath group, a succeeding high in that group cannot go up again to the pitch of a preceding high. Such a rule might be written:

(11) [+ H] → [- 1 step] / [+ L] _____

The Bambara example given above is of a type which has been considered by the aforementioned linguists to exhibit only one sort of 'terracing' or 'downstepping' common in these languages: what Stewart [1965:5] terms 'automatic downstep'. This is the downstepping of high tone which occurs after a low tone. But terracing commonly occurs in many African languages when no low tone is in evidence on the surface

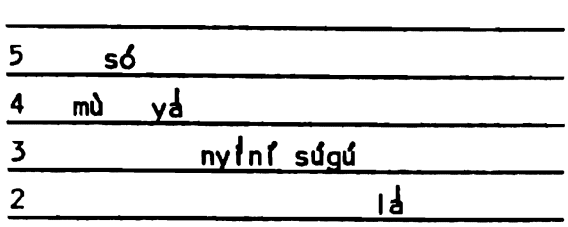
level. Take the example below, in Bambara:

(12) Mùsó yá nyíní súgú lá

'The woman looked for him at the market.'

The vertical mark (ˈ) represents a high tone dropped one step from the preceding high, diagrammed as follows:

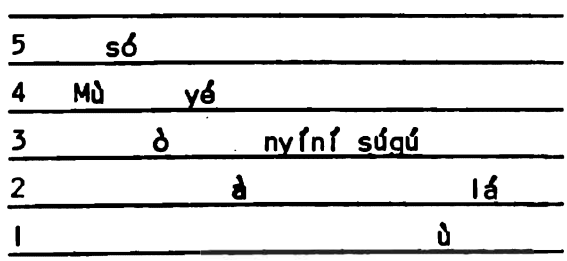
(13)



(Pitches start at 2 for ease of comparison with the next diagram.)

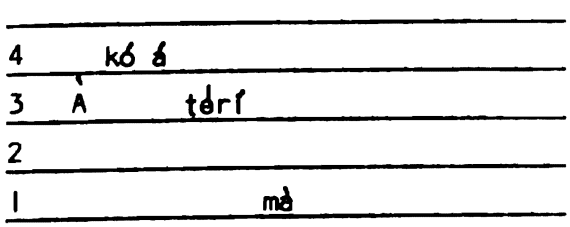
Such an example would seem to require another phoneme for autonomous phonemics, since the (simplified) 'morphophonemic' version below does not occur in actual speech:

(14) Mùsó ò yé à nyíní súgú ù lá
woman the past him look for market the at



Tonal assimilation too can produce such a result:

(15) À kó à térí mà...
He say his friend to
'He said to his friend...'



In Bambara, the underlying forms on the systematic phonemic level

are rather transparent from the surface level. Although the sentence

(16) Mùsó yá nyínî súgú lá

never occurs with the low tone definite articles actually evident, their underlying presence can be deduced from such other examples as mùsó ò 'the woman' or 'woman' (nouns never occur in isolation without the definite article in this dialect) and the compound mùsòkɔ̀rɔ̀nîn ìn '(the) little old woman', where it is evident that the basic tone of the word for 'woman' is low; the high tone on the second syllable of mùsó ò is an example of the operation of a Bambara rule raising the last syllable of a low-tone word when it is followed by another low-tone word. In other languages, such as Igbo and apparently Twi, the underlying forms are often nowhere near so obvious; but further investigation may well reveal underlying regularities not evident on the surface level here, as well.

My argument depends in no small way on the phonetic equivalence of 'automatic' and 'non-automatic' downstep, an equivalence which was at one time denied by Schachter [1961] and defended by Stewart [1965]. Schachter then (he has since changed his mind, see Schachter and Fromkin [1968]) considered 'automatic downstep' to be an intonational phenomenon, while 'non-automatic' downstep was considered something else entirely. His arguments in support of this contention had little to do with phonetics, however; I personally know of no language where these 'two types' of downstep can be shown to be <u>phonetically</u> dissimilar. Schachter pointed out that 'downdrift' ('automatic downstep') is characteristic of neutral intonation in Twi; and that such downdrift is absent in emphatic speech of various sorts, while 'non-automatic' downstep is never optional. However, 'downdrift' can be omitted with no difficulty because the conditioning factor of low tone is still present, and there is no possibility of ambiguity being caused by such omission. On the other hand, omission of 'non-automatic' downstep, where the lowering of the high tone is the only remaining indication of an original (underlying) low, would be an assault on the very structure of the language, often resulting in ambiguity and indicating the

absence of a low tone which is no doubt still very much present at the systematic phonemic level. I have several times had the experience of having a Yoruba tell me that a certain utterance he had just made contained a low tone when, phonetically speaking, there was no such thing present, but only its effect, downstep. The presence of various intonational contours overlaid upon tones does not change the underlying structure or even indicate anything in particular about it. A language like Hausa, which has automatic but no non-automatic 'downstep' and more than one intonation contour, may be viewed as essentially the same type of 'terraced-level' language as Bambara or Igbo: a register tone language with a phonetic feature of downdrift. However, since Hausa, having a different sort of morpheme structure from that of these languages, does not have the type of wholesale deletion and assimilation of low tones that they do, the question of 'non-automatic' downstep has simply not arisen. Stewart [1965] points out the similarity of Hausa and Twi in terms of drift, but does not emphasize that Hausa is at some sort of midpoint in the range between a register language with no downdrift and a fully 'terraced' register language with both 'automatic' and 'non-automatic' downstep.

The theoretical status of 'non-automatic' downstep is somewhat different for Welmers, Schachter, and Stewart; partly because the three are dealing with different languages, and perhaps trying to subsume under one heading more than one kind of entity. Welmers posits essentially three phonemes, low and two kinds of non-low: 'same' and 'drop'. Schachter, similarly, proposes 'low', 'high', and 'high-change'. When a non-low tone begins a sentence, since the difference between 'same' and 'drop' or 'high' and 'high-change' is neutralized in this position, each must decide arbitrarily to which toneme such a tone belongs. In Twi, Schachter has the same problem after low, also; Welmers does in some of the languages he cites, but he mentions ShiTswa as a language in which it is possible to have a three-way contrast after low as well as after high. Such a language seems to me to be a different sort of case from the others. Welmers otherwise seems to be dealing with languages such as Igbo, where an arbitrary decision one way or the other can be

made for the language as a whole; every non-low after a low can be considered 'same' rather than 'drop', for instance, without causing trouble elsewhere in the language.

Both Welmers and Schachter must cope with endless cases of having the same phonetic pitch assigned to two different phonemes and vice versa. Stewart avoids this problem by considering 'downstep' to be not another toneme, but a phoneme (of uncertain theoretical status) which has an effect on a following toneme.[2] This phoneme bears certain similarities to Ayọ Bamgboṣe's (.) symbol for Yoruba [Bamgboṣe 1965], which represents a 'prosody' (again of uncertain theoretical status, since there is no formalization of rules) which has the same effect as a low tone upon a following tone. Such a phoneme or prosody seems particularly useful for dealing with a language like Tiv, which, I am informed by David Arnott [personal communication] has many words which condition downstep either before them (i.e., on their first syllable) or after them or both.

The various possible positions of a 'downstep' phenomenon before, after, or within a word, combined with the obvious origin of downstep in a language like Bambara, suggests that the origin of most if not all downsteps in these languages is a deleted or assimilated low tone. We may then consider that such low tones are still present at the systematic phonemic level. At this level, then, such languages are simple register tone languages, possessing a low-level P-rule for terracing.

