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This paper seeks to test the premises of Newman's Vowel-Tone Class/Extension system against the operation of the present-day Hausa verbal system as the latter is manifested in the co-occurrence of a verb in more than one base shape (or in Parsons' terms, the incidence of a verb stem operating more than one primary grade). The evidence suggests first, the existence of extensions other than the Applicative having the same shape as bases; second, that transitivity is a correlate of base shapes in three out of four cases and is a factor in extension formation; and third, a shape normally considered an extension (or secondary grade) contains base forms and two different kinds of extension.

1. Introduction

Parsons [1960/61] outlined a system for verbal behaviour in Hausa in which a verb "base" (for disyllabic verbs the base consists of CVC-) operates a particular combination of "grades", the 7 grades being marked by final vowel (in Grade 5 by final VC) and tone pattern. All verbs in Grades 3 and 7 are intransitive, all in Grade 2 transitive; Grades 1, 4, and 6 contain both transitive and intransitive, while Grade 5, having an intermediate status, is termed "causative". Transitive verbs have four forms: A, with no direct object following; B, with personal pronoun direct object following; C, with other kinds of direct object following; D, with indirect object following. Parsons considered the A-form to be the basic form from which the C-form was deriv
derived by a vowel shortening rule. The form of intransitives is classed as A, with a D-form also possible. Grades 1-3 are "primary", 4-7 "secondary" in that they are normally derivative of a primary form. A division of Grades 4-7 into a "secondary" pair 4 and 5 and a "tertiary" pair 6 and 7 is sometimes made to account for third level derivations.

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1.1. The Vowel-Tone Class/Extension system. Newman [1973] proposed amendments to the grade system and at the same time offered an alternative view of the verbal system. His amendments involved the following:

a) the collapsing of Grades 2 and 3 as the intransitive and transitive components of a single grade,\(^1\) incorporating furthermore a group of

\(^1\)Newman has since dropped this idea [personal communication, 7/3/80].
HiHi intransitives having a heavy first syllable (see Newman [1972]);
b) taking the C-form of the transitive as basic from which the B-form is
derived by lengthening of the final vowel. The A-form, subsuming as
it traditionally does both the form of intransitives and the form of
transitives when the object is deleted, is in some cases identical
with the underlying form and in others has a lengthened final vowel
and in one instance a change of vowel from /i/ to /a/ [Newman
1973:313-316].

The establishing of the C-form as underlying is a keystone of the alterna­
tive view of the verbal system that Newman presents. Newman's alternative is
the "Vowel-Tone Class/Extension" (VTE) system. This specifies tone pattern
and final vowel for each verb, thereby avoiding Parsons' abstract bases and
grade specific tones and final vowel. Extensions, Parsons' secondary grades,
superimpose a tone pattern and final vowel on the basic shape of the verb.
Newman proposes the VTE system not as a better model of present-day verbal be­
haviour but rather suggests that it reflects the historical system out of
which the present picture, still perhaps best viewed as the modified grade
system, developed.

In outlining the VTE system Newman says,

According to the VTE (vowel-tone class/extension) system, a verb has
only one basic form. Therefore if a verb operates what looks to be two
basic grade forms, it follows necessarily that only one of the grade
forms can be truly basic and that the other must be a derived form, i.e.
a basic grade plus extension [1973:336-337];

and

...a Hausa verb is made up of a basic verb form with or without an op­
tional extension. The basic verb form is entered in the lexicon com­
plete with final vowel and tone. On the basis of these two variables,
verbs are assigned uniquely to one of six phonological classes. No
verb can belong to more than one basic class. The classes are all arbi­
trary phonological classes with no syntactic or semantic correlates that
can be considered a property of the phonological class as such. The
verbal extensions, by contrast, are purely optional additions that serve
to expand or modify the meaning of the basic verb [1973:334].

The four phonological classes for disyllabic verbs are set out on the follow­
ing grid:
final vowel
-a   -i

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<td>HiLo</td>
<td>káamà</td>
<td>wúnì</td>
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<tr>
<td>LoHi</td>
<td>fìtá</td>
<td>sàyí</td>
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(Following Newman the form of a verb cited throughout this paper is the C-form of transitives and the A-form of intransitives.)

The majority of extensions—Ventive (G.6), Totality (G.4), Causative (G.5), Decausative (G.5d), Sustenative G.7—specify a tone pattern and final vowel (or VC in the case of the Causative) distinct from the shapes in the above grid and simply replace the specifications of the base form by the shape of the extension, e.g.

base plus ventive extension

sàyí (LoHi -i) sàyóo (HiHi -oo)

In discussing extensions Newman sees a process of phonological reduction by consonant loss from CV suffixing to simply the features final vowel and tone pattern [Newman 1973:342].

1.2. The aims of the paper. This paper seeks to test the VTE system against present-day verbal behaviour, taking for granted Newman's modifications and ground rules. As regards the way in which verbs operate related forms within and outside the phonological grid the following general points are made:

a) It is suggested, contrary to Newman's premise, that in a majority of cases the phonological classes do have syntactic correlates, that is to say they are either transitive or intransitive.

b) It is suggested that co-occurrences of verbs in more than a single base shape can only be explained by both the "hidden" applicative extension and the operation of other "hidden" extensions.

c) A shape outside the basic grid (HiLo -e) is seen to contain both base forms and an amalgam of the true Totality extension with an Intransitive/Reflexive extension.

2. Co-occurrence of the Same Verb in More Than a Single Base Shape

2.1. The Applicative and the Partitive/Pejorative. As indicated above, Newman [1973] describes an extension, the Applicative, where the phonological
shape of the extension corresponds with the shape of a base, i.e. both base and extension occur within the following grid:

HiLo -a       HiLo -i
LoHi -a       LoHi -i

Newman [1977] says,

In Newman [1973] I adopted Parsons' analysis, as far as the borrowed G.1's were concerned, but suggested that it was better to describe these D forms in terms of switching GRADES rather than of borrowing grade FORMS .... The explanation I offered for the shift to G.1 was that these G.1's were not really semantically neutral basic verbs, but rather were derived stems containing an applicative extension, whose phonological identity with basic G.1's was due to accidental homonymy19.....

Footnote 19: The existence of this applicative extension hidden within G.1 verbs was first proposed (with some doubt and hesitation) in Newman [1973]. The question only a few years later is not whether some G.1's contain an applicative extension—which now seems certain—but whether there are any G.1 verbs that etymologically are not derived..... [Newman 1977:289].

The Applicative extension is projected by Newman [1973:341] to be "transitivizer, purposive, transferential, action away". If we accept Newman's explanation of the pre-dative (D form) use of Grade 1 (HiLo -a ) as the Applicative extension then the question is raised as to whether the HiLo -a square can be dispensed with entirely as a base shape within the grid.

2.1.1. The need for the HiLo -a square. It would not seem possible to dispense with the HiLo -a square as a base shape in view of the fact that there are many HiLo -a intransitive verbs that do not operate a shape in any other of the grid squares:

(1) γɪftàa       ya gifta a gabana 'cross in front' 'he crossed in front of me'
(2) γɪlmàa       ya gilma a gabana 'cross in front' 'he crossed in front of me'
(3) γússàa       ya gusa kadàn ya ba ni hanya 'move slightly' 'he moved a little to make way for me'
(4) kóomàa       ya koma gari 'return to' 'he returned to the city'
There are, furthermore, a number of transitive HiLo -a verbs that are similarly limited to this shape within the grid, e.g.

(16) bádá
'sprinkle'  
ya badá yaji a tuwo
'he sprinkled spices on the mush'

(17) dáfà
'boil, cook'
mai hafuri ya kan dafa dutse
'a patient person can cook a stone'

(18) dóorà
'put thing on thing'
na dora littafi a kansa
'I put the book on his head'

(19) gásà
'grill'
ya gasa doya
'he grilled yams'

(20) gyáara
'repair'
ya gyara kekena
'he repaired my bicycle'

(21) hádá
'sun hada kai'
'join, unite'
'they joined forces'

(22) kéerà
'forge'
an kera fartanya
'a hoe was forged'
(23) lìkkà
'stick, attach'
'I stuck the paper on the wall'

(24) mánna
'press together, attach'
'I stuck the paper on the wall'

(25) ràbà
'divide, separate'
'he divided out kola'

(26) shùukà
'sow'
'he planted peanuts'

(27) sóosà
'scratch'
'he scratched his foot'

(28) sóoyà
'fry'
'he fried meat'

(29) réerà
'sing'
'he sang a song'

(30) tóofà
'spit'
'he spit saliva'

(31) záanà
'draw'
'he drew a horse on the wall'

(32) zúgà
'blow, incite'
'he fanned the fire (with a bellows)'

It would seem more likely that the above examples point to the validity of a HiLo -a base shape within the grid; the grid square containing, at least in recent times, base forms both intransitive (often of movement) and transitive.

2.1.2. Co-occurrences explained as base and applicative extension. If on the basis of the above we postulate a base shape HiLo -a containing both transitive and intransitive verbs, then we need to account for co-occurrences within the grid in terms of the four base shapes and phonologically identical extensions, if we are to follow Newman's premise that "only one of the grade forms can be truly basic and that the other must be a derived form".

2.1.2.1. Co-occurrence LoHi -a ~ HiLo -a. Following Newman's hint that one of the functions of the Applicative is "transitivizer", we can see examples of this transitive extension operating upon LoHi -a intransitive bases. The base form in all cases is intransitive, either in the LoHi -a shape or in its variant HiHi -a where the first syllable is heavy (see Newman [1972]). In the following examples we have clear cut cases of transitive Applicative extensions related to intransitive bases:
a = LoHi -a base
b = HiLo -a Applicative extension

(33) a. c'ká
tulu ya cika
'fill'
'the jug is full'
b. c'ká
Audu ya cika tulu
'fill'
'Audu filled the jug'

(34) a. j'ká
wandonsa ya j'ká
'become wet'
'his pants are wet'
b. j'ká
Audu ya j'ká wandonsa
'wet'
'Audu got his pants wet'

(35) a. d'gá
ruwa ya d'gá ta indararo
'drip'
'water dripped from the gutter spout'
b. d'gá
ya d'gá magani a bakin yaro
'pour in drops'
'he dropped medicine into the boy's mouth'

(36) a. zúbá
mai ya zuba
'pour away'
'the oil spilled'
b. zúbá
ya zuba ruwa cikin kwalba
'pour'
'he poured water into the bottle'

2.1.2.2. Co-occurrence HiLo -a (intrans) ~ HiLo -a (trans). Accepting "transitivizer" as a function of the Applicative we can account for cases of transitive and intransitive forms of the same HiLo -a verb.

a = HiLo -a intransitive base
b = HiLo -a transitive Applicative extension

(37) a. fásàa
tafiya ta fasa
'be cancelled'
'the trip has been cancelled'
b. fásà
sun fasa tafiya
'cancel'
'they put off the trip'

(38) a. gázà
kudîna sun gaza
'fail'
'my money fell short'
b. gázà
na gaza shi hakuri
'fall short of'
'I have less patience than he'

(39) a. káammà
wuta ta kama
'take hold'
'the fire took hold'
b. káammà
sun kama Garawo
'take hold of'
'they caught the thief'

(40) a. kintsàa
Audu ya kintsà
'be orderly'
'Audu sat with his feet drawn back'
b. kintsà
Audu ya kintsà kayansa
'put in order'
'Audu tidied his things'
(41) a. loot saa
'sag'
soro ya lotsa
'the house sagged'
b. loot sa
'cause to sag'
kabewa ta lotsa rumfa
'the pumpkin plant has made the shelter sag'

(42) a. buusaa
'blow'
iska ta busa
'the wind blew'
b. buusaa
'blow'
ya busa algaita
'he blew the shawl'

(43) a. dagaa
'rise'
kirjin doki ya daga
'the horse's chest rose'
b. dagaa
'raise'
ya daga hannu
'he raised his hand'

(44) a. dirkaa
'enter unexpectedly'
sun dirka cikin ofishinsa
'they entered his office without warning'
b. dirkaa
'force in'
ya dirka kibiya cikin taro
'he propelled an arrow into the crowd'

(45) a. garaa
'speed along'
ya gara a guje
'he ran along'
b. garaa
'roll thing along'
ya gara taya
'he rolled the tire along'

(46) a. jirgaa
'move a short distance'
hadiri ya jirga wajen kudu
'the storm has veered southward'
b. jirgaa
'slew around'
ya jirga tulu gefe
'he rotated the jug sideways'

(47) a. luulaa
'flee'
sun lula
'they fled'
b. luulaa
'let fly'
ya lula kibiya
'he let fly the arrow'

(48) a. matsaa
'approach'
sun matsa kusa da kauye
'they drew near the village'
b. matsaa
'squeeze'
ya matsa bakin zobe
'he squeezed the ring together'

(49) a. mootsaa
'move'
yaro ya motsa
'the boy moved'
b. mootsaa
'move'
ya motsa hannu
'he moved his hand'

(50) a. ratsaa
'turn towards'
ya ratsa Kano
'he turned toward Kano'
b. ratsaa
'pass through'
ya ratsa gari
'he passed through the town'
2.1.3. Co-occurrences explained as base and Partitive/Pejorative extension.

When we turn to consider the co-occurrences of a verb in the HiLo -a and the LoHi -i shape the situation becomes more complex. Firstly, there are verbs operating only the LoHi -i shape within the grid, thus establishing LoHi -i as a base shape:

(51) a. zúrmàa
    rijiya ta zurma
    'collapse'        'the well fell in'

b. zúrmà
    ya zurma kafa a rami
    'cause to fall'    'he accidentally stuck his foot in a hole'

(52) bàzgî
    ya bâzgî reshe
    'tear off'         'he tore off a branch'

(53) bîdî
    ku bîdî alheri ga mai sakin fuska
    'seek'             'look for gifts from a smiling face'

(54) cècî
    Allah ya cecî ransa
    'rescue'           'may Allah save his life'

(55) fànsîhî
    ya fànsîhî rigarsa
    'redeem'           'he redeemed his gown'

(56) gàajî
    ya gàajî ubansa
    'inherit from'     'he inherited from his father'

(57) jîdî
    ya jîdî kaya
    'go to and fro with'  'he went to and fro with the goods'

(58) kàllî
    mun kàllî sama
    'look at'           'we looked at the sky'

(59) kwàácî
    mun kwàcî kudînsa
    'take by force'     'we wrested away his money'

(60) nèemî
    mun nèemî gidansa
    'look for'          'we looked for his house'

(61) sàacî
    ya sacî kudîna
    'steal'             'he stole my money'

(62) tàrfî
    ya tàrfî Audu a kan hanya
(66) yaakflu sun yaaki arna
'make war on' 'they waged war against the pagans'

(67) zargflu ya zarglu Audu kan ya yi laifi
'blame' 'he accused Audu of having committed the crime'

(68) tsincflu ya tsinci sule a bakin hanya
'select, pick up' 'he found a shilling beside the road'

2.1.3.1. Co-occurrence LoHi -i ~ HiLo -a. Secondly there are many verbs
that operate in both shapes, LoHi -i and HiLo -a:

(69) a. ballflu ya balli kara
'split, peel' 'he peeled the stalk'
b. balllu ya balla rigarsa
'fasten' 'he fastened his gown'

(70) a. bugflu ya bugi jakil
'hit' 'he hit the donkey'
b. bugalu ya buga bindiga
'hit, fire' 'he fired the gun'

(71) a. carflu ya cari barde da mashi
'throw at' 'he threw a spear at the cavalryman'
b. carlu ya cara mashi
'throw' 'he threw the spear'

(72) a. cirflu ya ciri kusa
'pull out' 'he pulled out the nail'
b. cirlu ya cira hannu
'raise' 'he raised his hand'

(73) a. dubbfu ya dubi sama
'look at' 'he looked at the sky'
b. dubbba ya duba aikinsa
'look at, inspect' 'he inspected his work'

(74) a. farflu ya fari ginin siminti a nan
'be first, start' 'he was the first to build with cement here'
b. farlu ya fara aiki
'begin' 'he began work'

(75) a. figflu ya figi gashin kaza
'pluck' 'he plucked the chicken's feathers'
b. figalu ya figa dawa
'strip' 'he stripped the sorghum'

(76) a. gatsiflu ya gatsi guntun goro
'bite off' 'he bit off a piece of kola'
b. gaatsà 'bite at, into' ya gatsa goro 'he bit into the kola'

(77) a. googí 'brush against' akwiya ta gogi zana 'the goat brushed against the screen'
b. góogà 'rub thing on thing' ta goga fure a bakinta 'she rubbed tobacco flowers on her teeth'

(78) a. hàkì 'dig out' ta haki dankali 'she dug out potatoes'
b. hàkà 'dig' ya haka rami 'he dug a hole'

(79) a. habrì 'shoot at' ya harbi tsuntsu 'he shot a bird'
b. hárbà 'shoot' ya harba kibiya 'he shot an arrow'

(80) a. jeeff 'throw at' ya jeff kare da dutse 'he threw at the dog with a stone'
b. jeefa 'throw' ya jefa mashì 'he threw a spear'

(81) a. juyuf 'copy' ya juyu takarda 'he copied the document'
b. juyu 'turn' ya juyu randa 'he turned the pot'

(82) a. korì 'drive away' ya kori bauna 'he drove away the buffalo'
b. kóorà 'drive forward' ya kora shanu 'he drove the cattle along'

(83) a. kwàbì 'unhaft' ya kwàbi ruwan magirbi 'he unhafted the hoe blade'
b. kwàba 'haft' ya kwàba gatari 'he hafted the axe'

(84) a. mûrdì 'twist out' ya mûrdì kusa 'he twisted out the nail'
b. mûrdà 'twist' ya mûrdà hannun yaro 'he twisted the boy's hand'

The nature of the difference in meaning between the two verbs of a pair is not always the same.

For detailed discussion see Pilszczikowa [1969] and Parsons' discussion of "projective-applicative" and "partitive-separative" verbs under the general
heading of "morpho-syntactic verb classes", further referred to in Parsons [1962:265-271]. Were one to consider the above examples as LoHi -i bases operating applicative extensions, then difficulties would arise when one turned to other verbs where the semantic relation between the two forms would seem rather to indicate a HiLo -a base with the LoHi -i form being derivative:

(85) a. \( t\u00fca \)  
'stir, drive'  
'ta t\u00fca tuwo'  
'she stirred the mush'

b. \( \tilde{t}\u00fci \)  
'disturb'  
maganata ta tu\u0161i Audu  
'my words disturbed Audu'

(86) a. \( d\u00e6m\u00e6 \)  
'stir'  
tagana ta tu\u0161i Audu  
'my words disturbed Audu'

b. \( d\u00e6m\u00e6 \)  
'bother'  
'ya dami malaminsa da tambaya'  
'he bothered his teacher with questions'

(87) a. \( g\u00e6m\u00e6 \)  
'join, finish'  
'na gama Audu da Ali'  
'I introduced Audu and Ali to each other'

b. \( g\u00e6m\u00e6 \)  
'suit'  
rigar nan ta gami Audu sosai  
'that gown suits Audu well'

(88) a. \( k\u0161\u00e6\u0161 \)  
'pound'  
an kir\u0161a fura  
'the wet flour is pounded'

b. \( k\u0161\u00e6\u0161 \)  
'beat person'  
an kir\u0161i Audu  
'Audu has been beaten'

(89) a. \( k\u00f6d\u00e6 \)  
'sharpen by beating'  
'na k\u00f6d\u00e6 fartanya'  
'I sharpened the hoe'

b. \( k\u00f6d\u00e6 \)  
'do much of'  
mun kod\u00e6 ruwa  
'we gulped down water'

(90) a. \( n\u00f6k\u00e6 \)  
'grind'  
tag\u00e6 k\u00f6 ran dawa  
'she ground the sorghum flour'

b. \( n\u00f6\u0161\u00f6 \)  
'beat'  
malami ya nik\u00e6 almajirinsa  
'the teacher beat the student'

(91) a. \( r\u00e6d\u00e6 \)  
'whisper'  
ya r\u00e6d\u00e6 magana  
'he whispered words'

b. \( r\u00e6d\u00e6 \)  
'slander'  
ya r\u00e6d\u00e6 Audu  
'he slandered Audu'

(92) a. \( r\u0161\u00f6d\u00e6 \)  
'perplex'  
maganarsa ta r\u0161a mutanenmu  
'his words perplexed our people'

b. \( r\u0161\u00f6d\u00e6 \)  
'deceive'  
ya r\u0161a Audu  
'he deceived Audu'

It was precisely the problem of defining which was the basic form and
which derivative that led Parsons in his teaching to consider such verbal pairs as a single stem operating two primary grades. Difficult as it is to generalize, it would nevertheless seem possible to see in each pair an extension of meaning in the LoHi -i form whereby the verb implies partition, separation, or a pejorative sense by which the action is done to the detriment of the object. Admittedly such a characterization of the sense of the extension is, to say the least, approximate, yet it would seem to cover the bulk of the verbs operating these two shapes. It would therefore seem more suitable to treat the HiLo -a form as basic, often with an applicative sense, while the LoHi -i form would be the "Partitive/Pejorative" extension. In the examples above we see the transitive Partitive/Pejorative extension operating upon transitive bases. In the same way that the HiLo -a grid square would include examples of the Applicative extension (33b-51b) and base forms (1-32; 37a-51a; 69b-84b; 85a-92a), so also the LoHi -i grid square would include examples of the Partitive/Pejorative extension (69a-84a; 85b-92b) and base forms (52-68).

2.2. Metaphoric intransitives and homonyms. In considering pairs of verbs as base plus extension (Applicative or Partitive/Pejorative) we have still to account for a number of examples that on the face of it contravene or at least stretch Newman's premise that "...only one of the grade forms can be truly basic and that the other must be a derived form, i.e. a basic grade plus extension" [Newman 1973:336-337].

2.2.1. Co-occurrence HiLo -a (trans), LoHi -i (trans), HiLo -a (intrans). Some verbs operate a HiLo -a transitive and a LoHi -i transitive form as base and extension, but also operate a HiLo -a intransitive form with only tangential or metaphoric connection with the presumed base. The question arises as to whether they are best viewed as two separate lexical entries (cf. examples under 2.2.3), one as basic and one with extension, or as one base form with two extension forms, the one transitive (Partitive/Pejorative) and the other intransitive.
Rausa Disyllabic Verbs

(a) HiLo –a transitive base
(b) LoHi –i Partitive/Pejorative transitive extension
(c) HiLo –a intransitive: separate base or metaphoric extension?

(93) a. hàrbà 'shoot'
    ya harba kibiya 'he shot an arrow'

b. hàrbî 'shoot at'
    ya harbi kare 'he shot at the dog'

c. hàrbàa 'begin to ripen'
    lemuyà harba 'the orange has begun to ripen'

(94) a. kóosà 'suffice, fill'
    rubutu ya kosa nì 'I've had enough writing'

b. kòoshí 'fill'
    hankali bai koshi Audu ba 'Audu isn't quite all there' ("sense hasn't filled Audu")

c. kóosàa 'become ripe, become exasperated'
    gwanda ta kosa 'the papaya is ripe'

(95) a. săaba 'break, contravene'
    ya saaba alkawari 'he broke the promise'

b. săabî 'disobey'
    ya sabi malaminsa 'he disobeyed his teacher'

c. săaḅa 'miss, not find s.o.'
    sun saaba a hanya 'they missed each other on the road'

(96) a. tůurà 'push'
    ya tura keke 'he pushed the bicycle'

b. tůurî 'knock against'
    ya turi yaro 'he knocked against the boy'

c. tůuràa 'be well advanced'
    aiki ya tura 'the work is well-advanced'

(97) a. náusà 'pound'
    ta nausa fura 'she pounded the fura'

b. náushî 'punch'
    ya naushi Audu 'he punched Audu'

c. náusàa 'rush off'
    sun nausa kudu 'they rushed to the south'

(98) a. dîrka 'force in'
    ya dîrka kibiya cikin târo 'he shot an arrow into the crowd'

b. dîrfî 'pierce'
    ya dîrki Audu da mashi 'he stabbed Audu with a spear'

c. dîrkaa 'enter unexpectedly'
    ya dîrka cikin ofishinsa 'he unexpectedly came into his office'
2.2.2. Co-occurrence HiLo -a (trans) and HiLo -a (intrans) not readily classified as intransitive base with transitive Applicative extension.

a = HiLo -a transitive base
b = HiLo -a intransitive metaphoric extension

(99) a. àzà na aza littafi bisa tebur
'put thing on thing' 'I put the book on the table'
b. ázàa na aza ba za ka zo ba
'think' 'I didn't think you would come'

(100) a. rákà na raka Audu har gida
'accompany' 'I accompanied Audu all the way home'
b. rákàa rigar nan ta raka wata guda
'last some time' 'this gown has lasted for a month'

(101) a. shéekàa ta sheka ruwa a hás
'pour' 'she poured water on the ground'
b. shéekàa sun sheka a guje
'leave suddenly' 'they tore off on the run'

(102) a. túrzà ya turza kafarsa a yashi
'stamp' 'he stamped his foot in the sand'
b. túrzàa sun turza
'make great effort' 'they made a great effort'

The intransitives shéekàa and túrzàa can be explained as metaphorical extensions after the manner of, 'he shot/screamed/took/zoomed/flew off to town'. Such metaphor would also explain the intransitive operation of náusàa (97c), and dírkàa (98c).

The examples (99-102) suggest a transitive base with a metaphoric intransitive extension. This would lend support to the view that the examples (93-98) are best explained as, in each case, a single base form with two derived forms, the one Partitive/Pejorative and the other Metaphoric Intransitive.

2.2.3. Homonyms. The difference in meaning between the two forms of what appears to be one verb is sometimes so great that it would seem more plausible to treat them as entirely separate lexical items.2

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2Newman points out that further evidence for treating such pairs as these as separate bases is provided by the existence of distinct secondary verbal nouns for some of the forms [personal communication, 7/3/80].
Rausa Disyllabic Verbs

a = LoHi -i
b = HiLo -a transitive

(103) a. shëeḳi
'sniff, smell'
ya shëki magani
'he smelled the medicine'
b. shëeḳà
'poured'
ta shëḳa ruwa a kas
'she poured the water on the ground'

(104) a. tsàrg̣i
'show hostility to'
sun tsargi mutanen Yamma
'they are hostile toward the people of the West'
b. tsàrg̣à
'split, cut'
ya tsarga rake
'he split the sugar cane'

(105) a. zàag̣i
'insult'
ya zagi dànuwa
'he abused his peer'
b. zàag̣à
'go round'
ya zaga gari
'he went around the town'

(106) a. kàaṛi
'complete, finish'
ya kari aikinsa
'he finished his work'
b. kàarà
'increase, add more'
ya kàara kùdi
'he added more money'
(also kàaṛ̣i
'increase'
ya kàarı gona )
'he added onto the farm'

(107) a. rèeṇi
'look after'
ta reni yaro
'she looked after the child'
b. rèeṇà
'belittle, despise'
ya rena mutanenmu
'he belittled our people'

(108) a. yàaf̣i
'forgive'
ya yafi wanda ya cuce shi
'he forgave the one who cheated him'
b. yàaf̣à
'throw over'
ya yafa alkyabba
'he threw on the burnous'

This would also seem to be the explanation for such co-occurrences as the following:

(109) a. farkā
'rip up'
ya farka rigata
'he ripped up my gown'
b. farkàa
'wake up'
ya farka daga bārci
'he woke up from sleep'

2.3. Summary. The examination so far of co-occurrences spread across the grid suggests the existence of the following:
2.4. **Transitivity.** Newman [1973:329-330] suggests that transitivity does not function as a critical variable in the basic classification of Hausa verbs and gives examples of both transitive and intransitive verbs in three out of the four phonological classes of the grid. He says,

Consistent with the general position taken in this paper that transitivity does not function as a critical variable in the basic classification of Hausa verbs is the fact that these phonological classes contain both transitive and intransitive verbs, e.g.

