Re: Unpublished Manuscript: “Kom Tonology”

The following is a manuscript I typed up in the Fall of 1984 but never finished. Since it goes into great detail on Kom nominal tonology, I thought I would post and make it available to others. It ends with an appendix of ‘noun of noun’ paradigms, the basis for much of the work on Kom tonology.

As will be seen, although Kom has a surface contrast between H, M, L, and L* (a L tone that does not downglide before pause), it can be readily analyzed with two underlying tones /H/ and /L/, certainly the situation in the proto language. What is needed is floating tones and rules of H and L tone spreading, which have slightly different properties.

Parts of what follows have been discussed in other publications of mine, particularly the following:


Larry Hyman, March 14, 2019
0. INTRODUCTION

The purpose of this study is to provide a detailed account of the tonology of Kom, a Western Grassfields Bantu language spoken in Cameroon. Previous studies on related languages of this area have revealed complex tonal systems that bear on crucial issues in the theoretical study of tone in general. In the present study we shall similarly be interested both in constructing a comprehensive description of the Kom tonal system and in commenting on several theoretical issues to which Kom has something to contribute. Finally, since this and past studies have benefitted from the comparative material available to us, we shall on occasion refer to related languages in the group in order to elucidate the specific properties of Kom.

0.1. Grassfields Bantu

As mentioned, Kom belongs to the group of Cameroonian languages known as Grassfields Bantu (GB). This group has, after years of neglect, received considerable recent attention in the literature. There have been three collections of a comparative/historical nature (Voorhoeve 1971a; Hyman and Voorhoeve 1980; Hyman 1980a) as well as several volumes dealing with the phonological and grammatical properties of individual GB languages (Hyman 1972; Leroy 197; Hyman 1979a; Nissim 198). These works and the references cited therein deal both with diachronic and synchronic issues—especially concerning the interlocking tone and noun class systems (see Dunstan 1966 for the earliest statement on this relationship).

In 1974 the Grassfields Bantu Working Group (GBWG) was established with the purpose of further documenting the GB languages, especially
those scores of languages and dialects which remained virtually unstudied.
The results of the group's 1974 survey work, emphasizing the noun lexicon
and noun classes, are to be found in Hyman and Voorhoeve (1980). Stallcup's
(1980a) introductory chapter establishes that the GB group consists of two
subbranches: Western Grassfields Bantu (WGB) and Eastern Grassfields Bantu
(EGB), the latter formerly known as the Mbam-Nkam group (consisting of
Bali, Bamun, and the Bamileke and Ngemba languages, among others). Up
until 1974 almost all of our knowledge beyond simple word lists emanated
from the EGB subbranch, whose noun classes bear morphological resemblance
to those of the better known Narrow Bantu languages extending through
Central, Eastern and Southern Africa. The noun classes of the WGB lan-
guages, on the other hand, bear closer resemblance to West African lan-
guages outside of Bantu, in particular to those surveyed by de Wolf (1971).
This difference provided the major, though not the sole criterion dis-
tinguishing between the two subbranches.

Within WGB the picture is somewhat less clear. Stallcup (1980b)
establishes a Momo subgroup to which Moghamo, Ngie and Oshie belong,
among others. Hyman (1980b) establishes the Ring subgroup, which in-
cludes a group of languages/dialects spoken in the Wum area (of which
Aghem is the best known), Kom and some closely related languages/dia-
lects spoken North of Bamenda, and Lammso and a few small languages
spoken in the Ndop Plain/Banso areas. It is not clear how many of these
should be viewed as separate languages and how many are only dialect
variants of a single language, since we have in this subgroup a continuum
or areal effect. Thus, Bafmeng and Bum seem somewhat intermediate be-
tween Kom and Aghem, and Oku seems, impressionistically, 2/3 Kom, 1/3
Lammso in its morphological and phonological properties. Finally, Ba-
banki spoken to the south of Kom, has certain features in common with
the Ngemba languages on which it borders, these languages belonging in fact to EGB. This areal effect makes it difficult to speak with authority on the appropriate linguistic subgroupings at a low level.