4. Yoruba as a terraced-level language

Yoruba, with all its phonetic complications and its three independent tonemes, is no exception to the last statement. Apparently the phonetic complications of Yoruba tone have obscured the underlying simplicity of

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[2] Welmers [again, personal communication] tells me that F. D. D. Winston first put forth this analysis in a 1960 article called "The 'Mid Tone' in Efik", in African Language Studies 1, 185-192. Welmers' own most recent discussion of tonal systems will soon be available in his African Language Structures (forthcoming from the University of California Press).

the system for many years now; it would seem to be a case of not being able to see the forest for the trees. Many linguists have seen clearly different aspects of the problem; it remains to tie them together.

As previously mentioned, David Olmsted [1951], apparently basing his analysis on phonetics alone without any extensive knowledge of Yoruba syntax, concluded that there were nine tonemes in the language. He includes tonal clusters (though he missed some) and what I am calling allotones; and, as Siertsema [1959:44) points out, disregards crucial junctures. Most other linguists working on Yoruba since have recognized the allophonic status of such tones as the 'second mid tone' which is the automatic exponent of mid immediately following low; 'rising' tone, which is high following low; and 'falling' tone, which is low following high. Ida Ward [1952:29-41] wrote a particularly detailed and careful explanation of both the phonetic facts and her suggestions as to their interpretation. She was to my knowledge the first to mention the 'lowered' or 'second' mid tone in print; even Abraham [1958] often missed this tone in his otherwise impressively tonally accurate dictionary. Abraham was, however, apparently working with a dialect which does not have the sort of tonal contraction which makes this tone most obvious. Examples of this sort of contraction in my informants' dialect follow:

(17) lín 'have' + awo 'secret' --> láwo

(18) lín 'have' + àwo 'plate' --> láwọ̀

The (ˡ) symbol in the second contraction indicates the 'lowered' or 'second' mid tone. In the dialect dealt with by Abraham, only assimilation of the vowel, not deletion of the low tone, takes place in the second case:

(19) láwo versus láàwo

In such a situation, the pitch of the mid tone is of course much less significant.

Autonomous phonemicists would have little trouble reducing Yoruba to a three-tone system if it were the case that a non-contracted form in slower or more formal speech always existed side by side with its contraction. A quotation from Stevick [1965:91] will show that this is not in fact the case:

> "...one concludes that three morphotonemes and a set of rules are not adequate to deal with present-day Yoruba, because some of the most frequent and best documented words in the language no longer occur unabbreviated: láṭí (high, lowered mid) must certainly be from */ní àṭi/."

In a generative phonology, a contraction rule which is usually optional and stylistic must be marked in the lexicon as obligatory for such words.

The same problem is to be found in the case of high versus rising tone:

(20) rí 'see' + ilán 'fire' --> rílán

(21) rí 'see' + ìlán 'type of beetle' --> rílǎn

The (ˇ) in the second contraction indicates lowered rising tone.

Some such contractions, again, no longer have corresponding uncontracted forms: e.g.:

(22) jókǒ (verb-plus-noun combination)

'sit down'

This can be listed in the lexicon as:

(23) $[_{V}[_{VR}$ jó$]_{VR}[_{NOUN}$ ìkó$]_{NOUN}]_{V}$

with obligatory contraction.

The similarity of origin and behavior of lowered-mid and rising tones has led linguists to consider them together as simply the different exponents of mid and high tone after low, like the falling tone

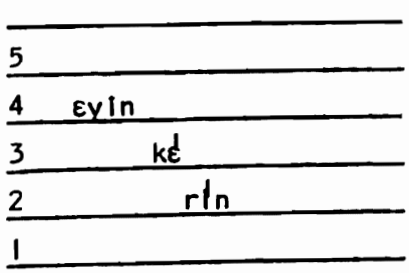
which is the exponent of low after high. This grouping together of lowered mid and rising tone has obscured the fact that there are actually two separate processes going on to produce a 'rising' tone, and has prevented the recognition of Yoruba as a true 'terraced-level' language. Bamgboṣe [1966:2] has taken a step in the right direction in calling the rising glide a 'low-rising' tone, since it certainly does not end at the level of a preceding high; but he does not go on to the logical extension that the lowered pitch as well as the motion of this tone is significant. The tonal system of Yoruba will be clarified considerably if it is recognized that the phonetic lowering (or terracing) of both the high and the mid tones is one process. A second process occurs which changes an extreme (i.e., high or low) tone into a glide whenever it is immediately preceded by the opposite extreme tone.

Thus the terracing is simple and obvious when only <u>mid</u> tones following lows are involved:

(24) ɛyɪn kɛ̀rɪ́n
egg fourth
'(the) fourth egg'

This can be diagrammed as:

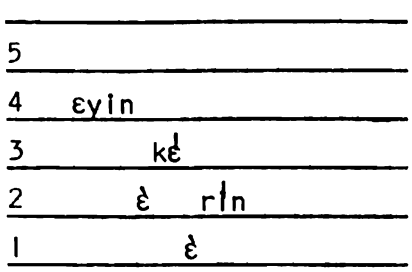
(25)



This utterance comes from forms given in the lexicon as ɛyɪn and ṾkV + ɛ̀rɪn 'four'. (Kɛ̀rɪ́n is one of many adjectives which have a corresponding noun beginning with a vowel; I am deriving the former from the latter. An ordinal numeral like ɛ̀kɛrɪ́n is derived by contracting ṾkV (with unspecified vowels to be assimilated) with the counting form of a numeral, here ɛ̀rɪn.)

Diagram showing the original low tones:

(26)

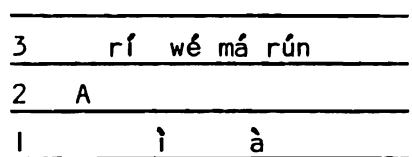


However, when high tones are involved, the glides obscure the terracing process. I shall illustrate with a sentence taken through first the terracing and then the gliding in separate steps:

(27) A rí ìwé máàrún
'We saw five books.'

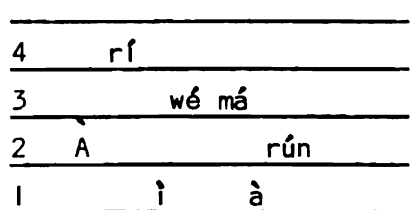
(Systematic phonemic level as far as the tones are concerned:)

(28)



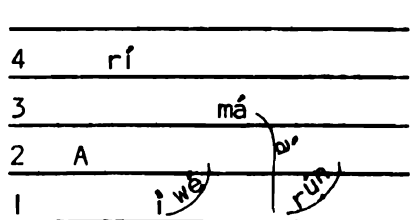
Here there are three and only three tonemes. The next step is the terracing:

(29)



Now the glides:

(30)

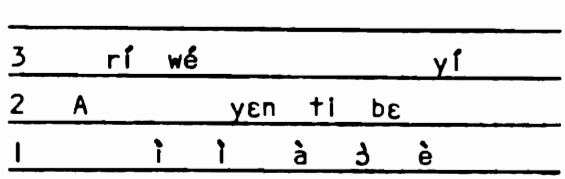


If the rules deriving glides from extreme tones did not exist, Yoruba would be an obvious three-toned terraced-level language. (It might also be an almost unintelligible one.) It will be revealing to look at a Yoruba sentence containing all three tones when it is at the stage following the terracing but preceding the gliding rules:

(31) A rí ìwé ìyɛn àtì ɔ̀bɛ èyí
We found book that and knife this
'We found that book and this knife.'