(44) Hi-Lo a-verbs:  tr. *kaamà 'to catch', *dafà 'to cook'
intr. *zaunà 'to sit', *tsayà 'to stand'

Hi-Lo i-verbs:  tr. *sanì 'to know', *bärì 'to leave'
intr. *fàadì 'to fall', *mutù 'to die'

Lo-Hi i-verbs:  tr. *nèemì 'to seek', *sàyì 'to buy'
intr. * tàfì 'to go', *gàjì 'to tire'

The LoHi -a verbs, all of which are intransitive, constitute an exception, probably resulting from a merger of the transitive verbs of that class with the transitive LoHi -i verbs. [Newman 1973:329-330]

Yet in terms of the spread of verbs across the seven categories formed according to the criteria of phonological class plus transitivity there is considerable variation, variation in the productivity of the categories with the majority of verbs falling into just four categories:
Of the other possibilities, LoHi -i intransitives number only three (Rooshî 'be sated', gàjî 'be tired', tàff 'go'); HiLo -i transitives number only five (bàrû 'leave', sànnî 'know', sàkû 'release', fàdíî 'say', såamû 'receive'); HiLo -a intransitives number only seven (wûnî 'spend the day', tàashà 'stand up', fàađî 'fall', bàacî 'be spoiled', mútû 'die', gûdû 'run', háifû 'give birth').

- a
- i

<table>
<thead>
<tr>
<th>trans</th>
<th>intrans</th>
<th>trans</th>
<th>intrans</th>
</tr>
</thead>
<tbody>
<tr>
<td>HiLo</td>
<td>5 verbs</td>
<td>7 verbs</td>
<td></td>
</tr>
<tr>
<td>LoHi</td>
<td>none</td>
<td>3 verbs</td>
<td></td>
</tr>
</tbody>
</table>

The grid omits a number of verbs with HiHi tone pattern:

- kúsâ 'be about to'
- kíráâ 'call'
- zámâ 'become'
- rígââ 'precede'
- jíráâ 'wait for'
- bfyââ 'pay'

As Newman [1973] points out, certain HiHi -a verbs can be assigned to the LoHi -a box. These are a series of intransitive HiHi -a verbs with an initial heavy syllable and a short final vowel, e.g. Gûuyá 'hide', gîrmâ 'grow up', súumâ 'faint', tsîrâ 'escape'. The bulk of LoHi -a verbs have an initial light syllable while both shapes share the features short final vowel, intran­sitivity, and the method of verbal noun formation. There are only a few counterexamples: sàukâ 'get down' and nùnà 'ripen' with LoHi tone pattern and kúsâ 'be about to' and zámâ 'become' with HiHi tone pattern.

As for HiHi transitives there are only four: jíráâ 'wait for', kíráâ 'call', rígââ 'precede', bfyââ 'pay'. In the case of the first three there are alternative verbs with A-forms (jíráâyàâ, kíráayàâ, rígâayàâ)
which would suggest an original three syllable structure apocopated to the anomalous forms with HiHi tone pattern. R.G. Schuh proposes [personal communication] that these verbs be categorized at some historical, if not synchronic, level as HiLoHi transitives with an historical change rule: *ayáa > áa. Bíyáa would seem to be an exceptional form.

Following Newman's premise that in the VTE system base shapes had no syntactic or semantic correlates, but that extensions did or could have, we have suggested here that a transitive extension, the Applicative, was limited to intransitive bases and that the converse was true for the Metaphoric Intransitive extension. In section 3 it is proposed that there is evidence to suggest a further "hidden" extension within the grid, again having syntactic correlates.

3. The Intransitive/Reflexive Extension HiLo -i/-e

3.1. Base form HiLo -i. Turning to a grid square hitherto set aside, HiLo -i, containing only eleven verbs, 6 intransitive and 5 transitive, it is possible to trace evidence of an extension which, in this case, is intransitive.

In Old Hausa there were base form HiLo -i intransitives:

(110) ɓaacì 'become spoilt'
(111) ɓaadì 'fall'
(112) gũdù3 'run away'
(113) mútù3 'die'
(114) tãashì 'get up'
(115) yĩnį/wũnį 'spend the day'
(116) hãifù3 'give birth'

Extensions operated upon these bases:

<table>
<thead>
<tr>
<th>Base</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>ɓaacì ruwa ya ɓaci</td>
<td>Applicative ɓatà</td>
</tr>
<tr>
<td>'the water is spoilt'</td>
<td>ya ɓata ruwa 'he spoilt the water'</td>
</tr>
<tr>
<td></td>
<td>Metaphoric Intransitive ɓatàà</td>
</tr>
<tr>
<td></td>
<td>Ali da Audu sun ɓata 'Ali and Audu have fallen out'</td>
</tr>
</tbody>
</table>

3The final vowel -u is a secondary replacement for the underlying final /i/, see Newman [1973:329].
Yet the picture remains limited to the forms of only seven extant intransitive HiLo -i verbs. Transitive HiLo -i verbs will be considered later.

3.2. HiLo -e base forms: the Intransitive/Reflexive and the Totality extension. If, however, one looks at the verbs occurring in the shape HiLo -e outside the grid (Newman's Totality extension; Parsons' Grade 4, often characterized as conveying the idea of "completeness, thoroughness") one can see the modern reflexes of many of the verbs originally of the HiLo -i shape. Grade 4, a secondary grade, has come to amalgamate the true Totality extension with intransitive base forms of the shape HiLo -i and an Intransitive/Reflexive extension. This form of poaching is still to be seen in the general expansion of Grade 4 at the expense of basic verbs.\(^4\) That is to say, the six intransi-

\(^4\)I am grateful to Paul Newman for drawing this to my attention. The phenomenon has also been commented on by Parsons (1971/72:77, fn.65).
tive HiLo -i verbs still extant are stubborn reminders of the form that has been replaced in the case of many verbs by the -e termination of Grade 4.

The evidence in support of this contention is to be found in one of the lacunae in the grade system. There are a considerable number of HiLo -e (Grade 4) intransitive verbs that do not operate a corresponding form inside the grid, i.e. they are secondary forms without primary forms, this in direct contravention of Gouffe's premise that secondary forms are derived from primary forms [Gouffe 1962:185]. In Newman's terms these examples of the Totality extension have no base form within the grid, unless one were to reconstruct non-extant forms in every case. Parsons, in reply to Gouffe, recognized the lacuna terming such verbs "defective" secondary forms [Parsons 1962:262].

3.2.1. **Base form HiLo -e**. If we accept an -e alternate to the HiLo -i base form then we can incorporate verbs of this shape previously considered extension or secondary grade forms:

**HiLo -i/-e intransitive bases**

(117) **dáagee**
    'insist, strive'

(118) **dündee**
    'be overcast'

(119) **ránvsée**
    'swear'

(120) **wúcée**
    'pass'

(121) **nóókée**
    'draw back'

(122) **kúmée**
    'close up'

(123) **lâyée**
    'run away'

(124) **ráashée**
    'loiter'

(125) **sáanée**
    'become dry and useless'

(126) **táuyée**
    'shrink'

---

"dáagee ya dage ya Ri zuwa"
"he stubbornly refused to go"

"gari ya dündée"
"the sky is overcast"

"ya rantse da sunan Allah"
"he swore by the name of Allah"

"ya wuce tā Kofar gari"
"he passed through the towngate"

"macijji ya nóóké"
"the snake drew back"

"cikinsa ya kume"
"he is constipated"

"xarawo ya laye"
"the thief ran away"

"Adu ya rashe"
"Adu loitered about"

"‡samiya tā same"
"the tamarind has dried up"

"riga tā tāuyē"
"the gown shrank"
3.2.2. Transitive forms. Some base form intransitives operate a transitive form in addition:

a = HiLo -i/e intransitive
b = HiLo -i/e transitive

(129) a. wáayèe  kan Ali ya waye
   'dawn, become enlightened'  'Ali has become enlightened'

b. wáayè  malami ya waye kan Ali
   'enlighten'  'the teacher enlightened Ali'

(130) a. tóoshèe  kunnensa ya toshe
   'be stopped up'  'his ear is stopped up'

b. tóoshè  bari mu toshe ramin
   'stop up'  'let's stop up the hole'

(131) a. tsúukèe  bakinsa ya tsuke
   'draw together'  'his lips are pursed'

b. tsúukè  ya tsuke baki
   'draw together'  'he pursed his lips'

(132) a. dàurèe  cikin wahala duka sai da ya daure
   'endure'  'in any difficulty does he persevere'

b. dàurè  ya daure wahala
   'endure'  'he endured the difficulty'

The transitive forms of these base form intransitives are perhaps a development arising after the intransitives had merged in shape with the Totality extension.

3.2.3. The Intransitive/Reflexive extension. In the same way that we have (a) basic HiLo -a verbs and verbs operating the Applicative HiLo -a extension and (b) basic LoHi -i verbs and verbs operating the Partitive/Pejorative LoHi -i extension, so also there are co-occurrences that point to transitive base forms operating a HiLo -e Intransitive/Reflexive extension, e.g.
a = transitive base
b = Intransitive/Reflexive extension

(133) a. dáatà  
'be equal to'  
Adu ya data Ali  
'Audu is Ali's equal'

b. dáacèè  
'suit'  
abin da ka yi bai dace ba  
'what you did is not fitting'

(134) a. wàatsà  
'scatter'  
zaki ya watsa garken shanu  
'the lion scattered the herd of cattle'

b. wàatsèè  
'scatter'  
garken shanu ya watsa  
'the herd of cattle scattered'

(135) a. dàukí  
'pick up'  
ya dàuki fensir  
'he took a pencil'

b. dàukée  
'be removed'  
ruwan sama ya dàuke  
'the rainstorm has passed on'

(136) a. Bàrkà  
'rip'  
itacen nan ya Barka rigata  
'this wood has ripped my gown'

b. Bàrkèè  
'burst'  
riga ta Bärke  
'the gown tore'

(137) a. kàfà  
'erect, establish'  
ya kafa gemu  
'he grew a beard'

b. kàfèè  
'become stuck'  
mota ta kafe  
'the car is stuck'

(138) a. cíizà  
'bite'  
ya cíza hannuna  
'he bit my hand'

b. cíjèè  
'become jammed'  
giyar mota ta cije  
'the car's gearshift jammed'

(139) a. kàryà  
'snap'  
ya karya icce  
'he broke the stick'

b. kàryèè  
'become broken'  
kafarsa ta karye  
'his leg is broken'

(140) a. dáarà  
'split'  
ya dara Kwarya  
'he split a calabask'

b. dáarèè  
'scatter, become cracked'  
mutane sun dare  
'the people scattered'

(141) a. dússà  
'make blunt'  
ya dusa kaifin wuBa  
'he blunted the knife's edge'

b. dúshèè  
'become dim, faint'  
muryarsa ta dushe  
'his voice became faint'
Hausa Disyllabic Verbs

(142) a. nárkà 'melt'
ta nárkà mai 'she melted the oil'
b. nárkè 'melt'
mai ya nárkè 'the oil melted'

(143) a. fásà 'break, smash'
ya fasa dutse 'he smashed the stone'
b. fáshe 'become broken'
kwalba ta fashe 'the bottle shattered'

(144) a. yánkà 'cut'
ya yanka nama 'he cut the meat'
b. yánkè 'be cut'
igiya ta yanke 'the rope broke'

(145) a. tsáagà 'split'
ya tsaga goro 'he split a kola'
b. tsáagè 'be split'
bango ya tsage 'the wall is cracked'

3.2.4. The Intransitive/Reflexive and the Totality extension. The proposition would be that in Middle Hausa there was an Intransitive/Reflexive extension, the phonological shape of this extension now having merged with that of the Totality extension. The Totality extension could be applied to both transitive and intransitive bases.

3.2.4.1. Totality extension: transitive HiLo -a and LoHi -i.

a = transitive base
b = transitive Totality extension

(146) a. káamà 'catch'
ya kama Barawo 'he caught the thief'
b. káamè 'take firm hold of'
ya kame Barawo 'he firmly held the thief'

(147) a. cìkà 'fill'
ya cika tulu 'he filled the jug'
b. cìkè 'fill right up'
ya cike tulu 'he filled the jug to the brim'

(148) a. sàyif 'buy'
ya sayi shinkafa 'he bought rice'
b. sàyè 'buy up'
ya saye shinkafa 'he bought up the rice'
(149) a. *baba\textsuperscript{f} ya Babi gwangwani 'break, cut open' 'he opened the tin'
   b. *baba\textsuperscript{e} ya baba gwangwani 'break, cut right open' 'he cut the tin wide open'

(150) a. *mik\textsuperscript{a} ya mik\textsuperscript{a} fafa 'stretch out' 'he stretched his legs'
   b. *mik\textsuperscript{e} ya mik\textsuperscript{e} fafa 'stretch right out' 'he stretched his legs right out'

3.2.4.2. **Totality extension:** intransitive LoHi \textsuperscript{a} and HiLo \textsuperscript{a}.

a = intransitive base

b = intransitive totality extension

(151) a. cik\textsuperscript{a} 'fill'
   b. cik\textsuperscript{e} 'fill right up'

(152) a. fit\textsuperscript{a} 'go out'
   b. fic\textsuperscript{e} 'go right out'

(153) a. tsfir\textsuperscript{a} 'escape'
   b. ts\textsuperscript{e}eur\textsuperscript{e} 'escape clean away'

(154) a. baba\textsuperscript{a} 'break open'
   b. baba\textsuperscript{e} 'break right open'

(155) a. mik\textsuperscript{a} 'spread toward'
   b. mik\textsuperscript{e} 'spread as far as'

(156) a. zur\textsuperscript{a} m\textsuperscript{a} 'collapse'
   b. zur\textsuperscript{e} m\textsuperscript{e} 'collapse completely'

(157) a. lot\textsuperscript{a} m\textsuperscript{a} 'sag'

randa ta cika 'the pot is full'

randa ta cike 'the pot is full to the brim'

yaro ya fita 'the boy went out'

yaro ya fice 'the boy went right out'

Garawo ya tsira 'the thief escaped'

Garawo ya tsere 'the thief got clean away'

gwangwani ya baba 'the tin broke open'

gwangwani ya baba 'the tin split wide open'

kogi ya mik\textsuperscript{a} m\textsuperscript{a} 'the river spread toward the sea'

kogi ya mik\textsuperscript{e} m\textsuperscript{a} 'the river extended to the sea'

rijiya ta zur\textsuperscript{a} m\textsuperscript{a} 'the well collapsed'

rijiya ta zur\textsuperscript{e} m\textsuperscript{e} 'the well fell completely in'

soro ya lots\textsuperscript{a} m\textsuperscript{a} 'the house sagged'
b. lóotsèe
'sag and break'
soro ya lotse
'the house sagged and tumbled down'

In each case the Totality extension simply follows the base in terms of transitivity. On the other hand, the Intransitive/Reflexive extension is limited to transitive bases.

3.2.5. Two examples of bases and their extensions. If we look at the spread of forms for such a verb as 'fill' (33), (147), and (151), and if we think in terms of base and extensions, we see a single intransitive base with three possible extensions, one of which operates a truly "secondary" Totality extension:

<table>
<thead>
<tr>
<th>Base</th>
<th>Extension</th>
<th>2nd Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>cɪká</td>
<td>Partitive/Pejorative cɪkí</td>
<td></td>
</tr>
<tr>
<td>tulu ya cika</td>
<td>'he cornered the market in peppers'</td>
<td></td>
</tr>
<tr>
<td>'the pot is full'</td>
<td>cɪkèe</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Totality</td>
<td></td>
</tr>
<tr>
<td>tulu ya cike</td>
<td>'he filled the pot'</td>
<td></td>
</tr>
<tr>
<td>'the pot is brim full'</td>
<td>cɪkà</td>
<td></td>
</tr>
<tr>
<td>Applicative</td>
<td>cɪká</td>
<td></td>
</tr>
<tr>
<td>ya cika tulu</td>
<td>ya cike tulu</td>
<td></td>
</tr>
<tr>
<td>'he filled the pot'</td>
<td>cɪkè</td>
<td>'he filled the pot to the brim'</td>
</tr>
</tbody>
</table>

The verb 'cut' (144) operates extensions upon a transitive base:

| yánkà     | Partitive/Pejorative         | yánkí         |
| ya yanka nama | 'he cut off some meat' |               |
| 'he cut up the meat' | yánkè  |               |
| Totality | yánkè | 'he cut the chicken's head right off' |
| ya yanke kan kaza |       |               |
| Intransitive/Reflexive yánkèe |       |               |
| igiya ta yanke |       | 'the rope has broken' |

3.2.6. The congruence between the Totality and the Intransitive/Reflexive.
The congruence between the Totality extension and the Intransitive/Reflexive extension often gives rise to the two forms often extant:
a = transitive base
b = transitive Totality extension
c = Intransitive/Reflexive extension

(158) a. dušà
   'make blunt'
yə dusa kaifin wuŋa
   'he dulled the blade of the knife'

b. dušhe
   'make completely blunt'
yə dushe kaifin wuŋa
   'he completely blunted the blade of the knife'

c. dušhe
   'become blunt, dim'
muryarsa ta dushe
   'his voice became dim'

(159) a. kàryà
   'snap'
yə karya icce
   'he snapped the stick'

b. kàryè
   'snap, break apart'
yə kanye icce
   'he broke the stick in two'

c. kàryè
   'snap, break apart'
icce ya kanye
   'the stick snapped'

It follows that intransitive base forms LoHi -a and some HiLo -a can only operate Totality extensions of the HiLo -e shape, whereas transitive bases within the grid LoHi -i and some HiLo -a can operate either or both the Totality and the Intransitive/Reflexive extensions of that shape.

3.3. LoHi -i intransitive verbs. There are only three verbs in this category; they are nevertheless very common:

(160) tàffì
   'go to'

(161) gàjì
   'be tired'

(162) ðòoshì
   'be replete'

Recently, Newman [1979] has picked up a suggestion made by Parsons to the effect that both tàffì and gàjì are apocopated forms of trisyllabic verbs *tàffyà and *gàjìyà no longer extant. If we can therefore leave aside these two verbs we are left only with ðòoshì and it would seem more sensible to treat this as an exceptional form and thus leave out the LoHi -i intransitive square from the grid.

3.4. HiLo -i transitive verbs. The postulation of an intransitive HiLo -i/e base and extension form does not account for the group of five transitive verbs whose A-forms are to be found in the grid square, namely,
Hausa Disyllabic Verbs

(163) bárìi 'leave'
(164) sánìi 'know'
(165) sákìi 'release'
(166) fádìi 'say'
(167) sàamùù³ 'obtain'

Following Newman's premise that the C-form is basic to the shape of the verb, we can see that the underlying form of these verbs is as follows:

<table>
<thead>
<tr>
<th>Base shape (pre-nominal object form)</th>
<th>Deleted Direct Object Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>bár</td>
<td>bárìi</td>
</tr>
<tr>
<td>sán</td>
<td>sánìi</td>
</tr>
<tr>
<td>sákì</td>
<td>sákìi</td>
</tr>
<tr>
<td>fádìì</td>
<td>fádìì</td>
</tr>
<tr>
<td>sàamì</td>
<td>sàamùù</td>
</tr>
</tbody>
</table>

In the case of bárìi and sánìi we have exceptions whose base forms are monosyllabic and therefore do not fall within the grid. In the case of sákì, fádìì and sàamùù we have simple LoHi -i (Grade 2) transitive verbs with irregular 0 object forms.

4. Transitivity as a Correlate of Base Shapes

If the transitive HiLo -i and the intransitive LoHi -i verbs can be removed from the grid, then we are left with a modified picture in which transitivity is a correlate of 3 out of the 4 grid squares and plays a major role in extension formation across grid squares:

<table>
<thead>
<tr>
<th>BASE SHAPES</th>
<th>EXTENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>-a</td>
<td>-i</td>
</tr>
<tr>
<td>trans HiLo</td>
<td>intrans</td>
</tr>
<tr>
<td>intrans</td>
<td></td>
</tr>
<tr>
<td>LoHi intrans</td>
<td>trans</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. **Basic and Derived Forms**

It is possible to postulate a 2 level model for the verbal system as it operates within the Grid:

**Level 1** shows base shapes;

**Level 2** shows the extensions that operate within the grid itself.

An indication is then given of the operation of some extensions outside the grid, namely the Totality and the Sustenative.

### LEVEL 1

<table>
<thead>
<tr>
<th>-a</th>
<th>-i</th>
</tr>
</thead>
<tbody>
<tr>
<td>(trans)</td>
<td>(trans)</td>
</tr>
<tr>
<td><strong>HiLo</strong></td>
<td><strong>LoHi</strong></td>
</tr>
<tr>
<td>káamà 'catch'</td>
<td>cìká 'be full'</td>
</tr>
<tr>
<td>(intrans)</td>
<td>(intrans)</td>
</tr>
<tr>
<td>jírgàa 'slew around'</td>
<td></td>
</tr>
</tbody>
</table>
| wúnì/wúcèè 'spend the day'/ 'pass by' | \n| | \n
### LEVEL 2

<table>
<thead>
<tr>
<th>-a</th>
<th>-i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicative (trans)</td>
<td>Intrans/Reflexive (intrans)</td>
</tr>
<tr>
<td><strong>HiLo</strong></td>
<td><strong>LoHi</strong></td>
</tr>
</tbody>
</table>
| Metaphoric (intrans) | \n| | \n
### BASE

<table>
<thead>
<tr>
<th>EXTENSION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HiLo</strong> -a intrans</td>
</tr>
<tr>
<td>gáráà 'roll along'</td>
</tr>
<tr>
<td>gárá 'roll (thing)' (cf. 37-51)</td>
</tr>
<tr>
<td><strong>LoHi</strong> -a intrans</td>
</tr>
<tr>
<td>cìká 'be full'</td>
</tr>
<tr>
<td>cìkà 'fill' (cf. 33-36)</td>
</tr>
<tr>
<td><strong>HiLo</strong> -i intrans</td>
</tr>
<tr>
<td>báacì 'be spoiled'</td>
</tr>
<tr>
<td>báatà 'spoil' (cf. 3.1)</td>
</tr>
</tbody>
</table>
Hausa Disyllabic Verbs

BASE

HiLo -a trans
ážà 'put on top of'

HiLo -a trans
káryà 'break'

LoHi -i trans
daukì 'take'

HiLo -a trans
Galà 'hook up'

LoHi -a intrans
cìkà 'be full'

HiLo -i intrans
gudù 'run'

Further extensions operate on the forms indicated under Levels 1 and 2:

BASE

HiLo -a trans
bàdà 'sprinkle on'

HiLo -a intrans
zúrmàa 'collapse'

LoHi -a intrans
cìkà 'be full'

LoHi -i trans
sayì 'buy'

HiLo -a Applicative
cìkà 'fill'

HiLo -a Metaphoric
dìrkàà 'enter unexpectedly'

EXTENSION

Metaphoric Intransitive

ážàà 'think' (cf. 93-102)

Intransitive/Reflexive

káryèè 'be broken' (cf. 133-145)

daukèè 'pass by'

Partitive/Pejorative

bàllì 'unhook' (cf. 69-92)

cìkì 'corner market'

gudìì 'run away from' (cf. 3.1)

cìkkèè 'be full to the brim' (cf. 151-155)

cìkfèè 'be full to the brim' (cf. 151-155)

Totality (transitivity determined by the base)

bàdè 'cover by sprinkling' (cf. 146)

zúrmèè 'collapse completely' (cf. 156-157)

cìkèè 'be full to the brim' (cf. 151-155)

sàyè 'buy up' (cf. 148-149)

cìkèè 'fill to brim'

dìrkèè 'enter unexpectedly'
HiLo -a trans
hádá 'join'
LoHi -i trans
tsìnć 'select'
HiLo -a Applicative
cīkā 'fill'
LoHi -i Partitive/Pejorative
jùyī 'copy'

Sustenative (intransitive extension upon transitive bases)
hàdù 'meet, be joined'
tsìnțú 'be selected'
cīkù 'be filled up'
jùyù 'be copied'

6. Summary

By testing the premises of Newman's VTE system against present-day verbal behaviour this paper has tried to trace some features of the development of the Hausa verbal system and thereby to make sense of the ways in which particular verbs operate particular sets of forms (grades). The paper is limited in that it deals only with disyllabic verbs and it relies entirely upon Hausa without reference to any comparative data.

The tentative conclusions of the paper are:

(i) In 3 out of 4 cases, Newman's phonological classes, referred to here as "base shapes", have syntactic correlates, i.e. they are either transitive or intransitive. Transitivity is also a factor in the selection of extensions that a base may operate.

(ii) If we accept Newman's premise that "if a verb operates what looks to be two basic forms, it follows necessarily that only one of the grade forms can be truly basic and that the other must be a derived form, i.e. a basic grade plus extension" [1973:336-337], than we have to postulate other extensions (Partitive/Pejorative, Metaphoric Intransitive) as well as the Applicative that have the same shapes as bases. An alternative is to think in terms of verb stems operating more than one base shape without an indication of primacy for any one form, rather in the way Parsons classified verbs as operating 1, 2 or 3 primary grades.

(iii) The present-day Grade 4, the Totality extension, is in fact an amalgam of HiLo -e base forms with an Intransitive/Reflexive extension and the true Totality extension, this having come about through the merger of HiLo -i with HiLo -e.
REFERENCES


FROM CONSONANTS TO DOWNSTEP IN PODOKO*

Stephen C. Anderson and Jeanette Swackhamer
Summer Institute of Linguistics

This paper examines the relationship between consonants and tone in yet another Chadic language. By positing various underlying tone patterns and a floating high tone in the associative construction, most of the tone changes become explainable. The data consist of 309 disyllabic nouns divided into nine subclasses on the basis of the tonal perturbations which occur in three different grammatical environments. In the process of describing these changes, several generalizations about consonants and tone receive added confirmation, including: voiced implosives acting like voiceless consonants, prenasalized voiced stops patterning with voiced stops instead of with nasals, the lack of influence of syllable-final consonants, and downstep influenced only by voiced non-implosive obstruents. On the other hand, Podoko emerges as one of the rare languages where downstep always precedes a low tone and never a high.