Stallcup (1980a) included two other units within WGB: the Mundani-Njen group and the Beba-Befang or Menchum group. The former may not have been a unit at all—the languages/dialects of this area either are to be added to the neighboring Momo unit, or they are not GB at all, but rather are to be grouped with languages spoken in the South West Province (i.e. Mamfe area). The latter consists of languages that bear resemblance to certain WGB languages, but which show importance differences from both Momo and Ring. Needless to say, additional work is required in virtually all subgroup.

0.2. The Kom Language

As indicated in the preceding section, Kom belongs to the Ring subgroup of WGB. It is, with Lannso, one of the most populous of these languages and an important one for its central geographic location. It was first studied by Bruens (19 ), though this early description, full as it is of phonetic inaccuracies, is of only limited interest. Chia (197 ), on the other hand, provides certain information on Kom, though his interest is mostly in the verbal morphology, not the tone or noun class systems. Kom has thus been singularly neglected.

In order to get information on what its tone and noun class systems might be like, it is thus necessary to look at descriptions of closely related languages. Hyman (1980b) gives comparative information on the noun class systems of the languages/dialects of this group and a detailed account of the noun class system of Babanki, one of the closest relatives to Kom. Hyman (1979) documents the tone system and further information on the interplay between tone and noun classes. It is here that we first
see the striking resemblance between the Momo and the Ring languages: Ason-
gwed and Hyman (1976) had been the first to demonstrate a curious tonal
quirk in the noun class morphology of the WGB languages. They demonstrate
that the second noun (N2) of a "N1 of N2" possessive or "associative" con-
struction always has a L tone prefix underlyingly, though nouns of most
nouns classes have an underlying H tone prefix in most other contexts. In
other words, there appears to be a morphologically conditioned rule assign-
ing L tone to the prefixes of "possessor" nouns. This observation made
for Ngamambo, a Momo language, has been replicated in other Momo languages,
especially by Hombert (1976, 1980?) for Ngie. Hyman (1979) and in unpub-
lished work has determined that all Ring and Momo languages have this
property. (It is not known to what extent this property is found in the
Menchum languages surveyed in 1977 by Marie Anne Boum, though it may be
in some of them--this will help determine whether these languages ought
to be included within the WGB group and whether this tonal "quirk" is
justifiably invoked as a criterial feature of WGB.) We shall see in sub-
sequent sections that Kom has this property as well and that there are
two contexts where all nouns are required to have an underlying L tone pre-
fix: N2 and N1 following the locative preposition ō-.  

0.3. Surface tones of Kom

One of the most interesting observations concerning the tone systems
of this area is that within one subgroup different systems may derive from
exactly the same underlying representations. In particular, closely re-
lated languages may differ in whether they have a discrete- or a terrace-
level tone system. I believe that it is possible to show that this dif-
ference is attributable to areal distribution within GB in general. The
issue is whether a language develops a downstepped high tone (IH) or a mid
(M) tone as its third "toneme" distinct from high and low. The southern,
(Fe'fe', Nda'nda') and Northern (Limbum, Adere) edges of EGB have M tone, while all of the rest of EGB has !H. Within WGB, all of the Momo languages have M tone, while the Ring languages have both. Within the latter, the M tone languages include Kom, Mbizinaku, Oku, Bafmeng and Bum (all very closely related) and Laminso (as reported by Grebe 19__). !H languages include the Wum languages (e.g. Aghem) and Babanki. It is important to ask how these differences came about, though we shall have to postpone this question until later.