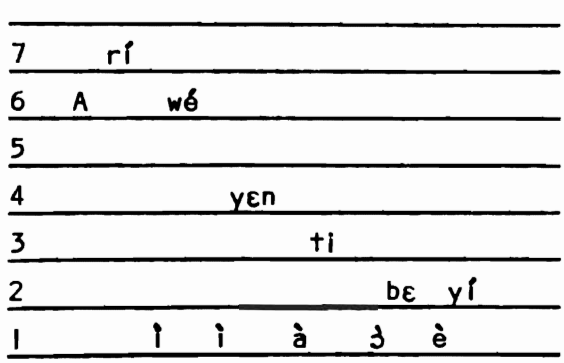
Diagram of tones at the systematic phonemic level:

(32)



Following terracing but preceding gliding:

(33)



Thomas Peterson [1967] has stated that a downstepping rule in a terraced-level language must appear early in the set of ordered phonological rules. If this were the case, it would be necessary to apply such a rule cyclically, starting from the innermost brackets and proceeding outward, in the manner of application of the transformational cycle of English stress rules (see Chomsky and Halle [1968]).

At least for Yoruba, and probably for all terraced-level languages, such a cycle is unnecessary and in fact unworkable. The terracing rules of Yoruba apply across all boundaries within a breath group, and appear very late in the phonological rules.

It is necessary only to have a formal device which will allow deletion of vowels at various stages in the P-rules without also deleting the tones of these vowels, which must be retained until after the terracing rules have applied. Such a device was developed by Fromkin (see Schachter and Fromkin [1968]) for Akan; it applies equally well to Yoruba.

When the segmental features of a vowel are deleted by a P-rule, the tone of the vowel remains, carried by a symbol Ø. At the end of the P-rules, the terracing rules apply; and only then are all tones of segments without non-tonal features deleted. The glide rules must apply after the deletion of Ø -- so that, for instance, a high tone in a sequence L M H where the mid tone is deleted will become rising now that it directly follows the low.

For an example, let us take the phrase Ìíǹ ìgbà èwo 'at what time?'. The segmental features of the first vowel of both nouns (ìgbà 'time' and èwo 'which one?') are deleted by regular P-rules.

(34)

Underlying form	Ìíǹ ìgbà èwo
after P-rules	Ìíǹ Øgbà Øwo
after terracing rules	Ìíǹ Øgbà Øwó
after Ø-deletion rule	Ìíǹ gbà wó
after glide rules	Ìíǹ gbâ wó

The tonal diagrams given previously were simplified for the sake of clarity. Low tones actually terrace also; the following Terracing Rules will give a better idea of the actual phonetic pitches. (I am indebted to Victoria Fromkin for devising the numerical table.)

(35) Terracing Rules: Rules apply from left to right, with + or - integers added to immediately preceding tone.

Tone --> n after Pause

H --> +6 / L _____

+3 / M _____

0 / H _____

L --> -8 / H _____
-4 / M _____
0 / L _____
M --> +3 / L _____
-3 / H _____
0 / M _____

(36) Ø-Deletion Rule:

$$\begin{bmatrix} -F \\ +segment \end{bmatrix} \rightarrow \begin{bmatrix} -segment \\ -tone \end{bmatrix}$$

(37) Glide Rules:

H --> L-H glide / L _____
L --> H-L glide / H _____

Yoruba, then is an orthodox if three-toned 'terraced-level' language -- that is, a discrete-level or register tone language with phonetic rules for downstepping. Its gliding rules and other idiosyncracies need not obscure the basic structure.

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THE TONOLOGY OF LƆMÓNGƆ REDUPLICATION

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Reduplication is a pervasive morphological process in Lɔmɔ́ngɔ,[1] applying to all classes of lexical items. This paper deals mainly with the tonology of reduplication, with some discussion of related problems in segmental morphophonology. The surface segments and tone patterns of reduplicated forms are consistently predictable only in terms of more abstract underlying forms and phono/tonological derivational rules. With few exceptions, it can be shown that regular reduplicative forms are derived by the same rules needed in less exotic portions of the grammar: a logical enough result not entirely obvious from a cursory glance at the data. Furthermore, Hulstaert's observation [1965: II.229] that "(partial) prereduplication is tonally equivalent to total reduplication" will be seen to have the wider application that 'total' and 'partial' reduplication are identical in deep structure, differing by rules that affect morphological length but not tonal contour. Another interesting aspect of much of the tonology of reduplication (implications of which are considered in Lovins [1971b]) is that the rules frequently apply in such a way that the melodic patterns of the unreduplicated and corresponding reduplicative words are the same, rather than duplicate sequences of tones being added to the (surface) form as syllables are in the course of reduplication. This is a possible but not necessary consequence of the action of independently justified tonological rules on underlying forms to which tones have of course been 'added' along with reduplicating syllables.

The underlying identity of 'total' and 'partial' reduplication will

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[1]My information on this group of Bantu tone dialects comes from G. Hulstaert's Grammaire du lɔmɔ́ngɔ [1962, 1965]. All references are to volume and page numbers in this work. I am also indebted to Hulstaert for some very helpful supplementary data and for his comments on an earlier draft of this paper. Examples are from several 'base' dialects unless otherwise noted; some dialect comparisons have been crucial to the analysis.

first be demonstrated, through examination of prereduplicated verb radicals. (Such prereduplicated verb forms have an 'intensive' or 'iterative' sense.) A radical R may be followed by one or more 'extensions' E; the verb is completed by a suffix or 'desinence' D. The prereduplication will be referred to as R', and -(R')-R-(E)- as a 'base'. Since only the first syllable of a radical has lexical tone (i.e. it is subject to a limited number of types of tonological alterations), the sequence -R'-R- behaves in turn like -R-E-: the original radical takes on the character of an extension, as far as the tone rules go. In particular, the new 'extension' R is subject to an obligatory regressive assimilation rule for verbs which will be referred to as the monotony rule: all extensionary syllables take on the tone of the first syllable of the (following) desinence.

Hulstaert also distinguishes between radicals beginning with a consonant and those beginning with a vowel, and another goal of our analysis will be to give as similar a treatment for the two as possible. Taking up C-radicals first, the possible tonal results of 'partial' prereduplication may be summarized as follows, where the underlying tone of R' is a copy of that on R:

(1)	R'	R	D
	L<L	L<L	L
	LH<L	H<L	H
	HL<H	L<H	L
	H<H	H<H	H

Examples are given in (2), with an arbitrary vowel standing for D and low tone (̀) not marked.

(2a)	/sík/	'stop'	-sa-sík-V
(2b)			-sǎ-sík-V́
(2c)	/lómb/	'be shy'	-lâ-lomb-V
(2d)			-lá-lómb-V́
(2e)	/tábˀ/[2]	'jump'	-tâ-ta-V

[2]G. Hulstaert has kindly brought to my attention the fact that the

(2f) -tá-tá-V́

The surface tone of R' appears to be that of R before reduplication, combined with that of R after reduplication and subsequent application of the monotony rule. We could account for the glides by an additional rule of partial regressive assimilation, so that (2b) would have a tonal derivation like this:

(3)

R'	R	D	
	L	H	
L			reduplication
	H		monotony rule
LH			partial regressive assimilation

But this is an ad hoc solution, as is suggested by a look at 'total' reduplication of V-radicals (which are never partially reduplicated). Examples are

(4a)	/amb/	'receive'	-amb-amb-V
(4b)			-amb-ámb-V́
(4c)	/áts/	'split'	-áts-ats-V
(4d)			-áts-áts-V́

The tone of R is again determined by the monotony rule, but there is no partial regressive assimilation onto R' (the level underlying tone of R' remains so). The inconsistencies are resolved by following Hulstaert's hint [1965:II.229] that for C-radicals the rules work as if the prereduplication included <u>two</u> syllables, the first carrying the lexical tone and the second 'purely supplementary'. That is, we add a dummy vowel /-a-/ to R', immediately after R' is inserted by copying R. After application of the monotony rule, which affects the new extension E' but not R', the original vowel of R' is deleted. Schematically,

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form -tá- 'jump' cited on II.228 is shown elsewhere in the grammar to be underlying /táb/, with the usual application of intervocalic /b/-deletion (see below). The underlying form CVC is attested in words with /b/ appearing on the surface, as well as here by the tonological behavior of the radical in prereduplication.