1. Introduction

This paper is a first attempt to explain the various tonal perturbations which occur in the Podoko language. It shows the importance of consonant types in conditioning downstep, thus supporting the findings of previous linguists concerning the influence of consonants on tone. It is based on a corpus of 309 disyllabic nouns and their tone changes in three very different

*Research on Podoko has been conducted since August 1976 in Godigong, Cameroon, under the auspices of the Délégation Générale à la Recherche Scientifique et Technique (formerly ONAREST) of the United Republic of Cameroon. We would like to thank the speakers of Podoko who were consulted during this research: Mr. Deva Dogdza, Mr. Maroua Wadawa, and Mr. Mahama Esaie. Our thanks also to Robert Hedinger and Elizabeth Jarvis for their valuable editorial comments.

Podoko (Podokwo, Parekwa) has been classified by Newman [1977] as belonging to the Mandara Group of the A Subbranch of the Biu-Mandara Branch of the Chadic language family. This language is spoken by about 20,000 people who live in the Mora District of the Northern Province of Cameroon.
grammatical environments.

2. Consonant Classes

Hyman and Schuh [1974:110] constructed the following continuum to summarize the tone raising or lowering effect of certain kinds of consonants:

<table>
<thead>
<tr>
<th>Tone Raising</th>
<th>Tone Lowering</th>
</tr>
</thead>
<tbody>
<tr>
<td>implosive</td>
<td>breathy voiced</td>
</tr>
<tr>
<td>voiceless aspirated</td>
<td>voiced obstruents</td>
</tr>
<tr>
<td>voiceless unaspirated</td>
<td>sonorants</td>
</tr>
<tr>
<td>sonorants</td>
<td>implosive</td>
</tr>
</tbody>
</table>

Within the above hierarchy, sonorants are said to be neutral with respect to tone while implosives and voiceless consonants tend to raise tone and voiced obstruents and breathy voiced tend to lower tone [Hyman and Schuh 1974:106].

This grouping of tone classes will be reinforced by the following charts of the consonants from 309 disyllabic nouns in Podoko. The following letters will be used to symbolize the different groups of consonants:

- $\delta$ for implosives /$\delta$, $\delta$/
- $p$ for voiceless stops /$p$, $t$, $ts$, $k$, $kw$, $\theta$/
- $f$ for voiceless fricatives /$f$, $s$, $h$, $hw$, $sl$/
- $l$ for liquids and semivowels /$l$, $r$, $w$, $y$/
- $m$ for nasals /$m$, $n$/
- $b$ for voiced stops /$b$, $d$, $dz$, $g$, $gw$/
- $v$ for voiced fricatives /$v$, $z$, $zl$/
- $mb$ for prenasalized stops /$mb$, $nd$, $ndz$, $ng$, $ngw$/

---

2. The orthographic diagraphs $sl$ and $zl$ represent the voiceless lateral fricative [$\delta$] and the voiced lateral fricative [$z$] respectively. A raised Y preceding a word represents the word-level prosody of palatalization.

3. The prenasalized stops have been ordered last because of evidence that they have an even stronger "tone lowering" effect than the simple voiced stops [Hombert 1978:91].
Disyllabic nouns can be divided into four tone classes, with these in turn divided into a total of nine subclasses. Characteristics of these classes are presented in Table 4 (p. 137) and are discussed in detail in section 3. Briefly, the four main classes are based on underlying tone patterns (LL, HL, LH, HH), and the subclasses within these classes are based on differing tonal behavior of nouns with the same underlying tones within certain syntactic frames.

Table 1 shows the frequency of word initial consonant types (tone raising, neutral, and tone lowering) of the disyllabic nouns listed in the appendix. Each of the tone classes is given with one characteristic Podoko example. By studying Table 1 one can see a definite interrelationship between various tone classes and consonant types. Classes 2a, 2b, and 3c contain only words which begin with voiced obstruents. Classes 1a, 3a, 3b, 4a, and 4b, on the other hand, contain only a few exceptional words which begin with voiced obstruents. The obvious conclusion is that "tone-raising" and "neutral" consonants pattern together in Podoko over against the "tone-lowering" voiced obstruents. This observation will be reinforced when we examine the downstep rules in section 3.1.

Table 1 also adds weight to earlier observations that implosives, though voiced, pattern with voiceless consonants. Also prenasalized stops, though a combination of nasal and stop, pattern with the voiced stops and not with nasal consonants.

There exist two types of word patterns in Podoko for disyllabic nouns: two open syllables (CV.CV), and one closed and one open syllable (CVL.CV) where the first syllable is closed by either of the liquid consonants (L), /l/ or /r/, and the V of this syllable is limited to /ə/. These syllable final liquid consonants have no influence on tone. This agrees with the general observation by Hombert [1976:92] that the only consonants which can affect a tone while being syllable final are the laryngeals /ʔ/ and /h/. Table 2, therefore, will only refer to those word medial consonants which begin a new syllable.
Table 1: Initial Consonants

<table>
<thead>
<tr>
<th>Tone Class</th>
<th>&quot;Tone-Raising&quot;</th>
<th>&quot;Neutral&quot;</th>
<th>&quot;Tone-Lowering&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>l</td>
<td>b</td>
</tr>
<tr>
<td>la  ṭakə</td>
<td>7</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>'thorn'</td>
<td>18</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>lb  zətə</td>
<td>2</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>'sky'</td>
<td>3</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>2a  vədə</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>'night'</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>2b  vaga</td>
<td>0</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>'place'</td>
<td>0</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3a  dəfə</td>
<td>3</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>'fufu'</td>
<td>13</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3b  kəda</td>
<td>1</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>'dog'</td>
<td>5</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3c  buti</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>'a sauce'</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4a  kəta</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>'sifter'</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4b  ytsaga</td>
<td>0</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>'cooking pot'</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Though the medial consonants do not present such a clear-cut distinction as the initial consonants regarding voiced obstruents versus other consonants, close examination reveals that tone classes 2b, 3b, and 4b are overwhelmingly voiced obstruents, while classes la, 2a, 3a, 3c, and 4a contain only an exceptional voiced obstruent. Concerning these exceptions with medial consonants, perhaps a closer examination of voiced obstruents in class 3a will prove helpful. These three exceptions (marked with an asterisk (*) in Table 2) are:

?uba  'tuber'
?uvə  'excrement'
?uzlə  'natural well'

The first syllable /?u/ is an unusual Podoko syllable type. Thus, the ex-
Table 2: Medial Consonants

<table>
<thead>
<tr>
<th>Tone Class</th>
<th>&quot;Tone-Raising&quot;</th>
<th>&quot;Neutral&quot;</th>
<th>&quot;Tone-Lowering&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$ \beta$</td>
<td>$p$</td>
<td>$f$</td>
</tr>
<tr>
<td>1a take</td>
<td>9</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>1b zata</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>2a vege</td>
<td>9</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2b vaga</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>3a defe</td>
<td>6</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>3b ked</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3c buti</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4a kata</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4b ytsaga</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

The exceptional nature of the voiced medial obstruents in tone class 3a is paralleled by a highly unusual type of Podoko syllable. It thus seems reasonable to conclude that these three exceptions (and perhaps the other exceptions as well) are due to some as yet undetermined historical changes.

Our final table in this section will be a summary of Tables 1 and 2. By using a plus (+) to indicate voiced obstruents and a minus (-) to indicate all of the other consonants, we can summarize the consonant types of each syllable as in Table 3.

The reader is reminded that all the tables in this section have been based upon a corpus of 309 disyllabic nouns which can be found in the Appendix. It is also in the Appendix that one can find that the words in tone class 1b contain only three combinations of consonant types and not the four possibilities that might be expected from Tables 1 and 2. The importance of this correlation between tone classes and consonant types will become appar-
Table 3: Distribution of Consonant Types in Tone Classes

<table>
<thead>
<tr>
<th>Tone Class</th>
<th>Consonant Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>taka 'thorn'</td>
</tr>
<tr>
<td>1b</td>
<td>navo 'body'</td>
</tr>
<tr>
<td></td>
<td>zeta 'sky'</td>
</tr>
<tr>
<td></td>
<td>bido 'bracelet'</td>
</tr>
<tr>
<td>2a</td>
<td>vedo 'night'</td>
</tr>
<tr>
<td>2b</td>
<td>vaga 'place'</td>
</tr>
<tr>
<td>3a</td>
<td>dafe 'fufu'</td>
</tr>
<tr>
<td>3b</td>
<td>keda 'dog'</td>
</tr>
<tr>
<td>3c</td>
<td>buti 'a sauce'</td>
</tr>
<tr>
<td>4a</td>
<td>kata 'sifter'</td>
</tr>
<tr>
<td>4b</td>
<td>ytsaga 'cooking pot'</td>
</tr>
</tbody>
</table>

ent in the following section, where the tone perturbations of each sub-class are shown and explained.

3. Tone Changes

Now that we have seen that Podoko consonants pattern into two main groups, i.e. voiced obstruents and everything else, we are in a position to examine the effect of these consonants on tone. Basically, in Podoko, voiced obstruents can cause downstep while other consonants cannot. The following table will present the tone changes to be discussed in the rest of this paper. We have already examined the left part of the table in the preceding section. We now add a column where we posit an underlying tone pattern with disyllabic combination of high (H) and low (L) tones. The rest of the table con-
Table 4: Tone Changes

<table>
<thead>
<tr>
<th>Tone Class Type</th>
<th>Underlying Tone</th>
<th>à ndà ndà __ sàrá 'there are __ two'</th>
<th>Tone in Isolation</th>
<th>Associative Phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a take 'thorn'</td>
<td>- -</td>
<td>L L</td>
<td>2 2 2 1</td>
<td>2 2 1 2</td>
</tr>
<tr>
<td>nàve 'body'</td>
<td>- +</td>
<td>L L</td>
<td>2 2 2 1</td>
<td>2 2 1 3</td>
</tr>
<tr>
<td>zàta 'sky'</td>
<td>+ -</td>
<td>L L</td>
<td>2 2 2 1</td>
<td>2 2 1 3</td>
</tr>
<tr>
<td>bide 'bracelet'</td>
<td>+ +</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a vèdè 'night'</td>
<td>+ -</td>
<td>H L</td>
<td>1 2 2 1</td>
<td>3 3 2 1 3</td>
</tr>
<tr>
<td>2b vaga 'place'</td>
<td>+ +</td>
<td>H L</td>
<td>1 3 3 2</td>
<td>3 3 2 1 3</td>
</tr>
<tr>
<td>3a dàfè 'fufu'</td>
<td>- -</td>
<td>L H</td>
<td>2 1 2 1</td>
<td>3 3 2 2 1</td>
</tr>
<tr>
<td>3b kàdè 'dog'</td>
<td>- +</td>
<td>L H</td>
<td>2 1 3 2</td>
<td>3 3 2 1 3</td>
</tr>
<tr>
<td>3c buti 'a sauce'</td>
<td>+ -</td>
<td>L H</td>
<td>2 1 2 1</td>
<td>2 1 3 2</td>
</tr>
<tr>
<td>4a kata 'sifter'</td>
<td>- -</td>
<td>H H</td>
<td>2 1 2 1</td>
<td>2 1 2 1 1</td>
</tr>
<tr>
<td>4b ytsaga 'cooking pot'</td>
<td>+ +</td>
<td>H H</td>
<td>2 1 3 2</td>
<td>2 1 2 1 1</td>
</tr>
</tbody>
</table>

Podoko Consonants and Downstep

Consists of three basic tone frames with the phonetic pitch levels marked with numbers (1 for "high", 2 for "low", 3 for "downstepped low"). In the fourth column, which has the context à ndà ndà __ sàrá 'there are two __', the numbers on the left hand side indicate the tone on the noun, while the numbers on the right indicate the tone on the numeral sàrá 'two'. This context was chosen because it represents the most frequent tone changes. The tone of the preceding verb does not play a role. The tone of the following modifier must be a low tone in order to be downstepped (since high tones do not downstep in Podoko).

Careful observation of the preceding chart will show that all three tone
frames are needed to distinguish the nine tone sub-classes from each other.

It should be admitted at this point that the underlying L-H pattern for class 3c is the least sure. Not only does this class undergo very unusual tone changes in the associative construction, but it consists of very few nouns (8 disyllabic nouns). Perhaps when this study can be broadened to include more data, the exact nature of these unusual changes will become more apparent.

3.1. General downstep. Downstep, the lowering of the entire tone register, is an often reported feature of African languages. In Niger-Congo languages, downstep is almost always limited to a H tone after a preceding H tone (symbolized H₁H). This phenomena is the result of the common historical process of a HLH tone series, which first undergoes phonetic downdrift and then the loss of the intervening L tone [Schuh 1978:239]. Recently, however, downstepping L tones and downstep without downdrift have both been discovered in Dschang-Bamileke [Tadadjeu 1974]. It is interesting that the tone series H'L is possible in Dschang-Bamileke. In Podoko this same series is the major environment where downstep occurs. In fact, if one set aside the very exceptional nature of tone patterns in isolation, H'L is the only place downstep can occur in Podoko. Since we will show that downstep is predictable on the basis of voiced obstruents, we will call it phonetic downstep, which Schuh shows to be characteristic of several Chadic languages [Schuh 1971:31].

The nature of Podoko downstep can be seen in our first tone frame from Table 4 above. The following example is characteristic of tone class 1 (both a and b subclasses) where the underlying tone of LL for /taká/ 'thorn' does not change:

\[
\begin{align*}
\text{à ndå ndå tàká sàrá} & \quad \text{there are two thorns'} \\
2 & \quad 2 & \quad 2 & \quad 2 & \quad 2 & \quad 1 \\
\text{be be thorn two} & \\
\end{align*}
\]

The first word in the above sentence is a grammatical marker that distinguishes the non-narrative perfective or non-imperative verbs. The numbers under the vowels refer to the tone on the syllable and correspond to the numbers in Table 4 above.

Perhaps the best place to see the influence of downstep is in the follow-
Podoko Consonants and Downstep

Assuming, as we do, that both of the nouns /vádi/ 'night' and /vágà/ 'place' have an underlying HL tone pattern, we need to explain the downstepping of the tone register which occurs in example (3) but not in (2). The downstepped L tone (symbolized ' ) occurs on the second syllable of /vágà/ and is realized phonetically on the tone level 3. The fact that this is a downstepping of the entire tone register and not just a temporary lowering of a low tone is seen in the phonetic tones 3-2 on the numeral /sèrà/ 'two'. In example (2) which doesn't have downstepping the phonetic tones of /sèrà/ are 2-1. The reason why nouns from tone class 2b are downstepped in this environment and tone class 2a nouns are not is found in their consonant types. While both tone classes begin with voiced obstruents, only tone class 2b has voiced obstruents in the second syllable. It is precisely these voiced consonants on the second syllable, together with a HL tone pattern, which causes downstep. This rule might be formalized as follows:

\[ \text{L} \rightarrow \text{'}\text{L} / \text{N}[C \text{V} ( \text{'} ) C \text{v.d.} | \text{obst} \text{impl}] \text{N} \]

This rule says that a L tone becomes a downstepped L whenever it is preceded by a high tone in the same noun (symbolized by N subscripted to the bracket sign) and is preceded by a voiced obstruent.

We are now ready to look at classes 3 and 4. The noun /dáfá/ 'fufu' (tone class 3a) will be given as representative of the tone changes in classes 3a, 3c, and 4a and the noun /kádá/ 'dog' (tone class 3b) as representative of the tone changes in classes 3b and 4b. The two contrasting tone patterns are:

(2) à ndà ndà vádi sèrà 'there are two nights' 2a
    2 2 2 1 2 2 1
    be be night two

(3) à ndà ndà vágà sèrà 'there are two places' 2b
    2 2 2 1 3 3 2
    be be place two
In the above examples, the underlying LH tone pattern on both nouns does not change, but /kədá/ causes a downstep to be found before the following adjective (once again indicated by the phonetic 3-2 on /sərá/ ). It is significant that in this case as well, the downstep occurs between a H and L tone even though a word boundary is involved. And as usual, the consonant of the second syllable of the disyllabic noun must be a voiced obstruent. This rule could be formalized as follows:

\[
H \rightarrow H^{1}/N[C V \left(\frac{1}{r}\right) C \quad \underline{-}\underline{H}]_{N} C V
\]

This rule says that a H tone is changed to a downstepping H (H followed by a downstep) whenever it occurs on the second syllable of a disyllabic noun, is immediately preceded by a voiced obstruent, and is followed by a L tone syllable.

It should be mentioned here that the L tone (2) found on the first syllable of class 4 nouns in this environment is beyond present explanation. We have posited an underlying HH pattern for class 4 nouns on the basis of their behavior in the associative construction (described in section 3.2. below), yet they behave like LH nouns before the adjective /sərá/ as below:

\[
(6) \quad \text{à ndà ndà ká tá sərá} \quad \text{'there are two sifters'} \quad \text{Tone Class 4a}
\]

be be sifters two

Perhaps further analysis will bring to light the reason why H goes to L in this environment.

To summarize our findings in this section, we can say that downstep in environments like that preceding /sərá/ 'two' are caused by the following two factors together:

\[
\text{Tone Class}
\]

\[
(4) \quad \text{à ndà ndà dəfə sərá} \quad \text{'there are two (servings of) fufu'} \quad 3a
\]

\[
\begin{array}{ccc}
& 2 & 2 & 2 & 1 & 2 & 1 \\
\end{array}
\]

be be fufu two

\[
(5) \quad \text{à ndà ndà kədá sərá} \quad \text{'there are two dogs'} \quad 3b
\]

\[
\begin{array}{ccc}
& 2 & 2 & 2 & 1 & 3 & 2 \\
\end{array}
\]

be be dog two
1. Second syllable of noun must begin with a voiced obstruent.
2. There must be a HL pattern either within the noun or between noun and following word.

If these conditions are met, a downstep is inserted between the H and L tone. These seem to be the most general conditions for downstep. Downstep will also be mentioned in the following sections, but it is a downstep influenced by the peculiar tonal properties of the associative construction and of nouns in isolation.

### 3.2. Associative high tone

The associative (noun-noun) construction is characterized by a floating H tone between the two nouns. The behavior of this tone and its consequences for downstep are the focus of this section. The Podoko floating H tone almost always docks to the right, thereby influencing the tone of the second noun. We shall save until the end of this section the exceptional case of class 3c where the floating tone docks to the left. The first noun of an associative construction never undergoes tonal change except when the second noun is from tone class 3c.

The nouns in tone class 1 with an underlying LL pattern provide our most straightforward examples. The first noun in an associative construction maintains its isolation tone pattern (described in section 3.3 below). We will use the head noun /hwada/ 'stomach' which translates 'the inside of' with another noun. The tone of the second noun changes in the following examples from LL to either HL or H'L:

<table>
<thead>
<tr>
<th>Tone Class</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>hwada taka 'the inside of the thorn'</td>
</tr>
<tr>
<td>1b</td>
<td>hwada nava 'the inside of the body'</td>
</tr>
</tbody>
</table>

4This section deals only with head nouns in the singular. When the head noun is plural an associative marker /da/ is manifest, e.g. 'tawakà da mamà 'mother's sheep'

5The ''docking'' of floating tones is described in Goldsmith [1976:46].
It is crucial that only example (7) above ends on a regular L tone, the other three ending on a downstepped L tone. Example (7) is also the only one where neither syllable contains a voiced obstruent. We thus have the case that downstep occurs in the second noun of an associative construction whenever either of its syllables contains a voiced obstruent. This contrasts with our more general cases of downstep (described in 3.1 above) where downstep was only triggered if a voiced obstruent occurred in the second syllable. It is crucial here that Podoko does not allow contour tones. Thus, when the floating H tone docks on the LL pattern, the resulting HLL pattern must be realized as level tones on two syllables. Thus the first syllable takes the floating H tone and the second syllable the underlying LL pattern, which is changed to DL as in the following schema:

\[
\text{Ix} \quad \text{H L L/I} \rightarrow \text{X} \quad \text{H D L} \rightarrow \text{X} \quad \text{H D L}
\]

The above schema reflects the fact that any L tone following a D tone is always realized on the same level.

Tone classes 2 and 4 may or may not take a floating H tone. Since these classes begin with an underlying H tone which can absorb the floating H tone, it is impossible to tell if the floating tone is actually there. However, for the sake of overall consistency, we posit a floating H tone which docks to the right producing HHL (class 2) and HHH (class 4) patterns, which are realized HL and HH because of the Podoko restriction against contour tones. Once again, downstep occurs whenever a HL pattern occurs with a voiced obstruent on either syllable as below:

\[
\text{(11) hwéda } \quad \text{vóláa } \quad \text{'the inside of the night'}
\]

Tone Class

<table>
<thead>
<tr>
<th>Tone Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b</td>
</tr>
<tr>
<td>2a</td>
</tr>
</tbody>
</table>
(12) hwēdē vá'gà 'the inside of the place' 2b
2 2 1 3
stomach place

(13) hwēdē kātā 'the inside of the sifter' 4a
2 2 1 1
stomach sifter

(14) hwēdē 'tsāgà 'the inside of the cooking pot' 4b
2 2 1 1
stomach cooking pot

The most drastic changes resulting from the associative H tone occur in tone class 3. Within this class, the tone docks in two different directions producing two different results. The more "normal" cases of classes 3a and 3b are given below:

(15) hwēdē dāfà 'the inside of the fufu' 3a
2 2 1 2
stomach fufu

(16) hwēdē kāl'dà 'the inside of the dog' 3b
2 2 1 3
stomach dog

It should be remembered that the above examples have second nouns with an underlying LH pattern. When the floating H associative tone docks to the right, this produces HLH pattern. This poses a problem for Podoko, since there are only two syllables for these three tones and Podoko does not permit tone glides. Most downstepping languages, faced with a similar problem, would convert HLH to H'H. Podoko does not. Instead, the final (underlying) H tone is dropped resulting in a HL pattern. This HL pattern is then downstepped in the case of tone class 3b with voiced obstruents, but left unmodified in class 3a with no voiced obstruents.

This leaves the unusual case of tone class 3c, shown below:

(17) hwēdē 'but' 'the inside of a sauce' 3c
2 1 3 2
stomach a sauce

It seems that in the above case, Podoko docks first to the right giving a HLH pattern for two syllables. Then instead of dropping the final H tone like
classes 3a and 3b, class 3c reassigns the tones from the right. This results in the floating H associative tone being reassigned to the first noun, replacing the second tone of the first noun. Once again, since class 3c has a voiced obstruent, downstep takes place. Because of the reassignment of tones, however, this is the only associative construction where downstep occurs on the first syllable of the second noun.

In conclusion, the special nature of the associative construction with its floating H tone results in the broadening of our downstep rule, in this specific environment, to be triggered by a voiced obstruent in either syllable instead of just the second syllable.

3.3. Nouns in isolation. Of all the tone changes, nouns in isolation are the most difficult to predict. Only class la, lb and the exceptional 3c are pronounced in isolation with their underlying tone pattern. Everything else seems to be an exception to the rules we have posited for the same nouns in context. Perhaps the most difficult is the 3-3 tone pattern of classes 2a, 2b, and 3b. These classes seem to have in common three factors:

1. an underlying H tone
2. an underlying L tone
3. a voiced obstruent on the H syllable

Though these are the same factors common in our other downstep rules, they are here without any apparent ordering. Thus, the LH of class 3b downsteps like the HL of classes 2a and 2b. As in the associative construction, the voiced obstruent can be on either syllable, being on the first in 2a, the second in 3b, and on both in 2b. What is unusual is that the underlying H tones are deleted and the downstep feature moved to the front of the word, as below:

<table>
<thead>
<tr>
<th>Tone Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>(18) 'vèda' 'night' 2a</td>
</tr>
<tr>
<td>(19) 'vèga' 'place' 2b</td>
</tr>
<tr>
<td>(20) 'kèda' 'dog' 3b</td>
</tr>
</tbody>
</table>

Of all the tone patterns, the tone of class 3a nouns in isolation is most
in limbo. Sometimes these nouns are pronounced 2-2 like class 1 nouns, sometimes 3-3 like class 3b nouns, and sometimes they have an intermediate unique 2-3 pattern. While the underlying pattern of 3a is LH, there are no voiced obstruents. The ambivalence of class 3a nouns between low and downstepped L patterns thus seems to be an extension of downstepping beyond syllables beginning in voiced obstruents, at least in isolation forms.

The exceptional class 3c is realized in isolation as its underlying LH pattern. Thus this pattern is exceptional in isolation a bit the same way as it was exceptional in the associative phrase. In all its environments, class 3c nouns adhere rigidly to their underlying LH pattern resisting other influences. This rigid adherence to the underlying pattern in all environments makes them exceptions.

Once again, tone class 4 nouns prove to be inexplicable. From an underlying HH pattern they develop a 2-1 pattern in isolation, as below:

<table>
<thead>
<tr>
<th>Tone Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>(21) kàtá 'sifter'</td>
</tr>
<tr>
<td>2 1</td>
</tr>
<tr>
<td>(22) ytsàgà 'cooking pot'</td>
</tr>
<tr>
<td>2 1</td>
</tr>
</tbody>
</table>

About all that can be said concerning these exceptional changes is that they are the same as the exceptional changes which these nouns underwent in section 3.1 above. In both cases, a L tone appears on the first syllable.

An alternative analysis of class 4 nouns could have been presented. Instead of giving them an underlying HH pattern, we could have given them an underlying LH pattern and called them classes 3d and 3e. This would solve the problem of the unidentified L tone on the first syllable in isolation. Unfortunately, however, it would make our analysis of the associative construction much more complex. We would end up with five subclasses of an underlying LH pattern that do three different things in the associative construction. These differences could not be attributed to underlying tone differences or to consonant types since classes 3a and 3b have the same consonant patterns as classes 4a and 4b. For these reasons we are presently postulating an underlying HH pattern for class 4 nouns.
4. Conclusion

This paper has added support from one additional language to several generalizations that have been observed by various linguists. First, implosive consonants, though voiced, pattern with voiceless consonants when influencing tone. Second, prenasalized voiced stops pattern with voiced stops, and not with nasal consonants, when influencing tone. Third, the tone-lowering effect of consonants is limited to voiced non-implosive obstruents. Fourth, syllable-final consonants (only /l/ and /r/ in Podoko) have no effect on tone.

With respect to the language specific properties of Podoko, we have observed that the so-called "neutral" consonants pattern with the voiceless consonants. We also saw that downstep is limited even in its most general application to specific tonal as well as consonant environments. All voiced obstruents do not always result in downstep. It is only when voiced obstruents combine with a HL tone pattern that downstep occurs. We also examined the nature of the floating H tone associative marker, and observed the various results when it docked to the right.