Kom, then, is a discrete-level tone language, lacking the downstep phenomenon altogether. It also lacks intonational downdrift, though it does have prepausal "downglide" (Stewart 1973). The following nouns illustrate the surface contrasts found before pause:

(1) \text{-bê} 'dog' (H) \text{-cvo} (HL) 'mouth' \\
\text{-ndó} 'horn' (M) \text{-wú} (HM) 'body' \\
\text{-bò} 'bag' (L) \text{-njam} (L') 'axe' \\

The left column illustrates the three surface tone levels: high (H), mid (M) and low (L). These three tones can combine in a limited fashion to create contour tones, two of which are seen in the right column: 'mouth' has a high-low (HL) contour, while 'body' has a high-mid (HM) contour. It will be seen that contours are simply a sequence of level tones associated onto the same syllabic unit. The remaining contours (ML, LM, NH) are limited and will arise only in certain grammatical contexts. They are not found on citation forms of noun stems before pause. Finally, it is observed, as in other GB languages, that the L tone of 'bag', which falls before pause, contrasts with the L' tone of 'axe', which remains level before pause. In other words, there is a falling-L/level-L opposition realized only before pause. As in the other GB languages, this difference depends on the absence (L) vs. presence (L') of a "floating" H tone in underlying
these occur in various combinations, the issue will have to be addressed ultimately as to whether these are vowel sequences or diphthongs, and if the later, whether the diphthongs should be considered as having two "moras" or one. The vowel symbols are straightforward except for $i$ and $o$. These are very close and strident vowels, giving the impression in fact of syllabic fricatives, i.e. $z$ and $y$, particularly in the latter case (e.g. $T-fo$: 'leaf' sounds like $T-f\bar{\nu}\bar{\nu}$).

While there are many open questions on the proper analysis of Kom segments, there is no evidence that the resolution of these questions will bear on any of the issues raised in this paper. For example, there is no opposition between $VV$ vs. $V.V$ within morphemes, so as long as this distinction holds up we can postpone the question of how to represent intramorphemic $VV$. (In several cases it would seem to be clear that $VV$ should be analyzed with a single unit on the central tier, but we will not address this issue here.)

0.5. **Phonological theory**

We will attempt in this paper to do, perhaps, the impossible: keep theoretical discussion to a minimum, but develop issues which are of theoretical significance. Our main goal is to present the tone and noun class systems of Kom. These systems present an enormous descriptive undertaking in themselves. Aspects of the tonal analysis bear, of course, on issues currently being debated within phonological circles. One of these has been alluded to: the proper understanding on the "central tier". It is of potential interest to know whether vowel and consonant sequences are represented with one vs. two core elements, e.g.

\[(3) \quad \begin{array}{c|c|c} x & x & \text{vs.} \quad x \end{array} \quad \begin{array}{c|c|c|c} k & f & j \end{array} \quad \begin{array}{c|c|c} x & x & \text{vs.} \quad x \end{array} \]
For most of the description to follow we shall sidestep this issue. However, there is an important aspect of the debate on the central tier which will be of relevance: in a crucial tone readjustment rule, reference must be made to the loss of a tone-bearing unit in just an environment where my own approach makes this prediction. It will thus be argued, following Hyman (1984; in press) that the core consists of weight units (WU's), each indicated by an x, which at any given stage in the derivation represent the potential tone-bearing units of a language.

The general theoretical framework will otherwise follow the theory of autosegmental phonology (Goldsmith 1976ab) incorporating some, though not all of the modifications proposed by Haraguchi (1977) and Clements and Ford (1979). We also will have occasion to invoke the notions of underspecification and extratontality (Pulleyblank 1983) when dealing with specific tonal problems. The result, we believe, is an improvement over segmental accounts of GB languages as have appeared in print (Hyman and Tadadjeu 1976; Asongwed and Hyman 1976; Hyman 1979; Nissim 198; Leroy 1979).

0.6. Outline of the study

We shall begin this study with a general presentation of the noun class system, since noun classes figure so importantly in the tonal account. Almost all descriptions of GB tone systems have concentrated only on the noun phrase. We shall do likewise, though we have collected considerable material on verb forms and find no difficulty in extending our analysis to the verb phrase. After the noun classes have been presented in section 1, we shall establish the underlying representations of noun forms in section 2 and then turn to the associative construction in subsequent sections.
1. NOUN CLASSES AND GENDERS

In this section we shall identify and exemplify the different noun classes recognized in Kom and the genders in which they participate.