(5) $/CV_{\alpha T}C_0^2/ \rightarrow CV_{\alpha T}C_0^2\text{-a-}CV_{\alpha T}C_0^2\text{-}V_{\beta T}$

$CV_{\alpha T}\text{-}a_{\beta T}\text{-}CV_{\beta T}C_0^2\text{-}V_{\beta T}$	monotony rule; generalized version of /b/-deletion
$Ca_{\alpha T,\beta T}\text{-}CV_{\beta T}C_0^2\text{-}V_{\beta T}$	vowel-elision and tone composition

The rules cited in (5), typical of Lɔmɔ́ngɔ tonology, are easily described: Intervocalic /b/-deletion is a fairly general process at the beginning of a word, as is the elision of the first of two adjacent vowels. Both are seen, in that order, in the form

(6) /botámbá bɔ́kwɛ́kí/ → botámbɔ́kwɛ́kí 'the tree fell'

Tone composition is the usual result of such vocalic elision: the tones of what were two syllables are combined on the one remaining. The outcome may be a tritone, as LHL in (7), or even, sometimes, a LHLH glide:

(7) /bɔ̌mɔ̌ botámbá/ → bɔ̌mɔ̋támbá

An occasional alternative to tone composition, when elision has taken place, is a form of total progressive assimilation characteristic of certain vocalic prefixes (/e-/, /o-/, /a-/): the prefix vowel assumes the tone of a preceding vowel, which otherwise vanishes completely.

Returning to (5), we see that this sort of derivation reduces a 'total' reduplication of a C-radical to a 'partial' one for each of the forms in (2), without resorting to any additional rules to obtain the /a/ in, or the glide on, R'. For example, corresponding to (2b) again (cf. (3)) we have

(8) /sɪk/ →

sɪk-a-sɪk-V́	
sɪk-á-sɪk-V́	monotony rule
sɪ-á-sɪk-V́[3]	consonant deletion
sǎ-sɪk-V́	V-elision, tone composition

[3]This stage of the derivation may be attested in the speech of the

The dialectal forms in (9) support this analysis: they too have /-a-/ inserted between R' and R, and subject to the monotony rule. But the final consonant cluster of the reduplicated radical remains in R', so there is no vocalic sequence to instigate elision and tone composition. That is, the crucial difference between total and partial reduplication for C-radicals is merely the failure of consonant deletion to apply in the former case. All other differences are a necessary consequence of omitting this one rule.

(9a)	/lamb/	'creep'	-lamb-a-lamb-V
(9b)			-lamb-á-lámb-V́
(9c)	/bʃmb/	'throw'	-bʃmb-a-bʃmb-V
(9d)			-bʃmb-á-bʃmb-V́

In the case of V-radicals, no consonants are deleted either. Thus the initial vowel of R' is not involved in any elision and tone composition. We have the option of positing an inserted /-a-/ after R', as for C-radicals: Such a vowel would take on the tone of the vowel in R by the monotony rule and then be elided before this vowel, leaving no trace. But it will be suggested on the basis of later evidence that consistency is best served by not inserting /-a-/ in V-reduplicatives and then deleting it, even though this differentiates the initial stages of the derivations of consonantal and vocalic reduplications. The latter require simply one application of the monotony rule, to the vowel of R. (Cf. the more complicated treatment in Lovins [1971a; 1971b].)

The verb bases derived in this fashion may be used to form substantives as well as verbs, with the substantive endings asserting their tonality through the monotony rule. Examples are

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Nkengo [Hulstaert 1970:25]: the only two prereduplicated verb forms observed were -kʃakɛf- ([kyâkɛf]) 'look all around' and -sʃaseng- ([syâseng]) 'beg' (with low-toned desinence). Hulstaert comments that "We would need other examples with other radical vowels to ascertain whether this [ɪ] is part of the formation or whether it is a representation of the radical vowel /ɛ/ of these two verbs."

(10a)	/sik/	'stop'	/bo-sik-a-sik-á/ →	
			bosǎsíká	'hesitation'
			also note: bosasiko	'hesitation'
(10b)	/nóng/	'be unsteady'	bonânongo	'oscillation'
(10c)	/béng/		ebábéngá	'unstable person'

Deverbal substantives (formed on unreduplicated verb bases) [Hulstaert 1965:II.92-94] may involve 'total' reduplication including an original E, not just a monosyllabic radical. Representative examples are

(11a)	/lɛ́/	'eat'	ɛ-lɛ́lɛ́
(11b)	/sang/	'say'	e-sangâsanga
(11c)	/fím /ɨ/	'refuse'	e-fímâfíma
(11d)	/sangol/	'inherit'	e-sangólâsangola
(11e)	/sángol/	'lift'	e-sángólâsángola
(11f)	/falangany/	'spill'	e-falángányâfalanganya
(11g)	/as/	'look for'	-asâsa
(11h)	/ungutsw/	'get confused'	-ungútswûngutswa
(11i)	/ít/	'expel'	ɪ́títa (note (regular) elision of /è-/)
(11j)	/úngusan/	'get lost'	ŭngúsánúngusana (ditto)

It is clear that these tone patterns are not accounted for by the above analysis, but no major refinements are needed. Suppose we take the underlying form

(12) -R'(E')áàR(E)à

for all consonant-base words in (11) except those with CV radicals. The first of the two inserted medial vowels makes the extensions of R' H, by the monotony rule, then elides before the second, yielding /-â-/ by tone composition. The suffixed final /-à/ likewise determines the tone of the extensions of R by the monotony rule (so they are always L). All rules apply in the same order as before, but the monotony rule applies to two sequences within the word rather than one. This involves keeping R distinct as a radical--it is not subordinated to the tonological role of an extension, and maintains its lexical tone. The same boundary or whatever that does this gives /-áà-/ its desinential

character (ability to trigger the monotony rule). The second-desinence-effect may be more explicitly attributed to the presence of /-á-/, as is demonstrated by the V-base examples in (11). Hulstaert explicitly proposes underlying forms like /-as-á-as-a/ → -asâsa, for (11g), with elision of the first of the two medial vowels. If we also add /-á-/ following B' for high-toned V-bases, the derived high tones on E' in e.g. (11j) follow immediately. A representation of the underlying form for V-based words in (11) is

(13) R'(E')á R(E)à

At this point there must be different underlying forms for C-bases and V-bases, as regards /a/-insertion. If B' is followed by /-á-/ in V-base deverbal substantives, an extra /-à-/ is not only unnecessary but incorrect. As mentioned previously, the difference between stem-types that was optional for simple verb-base reduplications should be definitely imposed on the basis of what happens to deverbal substantives, rather than making a distinction between the two types of reduplication on such grounds.

It is implicit in this analysis that /-à-/ and /-à/ in (12) should not be regarded as the same sort of entity: the one is an extra vowel dictated by the consonantal radical, the other a suffix to the whole word.