In this paper we examined 309 disyllabic nouns and their tone perturbations in three separate environments. We have seen that downstep resulting from the combination of voiced obstruents and a HL tone pattern with slight modifications in the presence of a floating associative tone, have explained the vast majority of these tone changes. One is seriously tempted to analyze the entire system as consisting of underlying H and L tone and a few "phonetic downstep" rules. There are various tone changes which still lack explanation, however. Perhaps when a wider corpus is established which includes changes in the verb phrase, a consistent overall analysis will become evident. In the meantime, the role of voiced obstruents in triggering downstep is an important first step.
Podoko Consonants and Downstep

APPENDIX

List of Nouns by Tone Classes

The + sign indicates that a syllable begins in a voiced obstruent, the - sign that it begins in some other consonant (cf. Tables 3 and 4).

<table>
<thead>
<tr>
<th>Tone Class la</th>
<th>+</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>گسأ</td>
<td>'thigh'</td>
<td>ی؟وسأ</td>
</tr>
<tr>
<td>یبأكوأ</td>
<td>'a place'</td>
<td>سپأ</td>
</tr>
<tr>
<td>گألما</td>
<td>'gravestone'</td>
<td>یسأوا</td>
</tr>
<tr>
<td>گأرإ</td>
<td>'salt'</td>
<td>سکأ</td>
</tr>
<tr>
<td>گدأيا</td>
<td>'bird'</td>
<td>سفإ</td>
</tr>
<tr>
<td>گدأوأ</td>
<td>'a game, kneecap'</td>
<td>سعإ</td>
</tr>
<tr>
<td>گدإرإ</td>
<td>'beans'</td>
<td>سعإا</td>
</tr>
<tr>
<td>گپأوأ</td>
<td>'flour'</td>
<td>یسأتو</td>
</tr>
<tr>
<td>یپأهإ</td>
<td>'beer'</td>
<td>یسألإ</td>
</tr>
<tr>
<td>یپأوإ</td>
<td>'a grass'</td>
<td>یهسلإ</td>
</tr>
<tr>
<td>گپأدا</td>
<td>'goat's beard'</td>
<td>یہوأ</td>
</tr>
<tr>
<td>گپأتسإ</td>
<td>'sun'</td>
<td>هوأدأ</td>
</tr>
<tr>
<td>گتإكأ</td>
<td>'thorn'</td>
<td>هوأتسإ</td>
</tr>
<tr>
<td>گتإوأ</td>
<td>'a measure'</td>
<td>یهسلإإ</td>
</tr>
<tr>
<td>یتإتسإ</td>
<td>'a soft rock'</td>
<td>هوأدأإ</td>
</tr>
<tr>
<td>یتإتسإإ</td>
<td>'flea'</td>
<td>سأدأ</td>
</tr>
<tr>
<td>گسإکإ</td>
<td>'poison'</td>
<td>یسإلإ</td>
</tr>
<tr>
<td>یکألفإ</td>
<td>'fish'</td>
<td>سلإمأ</td>
</tr>
<tr>
<td>یکإیأ</td>
<td>'house'</td>
<td>سلإسأ</td>
</tr>
<tr>
<td>یکوأما</td>
<td>'mouse'</td>
<td>سلإا</td>
</tr>
<tr>
<td>یکوأرإ</td>
<td>'urine'</td>
<td>سلإرإ</td>
</tr>
<tr>
<td>یکوأرإ</td>
<td>'neck'</td>
<td>یأدوأ</td>
</tr>
<tr>
<td>یکوأرإ</td>
<td>'law'</td>
<td>لایإ</td>
</tr>
<tr>
<td>ئوأبا</td>
<td>'breast'</td>
<td>یلإکإ</td>
</tr>
</tbody>
</table>

---

6When the indefinite article appears in the definition it indicates 'a specific kind of ___'.
<table>
<thead>
<tr>
<th>Ylutsə</th>
<th>&quot;hearth&quot;</th>
<th>mayə</th>
<th>&quot;hunger&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>fufə</td>
<td>&quot;handle&quot;</td>
<td>mame</td>
<td>&quot;honey&quot;</td>
</tr>
<tr>
<td>rəhə</td>
<td>&quot;saliva&quot;</td>
<td>mutə</td>
<td>&quot;sacrifice&quot;</td>
</tr>
<tr>
<td>Yrawə</td>
<td>&quot;cow manure&quot;</td>
<td>muva</td>
<td>&quot;lap, retaining wall&quot;</td>
</tr>
<tr>
<td>rasə</td>
<td>&quot;brain&quot;</td>
<td>muva</td>
<td>&quot;sickle&quot;</td>
</tr>
<tr>
<td>wada</td>
<td>&quot;weevil&quot;</td>
<td>mure</td>
<td>&quot;a plant&quot;</td>
</tr>
<tr>
<td>məkwə</td>
<td>&quot;boundary&quot;</td>
<td>ymumi</td>
<td>&quot;beard&quot;</td>
</tr>
<tr>
<td>mədə</td>
<td>&quot;stream bed&quot;</td>
<td>ynatsa</td>
<td>&quot;birth place&quot;</td>
</tr>
<tr>
<td>mələ</td>
<td>&quot;oil&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tone Class 1b (- +)**

<table>
<thead>
<tr>
<th>Serzli</th>
<th>&quot;joint&quot;</th>
<th>ysluze</th>
<th>&quot;cotton&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>dizla</td>
<td>&quot;wrist&quot;</td>
<td>slendzi</td>
<td>&quot;best friend&quot;</td>
</tr>
<tr>
<td>Ytembi</td>
<td>&quot;a spice&quot;</td>
<td>yengwe</td>
<td>&quot;water pot&quot;</td>
</tr>
<tr>
<td>tuvə</td>
<td>&quot;a place&quot;</td>
<td>ymandza</td>
<td>&quot;a wasp&quot;</td>
</tr>
<tr>
<td>Ykade</td>
<td>&quot;granary&quot;</td>
<td>mingwe</td>
<td>&quot;mosquito&quot;</td>
</tr>
<tr>
<td>hala</td>
<td>&quot;level area&quot;</td>
<td>nave</td>
<td>&quot;body&quot;</td>
</tr>
</tbody>
</table>

**Tone Class 1b (+ -)**

<table>
<thead>
<tr>
<th>Serkwe</th>
<th>&quot;blanket&quot;</th>
<th>vire</th>
<th>&quot;bedroom&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ybelma</td>
<td>&quot;potash&quot;</td>
<td>yvula</td>
<td>&quot;mollusk&quot;</td>
</tr>
<tr>
<td>Ybuda</td>
<td>&quot;bubble&quot;</td>
<td>zəta</td>
<td>&quot;sky&quot;</td>
</tr>
<tr>
<td>bayə</td>
<td>&quot;chosen brother&quot;</td>
<td>yzəhi</td>
<td>&quot;a tree&quot;</td>
</tr>
<tr>
<td>delə</td>
<td>&quot;threshing floor&quot;</td>
<td>zəle</td>
<td>&quot;a hawk&quot;</td>
</tr>
<tr>
<td>dərmə</td>
<td>&quot;a fruit&quot;</td>
<td>zama</td>
<td>&quot;roofing of stalks&quot;</td>
</tr>
<tr>
<td>dama</td>
<td>&quot;sibling&quot;</td>
<td>zara</td>
<td>&quot;area underneath roof&quot;</td>
</tr>
<tr>
<td>dulı</td>
<td>&quot;sweet beer&quot;</td>
<td>yzani</td>
<td>&quot;spoon-shaped calabash&quot;</td>
</tr>
<tr>
<td>dzakwe</td>
<td>&quot;hat&quot;</td>
<td>yzawa</td>
<td>&quot;cow's tail&quot;</td>
</tr>
<tr>
<td>gədə</td>
<td>&quot;a game&quot;</td>
<td>zubi</td>
<td>&quot;marrow&quot;</td>
</tr>
<tr>
<td>gəra</td>
<td>&quot;a contemporary&quot;</td>
<td>zlaya</td>
<td>&quot;justice&quot;</td>
</tr>
<tr>
<td>gəma</td>
<td>&quot;debt&quot;</td>
<td>mbela</td>
<td>&quot;unweaned child's younger sibling&quot;</td>
</tr>
<tr>
<td>gana</td>
<td>&quot;squirrel&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ygana</td>
<td>&quot;a tree&quot;</td>
<td>ndəra</td>
<td>&quot;peanuts&quot;</td>
</tr>
<tr>
<td>vari</td>
<td>&quot;muzzle&quot;</td>
<td>ndadəi</td>
<td>&quot;raindrop&quot;</td>
</tr>
</tbody>
</table>
Podoko Consonants and Downstep

<table>
<thead>
<tr>
<th>Word</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ndzawé</td>
<td>'fly'</td>
</tr>
<tr>
<td>nonda</td>
<td>'immature peanut'</td>
</tr>
<tr>
<td>ngwetsé</td>
<td>'hair'</td>
</tr>
<tr>
<td>banda</td>
<td>'grilled fish'</td>
</tr>
<tr>
<td>bangwé</td>
<td>'a hairstyle'</td>
</tr>
<tr>
<td>bida</td>
<td>'bracelet'</td>
</tr>
<tr>
<td>Ybuzli</td>
<td>'small granary'</td>
</tr>
<tr>
<td>danga</td>
<td>'beam'</td>
</tr>
<tr>
<td>Yndzawa</td>
<td>'sleep'</td>
</tr>
</tbody>
</table>

**Tone Class 2a (+ -)**

<table>
<thead>
<tr>
<th>Word</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>bafta</td>
<td>'lungs'</td>
</tr>
<tr>
<td>Ybara</td>
<td>'a game'</td>
</tr>
<tr>
<td>buta</td>
<td>'gap between teeth'</td>
</tr>
<tr>
<td>dæwé</td>
<td>'girl'</td>
</tr>
<tr>
<td>Ydæsæ</td>
<td>'bronze'</td>
</tr>
<tr>
<td>dite</td>
<td>'a garment'</td>
</tr>
<tr>
<td>dina</td>
<td>'religion'</td>
</tr>
<tr>
<td>dzæmi</td>
<td>'stalks tied together'</td>
</tr>
<tr>
<td>dzãræ</td>
<td>'mortar'</td>
</tr>
<tr>
<td>Ydzakæ</td>
<td>'border'</td>
</tr>
<tr>
<td>gasa</td>
<td>'forced work'</td>
</tr>
<tr>
<td>gana</td>
<td>'price'</td>
</tr>
<tr>
<td>giwa</td>
<td>'hut'</td>
</tr>
<tr>
<td>gwælmæ</td>
<td>'a tree'</td>
</tr>
<tr>
<td>gwadi</td>
<td>'word'</td>
</tr>
<tr>
<td>vada</td>
<td>'night'</td>
</tr>
<tr>
<td>vëehæ</td>
<td>'field'</td>
</tr>
<tr>
<td>vøye</td>
<td>'rainy season'</td>
</tr>
<tr>
<td>Yvølka</td>
<td>'calf'</td>
</tr>
<tr>
<td>vara</td>
<td>'relative'</td>
</tr>
<tr>
<td>vira</td>
<td>'rabbit'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Word</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>bamba</td>
<td>'a sauce'</td>
</tr>
<tr>
<td>baba</td>
<td>'father'</td>
</tr>
<tr>
<td>Ydelgwa</td>
<td>'youth'</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>daba</td>
<td>'hunchback'</td>
</tr>
<tr>
<td>dagwa</td>
<td>'a monkey'</td>
</tr>
<tr>
<td>dangi</td>
<td>'cane'</td>
</tr>
<tr>
<td>Ydzēba</td>
<td>'tribe'</td>
</tr>
<tr>
<td>Ydzadze</td>
<td>'parent-in-law'</td>
</tr>
<tr>
<td>dzazli</td>
<td>'muddy deposit'</td>
</tr>
<tr>
<td>dzangē</td>
<td>'mountain'</td>
</tr>
<tr>
<td>Ydzuvi</td>
<td>'grave'</td>
</tr>
<tr>
<td>genda</td>
<td>'robber'</td>
</tr>
<tr>
<td>gaha</td>
<td>'a tree'</td>
</tr>
<tr>
<td>gaga</td>
<td>'termite mound'</td>
</tr>
<tr>
<td>gazla</td>
<td>'a sauce'</td>
</tr>
<tr>
<td>gwēdi</td>
<td>'a tree'</td>
</tr>
<tr>
<td>gwēgwe</td>
<td>'cushion'</td>
</tr>
<tr>
<td>gwēmba</td>
<td>'frog'</td>
</tr>
<tr>
<td>gwagwa</td>
<td>'back'</td>
</tr>
<tr>
<td>gwazla</td>
<td>'spotted animal'</td>
</tr>
<tr>
<td>gwanda</td>
<td>'green stalk'</td>
</tr>
<tr>
<td>vengwe</td>
<td>'mouth'</td>
</tr>
<tr>
<td>Yvēga</td>
<td>'hole'</td>
</tr>
<tr>
<td>vaga</td>
<td>'place'</td>
</tr>
<tr>
<td>vadi</td>
<td>'plain'</td>
</tr>
<tr>
<td>vazi</td>
<td>'immature corn'</td>
</tr>
<tr>
<td>zēga</td>
<td>'a tree'</td>
</tr>
<tr>
<td>zēngwa</td>
<td>'small field'</td>
</tr>
<tr>
<td>zēba</td>
<td>'parent-in-law'</td>
</tr>
<tr>
<td>zōda</td>
<td>'threshing stick'</td>
</tr>
<tr>
<td>Yzēba</td>
<td>'dummy deposit'</td>
</tr>
<tr>
<td>Yzaza</td>
<td>'a tree'</td>
</tr>
<tr>
<td>zinda</td>
<td>'glutton'</td>
</tr>
<tr>
<td>zēba</td>
<td>'frog'</td>
</tr>
<tr>
<td>zēti</td>
<td>'falcon'</td>
</tr>
<tr>
<td>zēlgwe</td>
<td>'leather garment'</td>
</tr>
<tr>
<td>ziērgwa</td>
<td>'axe'</td>
</tr>
<tr>
<td>Yzlēhi</td>
<td>'corn leaves'</td>
</tr>
<tr>
<td>zlagwa</td>
<td>'feather'</td>
</tr>
<tr>
<td>zlangwe</td>
<td>'natural grinding stone'</td>
</tr>
<tr>
<td>Yzlamba</td>
<td>'corner'</td>
</tr>
<tr>
<td>mbēlwe</td>
<td>'bull'</td>
</tr>
<tr>
<td>ndērzla</td>
<td>'a portion'</td>
</tr>
<tr>
<td>ndzuve</td>
<td>'hay'</td>
</tr>
<tr>
<td>ngwēzi</td>
<td>'rising smoke'</td>
</tr>
<tr>
<td>ngwēra</td>
<td>'an insect'</td>
</tr>
</tbody>
</table>

**Tone Class 3a (- -)**

<p>| dōwa       | 'a tree'                                                                |
| dafa       | 'fufu'                                                                  |
| dala       | 'sauce'                                                                 |
| Ypersa     | 'horse'                                                                  |
| Ypatse     | 'g-string'                                                               |
| terba      | 'mud'                                                                   |
| tērēa      | 'poorly-fired pottery'                                                  |
| tērēa      | 'moon'                                                                  |
| tēye       | 'large water pot'                                                       |
| Ytēba      | 'shiny ornament'                                                        |
| taya       | 'beads'                                                                  |
| kara       | 'fire'                                                                  |
| kēwe       | 'calabash'                                                              |
| kwēla      | 'pipe'                                                                   |
| kwēra      | 'rock'                                                                  |
| kwati      | 'worm'                                                                  |
| ?ubēa      | 'tuber'                                                                  |
| ?uve       | 'excrement'                                                             |
| ?uzla      | 'water hole'                                                            |
| ?usla      | 'arrow shaft'                                                           |</p>
<table>
<thead>
<tr>
<th>Podoko Consonants and Downstep</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>fudá</strong> 'amusement'</td>
</tr>
<tr>
<td><strong>sawə</strong> 'well'</td>
</tr>
<tr>
<td><strong>Ysəsə</strong> 'shadow'</td>
</tr>
<tr>
<td><strong>Ysəmə</strong> 'high rock wall'</td>
</tr>
<tr>
<td><strong>Ysapa</strong> 'small calabash'</td>
</tr>
<tr>
<td><strong>sifí</strong> 'life'</td>
</tr>
<tr>
<td><strong>sirə</strong> 'jealousy'</td>
</tr>
<tr>
<td><strong>sluli</strong> 'madman'</td>
</tr>
<tr>
<td><strong>həwa</strong> 'rain maker'</td>
</tr>
<tr>
<td><strong>həye</strong> 'guinea corn'</td>
</tr>
<tr>
<td><strong>hara</strong> 'arm'</td>
</tr>
</tbody>
</table>

**Tone Class 3b (- +)**

<table>
<thead>
<tr>
<th>Gəlva</th>
<th>'a tree'</th>
<th><strong>sləva</strong></th>
<th>'suitor'</th>
</tr>
</thead>
<tbody>
<tr>
<td>pənə</td>
<td>'stalk'</td>
<td><strong>həngwa</strong></td>
<td>'miser'</td>
</tr>
<tr>
<td>Ytəə</td>
<td>'path'</td>
<td><strong>Yhwərsə</strong></td>
<td>'sister-in-law'</td>
</tr>
<tr>
<td>Ytəza</td>
<td>'guinea worm'</td>
<td><strong>hwəza</strong></td>
<td>'wild onion'</td>
</tr>
<tr>
<td>təgwi</td>
<td>'sheep'</td>
<td><strong>regwa</strong></td>
<td>'manure'</td>
</tr>
<tr>
<td>təzəla</td>
<td>'long-necked water pot'</td>
<td><strong>randza</strong></td>
<td>'scorpion'</td>
</tr>
<tr>
<td>kəda</td>
<td>'dog'</td>
<td><strong>range</strong></td>
<td>'walled-in threshing floor'</td>
</tr>
<tr>
<td>kəwə</td>
<td>'calabash'</td>
<td><strong>məga</strong></td>
<td>'idiot'</td>
</tr>
<tr>
<td>kamba</td>
<td>'bush area'</td>
<td><strong>məza</strong></td>
<td>'fat'</td>
</tr>
<tr>
<td>kwəsə</td>
<td>'sickness'</td>
<td><strong>Yməsə</strong></td>
<td>'brown-colored animal'</td>
</tr>
<tr>
<td>kwəzla</td>
<td>'darkness'</td>
<td><strong>məzə</strong></td>
<td>'sorcerer'</td>
</tr>
<tr>
<td>kwíha</td>
<td>'leather sack'</td>
<td><strong>Ymədə</strong></td>
<td>'sorceress'</td>
</tr>
<tr>
<td>Ysəqə</td>
<td>'leg'</td>
<td><strong>muda</strong></td>
<td>'field near home'</td>
</tr>
</tbody>
</table>

**Tone Class 3c (+ -)**

<table>
<thead>
<tr>
<th>buti</th>
<th>'a sauce'</th>
<th><strong>Yvərnə</strong></th>
<th>'baby'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ydzələ</td>
<td>'type'</td>
<td><strong>zləna</strong></td>
<td>'paradise'</td>
</tr>
<tr>
<td>Ydzədə</td>
<td>'ring'</td>
<td><strong>zləzə</strong></td>
<td>'corn sucker'</td>
</tr>
<tr>
<td>gawə</td>
<td>'medicine man'</td>
<td><strong>zləmbi</strong></td>
<td>'wing'</td>
</tr>
</tbody>
</table>
### Tone Class 4a (- -)

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sule</td>
<td>'fufu stuck to pot'</td>
</tr>
<tr>
<td>Ypapa</td>
<td>'foreleg'</td>
</tr>
<tr>
<td>kata</td>
<td>'sifter'</td>
</tr>
<tr>
<td>Ykwara</td>
<td>'a plant'</td>
</tr>
<tr>
<td>fila</td>
<td>'elephant'</td>
</tr>
<tr>
<td>hinda</td>
<td>'intestines'</td>
</tr>
<tr>
<td>sali</td>
<td>'money'</td>
</tr>
<tr>
<td>saba</td>
<td>'bracelet'</td>
</tr>
</tbody>
</table>

### Tone Class 4b (- +)

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pagwi</td>
<td>'a place'</td>
</tr>
<tr>
<td>Ytsaga</td>
<td>'cooking pot'</td>
</tr>
<tr>
<td>Ykarga</td>
<td>'a grasshopper'</td>
</tr>
<tr>
<td>?ifa</td>
<td>'a grasshopper'</td>
</tr>
<tr>
<td>Yslada</td>
<td>'a flute'</td>
</tr>
</tbody>
</table>

### Notes
- Tone Class 4a and 4b are used to distinguish words with similar meanings.
REFERENCES


SOME CONSIDERATIONS IN ESTABLISHING
THE BASIC WORD ORDER OF PODOKO

Elizabeth Jarvis
Summer Institute of Linguistics

The basic word order of Podoko is not obvious. The monologue perfective presents a fixed VSO order, but for the imperfective and the dialogue perfective VOS is the most frequent, though not the only, order. The position of a focused element is established for the cases where word order is not fixed. Sentences with both subject and object present in nominal form but with another element clearly in focus are then examined. These show that subject precedes object when neither is in focus, pointing to the conclusion that the basic word order is in fact VSO.

1. Introduction

In the current interest in language universals, one of the areas that comes under consideration is that of basic word order, i.e. the relative order of subject, verb, and object. There seems to be little doubt as to the existence of a basic word order for any particular language: Greenberg [1963:76] writes, "The vast majority of languages have several variant orders but a single dominant one." He lists the possible orders, mentions which of these are nonexistent or at least very rare, and then goes on to state his first "universal" principle of word order [1963:77]:

Universal 1. In declarative sentences with nominal subject and object, the dominant order is almost always one in which the subject precedes the object.

This indicates that it is to declarative sentences that we should look for the basic order, and it seems to be presumed that when we do so "the dominant order" will be self-evident. Heine [1976:19], however, allows that the basic order may not always be quite so obvious, though he gives some suggestions for distinguishing it. He says that "basic order is the least marked: it has usually the highest text frequency, it tends to be used in positions of neutralization, and to have the smallest amount of morphological complexity."
It is generally recognized that the basic word order of most Chadic languages is SVO [Westermann and Bryan 1952:161]. In Podoko, a Chadic language of the Biu-Mandara branch,1 the SVO order does occur, but it is very restricted. It is found in conclusion sentences at the end of a section [Swackhamer 1980:13], as shown in (1), and in purpose clauses, as shown in (2). In both cases there is a special subject pronoun (v.m., "verbal marker", will be explained in section 2):

(1) ngaya təla slaSa2
    SVO
    I cook meat
    'and so I cooked the meat'

(2) a səkwəda səkəwa bəla bura ngaya  yə slaSa  SVO
    v.m. buy buy father-my salt so-that-I cook meat
    'my father bought some salt so that I might cook the meat'

It is found in simultaneous time clauses:

(3) haya  yə  yə slaSa laki,  a tawi udzera  SVO
    while I cook meat particle v.m. cry child
    'while I am cooking the meat, the child is crying'

And it is found in certain negative constructions:

(4) a taka yə  yə slaSa la
    v.m. f.s. I cook meat not try
    'I was not cooking the meat'

1More specifically, Newman [1977] classifies Podoko as belonging to the A subbranch of Biu-Mandara. It is spoken in the District of Mora in the Margui-Wandala Division of the North Province of Cameroon. The research for this paper was undertaken during 1980, under the auspices of the Délégation Générale à la Recherche Scientifique et Technique (formerly ONAREST) in cooperation with the Institut des Sciences Humaines (I.S.H.) and the Centre de Recherches sur les Langues et Traditions Orales Africaines (CERELTRA) of the United Republic of Cameroon.

2Tone is not marked because it has not yet been fully analyzed. Apart from that, the transcription of all examples is phonemic. The voiceless and voiced lateral fricatives are represented by s_l and z_l respectively. Ts , dz , mb , nd , ng , ndz , kw , gw , hw , ngw also each stand for a single phoneme. A raised ɣ preceding a word indicates the palatalisation of that word.
(This last may not really be an example of SVO order, because taka may be a form of the verb 'try' rather than a fronted subject (f.s.) marker, and this construction may have developed from 'I tried not to...'.)

Westermann and Bryan [1952:161] say of Podoko: "In Paduko the Pronoun Subject follows the Verb, but the Noun Subject precedes it." However, not only do the examples already given disagree with this, but so do the examples of more normal word order which will be given later in this paper.

Despite the special use of the SVO order and despite Westermann's comment on Podoko, the basic word order of Podoko is clearly verb initial. That being so, one would expect the basic word order to be VSO in accordance with Greenberg's universal principle. It is true that many sentences do have this order, but there are also, particularly in conversation, many apparently unmarked declarative sentences (that is, unmarked for focus) which present the supposedly very rare VOS order. There is no difference in morphological complexity, and it is difficult, at least at first sight, to see one order as less marked than the other. As Heine's criteria, then, offer no clear solution to establishing the basic order for Podoko, other criteria must be found. In this paper the aspectual system in narrative and conversation will be examined and then also the focus system. From this, it will become evident that the basic word order is in fact the more generally common VSO.

2. Aspect and Discourse

In Podoko there is a basic distinction between narrative and non-narrative. When a speaker utters a long enough sequence of sentences, he speaks in a narrative style (here called "monologue"), with its characteristic verb form and subject pronoun in the perfective aspect (referred to as "monologue perfective" or M.P.). When he is engaged in conversational exchanges (here called "dialogue") he uses a different form for the perfective (referred to as "dialogue perfective" or D.P.). This monologue-dialogue distinction is neutralised, however, when the speaker uses the imperfective aspect (Imp.). The following chart shows the aspectual and monologue-dialogue distinctions, together with their characteristic markers:
The M.P. is characterised by the lack of VP-initial /a/ and by the subject pronoun (when the subject is not a noun) drawn from pronoun series 1:

(5) tela male sleSa 'my mother cooked meat'
    cook mother-my meat

(6) tela maye sleSa 'I cooked meat'
    cook I meat

The D.P. and Imp. by contrast have a VP-initial /a/ (though this is often deleted when the VP is not at the beginning of a sentence, e.g. when it is preceded by a conjunction or a subordinate clause), and they take a subject pronoun of series 2. The Imp. verb is palatalised if transitive. (Intransitive Imp. verbs take a final /-i/ , but intransitives are not considered here because it is the relative order of subject and object that is of interest.)
With the M.P., an invariable VSO order is found, as in (5) and (6). The D.P. and Imp., however, while sometimes showing a VSO order, frequently show VOS, as in (7-10). Examples (7) and (9) are the replies to the questions "What did one do?" and "What is one doing?" respectively. As the replies to such questions consist entirely of new information, one would expect them to be free from focus on any one of the elements (verb, subject, or object) and therefore to exhibit the basic word order. But that would give two basic word orders: the common VSO for the M.P. and the rare VOS for the D.P. and the Imp. It is at this point that we need to turn our attention to focus and see how this affects word order.

3. Focus and Word Order

In the M.P., new information cannot be focused by a change in word order, though presupposed information can be defocused by pronominalisation (in the case of the subject) or by deletion (in the case of the direct and indirect object):

(11) **talæda**  
    **mæle**  
    **slaøa akø bala**  
    cook-for-him mother-my meat for father-my  
    'my mother cooked meat for my father'

(12) a. **talæda**  
    **mæle**  
    **slaøa**  
    cook-for-him mother-my meat  
    'my mother cooked it for him'

b. **talæda**  
    **mæle**  
    **slaøa**  
    cook-for-him mother-my meat  
    'my mother cooked meat for him'

c. **talæda**  
    **nga akø bala**  
    cook-for-him she for father-my  
    'she cooked it for my father'

d. **talæda**  
    **nga**  
    cook-for-him she  
    'she cooked it for him'
With the D.P. and the Imp., on the other hand, new (focused) information is put in the focus slot. In Gude [Hoskison 1975:228], a VSO Chadic language, the focused element precedes the VP, but in Podoko the focus slot is immediately after the verb:

(13) a. a təla wa slaɓə na?  
    'who cooked the meat?'  
    cook who meat int.

   b. a təla mala  
    'my mother cooked it'  
    SUB. FOCUS  
    cook mother-my

(14) a. a təla tawə ndi na?  
    'what did one cook?'  
    cook what one int.

   b. a təla slaɓə nda  
    'one cooked meat'  
    OBJ. FOCUS  
    cook meat one

(15) a. a təla tawə ndi slaɓə na?  
    'for whom did one cook the meat?'  
    cook for whom one meat int.

   b. a təla tawə bəla nda  
    'one cooked it for my father'  
    BEN. FOCUS  
    cook for father-my one

(16) a. a təla a tawə ndi slaɓə na?  
    'with what did one cook the meat?'  
    cook with what one meat int.

   b. a təla a mala nda  
    'one cooked it with oil'  
    INST. FOCUS  
    cook with oil one

(17) a. a təla hawə ndi slaɓə na?  
    'where did one cook the meat?'  
    cook in kitchen one

   b. a təla da ykwədə nda  
    'one cooked it in the kitchen'  
    LOC. FOCUS  
    cook in kitchen one

As with the M.P., an unfocused subject is pronominalised and an unfocused object is normally deleted.

When it is the verb that is in focus, the verb is reduplicated, thus filling the focus slot. (There are two types of reduplication, simple and complex. Both are used for verb focus, but as the simple one has other functions too, the following examples use only the complex type.)

(18) a. a bəkəla tawə ndi a slaɓə na?  
    'what did one do with what one with meat int. the meat?'  
    cook with what one meat int.

   b. a təla a təli mala  
    'my mother cooked it'  
    SUB. FOCUS  
    cook with cooking mother-my

4Examples given are D.P. because this has been more thoroughly analysed than the Imp.
4. Order of Unfocused Elements

While it is true that the object is generally deleted when it is presupposed information, it may on occasion be left undeleted:

(19) a. a tɛla waslaɛa na? 'who cooked the meat?'
    cook who meat int.

   b. a tɛla maɛa slaɛa 'my mother cooked the meat'
    cook mother-my meat

This can give an important clue to the basic word order, because when the verb is in focus, the subject and object (if both are present) are presumably both out of focus and thereby in their natural order, neither of them having been shifted to the focus slot. This is what we find:

(20) a. a ɛkɛla tawɛ maɛa a slaɛa na?
    do what mother-my with meat int.
    'what did my mother do with the meat?'

   b. a tɛla a ɛtɛ maɛa slaɛa
    make with cooking mother-my meat
    V S O
    'my mother cooked the meat'

This example shows that when the subject and object are both present and neither is in focus the subject precedes the object. This holds good also for beneficiary and locative focus:

(21) a. a tɛla tawɛ maɛa slaɛa na?
    cook for whom mother-my meat int.
    'for whom did my mother cook the meat?'

   b. a tɛla ta bala maɛa slaɛa
    cook for father-my mother-my meat
    'my mother cooked the meat for my father'

(22) a. a tɛla hawɛ maɛa slaɛa na?
    cook where mother-my meat int.
    'where did my mother cook the meat?'

   b. a tɛla da ykwɛduɛa maɛa slaɛa
    cook in kitchen mother-my meat
    'my mother cooked the meat in the kitchen'

It is clear, then, that the subject precedes the object when neither is
in focus. This confirms the VSO order, as found in the M.P. and in accordance with Greenberg's first universal principle. The VOS order of (7-10) is explicable if we consider that it is the object that bears the focus when the whole sentence is new information. Hyman [1979:2] claims that "the focus of a clause tends, in the expected case, to line up with the (direct) object position". That is to say, the expected place for introducing new information is in the object. It is therefore not surprising that Podoko uses the object-focus form even when the new information is included in more than just the object. VSO is then the basic order, but object focus is very frequent in the D.P. and Imp.

5. Conclusion

When the basic word order of a language is not clear, one cannot just fall back on generalisations from other languages, though of course these are not to be ignored. This paper has shown that a study of focus can contribute towards an understanding of the basic order. By establishing that the position immediately following the verb is the focus position, and by putting something other than the subject or object into this focus slot, one can find the unmarked, unfocused position of the subject and object relative to each other and to the verb.

This study may serve as a caution to linguists who are engaged in establishing the basic word order of a language. It is important to be aware of the possibility of putting the object in the focus slot when it is more than just the object that is new information. An apparently neutral declarative sentence may in fact have the object in focus position (usually before or after the verb) in order to mark itself as being entirely composed of new information. It is therefore essential to take note of the relative order of unfocused elements in a sentence where another element is clearly in focus, because it is only then that one can be sure that these elements really are out of focus. As has been shown in the case of Podoko, it may be the examination of the relative order of the unfocused elements in a sentence with focus that is the deciding factor in establishing the basic word order.
APPENDIX

Podoko Folktale, as told by Deva Dagudza

1. Tatapera mandza. 2. YSuta. 3. A nda nde Byngadana mude nesa. 4. Bakada nga (story) (speak) v.m. there-is certain old woman do she Yudza veshwa mena. 5. Zlegwakwa nga nda kwadambaya da defa. 6. YMana laki, little field her sow-into she pl. aubergine into it this part. gala kwadambaya. 7. YTata gala gala kwadambaya, ba dada de, "Da Ymbada vala grow aubergine after grow grow aubergine when go go(she) go gather it ye na," nga kena laki, a mbadela mbadela indala. 8. Yusesi kena zla sa I part. say she part. v.m. gather gather hyena tomorrow its again Ytsa nga zla sa. 9. "A da Ymbada vala ye na," nga kena laki, a mbadela come he again v.m. go gather it I part. say she part. v.m. gather mbadela indala. 10. Ba taha taha kwadambaya mena, "Da Ymbada vala ye na," gather hyena when ripe ripe aubergine her go gather it I part. nga kena laki, a mbadela mbadela indala. 11. A nda gera dzala say she part. v.m. gather gather hyena v.m. there-is equal hurt-to-her nga aka muda nesa la. 12. "A dada ye ninga," nga kena. 13. YKesa nga Yudza it to old woman not v.m. bush I today say she take she little Yvardanga mena, kena dada. 14. Kena Ykela segwasla. 15. YTawe YTawe YTawe axe her she bush she chop wood i.d.(chopping) Ykela segwasla mena, Ytsa Byngadana indala. 16. "A Ybake tawe ka waka chop(she) wood her come certain hyena v.m. do what you you Yhana na?" nga kena takina. 17. "A Ykela segwasla maya ya," nga mude nesa. here int. say he to-her v.m. chop wood my I say old woman 18. "Aya YTatana YTawe ka YTawi na na?" 19. A zlegada kwadambaya maya ya v.m. what cry you cry part. int. v.m. sow aubergine my I laki, ba kela 'Da Ymbada vala ye na,' nga ngaya laki, a mbadela mbadela part. when every gather it I part. say I part. v.m. gather gather indala." 20. "A Ybele Ymaka la. 21. Ba nda laki tida te ka hyena v.m. difficult that not if part. brew-for-me brew you duli waya laki, a Ykaseka Ykasa ya," nga indala takina. 22. A beer me part. v.m. catch-for-you catch I say hyena to-her v.m. zla ye ba Ykwata ba nda Ykasi ka," nga mude nesa takina. rejoice I part. much if catch-for-me you say old woman to-him 23. "Aya da su dasa ka na kiya na?" nga mude nesa. 24. "A da du v.m. go come-up when you part. part. int. say old woman v.m. go go-up
25"Aya," nga mude nesa. 26Ng’e mude nesa da Ytsa. 27Tada I tomorrow alright say old woman f.s. old woman go home brew mude nesa dula. 28Teta talada te ndi dula, ake su old woman beer after brew-for-him brew one beer suddenly come-up indala. 29A du de indala laki, "Hawe na?" nga indala takina. 30"Nga hyena v.m. go-up go hyena part. where int. say hyena to-her here ina hanga," nga mude nesa. 31Ya ndi dula. 32Selu nga. 33Kene da it here say old woman give one beer drink he he go hena hen da vahwe kwadambaya. 34Kweda hena hena Yhakenga, lie-down lie-down in field aubergine while lie lie(he) there ak’e Ytsa Ng’e indala. 35Ytsa ndi sa kwadambaya nga tehe teha zla suddenly come certain hyena come one to aubergine this ripe ripe again laki, Yfawelu ndi Yfawelu ndi kwadambaya. 36Ndake nga ndi laki, part. put-up one put-up one aubergine id.(turn and see) say one part. a ndzi Ng’e Ytakwase Ylalala. 37"Kayo! Mawe Ydala Ytakwase Ymane na? v.m. stay certain thing id.(drip) oh what good thing this int. 38Nda gera tsari mena la nanga. 39A tapa tape ya," nga nda. there-is equal good not part. v.m. taste taste I say one 40Ylemade nga ndi tapa nga laki, a nda gera tsari mena la. id.(lick) say one taste he part. v.m. there-is equal good its not 41"A Yzase yze ya duwa, ngaye tapa nga Ywala Ywala," v.m. approach-under approach I go-up so-that-I taste it really really nga nda. 42Aseduke nga ndi dekwa nga da zadara. 43Nderezhe nga ndi say one id. say one go-into he into bottom id.(squeeze) say one ngwadelu nga a zadara. 44Teta ngwadelu ngwade ndi laki, "Mude nesa, Ytsa bind-him he on bottom after bind-him bind one part. old woman come Ytsa na. 45Ya kesa kesa ya mazlamena," nga ndi taka mude nesa. come part. v.m. catch catch I now say one to old woman 46"Ytsa Ytsa ba a Ymekwetsa maka ka Yndelala kwara ba a zadara," come part. v.m. knife your you cut-to-him neck part. on bottom nga nda. 47"Aya," nga mude nesa. 48Ytsa nga a Ymekwetsa. 49"Ka say one alright say old woman come she with knife let-me Ypelakese nga na; bi a ndela a ndeli ka," nga ndi takina. release-to-you it part. perhaps v.m. cut with cutting you say one to-her 50"Ahala. A Ykese ya a Ykedi la. 51Sayo ba Ydzerela maya Ymane no v.m. kill I with killing not only part. see I this Ytakwase yze kwadambaye maya” nga mude nesa. 52"Aya degiya a da piya thing lose aubergine my say old woman (warning) v.m. fut. hold ka la," nga ndi taka mude nesa. 53"A piya piya ya," nga kena. 54YMANe you not say one to old woman v.m. hold hold I say she this laki, "Aye ka Ypelakese nga na," nga nda. 55"Aya," nga part. v.m. let-me release-to-you it part. say one alright say
mude nesa. 56 Yengo mude nesa zadara. 57 Tase nga ndi Yelalase old woman place old woman bottom id.(release) say one release-
nga laki, kwape nga mude nesa da hala. 58 Yndaka Ydangwa dangwangwa to-her he part. id.(fall) say old woman to ground then id.(roll)
nga mude nesa da hala. 59 Nga ma sa walakada wale ya la na say old woman to ground here part. past speak-to-you speak I not part.
na? nga indala takina. 60 "Ba dzire udzare maya," nga kena. 61 "Ayeh int. say hyena to-her part. truth child my say she v.m.
Gakavade kena ya mazlamena na kiya na?" nga kena. 62 "Saye zla ka do how I now part. part. int. say she only again you
Ybedase ti Yngade dula. 63 Lekwetu ngaye da mba Ykesekwa nga na," repeat brew other beer then I fut. can catch-for-you it part.
nga indala takina zlaSa. 64 "Aya," nga kena. 65 Tada nga duli zlaSa. say hyena to-her again alright say she brew she beer again
66 Ytsa indala nga kwetera. 67 Yelu nga. 68 Hena nga de yehwe kwedambaye come hyena that one drink he lie-down he in field aubergine
zlaSa. 69 Yengo nga zadara nga duli nga yafi saha de zadara again place he bottom so-that beer that drip down-from in bottom
Ylalalalalalala. 70 Ytsa ndi zlaSa laki, tapa nda. 71 "Kayel Ymanenga id.(drip) come one again part. taste one oh this
Ytakwase Ymane sa kesI Ykeso zlaSa degiye," nga nda. 72 Ba tapa thing this past catch-me catch again part. say one part. taste
tape nda, tsara. 73 Ba tapa tape nda, tsara. 74 "Ayeye taste one good part. taste one good v.m. approach-under
Yse ya du zla laki, nda gera tsari mena la." 75 Aseduke nga approach I go-up again part. there-is equal good its not id. say
ndi dekwa nga zla laki, nderze nga ndi ngwadalu nga a zadara. one go-into he again part. id.(squeeze) say one bind-him he on bottom
76 "Ya kesa keso ya mazlamena na. 77 Ytsa ytsa ba a Ymekwetsa v.m. catch catch I now part. come part. with knife
maka," nga ndi taka mude nesa. 78 Nge mude nesa Ytsa ba a Ymekwetsa your say one to old woman f.s. old woman come part. with knife
mena. 79 Yndelale mude nesa kwara ake indala kenga. 80 Yndaka kesa ndi her cut-to-him old woman neck to hyena that then catch one
mazlamena indala ha Yratsela meta indala. 81 Aywatsara Yndaka mude now hyena until cut they hyena v.m. find thus old
mene ake kwedambaye mena. 82 Ha kene Ymbadawo nga mazlamena. 83 Dzibazla woman to aubergine her until she gather it now
fetela.
tail
Translation

1I'm going to tell you a story.

2"Speak!"

3There was a certain old woman. 4-5She made her little field and sowed aubergines in it. 6The aubergines grew. 7When the aubergines had grown, she said, "I'm going to pick them," but the hyena had already picked them. 8The next day he came again. 9"I'm going to pick them," she said, but the hyena had already picked them. 10When her aubergines had ripened she said that she was going to pick them, but the hyena had already picked them. 11The old woman was very upset. 12"I'm going to the bush today," she said. 13She took her little axe and went to the bush. 14-16She was chopping her wood. A certain hyena came and said to her, "What are you doing here?" 17"I'm chopping my wood," said the old woman. 18"Why are you crying?" 19"I sowed some aubergines, and every time I go to pick them the hyena has already picked them." 20"That's no problem. 21If you brew me some beer I'll catch him for you," said the hyena to her. 22"I'll be very happy if you do catch him for me," she replied. 23"When will you come up?" 24"I'll come tomorrow." 25-26"Alright," said the old woman, and went home.

27The old woman brewed some beer. 28When she had brewed the beer the hyena came straight up. 29When he arrived he asked where the beer was. 30"Here it is," said the old woman. 31-33She gave it to him, he drank it up and went to lie down in the field of aubergines.

34While he was lying there the other hyena suddenly arrived. 35He came to those ripe aubergines again and stuffed them into his mouth. 36He looked round and saw something dripping. [The beer was dripping from the rump of the other hyena.] 37"What's this good thing?" 38It's very good. 39"I'm going to taste it," he said. 40"So he tasted it, and it was very good. 41"I'm going to go up closer in order really to taste it," he said. 42-43He entered into his bowels and got trapped. 44-45The one who had caught him cried out to the old woman, "Old woman, come, I've caught him now! 46Bring your knife so that you can cut his throat on my rump." 47-48"Alright," said the old woman, and came with her knife. 49"Let me release him for you. Perhaps you will be able to cut him," he said to her. 50-51"No, I won't kill this thing that's been destroying my aubergines without seeing him first," said the old woman. 52"But you won't be able to hold him," he told her. 53"I will hold him," she said. 54"I'll let him out for you then," he said. 55"Alright," said the old woman. 56She stood behind him. 57-58He let him out, but she fell down and rolled on the ground. 59"There! What did I tell you?" the hyena said to her. 60"It's true, my child," she said. 61"What am I to do now?" 62-63"Just brew another lot of beer and I'll be able to catch him for you again." 64"Alright," she said.

65-66She brewed some more beer and the hyena came. 67-68He drank it and went to lie down in the field of aubergines again. 69He positioned his rump so that the beer should drip down from it. 70The other hyena came again and tasted it. 71"This is the thing that got me caught before," he said. 72He tasted it; it was good. 73He tasted it; it was good. 74"I'm going up closer again, it's so good." 75He entered into his bowels again and got caught.
"I've caught him now! Come with your knife!" called the captor to the old woman. She came with her knife and cut the throat of that hyena. So they caught him now and cut him into pieces. That's how the old woman rescued her aubergines. Now she can pick them. The end.

REFERENCES


TONAL ACCENT IN SOMALI

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The issue of whether Somali is a tone language or not has been a matter of controversy for several decades. In this paper it is demonstrated that Somali is a tonal accent language, i.e. a language which (a) assigns accents to vowels (rather than syllables), and (b) realizes these accents as an invariant H tone. The language also allows, under specifiable conditions, words totally lacking an accent, another common characteristic of tonal accent languages. The model developed in this study includes rules of accent placement (on either the final or penultimate vowel of a word), accent modification (shifts, reductions), and tone and pitch assignment.

O. Introduction

Since the earliest grammatical studies on Somali, a Cushitic language spoken in Somalia, Djibouti, and parts of Ethiopia and Kenya, there has been a confusing exchange of ideas and words on the subject of whether Somali is a tone language.¹ As is typical of many early grammatical descriptions of African languages, the earliest accounts of Somali do not mark—and usually do

¹This paper is a preliminary study based on an intensive two week investigation of the Somali tonal accent system at the University of Roma, June, 1980. During this period I was helped and guided through the grammar of Somali by several members of the Somali Language Project and would like to express my gratitude to Francesco Antinucci, Bianca Maria Bruno, Lucyna Gebert, and Annarita Puglielli for all they did to make this study possible. Although I have profited greatly from the literature on Somali, especially the important work of Prof. B. W. Andrzejewski, all of the data presented in this work are based on the speech of Mr. Ahmed F. Ali "Idaajaa" from Gaalkacyo, Mudug Region. Without Idaajaa's insights, patience, and interest in this project, we would not have been able to accomplish the work summarized in this paper. My sincerest thanks to him and also to Mssrs. Abdalla Omar Mansur and Issa Mohamed, who on occasion attended our sessions and provided additional information. Research was supported in part by a Guggenheim Fellowship. This paper will appear in Italian translation in a report by the Somali Language Project, Rome.
not mention—tone, e.g. Kirk [1905:2], who uses the accent mark (‘) "to express the long drawn sounds of each vowel". Some early grammars mention a predominantly penultimate placement of accent in Somali [Hunter 1880:6, Reinisch 1903:28-29]. It was, however, not until Armstrong's [1934] pioneering work on the phonetics of Somali that the tonal nature of this accent was fully explored. In her study, Armstrong distinguishes four main "word tones" (high level, mid level, low level, and falling). She indicates a close connection between tone and stress, stating, "In words of more than one syllable strong stress is given to the syllable pronounced with high level or falling pitch" [p.147]. While Armstrong thus takes the position that tone is primary and "stress" secondary, Klinghenheben [1949] takes a nearly opposite view and emphasizes the accentual nature of the high and falling tones. For Klinghenheben, accent is primary and tone secondary. He concludes, "Das Somali gehört also nicht zu den echten Tonsprachen im phonologisch allein zu rechtfertigenden Sinn, sondern zu den Starktonsprachen..." [p.303]. Somali is not to be grouped with African tone languages such as Ewe, Vai, or Zulu, but rather with European accent languages such as German and English.

Despite Klinghenheben's insightful typology of Somali as an accentual language, subsequent work has been almost exclusively concerned with Somali as a tone language. Although Armstrong's observation of the close relationship between high and falling tones, on the one hand, and stress on the other, is restated as "two types of strong stress" by Jones [1950:189], Abraham [1964] and Andrzejewski [1956; n.d.] do not emphasize the underlying accentual nature of these tonal accents.

The purpose of the present paper is to provide a formal account of Somali as a tonal accent system. In the following paragraphs I shall argue that most underlying forms are marked neither for accent nor tone. It will be shown that accents are introduced by morphological rules which are sensitive to grammatical categories, features, and construction types. At an abstract level these accents have no tonal correlates. After the application of a number of accent reduction and shifting rules, the surviving accents receive tonal specifications and integer pitch values according to rules sensitive to accentual phrase boundaries. The paper concludes with a brief discussion on the typology of the Somali tonal accent system and its implications for fur-
Tonal Accent in Somali

1. Surface Tone Patterns

Phonetically, Somali clearly contrasts high (H) and low (L) tones. It is therefore appropriate to begin by considering the different tonal patterns found on the surface. We shall first discuss nouns (1.1), then verbs (1.2), and finally, other word classes and particles (1.3).

1.1. Nouns. From the earliest discussion of prosodic oppositions in Somali, whether the author(s) favored an accentual or a tonal interpretation, it has been observed that masculine and feminine nouns display different pitch properties. A frequent minimal pair cited in the literature is ínnan 'son, boy' vs. ínán 'daughter, girl'. In this pair the masculine member has a H tone on its penultimate vowel, while the feminine member has a H tone on its final vowel. A similar opposition is sometimes found among singular/plural pairs, e.g. éí 'dog' vs. ef 'dogs'. (Interestingly, 'dog' takes masculine agreement, while 'dogs' takes feminine agreement.) In these and all examples in this study, the accent mark (') indicates H tone (as well as accent), while the absence of such a mark indicates L tone (and lack of accent). In isolated words, L tones will be realized one pitch level lower than a following H, and two pitch levels lower than a preceding H (but cf. section 5 below). Thus, if we let the integer "1" indicate the highest pitch level, 'son' and 'dog' will be realized with 1-3 pitch, while 'daughter' and 'dogs' will be realized with 2-1 pitch.

Further examination of nouns in Somali indicate that there must be one, and never more than one, H tone per noun in isolation. Representative examples are given in the table in (1) on the next page. The nouns in (1) are arranged in two groups: (a) those whose tonal alternations represent a masculine/feminine distinction; and (b) those whose tonal alternations represent a singular/plural distinction. Nouns of varying length and syllable structure are represented.2 It is observed that there are two patterns for placing

2Standard Somali orthography is used, as established by the Somali National Language Commission in 1972, with one exception: Vy and Vw sequences are written Vi and Vu in monosyllabic words in order to correctly predict
H tone: In the left hand column, consisting of masculine singular nouns, the H tone is placed on the penultimate vowel; in the right hand column, consisting of feminine singulars in (la) and plurals taking feminine agreement in (lb), the H tone is placed on the final vowel. While there are many examples illustrating these morphological alternations, not all nouns have mutable H placement of the tonal accent. (Tone is not marked in the standard orthography.) This allows us to generalize the pattern of penultimate masculine and feminine accent in such forms as we'll 'male calf' vs. we'll 'female calf'. In addition, we avoid the need for a special accent mark denoting falling tone. Interestingly, Klingenstein [1949:300-301] records the above words as bisyllabic weyil vs. weyil. Perhaps all monosyllabic words with these sequences were once bisyllabic. In any case, present-day words with more than one syllable are transcribed with Vy and Vw. Otherwise, nouns such as árday 'student', which would be written árdai, would have an accent on the antepenultimate vowel. This convention, which we adopt for the purpose of accounting for the distribution of the tonal accents, is justified by our observation that there are no bisyllabic (or longer) words ending in Vy or Vw carrying a falling tone. As is seen in the examples in (1), this is explained by the fact that the fall from H to L tone is possible only on a syllable having two vowels in sequence.
Tonal Accent in Somali

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tones. In general, however, masculine nouns have H tone on their penultim­ate vowel, while feminine nouns have H tone on their final vowel, a subject to which we shall return. Of course, if the noun in question has only one vowel, the H tone is predictably placed on that vowel. Such nouns are either masculine or feminine, e.g. nín 'man' vs. hál 'female camel'.

The nouns in (1) reveal that the so-called falling tone, which we mark \( \downarrow \), is restricted to word-final syllables containing a vowel sequence. This H to L fall in pitch occurring within the same syllable had been marked by a circumflex (\(^\wedge\)) accent by Armstrong and is marked by a grave (\(\acute{\text{v}}\)) accent in all of Andrzejewski's work. The advantages of representing this fall as a H tone placed on the first of two successive vowels are twofold. First, by maintaining a single unit of prominence (H tone) whose domain is the (single) vowel, the restriction of this falling tone to syllables containing a double vowel or vowel sequence is accounted for. Second, by analyzing a falling tone as a H tone vowel followed by a L tone vowel, we can capture morphologi­cal regularities such as the alternations represented in (1). Thus, the al­ternation between náll 'male lamb' vs. náll 'female lamb' becomes one of penultimate (masculine) vs. final (feminine) H tone, just as in the examples fnan and inán. Representations such as náyö or náyö only obscure this relationship.

In Armstrong's account of Somali tone, final H was left unmarked (cf. Wel­mer's 1952 description of Saho, another Cushitic language). Thus, we have the opposition in this analysis between /ínán/ 'son' vs. /ínán/ 'daughter'. Armstrong points out that 'daughter' and other such nouns, including all mono­vocalic nouns, e.g. her /nín/ 'man', are realized with mid pitch. While there is a possibility of lowering the pitch of a H tone directly preceding a pause,\(^3\) it is clear that there is a phonological H tone in such nouns, as has

\(^3\)This probably explains why Oomen [1981] describes monovocalic nouns as having mid tone (and no accent) in the Rendille dialect of Somali. This is the major difference between her analysis and ours. Andrzejewski (n.d.:1) relates this lowering to intonation: "In a sentence spoken in a normal unex­cited manner, pause (intermediate or final) is usually associated with the 'lowering' of the tonal level in the syllable which immediately precedes it ..."
been recognized in most work subsequent to Armstrong [1932].

1.2. Verbs. In Somali, as in many languages, it is difficult to establish what the correct citation form of a verb should be. Among the likely candidates are the imperative singular and infinitive forms illustrated in (2).