None of the above, unfortunately, applies to (11a): radicals of the form CV are simply reduplicated, with no infixal or suffixal /a/'s added. Two ways of describing this exceptional behavior come to mind. First, it may just be labelled as exceptional, possibly limited to deverbal substantives of the form CV. A second treatment is to class CV bases with V-bases and specify that /-à-/ is inserted only in certain consonant-dominated environments, bringing out the epenthetic nature of /-à-/ for reduplicative verb stems and deverbal substantives alike; but no satisfactory statement of the relevant environments has been reached.

The /...-á-...-à/ pattern for reduplicated forms is a very common one, though there are still a few derivational quirks to be mentioned.

'Partial' reduplication for deverbal substantives, like those discussed just above, may occur with CVC radicals to yield forms like

(14a)	/kel/	'do'	e-kě-kel-a
(14b)	/tɛ́l/	'predict'	e-tɛ́-tɛ́l-a

Dialectally the vowel of R' may be /a/; but if the original vowel is retained, as it is in (14), we are apparently faced with elision of the second vowel in a sequence (after consonant deletion). (We cannot omit /-á-/ to begin with, since it is needed to obtain glides on R', as in (14a).) This is not a unique occurrence in the general phonology of Lɔmɔ́ngɔ, and can probably be safely viewed as a minor rule. In some dialects [Hulstaert 1965:I.155, 162] /a/ is intercalated between two words, the first of which loses a vocalic ending and the second the prefix /bi-/ (which becomes /ʔ/); the tone of the /a/ is the combination of those of the two vowels that have been elided. The significant point is that here /-i-/ elides after /a/, yielding up its tone to it.

Second-vowel elision also occurs in reduplicative gerundive forms of the verb, which have /Ǹ-/ prefix and desinence /-à/. The possible surface forms [Hulstaert 1965:II.457] of such gerundives are exemplified by

(15a)	/sak/	'fish'	n-sǎ-sak-a
(15b)	/sák/	'prevent'	n-sá-sák-a
(15c)	/ɪt/	'smoke-dry'	nj-ɪ̌-ɪt-a
(15d)	/ʃt/	'hunt'	nj-ʃ-ʃt-a

Hulstaert proposes /ǹ-ʃt-á-ʃt-à/ for (15d), with elision of /t-á-/. The underlying form

(16) /ǹR'áRà/

is valid for all cases. Note that in e.g. (15c) there is no apparent motivation for the glide's ending up on the vowel of R', not on that of R; normally the tone of an elided vowel would go onto the vowel following it. But it is of course impossible to distinguish [njɪ̌ɪta] from [njɪɪta] phonetically, and indeed Hulstaert cites both [nju(t)ûta] and

[njŭuta] 'returning', as well as [njutû̀te] 'backwards', also from /ut/ 'return'. The placement of the glide tone is thus fairly arbitrary, as far as notation goes.

Many reduplicated ideophones likewise have the underlying form

(17) R'áRà

with double application of the monotony rule--but this time the rule is liberalized to apply to radicals, not just extensions. The result is what Hulstaert calls 'alternant tonality': the first half of the word is all H, the second half all L. An example is

(18) fɛ́káfɛka 'fly about' or 'eddy'

L monosyllabic V-radicals also yield ideophones like

(19) /utut/ 'draw back' utû̀ta

(Hulstaert found no cases of H monosyllabic V-radicals used in ideophones of this sort.)

Another example of second-vowel elision, with no vocalic insertions, is numerical forms expressing multiplicity:

(20a) /sáto/ 'three' e-sâ-sato 'triple'
(20b) /nɛ̀ɪ/ 'four' ɛ-nɛ-nɛ̀ɪ 'quadruple'

Much the same sorts of derivations as given above apply to Lɔmɔ́ngɔ nominal reduplications, which give us diminutive, augmentative, and collective stems. They are by and large a matter of copying the root exactly and then possibly deleting part of the prereduplication (cf. vowel elision and consonant deletion above), as in

(21) y-ukú 'wasp' y-uk-ûkú 'small wasp'
/ukú-ukú/
uk-ûkú elision, tone composition

For disyllabic stems, whether the original vowel of R' is retained varies with dialect:

(22) /mbóka/ 'road' e-mbâ-mboka, e-mbô-mboka } 'large road'

This will be considered further below. A description of the tonology may be based on the following examples:

(23a)	bo-nto	'person'	e-nto-nto	'giant'
(23b)	nyama	'animal'	bo-nya-nyama	'the animal kingdom'
(23c)	lo-kolé	'tom-tom'	l-kǎ-kolé	'little tom-tom'
(23d)	e-sé	'village'	bo-sê-se	'all the villages'
(23e)	mbóka	'road'	e-mbâ-mboka	'large road'
(23f)	ll-tól	'ear'	l-tâ-tol	'little ear'
(23g)	bo-támbá	'tree'	l-tá-támbá	'shrub'
(24a)	w-lll	'root'	y-ll-lll	'rootlet'
(24b)	y-ukú	'wasp'	y-uk-ûkú	'small wasp'
(24c)	b-ásl	'water'	w-ás-asl	'juicy'
(24d)	y-ǒmba (/ómba/)	'thing'	y-ǒmb-omba	'little thing'
(24e)	w-ányá	'intelligence'	y-ány-ányá	'small intelligence'
(24f)	y-ǐfó (/ǐfó/)	'match'	y-ǐf-ǐfó	'little match'

(In (23a, b, g) and (24a, e, f) both the plain and reduplicative forms have a level tone contour that remains so by copying. The second vowel of R' is elided before the first one of R for V-stems, with tone composition applying vacuously; the second syllable of R' is deleted for C-stems, with analogous results. LH stems ((23c), (24b)) undergo a similar process, but this time tone composition gives us LH-LH reduplicative forms--the only exception to the generalization that the melody of the word is retained in reduplication. For reduplicatives based on HL stems ((23e, f), (24c, d)) or H monosyllabics ((23d)) have the tonal contour HL-L(L) or H-LL, melodically equivalent to HL. The lowered tone of the first syllable of R is unaccounted for by any rules proposed so far. (In the previous discussions cited, it was proposed--with a regrettably incorrect attribution to Hulstaert--that the lowered tone might in the case of V-stems be the result of total progressive assimilation, as described above for certain cases of vocalic elision,

rather than the usual tone composition: the first L on R would be imposed by the second (L) vowel in R'. This proposal contradicts a fairly substantial generalization about Lomóngo tonology (a L tone does not normally override a following H one) and fails to account for the same sort of tone-lowering in C-stems.) The remaining alternative at present is some sort of constraint on surface HLHL tone melodies. Such a tone pattern is rare for words, non-existent on single syllables. Also, it would in this case violate the principle of melodic constancy. Violation of this principle for LH reduplications is concomitant with the ubiquitousness of LHLH tone contours. I am not suggesting any particular cause-and-effect relation, but a joint consideration of these facts makes a constraint proposal the more plausible; even though it may mean abandoning the assignment of tone patterns according to purely tonological rules and instituting a role for phrasal pitch assignment as well. (See also Lovins [1971b].)