<table>
<thead>
<tr>
<th>Conjugation</th>
<th>Imperative</th>
<th>Infinitive</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>cún</td>
<td>cúni</td>
<td>'eat'</td>
</tr>
<tr>
<td>C1</td>
<td>kéén</td>
<td>keéni</td>
<td>'bring'</td>
</tr>
<tr>
<td>C2</td>
<td>kári</td>
<td>karín</td>
<td>'cook'</td>
</tr>
<tr>
<td>C2</td>
<td>joóji</td>
<td>joójín</td>
<td>'stop'</td>
</tr>
<tr>
<td>C3</td>
<td>dhaqsó</td>
<td>dhaqsán</td>
<td>'hurry'</td>
</tr>
<tr>
<td>C3</td>
<td>joogsó</td>
<td>joogsán</td>
<td>'stop'</td>
</tr>
</tbody>
</table>

Verbs are assigned to one of three conjugation classes (C1, C2, C3) according to the forms they take in various parts of the paradigm.4 As can be seen in (2), the first and second conjugations take a penultimate H, while the third conjugation takes a final H in the imperative. In the infinitive construction, the first conjugation takes a penultimate H, while the second and third conjugations take a final H. The imperative form cún 'eat!' has a H on its only vowel, although the plural form cún 'eat (pl.)!' shows the basic penultimate pattern of the construction (cf. keén 'bring (pl.)!', where the H has "moved" one vowel to the right from the singular form so as to remain in penultimate position.)

The forms in (2) thus show that verbs have the same tonal capacities as nouns: H tone occurs on either the penultimate or final vowel. Whereas in nouns this H tone is placed according to gender, number, and declension class (see section 3 below), H tones are placed on verbs according to modality, construction type (main vs. relative clause), and conjugation class. We shall see below that most negatives and all relative clauses are characterized by a final H tone. Verb stems do not themselves show a tonal contrast.

---

4In addition to the three major conjugation classes of verbs, there is a fourth conjugation class consisting of adjectival verbs [Andrzejewski 1956: 118]. These are not treated in this study.
Two factors complicate the above restriction of H tone to the last two vowels of the verb form. The first is that many verb forms occur without a H tone, as seen in (3).

(3) nfn-ku abees waa dilay 'the man killed a python'
    man-the python IND kill/PAST

Typically, indicative affirmative present and past forms occur without a H tone in main clauses. As we shall see in section 3.2, verbal constructions lacking a H tone are exempt from the accent assignment rules.

The second complication is found in progressive forms, which are of considerable morphological complexity. Representative examples of the three conjugation classes are given in the present progressive in (4).

(4) a. C1 : waan keénayaa 'I am bringing (it)'
    b. C2 : waan karfnayaa 'I am cooking (it)'
    c. C3 : waan dhaqsánayaa 'I am hurrying'

This construction is formed by adding the present or past forms of the defective verb ah 'to be' to the infinitive verb forms (with deletion of -i in C1 forms). The C1 form in (4a), for example, comes from *keēni + ahayaa and is realized dialectically as keēnahayaa. The forms in (4) are thus contractions. In order to preserve the restriction of H tone to one of the last two vowels of a word, we shall assume that these forms have an internal word boundary ( # ) to which the relevant accent placement rule is sensitive (cf. section 3.2, where it is shown that this internal boundary also accounts for the occasional occurrence of two H tones in progressive forms).

1.3. Other word classes; particles. The generalizations found to hold for H tone placement in nouns and verbs find few exceptions in other word classes. Adjectives are a separate (fourth) conjugation class of verbs, and numerals are nouns. They therefore are characterized by the tonal patterns seen above, as are pronouns, adverbs, etc.

---

5Andrzejewski [1956:123] refers to work by M. M. Morena indicating that the progressive form is based on the auxiliary form *hay , which would be the C2 form of the verb 'to be'.
In addition to the above word classes, Somali is a language rich in particles. There are, for example, no fewer than six positions for the appropriate elements to occur before the verb. The following summary of these positions in (5) has been provided by Francesco Antinucci.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>soo</td>
<td>waa</td>
<td>la</td>
<td>i</td>
<td>u</td>
<td>mà</td>
</tr>
<tr>
<td>ma</td>
<td>etc.</td>
<td>ku</td>
<td>ka</td>
<td>sii</td>
<td></td>
</tr>
<tr>
<td>ha</td>
<td>is</td>
<td>la</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc.</td>
<td>etc.</td>
<td>ku</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1: indicators (focused modality markers)
2: impersonal subject marker + short subject pronouns
3: object pronouns
4: prepositions
5: negation marker
6: deictic markers

This chart provides the basic patterns of pre-verbal elements. It indicates also that only the negative marker mà (position 5) has an underlying H tone. In combining these particles, however, one may find that an additional H tone is introduced. Thus, consider the pair of sentences in (6).

(6) a. waa keenay 'he brought (it)'
   b. waa keénayaa 'he is bringing (it)'

The indicator /waa/ marks verb focus in declarative indicative main clauses. In (6a) it has a penultimate H tone, while in (6b) it has no H tone. We have indicated in (5) that indicators underlyingly have no H tone. Thus, a rule will be needed to introduce the H seen in 'he brought (it)'. This rule, which is formalized in section 3.3 below, is straightforward: "if there is no H tone in the verbal complex (particles + verb, abbreviated VC), put a penultimate H on its indicator (if present)." Thus, /waa/ gets a H tone in (6a) because the past tense verb form keenay has no H tone, while it does not get a H tone in (6b) because the present progressive verb form keénayaa has a H tone. Andrzejewski [1975] marks the tone of particles which alternate between H and L with a mark ' , e.g. waa'. Since the subject and object pronouns in positions 2 and 3 never get a H tone, Andrzejewski does not use this mark for these forms. It should be noted, however, that the independent,
self-standing pronouns which have the definite article suffixed to them take a penultimate H tone, e.g. anígä 'me', adígä 'you sg.', etc.

2. An Accentual Approach

The above discussion indicates that although Somali has H and L tone (with a mid level being predictable from the surrounding context), the distribution of one of these tones, the H tone, is extremely limited: a word can have only one H tone, and this H tone can occur only on a penultimate or final vowel. Because every noun, verb, and other non-particle must have a H tone, which can, according to rules spelled out in section 4, be reduced, the H tone has the same "culminative" property found in non-tonal accentual languages. An explanatory account of tone in Somali, therefore, must reveal not only the surface tonal nature of the H tone, but also its accentual identity with the stress-accent found in English and other languages. We therefore propose that at an abstract level the prosodic system is accentual and non-tonal. In providing the rules assigning and modifying the Somali accents, we shall follow the conventions of autosegmental phonology [Goldsmith 1976a,b] and use the asterisk ( * ) to stand for the feature specification [+accent]. Absence of accent will be represented by the symbol ( ´ ), which thus stands for [-accent]. We shall continue to use the acute ( ` ) accent in citing Somali forms, taking note of its prosodic ambiguity: V stands for a vowel which is both [+accent] and is characterized by H tone. The proper autosegmental representation would therefore be V * H

Since * is used for both Somali and English, the essential accentual nature of Somali H tone and English stress is revealed. Their differences relate to how the accents are assigned and how they receive their pitch specifications. Accent in Somali is clearly a property of the vowel (or mora), while it is a property of syllables in English. Concerning surface pitch realizations, Leben [1976] and Goldsmith [1976a] have shown that English intonation melodies associate according to where asterisks occur. In Somali, on the other hand, the H which is assigned by rule to each * is not an intonational melody, but rather a constant phonetic property of the accent itself. In Hyman [1977, 1978] I argued that definitionally stress accents have no inherent
pitch properties of their own, but rather receive all of their prosodic realization from the physical properties of the intonational patterns under which they occur. Tonal accents definitionally have an isolatable physical pitch property of their own which cannot be related in any way to intonation. Thus, in English, the intonational melody (and hence, the realization of stress accent) will change according to whether an utterance is a statement or question. In Somali, as is usual in tonal accent languages, there is no separate interrogative intonation pattern (or melody), as seen in a comparison of the two sentences in (7).

(7) a. waa áxmed 'it's Axmed'
    b. ma áxmed baa 'is it Axmed?'

In each case the only H tone is on the penultimate vowel of /áxmed/. There is no change of pitch, and no pitch rise at the end of the utterance as there is in English and many other languages. Instead, the declarative vs. interrogative nature of these utterances is effected through "indicator particles" [Andrzejewski 1975]. In (7a), /waa/ is the indicator particle marking declarative indicative affirmative verb focus. In (7b), /baa/ is the noun focus marker and /ma/ is an interrogative marker (bearing interesting resemblance to one of the negation markers—which, however, differs in tone and position—cf. (5) above).

Having assumed, then, that Somali is a (tonal) accent language, we shall now present a formal analysis of the system. In section 3 we shall present the morphological rules of accent assignment. This will be followed in section 4 by the morphophonemic rules of accent modification, which either reduce or shift the accents assigned in section 3. In section 5 the phonetic rules assigning integer pitch levels will be given. We conclude in section 6 by considering the implications of these findings and suggestions for further research.

3. Accent Assignment

As can be inferred from the discussion in section 1, the occurrence and location of accents is highly dependent on grammatical features. In nouns, accents can be predicted on the basis of gender and, as we shall see, declension class and construction type. In verbs, accents can be predicted on the
basis of modality, conjugation class, and construction type. The rules of accent assignment introduced in this section are morphological in nature. Their function is to rewrite grammatical and lexical features with phonological and accentual features. Thus, for example, the verb form in the utterance áxmed má keenín 'Axmed didn't bring (it)' consists of the verb stem /keen/ 'bring' and the feature specifications [+past, +negative]. It is these features which will be spelled out by morphological rule as */-ín/.

While these morphological rewrite rules must introduce segments as well as accents, we shall be concerned only with accents in this study. Thus, we shall abstract away the accentual patterns in the absence of a fully worked out morphological analysis. In a second sense the analysis offered here is incomplete. There are certain parts of the grammar that are not covered. This is mostly because we were not able to study the accentual patterns of all grammatical constructions, although what we cover here includes all of the major and basic constructions and word classes. Thus, for example, we treat the C1, C2, and C3 verb classes, but not the C4 adjectival verbs or irregular verbs.

In the following subsections we shall provide the accent assignment rules first for nouns, then for verbs, and finally, for particles.

3.1. Nouns. In order to predict noun accents, it is necessary to introduce the declension system in Somali. Andrzejewski [1964, 1979] has proposed as many as ten declension classes in nouns. In our study we have not found the need to differentiate any more than three declensions, which are illustrated and defined in the table in (8) on the next page. In the defining characteristics we have separated the accent assignment properties in (a) from the accent modification properties in (b). We shall discuss only the first properties here, since accent modification is treated in section 4.

The first declension (D1) has both masculine and feminine nouns and com-

---

6In some cases we feel that Andrzejewski overdifferentiates; also some of his declension classes have few members. After having completed this paper, it seems that I also may have overdifferentiated. Douglas Biber has pointed out to me that D1 and D2 nouns differ only in final syllable structure: D1 nouns end in a consonant while D2 nouns end in a vowel (D3 nouns remain true exceptions).


<table>
<thead>
<tr>
<th>Decl.</th>
<th>Gender</th>
<th>Andrzejewski</th>
<th>Example</th>
<th>Defining characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>m.</td>
<td>1,2,3</td>
<td>fnan 'son'</td>
<td>a) * is pen. if m., final if f.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>b) * is reduced when subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(f. has -i subject case marker)</td>
</tr>
<tr>
<td>D1</td>
<td>f.</td>
<td>4</td>
<td>inán 'daughter'</td>
<td>a) * is pen. (m. ends in -e, f. ends in -o)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>b) * becomes final if obj. [-focus] or modified</td>
</tr>
<tr>
<td>D2</td>
<td>m.</td>
<td>5</td>
<td>waraabe 'hyena'</td>
<td>a) * is pen.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>b) * is reduced when subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>and (optionally) when object [-focus]</td>
</tr>
<tr>
<td>D2</td>
<td>f.</td>
<td>5</td>
<td>abeeso 'python'</td>
<td>a) * is reduced</td>
</tr>
<tr>
<td>D3</td>
<td>m.</td>
<td>6</td>
<td>haween 'women'</td>
<td>a) * is final</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>b) * is reduced when subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>and (optionally) when object [-focus]</td>
</tr>
</tbody>
</table>

prises the majority of Somali nouns, including all of those seen earlier in (1). It corresponds to Andrzejewski's declensions 1-4. As indicated, masculine nouns receive a penultimate accent, while feminine nouns receive a final accent. It should be noted that plurals occur in D1 (as well as D3). Since they are specified either as masculine or feminine, they will follow the general pattern of the class for accent assignment.

The second declension (D2) also has both masculine and feminine nouns, although it contains no plurals. It corresponds to Andrzejewski's declension 5, where masculine nouns end in the suffix -e, and feminine nouns end in -o. As indicated, D2 nouns take penultimate accent.

The third declension (D3) consists solely of masculine nouns (including masculine plurals). The nouns in this class correspond to Andrzejewski's declension 6, including on the one hand plurals ending in -Caal, and on the other hand, a limited number of exceptional nouns, some of which are clearly borrowings. As indicated, D3 nouns take a final accent.7

As just described, the regular pattern of D1 masculine penultimate accent and feminine final accent is violated in two directions: D2 feminine nouns take penultimate accent and the exclusively masculine D3 nouns take final accent.

7Andrzejewski [1964:35-38] provides a nearly exhaustive list of the exceptional D3 nouns which are not plurals. We have found that in the speech of our primary language consultant, the following of these are exceptionally pronounced with penultimate accent: addúun 'world, wealth', gőrgor 'vulture', jíir 'rat', nádi 'whip (archaic)', and sabàan 'time, season'.
cent. The rules needed to assign accent to nouns are now provided in (9).

\[(9)\]
\[
\begin{align*}
\text{a. } & \quad \ast \rightarrow \ast / \text{V}(C) \# \]
\[
\begin{cases}
\text{D1 f.} \\
\text{D3} \\
\text{N \([+\text{gen}[\text{NP}\} \\
\text{Dem.} \\
\text{Poss./Pron.} \\
\text{'which'}
\end{cases}
\end{align*}
\]

\[
\begin{align*}
\text{b. } & \quad \ast \rightarrow \ast / \text{V}(C) \# \]
\[
\begin{cases}
\text{D1 m.} \\
\text{D2}
\end{cases}
\end{align*}
\]

Rule \((9a)\) assigns a final accent to D1 feminine and all D3 nouns. In addition, it assigns a final accent to a genitive noun occurring unmodified, i.e. when occurring as the last element of its noun phrase, as well as assigning final * to demonstratives, possessives (and other personal pronouns), and the interrogative modifier 'which'. These last four environments are illustrated in (10).

\[(10)\]
\[
\begin{align*}
\text{a. } & \quad \text{geed will} \quad \text{'a tree of a boy'} (\text{cf. wîl 'boy'}) \\
\text{b. } & \quad \text{geed kaàs} \quad \text{'that tree'} \\
\text{c. } & \quad \text{geed kaî(ga)} \quad \text{'my tree'} \\
\text{d. } & \quad \text{geed keé} \quad \text{'which tree'}
\end{align*}
\]

The D1 masculine noun \text{geed} 'tree' is assigned penultimate accent by rule \((9b)\) (although this accent is reduced in (10d) by a rule introduced in section 4). In (10a), the genitive noun 'boy' receives final accent, since it is not modified by any element in its noun phrase. As a non-genitive noun it would have received penultimate accent by rule \((9b)\). The remaining forms in (10) show final accent on a demonstrative, a possessive (ignoring the definite article, which is normally suffixed to it), and the interrogative 'which'.

Rule \((9b)\) assigns penultimate accent to D1 masculine nouns and to all D2 nouns. Because rule \((9a)\) is ordered before rule \((9b)\), a D1 masculine or a D2 noun which is \([+\text{genitive}]\) and final in its NP will first be affected by \((9a)\) and hence receive final accent, e.g. \text{geed waraabé} 'a tree of a hyena'. The

The same pattern applies to self-standing personal pronouns, where an accent is assigned to the final vowel preceding the definite article, e.g. \text{aní-ga} 'me', \text{adí-ga} 'you sg.', etc.
rules are designed with complementary environments so that only one of them can apply to any given form. Note that all full words found within the noun phrase receive an accent from one of the two rules in (9). Forms within the NP which do not satisfy the structural description of either rule are not full words and therefore do not get an accent, e.g. the definite articles ka (m.) and ta (f.).

3.2. Verbs. In contrast to nouns, some verb forms are unaccented and yet have full word status. The non-relative present and past tenses do not take an accent in the affirmative, as seen in the examples in (11).

(11) a. wáa keenaa 'he brings (it)'
    b. wáa keenay 'he brought (it)'

Thus, the rules for verb accent assignment must be written in such a way that these forms are not affected by them. By convention, any form which is not assigned an accent by rule is accentless.

Verb accent can be assigned by means of the three rules in (12).

(12) a. $o \rightarrow * / \bar{V} (C) \# \}$
    \{inf. C2, C3
    \{sg. imp. aff. C3

    b. $o \rightarrow * / \bar{V} C_o (V(C)) \# \}$
    \{inf. C1
    \{imp.
    \{lp, 2p. aff. opt.
    \{neg. opt.

    c. $o \rightarrow * / \bar{V} ((V)C) \# \}$
    \{neg.
    \{rel.

Rules (12a) and (12b) assign accent to infinitive, imperative and optative forms. As indicated, these two rules are sensitive to mood and, in some cases, to polarity, person, number, and conjugation class. We saw in the infinitive forms in (2) above that C2 and C3 infinitives receive final accent, while C1 infinitives receive penultimate accent. This is accomplished, respectively, by rules (12a) and (12b). Turning to accent in the imperative, the relevant affirmative/negative and singular/plural forms are given for the three conjugation classes in (13).
(13) a. affirmative

<table>
<thead>
<tr>
<th></th>
<th>Cl</th>
<th>C2</th>
<th>C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>sg.</td>
<td>keen</td>
<td>sii</td>
<td>baró</td>
</tr>
<tr>
<td>pl.</td>
<td>keená</td>
<td>sífya</td>
<td>bárta</td>
</tr>
</tbody>
</table>

b. negative

<table>
<thead>
<tr>
<th></th>
<th>C2</th>
<th>C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>sg.</td>
<td>ha keenín</td>
<td>ha sínnín</td>
</tr>
<tr>
<td>pl.</td>
<td>ha keénína</td>
<td>ha siiNNína</td>
</tr>
</tbody>
</table>

The verb stems represented in (13) are Cl /keen/ 'bring' and /arag/ 'see', C2 /sii/ 'give' and /šaqee/ 'work', and C3 /baro/ 'learn' and /joogso/ 'stop'. As seen in these examples, rule (12a) assigns an accent to the final vowel of the singular affirmative imperative of C3 verbs in (13a). All other affirmative imperative forms, as well as all negative imperative forms of all conjugation classes, receive penultimate accent from rule (12b).⁹

Concerning the optative mood, affirmative forms are given in (14) for the Cl verb /keen/ 'bring'.¹⁰

(14) aan keéno 'let me bring' aínu keéño 'let us incl. bring'
    aad keéntid 'may you sg. bring' aannu keéndo 'let us excl. bring'
    há keeno 'let him bring' aad keénten 'may you pl. bring'
    há keento 'let her bring' há keémente 'let them bring'

As assigned by rule (12b), the first and second person forms have a penultimate accent. The third person forms, however, have an accented indicator há followed by verb forms lacking an accent. As can be seen, none of the rules in (12) affect third person optative affirmatives. The desired accentless verb form is therefore obtained. All negative optatives have penultimate accent, as was the case for negative imperatives. In (15), representative negative imperative and optative forms are given from the three conjugation

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⁹In some cases the penultimate accent of negative imperative forms may be obscured by an optional deletion of the final -nin, e.g. ha baránnín + ha barán 'don't learn!'.

¹⁰Since we neglected to study them ourselves, the second person forms in (14) are taken from Andrzejewski [1956:127]. In his listing of these forms, Andrzejewski indicates the second person plural form with antepenultimate accent, i.e. aad keénten. However, in the table he gives on p.110, he indicates that this form should have penultimate accent, as we have transcribed in (14). We assume an error on p.127.
classes.

(15) C1: ha keenin 'don't bring'  yaanan keenin 'let me not bring'
     C2: ha sifnnin 'don't give'  yaanan sifnnin 'let me not give'
     C3: ha barannin 'don't learn'  yaanan barannin 'let me not learn'

The same invariant negative verb forms are used for both constructions. The indicator ha in the negative imperative forms in (15) is clearly the same morpheme as the indicator seen in (14) in third person affirmative optatives. The difference in accent is completely predictable from rule (20b) below.

Rules (12a,b) are clearly identical to rules (9a,b), which were proposed for nouns. Not only are they identical, but they also can be ordered identically: final accent assignment precedes penultimate accent assignment. Verbs differ from nouns, however, in possessing a third rule, that given in (12c). This rule generally assigns final accent, but if the word in question ends with a syllable of the shape CVVC, penultimate accent is assigned. Representative forms are given for the present negative in (16) and the past relative in (17).

(16) a. mà keenô 'I do not bring (it)'
     b. mà keenáan 'they do not bring (it)'

(17) a. wîl kîf aan keenáy 'the boy that I brought'
     b. wîl kîf ai keenáan 'the boy that they brought'

By (12c) we obtain a final accent in (16a) and (17a), but a penultimate accent in (16b) and (17b).

We have said that the rules in (12) are specified such that a verb form may undergo one or none of them. It is possible also for at least some fused verb forms to undergo (12a) and one of the other two rules, as seen in the examples in (18).

(18) a. mà keéni-hayô → mà keénayô 'I am not bringing (it)'
     b. wîl kîf aan keénayay 'the boy that I was bringing'

In progressive negative and relative forms two accents are found on one complex verb form. The historical derivation is clear and is indicated for (18a) (cf. note 5). Rule (12a) assigns the appropriate infinitive accent on the
main verb (here, keéni), and rule (12c) assigns final accent to the conjugated auxiliary verb ah 'to be'. When fusion occurs (as is normally the case), the result is two accents on one form. It is interesting to note that no such double operation of accent assignment occurs in nouns. 11

Before moving on to particles, it should be noted that Andrzejewski [1956, 1968] cites a few verb modalities that are not addressed here. They can easily be incorporated into our rules. Among these is the so-called independent paradigm of the past tense. Andrzejewski [1956:126] lists the following forms, which can stand alone without a subject pronoun or indicator:

(19) keenay 'I brought' keénay 'we brought'
     keéntay 'you sg. brought' keenté 'you pl. brought'
     keen 'he brought' keené 'they brought'
     keéntay 'she brought'

Accent is assigned penultimately, except for the second person plural and the third person singular and plural forms, which have final accent. This pattern is not duplicated elsewhere in the language.

3.3. Particles. Accent is assigned on the appropriate pre-verbal particles by the two rules in (20).

(20) a. *V ]prep X verb[ (where X does not contain an *)
     b. *V(V] ind X ]verb (where X does not contain an *)

These rules are somewhat more complicated (and are of a different nature) than those seen earlier in (9) and (12). Rule (20a) says that the final (= only) vowel of a preposition will receive an accent if there is no accent intervening between it and the verb. The relevant alternations are seen in (21).

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11 A possible exception to this statement comes from vocatives. We have recorded both idaajayóu and idaajayóu for the vocative form of the name idaajáa. Rather than viewing this as two accents on the same noun form, we believe that there is a vocative intonation superimposed on the second variant, such that the H tone of the vocative suffix -(y)óu can be anticipated on a preceding vowel.
In these examples the preposition /u/ means 'to'. This preposition receives an accent in (21a), where it immediately precedes the unaccented verb, but it does not receive an accent in (21b), where there is an accented negative marker má occurring between the preposition and the verb. If the preposition is followed, even immediately, by an accent on the verb, it still acquires its own accent, e.g. áxmed lá cúnä 'eat (pl.) with Axmed!'. This suggests, perhaps, that positions 4 and 5 in (5) above combine to form one word capable of taking only one accent.

Rule (20b) says that an indicator (focus marker) will receive an accent if there is no other accent in the whole verbal complex, i.e. no accent on any particle or on the verb itself. The relevant forms to compare are seen in (22).

(22) a. wäa keenay 'he brought (it)'
    b. waa keénayay 'he was bringing (it)'
    c. há keeno 'let him bring (it)'
    d. ha ú keeno 'let him bring (it) to (him)'

In (22a) the indicator /waa/ is assigned a penultimate accent by rule (20b), since it is followed by all unaccented vowels. In (22b), however, where an infinitive accent has been assigned to the verb form keénayay, the structural description of (20b) is not met and the indicator therefore does not receive an accent. Thus, it is crucial that the verb accents be assigned prior to the assignment of particle accents. The same facts are observed in (22c), where the third person optative indicator /ha/ receives an accent, and (22d), where /ha/ does not receive an accent because of the accent of the preposition. Thus, rule (20a), which assigns accents to prepositions, must precede (20b).

The indicators which are known to be affected in this way by rule (20b) are /waa/ 'declarative indicative affirmative', /ha/ 'imperative negative, 3rd person optative', and /ma/ 'interrogative'.

12 We have not been able to study the accentual properties of the indicator
examples, the indicator /baa/, which marks noun focus, works in the same way:

(23) a. áxmed baa 'Axmed?'  
     b. wax báa 'a thing?'  
     c. géed kaigáa 'my tree?' (= kaiga báa)

As seen in these examples, the indicator /baa/, when used at the end of an utterance, queries the preceding elements, i.e. 'did you say Axmed?', etc. In (23a) /baa/ does not receive an accent, since there is an accent on the proper noun áxmed. In (23b), however, the noun wax 'thing' exceptionally "transfers" its accent onto the indicator. We see in (23c), where géed kaiga báa is optionally, but normally, fused into géed kaigáa, that the generalization is that /baa/ will receive an accent in case the preceding word does not itself have an accent. We therefore postulate that the indefinite generic noun /wax/, whose irregularity has been recognized by Andrzejewski [1964], exceptionally loses its accent and thereby causes /baa/ to acquire one.\(^{13}\)

In addition to the above rules, there will be some particles whose accent will simply have to be listed in the lexicon (or provided by a highly detailed morphological accent assignment rule). An example is the negative morpheme /má/, which is apparently always accented.

4. Accent Modification

The rules given in section 3 introduce accents which, under certain circumstances, are either reduced or shifted one vowel to the right or left. We

\(^{13}\)Another environment where we have recorded /baa/ with a penultimate accent is when it should have fused with the preceding element but doesn't. Thus compare wíiil-kaa and wíiil-ka báa, both meaning 'the boy?'. Andrzejewski always marks /baa/ with a penultimate accent (his báa). We do not know if he has been influenced by the morphophonemics, or if this represents a dialect difference. It should be noted that in fused forms such as abéésaa 'a python?' (< abééso + báa), where the accent winds up on the antepenultimate vowel, a non-distinctive glide from mid to low is heard on the final vowel sequence. I would thus transcribe abéésaa as 3-21-23 (see section 5).
have incorporated the accent alternations in the verb paradigm and on particles into the accent assignment rules themselves. This leaves nouns and their modifiers, whose accent alternations are treated in this section.