As yet unexplained too is the occurrence of forms like [ɪtâtoɪ] 'little ear' in one dialect, [ɪtôtoɪ] in another, where neither of the underlying vowels of R' surfaces in the first instance. Whereas in (5) etc. the insertion of /-a-/ necessary for tonological reasons also gave /a/ as the constant vowel in R', after elision of the original vowel, in nominal reduplications we cannot plausibly insert an extra vowel, for several reasons: First, because this would mean eliding <u>two</u> stem vowels, if neither is /a/, and second, because the inserted vowel would in all cases have its tonality determined solely by that of the vowels of R', and in every other case of /a/-insertion presented this vowel has either been affected by the monotony rule or had its own underlying tone which surfaced by tone composition. It appears that in (22) we have to do not with a juxtaposition-and-elision phenomenon (with or without /a/-insertion), but rather with a <u>substitution</u> that also assigns to /a/ the derived tone of the reduced form of R', by some mechanism not further specifiable here. It is easiest to say, as we did above, that this reduced form is R'(=R) minus its final syllable (substitution occurs only with disyllabic stems): that e.g. the first reduplicative form in (22) is derived from the second. But Hulstaert's

observation [1965:II.24] that substitution of /a/ is much more frequent if the original second vowel of R' is /a/ ("In the base dialects this [substitution] always happens if the final [vowel] is /a/, but sometimes also when it is another vowel") implies a more complicated process. Such forms with surface /a/ in R' and original final /a/ (as in (22)) could be derived simply by the familiar means of deleting the first vowel and second consonant in R', leaving the final /a/. This introduces two ways of deriving the same sort of reduplicative forms, each applying depending on the identity of the final vowel of the stem--which does not seem at all the right approach, doubly so since in some dialects the first vowel is <u>always</u> retained whether or not the second one is /a/ [Hulstaert 1965:II.24]. Keeping the derivation uniform--removal of the final syllable of R', then possible later /a/-substitution, the disproportionate influence of underlying stem-final /a/ on /a/-substitution might be attributed to the fact that a second type of derivation having the same result is indeed possible. We then have a consistent analysis plus a 'reinforcing' factor for a certain kind of rule application.

A final question about /a/-substitution is why the vowel of a monosyllabic stem is always preserved [Hulstaert 1965:II.24]. This exception is a difficult one to state because of H monosyllabic stems like /nsé/ that act like disyllabic HL stems in reduplicating (i.e. are disyllabic in deep structure), to the extent that the vowel of R assumes a low tone, and that of R' a glide: [ɪnsênse] 'small fish'.[4] The only aspect of the derivation that distinguishes forms like this from e.g. [ɪkâkota] 'little old woman', structurally speaking, is that R ends up monosyllabic in the one case, disyllabic in the other. This is not a very appealing environment for which to specify /a/-substitution ("more than one syllable following R' "), and I will leave the question open. On the other hand, this approach is consistent with the hypothesis

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[4]Hulstaert notes that some monosyllabic stems (though <u>not</u> /nsé/) are disyllabic in Pygmoid dialects, and suggests that this is fruitful ground for diachronic investigation.

that /a/-substitution is a purely 'surface' matter, occurring after all other rules have applied.

All of the nominal reduplications mentioned so far have been 'regular' in that the tone of R' bears a motivated resemblance to that of R; the derivation begins with a complete copying. There are however reduplicated forms that look rather different:

(25a)	njútú	'stench'	bo-nju-njútú	'great stench'
(25b)	bo-nkámá	'one hundred'	e-nka-nkámá	'hundreds'
(25c)	mpósá	'desire'	e-mpa-mpósá	'passion'
(25d)	bo-(n)tóné	(name of plant)	lo-(n)to-(n)tóné	
(25e)	mbélá	'call'	bo-mba-mbélá	'many calls'
(25f)	mpʃmbó	'aroma'	bo-mpi-mpʃmbó	'aromatic'
(25g)	ndéngé		bo-nde-ndéngé	'varied'
(25h)	njálé	'river'	bo-nja-njálé	'riverside'
(25i)	lɔ-mbɔ́lɛ́	(kind of fruit)	i-mbɔ-mbɔ́lɛ́	(kind of plant)
(25j)	bɔ-mpɛ́lɛ́	'lassitude'	i-mpɛ-mpɛ́lɛ́	'idle'

Compare (23g), etc. Other exceptional forms are

(26a)	bo-mbánga	(name of plant)	lo-mbă-angá	
(26b)	lŏma	'temerity'	mp-óm-ŏmá	'intrepidity'
(26c)	i-mpʃnga	'piece'	i-mpă-mpʃnga	'heap'
(26d)	lɪnsɪmɪ́	'taciturnity'	bo-nsɪ̌-nsɪ́mɪ	'low voice'

The words in (25) and (26) are 'frozen' in the language--they are not derived by productive rules. The data suggest that an initial nasal is a necessary, but not sufficient, condition for following these patterns.

Examples (25) present no great difficulty if one posits a rule that lowers the vowel of R'. The H final vowels in R, in (26a, b), remain a puzzle; nor do the last two examples look very hopeful for neat derivations. However, the proposed unreduplicated forms are somewhat tentative, and there is also a possibility of tone movement in one form or the other since the original derivation occurred.

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A NOTE ON LATERAL FRICATIVES IN CHADIC

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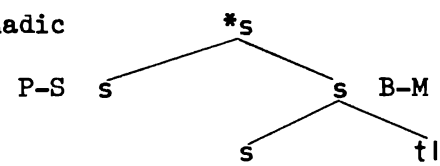
In their highly significant article on comparative Chadic, Newman and Ma [1966] reconstruct for Proto-Chadic a phoneme *s. In the two major branches of Chadic which they deal with (Plateau-Sahel [P-S] and Biu-Mandara [B-M] they find P-S *s corresponding in eleven instances with B-M *s but in nine instances with B-M *tl (a voiceless lateral fricative, IPA ɬ). Their hypothesis with regard to these phonemes may be diagrammed thus:

(1)



They go on to suggest that among the "few sound changes [that] can be described as having occurred at the level of Plateau-Sahel and Biu-Mandara...[is] the split in Biu-Mandara of *s into s and tl" [1966: 225]. Previously, Newman had stated that only Maha among P-S languages has lateral fricatives and this only because of "the geographical proximity of the Maha to the Babur, Bura and Tera with whom they have had considerable contact over some length of time" [Newman 1965:58]. At that point in time, then, it looked feasible to attempt to explain the presence of lateral fricatives in B-M as the result of an innovation within B-M [Newman-Ma 1966:226] and their prsence in one Plateau-Sahel language (Maha) as the result of borrowing. However, Jungraithmayr [1967:58] indicates that the presence of lateral fricatives in P-S languages is not limited to Maha but that they also occur in Warja and Pa'a (Afa). The statement by Jungraithmayr, though, could indicate that lateral fricatives, though present, are not at all common in these languages.

My own data, however, neither supports the claim that lateral fricatives are rare in P-S languages nor allows one to explain their presence simply as the result of borrowing--except, perhaps, in Ngizim, Maha and

Karekare, the only Plateau-Sahel languages included in the Newman-Ma study in which they seem to occur. My data shows some 26 occurrences in 400+ Ngizim words (10 occurrences in the 170 word list referred to below, only 2 of which correspond with lateral fricatives in the Bauchi languages--see below). There are only 8 occurrences of lateral fricatives in 400+ Karekare words, while Newman's published Maha list [Newman 1965] shows only 2 occurrences in 106 items. A borrowing hypothesis for these sounds then, seems possible both because of the quantity and the quality of the words in which lateral fricatives occur.

There are, however, a number of P-S languages spoken in the vicinity of Bauchi (not included in the Newman-Ma study) for which such a borrowing hypothesis does not seem possible--at least not unless it is establishable that these languages have in the past been in a kind of close proximity to B-M languages which they do not now manifest. The 350-400 items from my word list collected in these languages yields examples of lateral fricatives in the following numbers of items: Geji/Gezawa (53), Buli (50), Dirya/Diryawa (42), Seya/Seyawa (37), Dwot (33), Palci (32), Miya/Miyawa (26), Burma (17). As to the quality of the items--among the words employing lateral fricatives in some or (in a few cases) all of these languages are the terms for 'body', 'to break', 'cow', 'dove', 'egg', 'to fry', 'to go', 'ground', 'guinea fowl', 'to kill', 'meat', 'to pull', 'rainy season', 'rope', 'tamarind tree', 'tongue', 'to untie', 'woman'.

Several hypotheses might be advanced to explain this situation. Among them may be listed the following:

(a) These Bauchi languages are actually Biu-Mandara languages rather than Plateau-Sahel since both s and tl occur in both whereas tl does not occur (except as the result of borrowing) in the rest of P-S;

(b) The Bauchi P-S tl actually developed independently in the Bauchi Cluster of P-S, perhaps as a reflex of something other than Proto-Chadic *s;

(c) Proto-Chadic possessed lateral fricatives from which the lateral fricatives in both B-M and P-S developed;

(d) At some time in the past these Bauchi languages were in prolonged close contact with certain of the B-M languages resulting in extensive borrowing of words with lateral fricatives in them from one group to the other;

(e) These languages are representatives of a major grouping within Chadic, equal in status to Plateau-Sahel and Biu-Mandara.

The first of the above hypotheses was the first to occur to the writer. It was, however, abandoned (at least for the time being) when initial comparison of the Bauchi languages items with my B-M lists indicated that it seemed to be quite a bit more difficult to postulate significant numbers of correspondences between the Bauchi languages and the B-M languages than between the Bauchi languages and P-S, except for items that are good for both P-S and B-M. Typical examples are:

(2)

	P-S	Bauchi langs.	B-M
'arrow'	pas (Angas)	pus (Buli)	xafta (Gaɓin)
	pek (Dera)	puse (Dirya)	xava (Gava)
	fik (Tangale)	pɬs (Dwot)	ʔava (Guɗe)
'bird'	yar (Ankwe)	yatɬɬ (Dirya)	ʔyaku (Kilba)
	yaro (Bolewa)	nyeɬ (Dwot)	kudekɬ (Njanye)
	yiddɬ (Tangale)	yadɬɬ (Geji)	ɗikɬ (Tera
'body'	šɬk (Cip)	tɬɬ (Buli)	vugha (Gava)
	tɬka (Ngizim)	šɬyuk (Burma)	wudzu (Margi)
	cɬk (Pero)	dɬɬ (Geji)	vədə (Pidlimdi)
'to give'	bursɬ (Gera)	bɬdu (Buli)	vɬŋ (Fali Jilbu)
	ba (Hausa)	pere (Burma)	uvən (Mwulyen)
	pən (Kofyar)	bɬtɬ (Dirya)	vərɬ (Tera)
'ground'	yɬɬ (Angas)	atɬ (Buli)	xɬɗɬ (Fali Gili)
	ʔeɬɬ (Ngamo)	ʔatɬɬ (Dirya)	xaxa (Gaɓin)
	yeɬɬɬ (Tangale)	yatɬ (Seya)	xaya (Nakatsa)
etc.			

A second explanation might be that tɬ in the Bauchi languages developed independently of the s-tɬ split in B-M, perhaps as a reflex of something other than Proto-Chadic *s. A number of items showing lateral fricatives in Bauchi languages, for example, seem to correspond with items showing ɬ in the other P-S clusters, e.g.:

(3) 'to break' P-S (excluding Bauchi)--ɓulwo (Bolewa), ɓallee (Hausa), ɓarl (Gera), ɓlrenl (Dera)
Bauchi languages--ɓatltly (Dwot), ɓatlka (Geji)

'egg' P-S--ɓlla (Ngamo), wolu (Bolewa), yula (Dera)
Bauchi--mbutl (Dwot, Seya), mbutll (Geji), mbwətl (Palci)

'ground' P-S--yll (Angas), ʔell (Ngamo), yellt (Tangale)
Bauchi--atl (Buli), ʔatll (Dirya), yatl (Seya)

'meat' P-S--lu (Ngamo, Dera, Cip), luwa (Sura, Kofyar), tluwəy (Ngizim)[1]
Bauchi--tlu (Buli, Dirya, Geji), tlo (Palci, Dwot, Burma), tllwl (Miya)

'(?)morning' P-S--parsughun (Burma), blt̲luŋ[2] (Kofyar), mblt̲lum[2] (Ankwe)
Bauchi--bɬtlɬnda (Seya), lutlowl (Geji), tlltlln (Palci)

(see also 'bird' in (2) above)

There are, however, a number of examples of Bauchi tl corresponding to s in the rest of P-S, e.g.:

(4) 'body' P-S--zlwo (Bolewa), šlk (Cip), jlkll (Hausa),
BUT NOTE llk (Tangale)
Bauchi--dll (Geji, Seya, Dwot, Palci, Dirya), tll (Buli), šlyuk (Burma)

'to drink' P-S--sa (Bolewa, Karekare), səw (Ngizim), šuwa (Sura), žegho (Pero)
Bauchi--tlawl (Geji), tllyu (Palci), tllx (Dwot), slye (Burma), sa (Miya)

'to fry' P-S--suru (Bolewa, Gera), sur (Angas, Ngamo), sooyaa (Hausa)
Bauchi--wudlurun (Palci), wutll (Geji), sure (Burma)

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[1]Note that this Ngizim form differs from that listed by Newman-Ma (sowel) and possibly weakens their reconstruction of *s as the first consonant in the Proto-Chadic term for 'meat'.

[2]These two instances of tl are, apparently, not to be interpreted

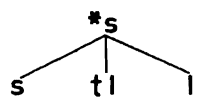
'guinea fowl' P-S--šom (Ankwe), zaaboo (Hausa), zabunu (Ngizim)
Bauchi--dɬubm (Seya), dɬibin (Palci), tɬim (Buli), dɬɬmunɬ (Dirya), šapm (Burma)

'rope' P-S--zorɬ (Bolewa, Karekare, Ngamo), zeyɬ (Ngizim)
Bauchi--tɬur (Dwot), tɬɬr (Buli), tɬurum (Seya), suru- (Burma), za (Geji)

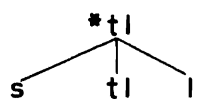
These facts might suggest the following three hypotheses as explanations:

(5) *P-S

(6) *P-S



(7) *P-S



Of these, theory (7) seems a bit more believable as an explanation of the results of the split but may cause problems with regard to explaining how the lateral fricative got into *P-S--unless the B-M data can assist in this.

Not many of the items containing lateral fricatives in the Bauchi languages, however, appear to correspond with B-M items showing lateral fricatives. A rough count of the same 170 items in 34 B-M languages and the 8 Bauchi languages under consideration here shows the following:

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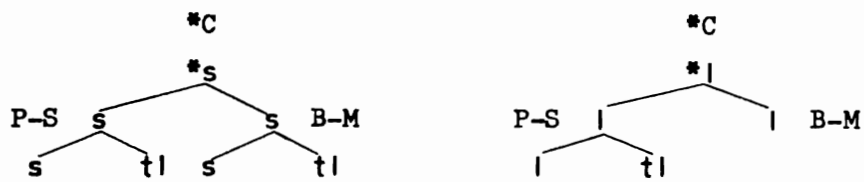
as lateral fricatives. I have underlined them to indicate this.