Accent modification can be of two types: reduction or shift. Reduction takes place either because of the presence of a conditioning element within the noun phrase, or because the noun phrase in question is functioning as subject (or sometimes object) within its clause. As has been argued by Andrzejewski [1979], these latter accent reductions are manifestations of case marking.

The major accent modifications conditioned by case were summarized in (8) under (b) in the defining characteristics of the three declension classes. Three rules are needed to capture these modifications and are formalized in (24).

\begin{align}
\text{(24). a. } * & \to * / - & \text{subject } D_1, D_3 \\
& & \text{[[-focus]]} \\
\text{b. } * & \to * / - & \text{object } D_3 \text{ (optional)} \\
& & \text{[[-focus]]} \\
\text{c. } * & \to * & \text{X NP} \\
& & \text{[[-focus]]} \\
& & \text{D} \_ \text{2} \\
\end{align}

Rule (24a) says that in D1 and D3 nouns, an out of focus subject loses its accent. In addition, if the D1 noun is feminine, it takes a -i suffix, as seen in (25).

\begin{align}
\text{(25) a. } \text{inan wáa dhacay} & \quad \text{'a boy fell'\textsuperscript{14}} \\
\text{b. } \text{inan} \_ \text{wáa dhacday} & \quad \text{'a girl fell'}
\end{align}

Rule (24b) says that a D3 noun optionally loses its accent when it is a [-focus] object. These facts are illustrated by means of the D3 noun cacán.
'learned man' in (26).

(26) a. caalin wáa dhacay  'a learned man fell'
    b. caalin wáa keenay  'he brought a learned man'

or

caalin wáa keenay

Reduction of accent in object position is impossible if the noun belongs to D1 or D2.

Finally, rule (24c) states that the penultimate accent of D2 nouns becomes final if either (i) the D2 noun is modified, or (ii) the D2 noun is an out of focus object. Examples are seen in (27).

(27) a. abeésá daáss  'that python'
    b. abeésá wáa keenay  'he brought a python'

Unlike D1 and D3 nouns, D2 nouns do not undergo accent reduction when subject nor do feminine D2 nouns take the -i subject suffix, as seen in (28).

(28) a. waraábe wáa dhacay  'a hyena [m.] fell'
    b. abeéso wáa dhacday  'a python [f.] fell'

When in focus, the indicator /baa/ contracts with D2 nouns, since they end in a short vowel (see Bell [1953:35]). Whether a focused subject, as in (29a), or a focused object, as in (29b), the accent remains on the (underlying) penultimate vowel:

(29) a. abeésaa dhacdáy  'a python fell'
    b. axmed abeésuu keenay  'Axmed brought a python'

In (29a), the form abeésaa is a contracted form of abeésó + baa; in (29b), the form abeésuu is a contracted form of abeésó + baa + uu, where uu is a masculine third person singular subject pronoun agreeing with the subject axmed. Note that in (29a) there is a final accent on the verb, but there is no such accent in (29b). The reason for this is that subject-focus constructions require the relative clause verb forms, while object-focus constructions do not (cf. Hetzron [1965]).

The accent reduction which takes place when there is a subject D1 or D3
noun is actually somewhat more complicated than suggested by rule (24a). First, the accent reduction is blocked if the noun is modified by the short definite article ka/ta (taking the form ku/tu when in subject position):

(30) a. ínanku wáa dhacay  'the boy fell'
    b. inántu wáa dhacday  'the girl fell'

Two further observations are that demonstratives (and some adjectives) modifying a noun themselves undergo the reduction (and take an -í suffix):

(31) a. wííl kaası wáa dhacay 'this boy fell' (< wííl kaás)
    b. wííl yar! wáa dhacay 'a young boy fell' (< wííl yár)
    c. wííl kaası yar! wáa dhacay 'this young boy fell'

Because the forms for demonstratives and adjectives such as yár 'young' end in a final accent, there may be some relationship between accent placement and introduction of the subject case marker -í, normally used with feminine nouns, which, of course, are normally accent-final. As seen in (31c), where there is both a demonstrative and an adjective, only the accent of the last word is affected by rule (24a). An important exception to this is found when a subject noun is modified by a short possessive pronoun. Thus, compare the following two forms:

(32) a. walaál kāí 'my brother'
    b. walaal kái wáa dhacay 'my brother fell'

In (32a) the short possessive pronoun kāí 'my' is assigned final accent by rule (9a). The noun walaál 'brother' also receives final accent by rule (9a), since it belongs to D3. In (32b), however, walaál not only loses its accent (as per rule (24a)), but also the possessive pronoun 'my' changes from final accent (kāí) to penultimate accent (kái). We will therefore have to modify rule (24a) so that the last element of the subject NP undergoes accent reduction unless that last element is the short possessive, in which case the subject noun undergoes the accent reduction and a special rule changes the accent of the possessive.\(^{15}\)

\(^{15}\)We have not studied the accent modifications accompanying modified D3
The short possessive is used especially with kinship terms. When the longer possessive forms are used, their definite article suffix is ignored, and final accent is assigned to the possessive stem through rule (9a):

(33) a. kágga 'mine' [m.] (< kág 'my' + ka 'def. art.')  
    b. géed kágga 'my tree'

However, as seen in (33b), there is a special rule by which this accent is reduced if the long possessive modifies a noun. This rule is formalized in (34).

(34) \* + o / NOUN poss. [ — ] Def. art.

There are two further rules that affect noun accents. The first was seen in operation in (10d) above. Whenever a noun phrase is modified by the morpheme 'which' ( keé/teé ), which occurs final in the phrase, all preceding accents are reduced. Further examples are seen in (35).

(35) a. móos keé 'which banana?' (< móos 'banana')  
    b. móos kái keé 'which banana of mine?'  
    c. kuul lacageed deé 'which silver necklace?' (< kuul 'necklace', lacág 'silver')

In (35a) the noun móos 'banana' loses its accent, while (35b) has both the noun and the (short) possessive losing their accents. In (35c) we observe that compounds may also undergo accent reduction on both nouns. The first noun is, however, exempt from accent reduction if it is modified by the definite article (cf. its blocking of rule (24a) in the examples in (30) above), as seen in (36a). This also explains why the numeral in (36b) does not undergo reduction.

(36) a. walaá-l-ka wíll keé 'the brother of which boy?'  
    b. labá-da wíll keé 'which two boys?'

nouns as they optionally undergo rule (24b). We assume that they work essentially the same as reductions characterizing D1 and D3 nouns in [-focus] subject position. A further relevant point is that the final accent of relative clauses is also reduced when the relative clause is the [-focus] subject of the matrix sentence. Thus, compare wíll-ka aan dilo 'the boy that I hit' and wíll-ka aan dílo wáa cáli 'the boy that I hit is Ali'.
Numerals are nouns, and when they are used with a noun they appear as the head of a genitive construction. Thus, labá-da wi’l ḳ ‘two boys' literally means 'the two of boy'. The rule of accent reduction applying in (35) is thus formalized as in (37).

\[(37) \quad *_{\rightarrow}^{0} /_{NP} X (\text{Def. art.}) \quad \text{which}\]

(37) is to be read as follows: all accents preceding the morpheme 'which', but following a definite article (if present) are reduced.

The last accent reduction rule applying to nouns concerns compounding. According to rule (9a), a noun is assigned a final accent if it is [+genitive], i.e. the second noun of a N₁ + N₂ genitive construction. Whenever the genitive noun (N₂) is masculine, rule (9a) applies without complication, as we saw earlier in (10a). However, when the N₂ is feminine (and unmodified), it receives the genitive suffix -eed, with two accentual patterns possible:

\[(38) \quad \begin{align*}
\text{a. } & \text{móos gabar-éeď} & \text{a banana of a girl}' \\
\text{b. } & \text{moos gabar-éeď} & \text{a girl's banana}'
\end{align*}\]

In (38a), móos 'banana' receives penultimate accent according to rule (9b), while gabar-éeď 'of a girl' receives final accent by rule (9a) on the basis of its being [+genitive]. In (38b), however, 'banana' appears without an accent, and the genitive suffix receives penultimate accent. The difference in meaning between these two phrases appears to be one of specific vs. generic: (38a) means "a specific banana belonging to a specific girl", while (38b) means "the kind of banana a girl would have", i.e. the kind normally associated with girls. The most explanatory account of the construction in (38b) would be to consider it a single (sometimes lexicalized) noun. That is, (38a) is a true possessive construction, while (38b) is a noun compound. Evidence for this interpretation is seen in the examples in (39).

\[(39) \quad \begin{align*}
\text{a. } & \text{móos-ka gabar-éeď} & \text{'the banana of a girl' (i.e. belonging to a specific girl)} \\
\text{b. } & \text{moos gabar-éeď-ka} & \text{'the banana of a/the girl' (i.e. 'the girl's banana')} \\
\end{align*}\]

It is perhaps relevant here to point out that the number lába ḳ ‘two' exceptionally changes from penultimate to final accent when modifying a noun (cf. labá wi’l ḳ ‘two boys'). It may thus once have been a D2 noun.
The examples in (39a) show that the definite article can occur on the N₁ in the genitive construction but not the compound construction. The examples in (39b) show that a definite article modifying the whole complex can occur after the compound construction but not after the genitive construction. The form moos gabar-ëed-ka thus has a masculine definite article ka agreeing with the head noun 'banana'. If we attempted to place a definite article on the N₂ noun, the modified N₂ noun would then not permit the use of the suffix -eed (cf. Bell [1953:70-71]), e.g. móos gabádha 'a banana of the girl', where gabádha is a contraction of gabár 'girl' + ta 'def. art.'. We shall thus have to introduce a rule reducing the accent of an N₁ in a noun compound:

(40) * → ° / [ [ ]N X ]N

In (40), the configuration [ [ ]N ]N represents a noun compound. In a true genitive construction, the structure would have been [ [ ]N [ ]N ]NP. The compound structure allows no intervening elements between the two nouns.

The last accent modification rule to be considered apparently has its structural description met only in verb forms. Note the following data concerning imperatives in (41).

(41) a. cúñ 'eat!' (sg.) lā cun 'eat (sg.) with (him/her)!' 
    b. cúńa 'eat!' (pl.) lā cúña 'eat (pl.) with (him/her)!' 

In (42a) the singular imperative form cúñ 'eat!' has an accent on its only vowel in the left hand column. When directly preceded by an accented preposition (here, lā 'with'), however, it loses its accent. This does not happen in the plural imperative forms in (41b). There is thus a need for a rule of the form in (42).

(42) * * → ° / _ _ %

A phrase-final accent is reduced if immediately preceded by another accent. In (42), % represents a phrase boundary (cf. section 5). This rule is apparently also responsible for the single accent found on máın in (43b).

(43) a. má cúñáín '(he etc.) was not eating'
    b. cúñi máín" " " " " " 
As is clear from sections 3.2 and 3.3, the negative marker *má* is inherently accented, and in negative indicatives there is a final accent (cf. (43a)). The expected form in (43b) is thus *cúní máín*, with accents on both of the final two vowels (*< má ahíń*). It is not known if (42) has applications elsewhere in the grammar, since the possibility of final ** is rather limited.

5. **Tone and Pitch Assignment**

In sections 3 and 4 accents were assigned and modified. Nothing was said in those sections about how the resulting accented and unaccented vowels are pronounced. While there is some variation in pronouncing the output of section 4, it is clear that Somali speakers operate according to general rules which assign tone to the * and ° specifications. We saw in sections 1 and 2 that each accent was considered to be a H tone (and that each H tone was considered to be an accent). Mention was made of the possibility of distinguishing L vs. M (mid) tones. In such an analysis H would have an integer value of 1, M a value of 2, and L a value of 3. Recall the minimal pair *ínan* 'son' vs. *ínán* 'daughter' which would in this analysis be treated as H-L (1-3) vs. M-H (2-1) tone.

While it is logically possible, and perhaps heuristically advisable, to provide an intermediate stage of H, M, and L tone specifications, such a representation would be redundant and superfluous. Rather than having a process whereby accent → tone → pitch, it is possible to go directly from the accent specifications of the preceding sections to the pitch integers themselves. It is this more economical analysis which is presented in this section.

We begin by assigning the integer "1" to every accented vowel and the integer "2" to every unaccented vowel. This integer assignment process would only produce a monotonous alternation of 1 and 2 pitches. As seen from (44), additional rules are needed to account for the numerous pitch levels characterizing real utterances.

\[(44) \text{wíil-ka má dálayó} \quad '\text{the boy is not hitting (him)}'\]

The utterance in (44) is realized on four different pitch levels. As seen, the unaccented vowels have values of 3 and 4, while the final two accents are
realized on the 2 and 3 pitch. Since the 3 of the last accent is identical in pitch level to the 3 of the first unaccented vowel, one can identify underlying * vs. ° specifications only from the relative pitches surrounding each vowel.

In order to generate these additional pitch levels we shall need an additional rule. The process revealed in (44) is clearly one of downdrift: successive 1 and 2 pitches (or H and L tones, if one prefers) are realized on lower and lower levels.

There is an exception in (44), namely the 1 specification of the accented vowel in má. Compare also the following example:

(45) waraabé % inan % má dilín 'a boy didn't hit a hyena'

In this example má is again exempt from the progressive lowering of pitches, and in addition, the unaccented vowels of 'son/boy' are realized on a 2 level, rather than as 3's. The only way to resolve these discrepancies in the pitch realization of the accented and unaccented vowels is to introduce phrase boundaries (%'s) within which the downdrift effect is felt. These have been indicated in (46). While there is again some variation, the following two rules are extremely general and needed for almost all of our examples:

(46) a. VC
     [+ind]    b. NP    NP    VC
     [%]    [%]    [%]

Rule (46a) says that there is a phrase boundary after the verbal complex (particles + verb), wherever it may occur in the sentence. In addition, if the verbal complex is marked [+ind] (by which is meant that there is an indicator marking focused modality), there is a phrase boundary preceding the verbal complex. Rule (46b) says that in main clauses (but not in relative clauses) there is a phrase boundary intervening between two noun phrases preceding the verbal complex. These two rules correctly assign the internal phrase boundaries in (45). As was said, these rules are extremely general, although they are on occasion violated. They are, after all, merely strategies for giving relative weight to the major categories (NP, VC) within an utterance.

As noted, then, some of the variation has to do with boundary assignment,
some with pitch assignment. In any case, there are no rules assigning phrase boundaries within an NP or VC, nor is there any rule inserting a phrase boundary between elements occurring to the right of the verb. That this is the case is seen in (47a), where downdrift occurs within an NP, and in (47b), where downdrift affects the three nouns dislocated to the right of the verb.

(47) a. abeesá daáś  
   'that python'  
   3 22 1 32

b. wái dishay % abéeśo waraabé shálay  
   'a python hit a hyena yes­
   terday'  
   13 3 3 3 21 3 3 3 2 3 5

c. shálay % abéeśo % waraabé % wái dishay  
   'yesterday a python hit a
   hyena'  
   1 3 3 21 3 3 22 1 13 3 3

The second accent in (47a) is downdrifted to a 2 level, since there is no intervening phrase boundary between accents within an NP. In (47b) it is observed that the three elements occurring to the right of the verb constitute a single phrase, which should be compared with their occurrence to the left of the verb in (47c), where each is surrounded by % boundaries. It is probable that such rightward elements form only one accentual phrase because they represent presupposed information.

The process of pitch assignment thus proceeds as follows:

(48) a. assign 1 to every * V and 2 to every V

b. following the leftmost *, add 1 to the value of every vowel up to the first %, then begin with the second * V and add 1 to all following vowels up to the first %, etc. until no more *'s remain preceding that %; repeat for each %

c. (optional) an additional value of 1 can be assigned to one or more 2 levels in the environment %

d. (optional) an additional value of 1 can be assigned to a 1 level in the environment 3 // (where // = pause)

Rule (48a) assigns the initial integers of 1 and 2 to accented and unaccented vowels, respectively. Rule (48b) captures the downdrifting effect on all vowels following an accented vowel and through the entirety of a phrase. As indicated, (48b) may apply several times within the same phrase if there are multiple instances of V not separated by % boundaries. Rules (48c) and (48d) are optional. The first of these optionally converts a form such as waraabé to waraabé by adding a value of 1 to one or more phrase initial 2's. Final-
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ly, (48d) lowers a 1 to a 2 when preceded by a 3 and followed by pause.

Two representative derivations are seen in (49) and (50).

(49) abeesá daán % tuká daani % má dilín
2 2 2 1 2 1 2 1
1 1 1 1 1
1

3 2 2 1 3 2
3 1 3 3 3 1 3 2
1

' this crow didn't hit this python'

(50) wáí dishay % abéeso waráabe sháláy
1 2 2 2 2 2 1 1 2
1 1 1 1 1 1 1 1
1

13 3 3 3 2 3 3 2 3 5

'SURFACE REALIZATION'

After the four rules in (48) have applied, all of the integers are added together and the surface realization is obtained. Note especially the multiple application of the downdrift rule in (50).

The rules in (48) will therefore generate the correct pitch intervals for a wide range of data. It should be noted, however, that there is some room for variation, and that some of this might be due to intonation. While this section, like the preceding sections, is not considered to be complete, we believe that the framework developed here can be extended and refined so as to capture the complete accentual and tonal characteristics of the language.

6. Implications for Further Research

As just stated, this study is necessarily a preliminary one, one that is in need of further verification (with other speakers and with data from nature-

17Two areas that have posed some problem are (a) the initial pitch level of the phrase dislocated to the right of the verb and (b) relative clauses, where there is an occasional, but as yet unpredictable, internal % boundary.
The underlying segmental representation of 'son' and 'daughter' is /inam/, and that of the plural is /inam-Co/, where /C/ assimilates to the preceding /m/ to derive the geminate sequence [mm]. We have claimed in section 3 that the indicated accents are assigned as follows: (a) ënan receives penultimate accent by rule (9b), since it is a D1 masculine noun; (b) ënã receives final accent by rule (9a), since it is a D1 feminine noun; and (c) inammò receives final accent by rule (9a), since it is a D3 noun. Note that the singular forms in (51a,b) share a common plural form (51c). The rules in (9) adequately capture this fact by referring directly to the declension class of the plural form. However, it is possible to maintain that there is a double assignment of accent to such plural forms, as hypothesized in (52).
In (52) we have assigned an accent * to both the inner (singular) noun, and also, to the D3 plural suffix -Co. If both accents were to be realized on the surface, we would obtain a contrast between inam\textsuperscript{m} and inam\textsuperscript{f}. A rule would be introduced reducing all but the final accent of a word. As a result, 'sons' and 'daughters' would both be pronounced with a single accent on the plural suffix.

It is not our intention to fully examine this alternative approach to Somali accent here. The notion of assigning multiple accents of which only the last per word is phonetically realized is intuitively appealing and can be extended to a number of parts of the derivational morphology and grammar. However, the analysis proposed in section 3, which assigns a single accent per word on the basis of grammatical information (including the declension class of a noun, something which is needed independently of accent assignment), is much more economical and hence preferred in the absence of evidence to the contrary.

This leaves the question of how Somali accent got to be the way it is. The fact that we have been able to establish underlying lexical forms which are devoid of accent specifications suggests that Somali and related Cushitic languages once had no accent. This is the situation of much of Afro-Asiatic today, e.g. Berber, many Ethiopian languages [Leslau 1956:30], etc. As clearly indicated from our accent assignment rules (9), (12), and (20), accent is conditioned by grammatical, rather than lexical features. It seems motivated, then, to seek the origin of the accentual distinctions in the derivational and inflectional morphology.

Oomen [1981] proposes that the final accent of D1 feminine nouns can be predicted on the basis of a final lost syllable, which she reconstructs as *-et. Although basing herself on the Rendille dialect, this reconstructed feminine marker would correspond to both the -eed suffix of unmodified feminine N\textsubscript{2} genitives and the -i subject case marker found on D1 feminine nouns. Oomen argues that accent is assigned by a general rule to the penulti-
mate vowel of a noun, thereby producing forms such as *ínan 'son' vs. *inán-et 'daughter'. When the reconstructed *-et falls, we obtain the familiar D1 feminine final accent pattern.

This explanation is appealing, both because of the convincing reconstruction Oomen justifies in great detail and because we know that the accentual oppositions must be introduced into Cushitic by some natural means. Historical studies have shown in a number of language families that a lost syllable can produce accentual contrasts. Oomen's assumption that penultimate accent is basic repeats a common position asserted in early Somali studies; the assumption that final accents must be exceptionally derived may also explain why rules (9) and (12) had to be ordered with final accent assignment preceding penultimate accent assignment.

The unfortunate problem which arises for Oomen's account comes not from Somali, but rather from our general knowledge about prosodic systems. The chain of events postulated for Somali are so intuitively pleasing that one wonders why more languages have not derived tonal accents in this way. The cases that are familiar to us all involve stress accent systems which after loss of final vowels remain stress accent, e.g. as when Spanish develops infinitives such as hablar from loss of final *e. It is highly improbable that the loss of final vowels could change either an accentless or a stress accent system into a tonal accent system.

I would argue instead that Somali and related languages were already tonal prior to the loss of the feminine suffix. Oomen herself assumes that the general penultimate accent assignment process refers to vowels, rather than syllables. Thus, even among masculine nouns one could conceivably have had syllables of both shapes CVV and CVV. Now, a mora accent system necessarily is a tonal accent system, e.g. Classical Greek and Standard Japanese. How then did Cushitic change to assign accents to moras?

While I have been able neither to seek nor find evidence from Cushitic itself, the most likely source would be the loss of a final pharyngeal or laryngeal segment. Perhaps the feminine suffix *-et developed into a sequence such as [e?] prior to dropping out. Glottal stops are known to raise the pitch of a preceding vowel (see Hombert [1978] for examples and references). The H pitch acquired by this suffix is transferred to the preceding vowel
Tonal Accent in Somali

when the suffix is dropped, and any full word not assigned a H accent in this fashion is assigned a penultimate one. It would of course be necessary to trace the development of tone in other environments, e.g. (negatives or relatives). While the details of this proposal may be inadequate, the only point I wish to emphasize in conclusion is that the language must have first become sensitized to pitch and then generalized it throughout the grammatical system.  

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18One of the grammatical features whose interaction with accent has been seen only in passing is focus. Once the tonal accent was established, focus became a key consideration, as seen in the specification of the accent rules in (24). Somali is a language where considerations of focus receive prominent grammatical realization (cf. Antinucci and Puglielli [1980]; Antinucci [1980]). One generalization which emerges from all of the accent properties discussed above is that any constituent marked [+focus] must have an accent. This explains, for example, why the verb focus indicator /waa/ receives an accent by (20b) if the [+focus] verb lacks one.
REFERENCES


It has been claimed that Principense Creole is a tone language with high, low, and rising pitches with the latter deriving from Portuguese words of two syllables of which the last is stressed. The correctness of these claims is examined and evidence adduced that they should be modified. The alternative view of pitch contrasts in Principense Creole offered is that they manifest a system with a free pitch accent. The origins of the surface contrast between a rising and falling pitch are traced to putative simplifications during pidginization in the segmental shape of original Portuguese words. It is claimed that Rising, Falling, and High pitches are all functionally identical, being realizations of phonological prominence in different contexts.

Günther [1973] treats Principense as a tone language. This is of interest for two reasons: firstly, it is not a priori obvious that a creole based on tone languages, e.g. Bini, and a stress language (Portuguese) should be a tone language rather than a stress language, and secondly, as Günther points out, to describe a creole as a tone language constitutes a departure from the

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1Princense is the language of the island of Príncipe, now part of the Republic of São Tomé and Príncipe. According to a census of 1963 quoted by Valkhoff [1966:79], out of a total population of 7790, Príncipe had 4104 "Moncos", the name by which the Princense speakers were known to the Portuguese. No figure was given for Principense speakers in São Tomé, but a small number of them do live on the larger island. The three islands of the Gulf of Guinea, São Tomé, Príncipe, and Annobón, were discovered by the Portuguese at dates between 1470 and 1472. Perhaps a decade or so later, São Tomé, the nucleus of the three islands, was the first to be settled. The first settlers arrived in São Tomé from Portugal in 1485 and 1493, and 920 slaves from the Bight of Benin, a Kwa-speaking area, had been brought to the island by 1499. In the 16th century, many of the slaves were brought from the Congo, in the Bantu-speaking area. The population of Príncipe came from São Tomé from the beginning of the 16th century. Principense is a Portuguese-based creole, with a pronounced Kwa and Bantu substratum (cf. Ferraz [1975]).
usual treatment of pitch or accentual phenomena in creoles, viz. that European-based creoles normally are regarded as stress languages.\(^2\)

 Günther bases his conclusion on the following observations. First, he claims that stress contrasts have in fact been replaced by pitch contrasts according to a rule of wide generality:

\[
P [\text{+stress}] \rightarrow \text{Pr} [\text{high pitch}] \quad \text{Pr} [-\text{stress}] \rightarrow \text{low pitch}
\]

This rule does not account for what he estimates to be 10% of the total vocabulary, namely for substratum forms from Bini or some other language for which it has not been possible to establish synchronic cognates in order to compare tones. Nevertheless these forms also manifest the same pitches found on words of Portuguese origin. Second, in addition to the contrast of H and L pitch, there is a rising pitch. (Günther marks H as ', rising as ^, and L with no pitch mark.) He traces this pitch "...to Portuguese words of 2 syllables of which the last is stressed" where the medial consonant has been deleted. He cites \(\text{Pr}/\text{kwê}/ \prec \text{P}/\text{kuer}/ 'to run' \text{via} \text{*kuré} \rightarrow \text{kufé} = \text{kue} \) (p. 50), (however, it is unclear what the relevance of \(\text{kue} \) is to the form in question, viz. \(\text{kwê} \)). One finds minimal pairs such as \(\text{kwé} 'rabbit' \) and \(\text{kwê} 'run' \), and this leads Günther to postulate a system of three tonemes H, L, and R.

The present co-author Luiz Ferraz recorded samples of a dialect of Principense during a visit to Príncipe in 1969/1970, and we have examined his data against the background of Günther's claims about its tonal structure. While we find that some of Günther's conclusions can be sustained in our data, others cannot or else they require to be generalized to a wider range of facts before they can. We also find Günther's argument to be incomplete with respect to his own data, since it leaves unexplained certain facts about the

\(^2\)A claim attributed to E. Hamp which may conflict with these assertions is reported by C-J. Bailey and K. Maroldt [1976:1, 17]. It is that the prosodics of a creole will be those of the indigenous language. If, as seems likely, the tone language Bini contributed substantially to the formation of Principense creole, and as such qualifies as the indigenous language, Hamp's claim would not be true of the synchronic tonal prosodics as interpreted by us. However the history of Principense makes it impossible to rule out a different tonal system at an earlier stage.
distribution of pitch contrasts. Our attempts to explain these restrictions and to encompass a wider range of facts has led us to the conclusion that Principense cannot be characterized adequately as a tone language. The alternative that is proposed will emerge in the course of the argument that follows.