(8)

	Comparisons showing one or more instances of lateral fricatives	Parallel items (whether or not likely cognates) showing lateral fricatives both in B-M and Bauchi langs.	Possible correspondences between items with lateral fricatives
B-M (34 langs)	41	15	5-7
Bauchi (8 langs)	48		

Newman-Ma [1966] trace lateral fricatives in B-M to a Proto-Chadic *s (see their examples #8, 11, 18, 56, 63,[3] 70, 77, 87, 111). If, then, on the basis of the above Bauchi examples, we postulate the dual development of Bauchi tl from Proto-P-S *l and *s, the tree diagrams could look like this with no postulated connection between one set of the Bauchi lateral fricatives (i.e., those from *l) and those of B-M:

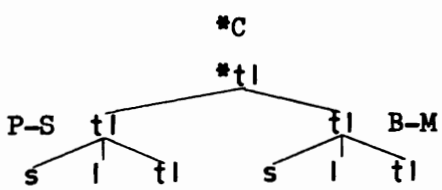
(9)



Such a hypothesis does not appear likely, however, since it requires three separate developments of tl--twice in P-S and once in B-M.

If, however, further investigation can establish a relationship between Bauchi lateral fricatives and B-M lateral fricatives, it might be feasible to postulate a Proto-Chadic *tl as follows:

(10)



[3]This is the word for 'meat' referred to in footnote 1 above. See the appendix listing of this item for further weakening of the *s reconstruction.

Data is now being assembled to attempt to prove, disprove or modify such a hypothesis.

Given the fact (shown above) that there do not seem to be very many potential correspondences between B-M lateral fricatives and those in the Bauchi languages the possibility of accounting for them by means of a theory of borrowing appears diminished. I feel, however, that the present very incomplete state of our knowledge does not afford us the luxury of discounting even those hypotheses that presently seem least likely.

The possibility that the Bauchi languages may represent a major grouping parallel to P-S and B-M needs much more careful treatment than it has been possible to give here. This hypothesis will have to await further study.

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APPENDIX I

Examples of s/z in both P-S and B-M corresponding to Bauchi tl/dl and reconstructed as Proto-Chadic *s/z

	Proto-Chadic [Newman-Ma]	P-S	Bauchi	B-M
'body'	**z-[4]	zowl (Gera) zlwo (Bolewa) šlk (Cip) jlkll (Hausa) clk (Pero)	dll (Geji, Seya, Dwot, Palci, Dirya) tll (Buli) šlyuk (Burma)	su?u (Fali Mucella) suto (Bacama) dza (Bura, Kilba)
'to drink'	*s-	sa (Bolewa, Karekare) səw (Ngizim) šaa (Hausa) šuwa (Sura) žegho (Pero)	tlawl (Geji) tllyu (Palci) tllx (Dwot) slye (Burma) sa (Miya)	saxo (Fali Gili, Higi Futu) səw (Gudə) sa (Hwona, Bura, Wamdiu) ša (Mandara) za (Tera, Pidlimdi)
'to fry'	*z-r-	suru (Bolewa, Gera) sur (Angas, Ngamo) sooyaa (Hausa)	wudlurun (Palci) wutll (Geji) sure (Burma)	šlll (Fali Kiria) sur- (Gudə) sura (Ga'anda, Boka) sultl (Cibak) sula (Zaghvana)
'guinea fowl'	**z-b-(n)[4]	šom (Ankwe) zabunu (Ngizim) zaaboo (Hausa)	dlubm (Seya) dllbin (Palci) dl+munl (Dirya) tlim (Buli) šapm (Burma) djoŋ (Geji)	zavunu (Fali Mucella) zuvune (Higi Nkafa) šefene (Gabin) clvan (Tera) ts+vur (Bura, Margi, Wamdiu)
'rope'	*z- [CHK]	zorl (Bolewa, Ngamo, Karekare) zeyl (Ngizim) worl (Dera)	tlur (Dwot) tlurum (Seya) tllr (Buli) suru- (Burma)	zu?u (Fali Mucella) zu?wa (Gudə) zuwe (Higi Nkafa, Higi Kamale) suwa (Bura, Cibak)

[4]The double asterisk indicates that Newman-Ma [1966] regard the reconstruction as of "second level confidence".

APPENDIX II

Examples of P-S l/r, B-M l/r or tl/dl corresponding to Bauchi tl/dl and reconstructed as Proto-Chadic *l/r

	*C [N-M]	P-S	Bauchi	B-M l	B-M tl
'to break'		(?) kiya (Karekare) karyee (Hausa) ktlu (Ngizim) (?) dwaleni (Dera)	kwətlu (Buli) tatlka (Geji) celɨka (Geji) ngulun (Palci)	ŋgulo (Higi Baza) kɨluma (Gava)	ngitl (Fali Mucella) ktlti (Fali Gili) ntle (Higi Kamale) kintl (Gudə) xutlara (Pidlimdi) ŋdlima (Gava)
'egg (testicles)'	*(N)g-(r)	wolu (Bolewa) yula (Dera)t ɓila (Ngamo)t	mbutl (Dwot, Seya) mbutli (Geji) mbwətl (Palci) wansl (Burma) wəla (Seya)t	ŋgala (Hwona, Boka) ntsula (Cibak)t alln (Gudə) kara (Hwona)t sɨbulu (Higi Futu) šimpurl (Fali Kiria)	ŋgardli (Tera) nyltle (Higi Ghye) 'yadlun (Fali Jilbu) tlltli (Bura) (?) tliya (Gava)
'meat'	*s-(w-)	lu (Ngamo, Dera, Cip) luwa (Sura, Kofyar) tluwəy (Ngizim)	tlu (Buli, Dirya, Geji) tluu (Seya) tlo (Palci, Dwot, Burma) tllwl (Miya)	luwa (Gudə, Gava, Galavda) lìwo (Njanye) lu (Pidlimdi)	dluwe (Fali Jilbu) tltuwu (Fali Gili) tlti (all 5 Higi) tluwa (Hwona, Boka) dlu (Tera)

APPENDIX III

Examples of l/r in P-S and B-M corresponding to Bauchi tl/dl and reconstructed as Proto-Chadic *l/r

	*C [N-M]	P-S	Bauchi	B-M l
'to break'	*ɓ-()l-	ɓulwo (Bolewa) ɓarl (Gera) ɓireni (Dera) ɓallee (Hausa)	ɓatltly (Dwot) ɓatlka (Geji) ɓalta (Miya)	ɓur (Fali Jilbu) ɓule (Higi Nkafa, Higi Kamale) ɓulu (West Margi) -ɓuga (Galavda)
'woman'		mat (Sura, Cip, Angas) mace/maataa (Hausa) mandu (Ngamo)	mutlu (Buli) mwutll (Dirya) (?) kili (Geji)	mall (Fali Gili) male (Higi Nkafa, Higi Kamale) mwəla (Bura, Cibak) mala (Margi, Kilba)

APPENDIX IV

Examples of P-S l(?), B-M l/r or s corresponding to Bauchi tl/dl and reconstructed as Proto-Chadic *l/r

	P-S	Bauchi	B-M l/r	B-M s
'to untie'	(?) futku (Ngizim) (?) fowun (Cip) (?) baɗu (Karekare)	putll (Dirya) pɬtlkɬwɬ (Geji) ɓatltu (Seya)	pələnto (Higi Futu) pɪrɪ (Fali Mucella) mpɪll (Cibak) pɬrɬn (Guɗe) ɓulaxe (Higi Kamale)	pwasan (Njanye) kwəsəŋ (Hwona)