We begin by citing a number of facts which are not mentioned by Günther. The first of these is that there is a falling pitch in addition to the high, low, and rising pitches:

(1) sa: [\] 'pull' Port. pu'xar
    fu:ta [\_] 'steal' Port. 'furta
    to:tu [\_] 'skew' Port. 'torto
    su:du [\_] 'deaf' Port. 'surdo
    suo [\] 'sweat' Port. su'or

(Stress is marked with ' in the Portuguese forms.)

The minimal pairs in (2) illustrate the phonetic contrast.

(2) fu:ta [\_] 'steal' Port. 'furta
    fu:ta [/_] 'bread fruit' Port. 'fruta
    pe:tu [\_] 'near' Port. 'perto
    pe:tu [/_] 'black' Port. 'preto

The second point which is also clearly illustrated in (1) and (2) is that dynamic pitches appear on long vowels. In fact they only appear on long vowels or a sequence of vowels. In some cases this "extra quantity" is realized as a rearticulated vowel. This is most clearly heard in citation forms; in less deliberately enunciated forms a long vowel may replace a rearticulated vowel.

Günther's claim that "...it can be shown clearly that the rising tone developed historically from Portuguese words of 2 syllables of which the last is stressed" [p.9, our translation, AT/LF] is therefore not correct. The examples in (1) and (2) show clearly that dynamic pitches are associated with either an initially stressed or finally stressed syllable in the (admittedly synchronic) Portuguese forms. Third, while Günther's rule concerning stress to tone correspondences is indeed fairly general, there are a few cases where the placement of high pitch does not correspond to an original Portu-
guese stress:\(^3\)

(3) peru [\-] 'turkey' Port. pe'ru
    giça [\-] 'hen' Port. ga'llinha
    nuvē [\-] 'cloud' Port. 'nuvem

Fourth, in the speech of our informants it is not the case that stress differences are wholly missing. What we find is that it is always possible to identify a point of prominence in a word, but this is not uniformly associated with only a high pitch. Rather it may be realized as stress and heightened pitch on a short vowel, stress and heightened pitch with a slight increase of length in the vowel, though not to equal the length of the vowels in (1) and (2), or simply heightened pitch.\(^4\) This variability suggests that one should adopt the term prominence when dealing with this aspect of Principense prosodics. This will appropriately subsume the increases in loudness, pitch, and length noted. The fact that prominence may manifest itself solely in the form of heightened pitch and the absence of prominence in the form of a lower pitch, both on syllables that are equally stressed (loud), shows that one is not dealing with a single dimension of loudness variation.\(^5\)

We turn now to our fifth observation, which involves the distributional behaviour of the "tones" in Günther's data. Since we have identified an additional dynamic pitch (falling) we shall refer to its distribution as well. The four pitches have an extremely restricted distribution. In forms of two

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\(^3\)Note that certain Principense verbs seem to have been derived from Portuguese infinitives, while others are from 3rd person forms. For example, pika [\-] 'prick' < Portuguese pi'car (infinitive) but kosa [\-] 'scratch' < Portuguese 'coça (3rd person). Spurious cases of Principense high tone failing to correspond to Portuguese stress could be provided if these two sources are not kept in mind.

\(^4\)The observations on pitch and length are derived from spectrograms. The stress judgements are based on auditory impression.

\(^5\)The constellation of higher pitch and increased intensity and duration as phonetic correlates of stress is well known [Lehiste 1970:125ff]. However, the fact that Principense so strikingly uses three pitch variations [\-\-\-] to mark "stressed" syllables, shows that one is not dealing with a conventional "stress language". Notice that the emergence of predominantly pitch contrasts from so-called stress differences is a natural development.
or more syllables one syllable may carry H(igh), R(ise), or F(all), but only one of these may appear; more than one syllable, however, may bear the L(ow) pitch. Illustrating with a CVCV base we have the following possibilities:

(4) a. \( \text{HL, RL, FL} \)
    \( \text{LH, LR, LF} \)

b. *HH *RR *FF *LL

c. *HR *HF *RF *RH *FH *FR

The patterns in (4a) show the six permissible sequences and (4b) and (4c) the 10 other conceivable but not attested sequences of pitches. The fact that H, R, and F may not appear in combination in CVCV (or longer) forms but may be preceded or followed only by L, is suggestive of their functional identity. Recall that there is always only one prominent syllable in a word; the remaining syllables manifest lack of prominence with a L. From a perceptual point of view too, syllables with R and F are prominent in the same way as syllables previously identified as carrying the complex \([\pm \text{stress, } \pm \text{length}, + \text{higher pitch}]\).

What these severe restrictions on pitch distribution suggest is that one is not dealing with a conventional "segmental" tone language at all (Fromkin [1972], McCawley [1970]). If the distributional facts argue against Principense being a free tone language and a number of phonetic facts argue against it being a conventional stress language, how are we to classify the language? The suggestion we wish to make is that it is a free, pitch accent language [Voorhoeve 1973]. The term which originates in an unpublished paper of McCawley's [1964], which we have not seen, applies to languages where any syllable in a word may be prominent (hence "free"), with the prominence being

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6 Günther [1973:49] shows he is aware of the problem when he notes the absence of words with like tones, i.e. for his tones HH, LL, RR. The status of two words in his data is unclear to him between HL or LL. If the latter "... this could be strong argument for the phonological classification of Principense' (as a tone language) [p. 41; the translation is ours, AT/LF]. However, the case is decided for him by the minimal pair pwé [⁻] vs. pwé [⁻] where the contrast rests only on a H vs. R pitch. The conclusion that Principense is a tone language therefore becomes irresistible.
"musical", rather than involving loudness (the latter would be referred to as stress-accent [Hyman 1975]). Our decision to treat Principense as having a pitch accent system, rather than a stress accent system, may seem arbitrary in view of the observation above that loudness does indeed play a part in marking prominence. However, as we noted, loudness is always accompanied by heightened pitch, and prominence is frequently marked without an accompanying increase in loudness. We feel, therefore, that the type of prominence we are dealing with is predominantly a matter of pitch, with loudness as only an optional secondary concomitant.  

So far we have appealed to distributional and phonetic facts to provide support for our claim. There remains however one other crucial characteristic of a pitch accent language which is found in Principense; it is the operation of an "accent reduction rule". What this refers to is the reduction of prominence on all syllables of a phonological word before or after the prominent syllable. Put differently, all pitch distinctions are neutralized to L on unaccented syllables of the word. The words in (5) vary in length from 2 to 5 syllables, only one of which bears the prominence (marked "'); all other syllables are L:

(5) "vaka [ _ _ ] 'cow' Port. 'vaca
ba"'shi [ _ _ ] 'basin' Port. ba'cia
"oge'ge [- _ _] 'gecko' Port. 'osga
ko"neta [ _ _ ] 'horn' Port. cor'neta
kaka"no [ _ _ ] 'heel' Port. calca'nhar
miši"daši [ ___ _ ] 'need' Port. necessi'dade
pulumu"nia [___ _ ] 'pneumonia' Port. pneumo'nia

* Successive low tones are subject to downdrifting, hence the two levels on which L is realized on the second and third syllable.

These observations seem to be sufficient to establish our claim that Principense has a free pitch accent system. However, for the reader who still re-

7We are aware of the possibility that the degree to which stress encroaches on the basic pitch accent system may be a function of the very strong Portuguese influence to which Principense has been subjected since the turn of this century [Valkhoff 1966:85].
mains sceptical we offer the data in (6):

(6) "ba:su [\_] 'embrace' Port. a'braço
"ba:so [\_] 'spleen' Port. 'baço
"fu:ta [\_] 'breadfruit' Port. 'fruta
"fu:ta [\_] 'steal' Port. 'furta
"pe:tu [\_] 'black' Port. 'preto
pi"ka [\_] 'prick' Port. pi'car
kje"se [\_] 'forget' Port. esque'cer

The examples in (6) so clearly involve pitch contrast that it would be ridiculous to cling to an account of Principense syllable prominence that failed to capture this fact.

In the following section of the paper we examine the putative "pidginizing rules" that operated on Portuguese forms to create long vowels with dynamic tones. We then argue that our decision to treat Principense as a pitch accent language provides an explanation for these facts. Words of African origin with long vowels and dynamic tones are easily interpretable in terms of this explanation.

The data in (7) illustrate how certain segments or syllables were deleted during the formation of Principense:

(7) Portuguese                   Principense
    'preto  'black'               pe:tu    [\_]
    'perto  'near'                pe:tu    [\_]
    ca'roço 'pip'                 ko:su    [\_]
    ma'rido 'husband'             ma:du    [\_]
    mo'lhado 'wet'                mwadu    [\_]
    ga'linha 'chicken'            gi:a    [\_]
    'nasce 'is born'              nase    [\_]
    'serve 'serves'               ši:vi    [\_]
    ver'dade 'truth'              vedadi  [\_]

Without going into all the details, a CVCV structure is produced through reduction in the number of syllables or apparent deletion of certain consonants in an initial or medial cluster. If the consonant was a sonorant and the margin of a stressed syllable, one might wish to claim that compensatory
lengthening of the peak took place; if a sonorant was the margin of an un­
stressed syllable no lengthening took place. The reason for our diffidence
towards the claim of deletion and compensatory lengthening will emerge in the
discussion below.

thus $'preto \rightarrow 'pe:tu$
$'perto$

but ver'dade ve'dadi

What is of interest is the resulting pitch, since, as can be seen from the pair
preto/perto, the result is not uniform. For most of the examples quoted the
facts are clear: a rising pitch results from what appears to be deletion in
pre-accentual position and a falling pitch from deletion in post-accentual po­
sition. In an unaccented syllable deletion has no effect on pitch, and the
pitch is low. An exception like gi"na [广泛的] 'chicken', which does not ap­
ppear as the expected *gi:na [/广泛的], can be explained most plausibly by postu­
lating a shift of accent to the last syllable before the deletion and elisions
reduce a to i: (as we noted above, the position of the Principense ac­
cent need not correspond to the original stressed syllable in Portuguese).
The result "mwadu [广泛的] 'wet' from mo'ihado appears to be exceptional since
one might expect *"mwa:ду [/广泛的] or *"ma:ду [/广泛的] (cf. "ba:ta [/广泛的] < ba'rata ). However, this may have arisen through compensatory lengthening of
/a/ being blocked because of the retention of /u/ and its subsequent con­
sonantalization and loss of tone.8

8We have not explored fully the various restrictions on vowel sequences
and their effects on tone. However, we may note how sequences like [aro]
(caroço), [ara] (barata) and [uAa] (molhado) do not simplify in the same
way, although all involve the deletion of the consonant. This presumably
has to do with restrictions ruling out unlike adjacent vowels or three iden­
tical vowels in sequence. If a sequence $V_iV_j$ arises, $V_j$ becomes a glide,
i.e. non-syllabic, if it is /i/ or /u/, but it is deleted if it is /a/. A sequence of three identical vowels is reduced to two like vowels. An exam­
ple whose (objectively measured) pitch we are unable to explain is "kwe 'run' with a fall-rise [广泛的] < 'corre or co'rrer . We simply note this as well
as the fact that Günther's pitch for "kwe , i.e. R, differs from the one we
observed. A rising pitch would derive from deletions etc. on the infinitive
correr .
We now offer a natural explanation for the fact that the disappearance of certain consonants in pre- and post-accentual position is compensated for with rising and falling pitches. Pitch variation is variation in fundamental frequency ($F_0$). If one examines the spectrographic evidence it is clear that $F_0$ can drop by as much as 100 c.p.s. for a voiced consonant from the pitch level of the surrounding vowels. Now, if the consonant in a VCV sequence is weakened (not completely deleted) by being stripped of certain features, with the adjacent vowel quality providing the segmental base to fill the gap, so to speak, the filler vowel will inherit the lowered $F_0$ that was associated with the consonantal position.

If that is the phonetic origin of pitch contrast in Principense, then what is its phonological representation to be? Clearly we do not want to attribute to the Principense lexicon deep /ɾ, ʎ, r/ in the positions where they occur in Portuguese and then have a synchronic rule weakening them in the manner shown above. Rather the weakening must be attributed to the original pidginizing process which presumably reflected phonotactic contrasts in the African languages. The synchronic lexical entries for the forms discussed therefore do not have /ɾ, ʎ, r/. We turn now to consider how the various surface tones can be derived from the underlying representation.

We have referred to the functional unity of [−, \, /] as marking the accented syllable, in this case with a musical accent. Until this point, however, we have only mentioned but failed to apply that important aspect of pitch accent systems which Principense should possess if our characterization is correct, viz. the phenomenon of accent reduction on specified domains in

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9 So far as we are aware, this kind of tonogenesis adds to the possibilities discussed in, for example, Hyman [1973]. The process of leaving a tonal trace of a weakened consonant has been noted by the co-author A. Traill in the speech of children learning their first language. The claim that a child has deleted a consonant (or syllable) should always be checked against the possibility of a "pitch trace" surviving which would show that only deletion of some features has taken place.

10 This does not mean that there are no Cr, etc. clusters in modern Principense, or that /ɾ, ʎ/ may not appear intervocalically. Forms like krokt'ɔ 'large cockroach', ladr'ə 'thief', arba 'weed', str'etu 'nar-
the context of an accent. As regards pitch accent, reduction would result in low tone. Using /r/ for exemplification, the facts of Principense can be interpreted easily in these terms:

\[
\begin{array}{|c|c|c|c|}
\hline
C'rV.. & C''VrC.. & CVr''V & \text{Portuguese forms} \\
CV'y^1 & C''VVC & CV'y''V & \text{feature stripping} \\
CV'y^V & C''VVC & CV'y''V & \text{accent reduction} \\
[-] & [-] & [-] & \text{pitch correlates} \\
[/] & [\!] & [\!] & \text{surface form} \\
\hline
\end{array}
\]

This derivation involves the historical step of feature stripping. Synchronously, however, all Principense vowels that surface with either [\!] or [\!] derive from a sequence of two vowels, one of which bears the accent. Thus [\text{Ba:ta}] [/\!] has the lexical shape /ba"ata/ and [\text{Pe:tu}] [\!\!] the shape /p"eetu/. Substrate forms with dynamic pitches are readily incorporated in this account, even though these pitches did not derive from the processes sketched above. For example, [\text{Gw}:\!] [\!] 'keg' would be /bw"ee/ underlyingly, and [\text{Swaswa}]:\!] [\!\!] 'snake' would be /swasw"aa/ .¹²

We feel that the above interpretation of Principense tone has a number of advantages. First, it accounts for all the phonetic facts. Second, it simplifies the phonetic diversity of pitch distinctions by revealing that a functional identity underlies them. Third, it does not strain the notion of a tone language by claiming what Günther did and leaving many questions unexplored. Fourth, it provides an account of "tonogenesis" that is based solely on natural phonetic parameters. And finally it may be used to explain how the phonetic details of Principense tones will change as Portuguese-derived segmental changes spread through the lexicon.

\footnote{We have measured the duration of these VV sequences and find that they are almost twice as long as single vowels.}

\footnote{As a matter of interest, Bini has high, low, mid, rising, and falling tones [Dunn 1968].}
REFERENCES


NOTES AND QUERIES

This section is for short remarks on articles dealing with African languages which have appeared in Studies in African Linguistics or elsewhere and for contributions which are too short to constitute full articles. These may be short descriptive or historical statements of interesting phenomena in African languages or theoretical comments utilizing African language data.

Contributions to "Notes and Queries" should be less than 1000 words, including examples. No footnotes should be used, but references may be listed at the end.
A frequent criticism leveled against abstract phonological analyses is that such analyses are "not psychologically real". Direct psycholinguistic experimentation often fails to resolve convincingly the question of the reality of abstract analyses; evidence may, however, be drawn from historical change to support or refute their psychological reality. Hooper [1976] does argue for a concrete view of phonology by using evidence from language change. It is the purpose of this paper to argue for an abstract phonological analysis of the nasal + consonant sequences at a historically earlier stage in Kimatuumbi, a Bantu language spoken in southern Tanzania. I shall show that Proto-Bantu nasal + voiceless consonant sequences are historically changed to nasal + voiced consonant on the surface and that this rule has been a synchronous rule throughout the history of Kimatuumbi. I then demonstrate that every surface nasal + voiced consonant sequence is synchronically analysed as an underlying nasal + voiceless consonant, including nasal + voiced sequences deriving from Proto-Bantu nasal + voiced consonant. Next I show that the initial cluster *mm may derive from either Proto-Bantu *mɣ + b or *mɣ + m, but the *mm cluster of the borrowed word *mmtyuka 'car' is reanalysed on phonologically abstract lines as deriving from underlying *mɣ + b.

Kimatuumbi, along with many other Bantu languages such as Kikuyu and MWERA, has undergone a historical change whereby Proto-Bantu *nasal + voiceless consonant becomes nasal + voiced consonant. This change is particular prevalent in nouns of class 9-10. The following examples illustrate this change in Kimatuumbi.

(1) Proto-Bantu          Kimatuumbi

*mpáka             mbaká             'cat'
*ŋkánga            ŋgaranga           'guinea fowl'
*ntémbo             ndiémbó           'elephant'
*mpémbé            mbeembé           'horn'
*muntu             mpyůndů             'person'
*ŋkungůni          ngyůngyůni        'bedbug'

This phonological change merges the Proto-Bantu sequence nasal + voiceless stop with the sequence nasal + voiced stop, since the latter sequence is phonetically unchanged in Kimatuumbi:
The addition of this historical change entails that, for any surface nasal + voiced consonant sequence in the language, a decision must be made in the synchronic grammar whether such sequences derive from underlying nasal + voiceless consonant or nasal + voiced consonant. The post-nasal voicing rule must have been a viable rule throughout the history of Kimatuumbi, since it is employed in a wide range of morphological constructions, apart from Class 9-10 nouns: the nasal prefix is also employed for adjective agreement with classes 8, 9, and 10 (cf. alternations such as ḅgeēle 'red (cl.9)' versus ḅykeēle 'red (Cl.11)') and for 1st person singular subject and object agreement on verbs ( ḅndelekē 'I should cook' versus ḅytelekē 'you should cook'). There has consequently been ample evidence from other morphological constructions to support the continued existence of the post-nasal voicing rule.

Since noun stems in class 9-10 have always been preceded by the nasal prefix n, the stem initial consonant has been subjected to the effects of the voicing rule in all of its allomorphs. No morphophonemic alternations are available to give evidence for the underlying status of a post-nasal consonant. An abstract analysis would derive all such stems from nasal + voiceless consonant, i.e. phonetic mbaka would derive from underlying mpaka 'cat'; a concrete analysis would analyse these sequences as underlying nasal + voiced consonant, identical to their surface form.

A subsequent change in the morphological system of noun class prefixes allows us to see that the abstract analysis has been selected in all cases where there was no evidence from morphophonemic alternations to show whether the underlying consonant was voiceless or voiced. Originally, Proto-Bantu nouns with a singular in Class 9 formed their plural with the Class 10 prefix. Both prefixes were simply a nasal consonant. However, the vast majority of nouns with singular in Class 9 now select their plural in Class 6, using the prefix ma- instead of the prefix n. The result is that a wide number of noun stems are no longer subjected to the influence of a nasal prefix in all their surface manifestations. In every case, a surface voiced consonant after a nasal is reanalysed as deriving from an underlying voiceless consonant, regardless of whether the consonant was historically voiced or voiceless.

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<tr>
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<th>pl.</th>
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<tr>
<td>*mbubáda</td>
<td>mbabalá</td>
<td>'bushbuck'</td>
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<tr>
<td>*mbúdži</td>
<td>mbwí</td>
<td>'goat'</td>
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<tr>
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</tr>
<tr>
<td>*mbúdži</td>
<td>mbwí</td>
<td>mapwí 'goat'</td>
</tr>
<tr>
<td>*mbango</td>
<td>mbaango</td>
<td>mapáangó 'warthog'</td>
</tr>
<tr>
<td>*mbutuká</td>
<td>mbutuká</td>
<td>maputúka 'antelope'</td>
</tr>
</tbody>
</table>
Abstract Phonological Analyses

Proto-Bantu        Kimatuumbi sg.   pl.
*mpɛmbe           mbeembe           mapɛembɛ   'horn'
*ŋkúku            ogúku             makúkú    'chicken'

The abstract analysis would predict that historical voiced consonants after nasals would appear as voiceless consonants when the nasal consonant is not present; the concrete analysis would incorrectly predict that historical voiceless consonants after nasals would appear as voiced consonants when the nasal is not present. The concrete analysis would thus predict that the plural of ogúku should be *magúkú, but this state of affairs is never attested in the language. The selection of a phonologically abstract analysis in the history of Kimatuumbi supports the psychological reality of abstract phonological analyses.

An important step in the argument for the abstract analysis is that a reanalysis takes place only when there is no evidence from morphophonemic alternations to motivate a voiced versus a voiceless consonant after a nasal consonant. Thus, since no adjective occurs exclusively in Class 9-10, the stem initial consonant will not be subjected to the influence of the nasal in all its allomorphs. Furthermore, in nouns which select the singular prefix lʊ- 'Cl.11' and n- 'Cl.10' in the plural, there was evidence for the underlying nature of the stem initial consonant in the singular, since the effect of the nasal is not found after the prefix lʊ-. The examples in (4) show that any noun which originally was in Class 11-10 retains the etymological voiced ~ voiceless distinction in Kimatuumbi.

(4) Proto-Bantu        Kimatuumbi sg.   pl.
*baɗu              lʊbaŋ              mbąŋ      'rib'
*goɗi              lʊgoŋ             ɗgoŋ      'rope'
*dímí              lʊdimí            ndímí    'tongue'
*kungúni           lʊkungúni          ɗgungúni 'bedbug'
*todwà             lʊtódwà           ndówà     'star'

It could thus not be argued that devoicing of the stem initial consonant is a concomittant feature of being a noun with an allomorph in Class 9-10.

The second piece of historical evidence for abstract phonological analyses comes from a reanalysis of the geminate nasal mm. The proto-Bantu Class 1 and Class 3 prefixes *ʊy- have undergone a reduction in Kimatuumbi (as well as in other languages such as Swahili) whereby the vowel ʊ is lost after the labial consonant. The nasal consonant assimilates in place of articulation to the following consonant:

(5) Proto-Bantu        Kimatuumbi
*ʊykόngɔ          ʊŋkόngɔ            'tree'
*mpyʊko            mpuʊko            'bag'
When the stem initial consonant was historically d, g or b, the stem initial obstruent has been nasalized, producing a geminate nasal cluster:

(6) Proto-Bantu Kimatuumbi sg. pl.

*mydängi     nnaáj     mälááj     'bamboo'
*mýgunda      ñgũnda     mígũnda     'field'

The existence of this nasalization rule yields two potential analyses for any initial geminated nasal in Kimatuumbi. Either a surface geminated nasal may be analysed as deriving from m + nasal (a concrete analysis), or it may be derived under my + voiced consonant (an abstract analysis). There are, as far as I can determine, no examples of Proto-Bantu my + nasal in Kimatuumbi. However, there is a loanword mnytũka 'car', borrowed eventually from English 'motorcar' which has an initial geminate nasal which is not derived historically from the sequence *my + voiced stop. This word has, however, undergone a reanalysis along abstract lines, where the initial stem consonant is analysed as an underlying voiced consonant b, as shown in the plural form mbytũka 'cars'. Again, the etymologically unjustified voiced stop can be explained only by assuming the abstract analysis, rather than the concrete analysis, in Kimatuumbi.

In summary, I have argued, using historical facts from Kimatuumbi, that an abstract analysis of a phonological system can be psychologically real. One of the arguments advanced by Hooper [1976] against abstract phonological systems is the purported lack of evidence from historical change demonstrating their "psychological reality". Hooper gives some evidence that grammars may be historically reanalysed along concrete lines. For her argument against abstract phonology to be convincing, it would be necessary for there to be no historical evidence in support of abstract analyses. The data discussed here present such historical evidence.

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REFERENCE

PUBLICATIONS RECEIVED


A collection of papers in three volumes of the International Colloquium on Bantu Expansion held in Viviers, France in 1977. The first volume, "Les classes nominales dans le bantou des Grassfields" (edited by Larry M. Hyman and Jan Voorhoeve), contains a forward by Joseph Greenberg and eleven descriptive papers. It is organized into three parts: an introduction, with papers by K. Stallcup on the linguistic geography of the Grassfields Bantu area and a summary paper by J. Voorhoeve on Bantu and Bane; and sections entitled "Les langues mbam-nkam" and "Les autres langues", with descriptive studies of Grassfields Bantu noun class systems. Volumes 2 and 3 (edited by Luc Bouquiaux) contain a total of 38 papers organized around five "themes" (themes 1-3 are in Volume 2, themes 4-5 in Volume 3): Theme 1 "Recherches relatives à la classification du bantou d'après des méthodes statistiques, lexicales et grammaticales"; Theme 2 "Comparaison des unités lexicales (innovations lexicales, archaïsmes et formes résiduelles, phonologies comparées)"; Theme 3 "Problèmes spécifiques de grammaire comparée du bantou (innovations dans le système grammatical: dérivation, formes verbales, système des classes nominales)"; Theme 4 "Données anthropologiques et archéologiques (principales hypothèses sur les facteurs de l'expansion bantoue. Moyens de vérification)"; Theme 5 "Les migrations bantoues à partir des données linguistiques, des données de la tradition orale, des documents historiques, des institutions comparées. L'habitat d'après les données linguistiques".


A summary of the work of the Africa section of the Laboratoire des Langues et Civilisations à Tradition Orale (LP 3-121 du CNRS). There are seven fascicles and two maps. One fascicle summarizes the organization and functions of LACITO and the other six summarize the work in selected areas of Africa: Niger-Congo Occidental (Marie-José Derive), Niger-Congo Adamawa-Oubangui (Pascal Boyeldieu), Bantuistique (Jan Voorhoeve), Nilo-Saharien (Jean-Pierre Caprile), Afro-Asiatique Tchadique (Herrmann Jungraithmayr), and Pygmées (Jacqueline M.C. Thomas).


This book consists of an introduction with remarks on phonology and
morphology, an Ngizim-English dictionary, and an English-Ngizim word list. The introduction summarizes major phonological and morphological processes and contains pronominal and verbal paradigms. The Ngizim-English section has extensive exemplification from texts.

OTHER RECENT PUBLICATIONS


This volume is made up of five articles on the Aka pygmies of Central Africa: their language, pharmacoeopia, and relations with sedentary agricultural groups. The fruit of a long-term interdisciplinary project, it follows the publication of a phonology of Aka, and precedes that of an encyclopedia, prepared collectively, and several specialized monographs.


A summary of the history and present status of French research on African languages.