1.1. Noun classes

As in Bantu in general, each noun in Kom, whether singular, plural or mass, belongs to a noun class. Each such noun class is assigned a number as well, as seen in the following table.

<table>
<thead>
<tr>
<th>CLASS</th>
<th>NOUN AFFIX</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>EXAMPLE</th>
<th>GLOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-wain</td>
<td>'child'</td>
</tr>
<tr>
<td>2</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-yoin</td>
<td>'children'</td>
</tr>
<tr>
<td>3</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-lwëŋ</td>
<td>'bamboo'</td>
</tr>
<tr>
<td>4</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-lëŋ</td>
<td>'bamboos'</td>
</tr>
<tr>
<td>5</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-sëŋ</td>
<td>'tooth'</td>
</tr>
<tr>
<td>6</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-sëŋ</td>
<td>'teeth'</td>
</tr>
<tr>
<td>7</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-tà</td>
<td>'snail'</td>
</tr>
<tr>
<td>8</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-twë</td>
<td>'snails'</td>
</tr>
<tr>
<td>9</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-bë</td>
<td>'dog'</td>
</tr>
<tr>
<td>10</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-bë-së</td>
<td>'dogs'</td>
</tr>
<tr>
<td>13</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-të-yëf</td>
<td>'pains'</td>
</tr>
<tr>
<td>19</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-fë-nëtn</td>
<td>'bird'</td>
</tr>
<tr>
<td>6a</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ</td>
<td>Ꙩ-më-nëtn</td>
<td>'birds'</td>
</tr>
</tbody>
</table>

The seven columns provide the following information:

(i) Number of the noun class. These numbers have long been established in Bantu studies and we retain them here for easy comparison with related languages. As seen, Kom recognizes Bantu classes 1-10, 13, 19 and 6a, whose contents are provided below.
(ii) The affix marking the class on the noun itself. As seen, there are three possibilities: (a) no affix [classes 1, 2, 9]; (b) a suffix [class 10]; and (c) a prefix [classes 3, 4, 5, 6, 7, 8, 10, 13, 19, 6a]. For discussion on the Ø prefix classes, see the next section, where a case is made for reconstructing an earlier prefix. In the case of the ø-w prefix of classes 3 and 8, the w stands for the labializing or labiodentalizing effect on the first consonant of the stem (see the examples; also remaining illustrations below). No tone is given on the noun class prefixes, since this is the subject of our study. It has already been suggested that the underlying tone is H in some cases and L in others, depending on grammatical considerations (and, as we shall see, on noun class and even lexical information). The class 10 suffix -sø, on the other hand, clearly carries H tone underlyingly, though, as we shall see, it too undergoes tonal alternations.

(iii). #1: Subject pronouns corresponding to each class. As seen, these are of the structure CV for each class, though classes 1, 9 and 6a differ from the remaining classes in having a L tone subject pronoun as opposed to the others' H tone subject pronoun.

(iv) #2: The associative marker appearing between N1 and N2, i.e. the topic of much of this paper to follow.

(v) #3: The numeral concords occurring between the noun and a following numeral. Again the labial(dental)izing effect of classes 3 and 8 is indicated, also the unusual (metathesized?) øw concord of class 6a.

(vi) An example is given of each class. The schwa's which are in parentheses represent the initial vowel (IV) which occurs overtly on nouns of classes 1, 2, 9, 10, 13, 19, and 6a; i.e. on nouns belonging to classes which either (a) have no prefix; or (b) have a CV- prefix. Even where the schwa is not present, phonetically, it will be argued that the
IV morpheme still is there underlyingly (see below). The forms given as
examples thus appear as they would be pronounced in citation form--where
the schwa's in parentheses would also be pronounced. Note that the schwas
of classes 3 and 8 are real noun class prefixes, not instances of the IV.

(vii) The gloss of each noun is given, revealing in many cases a
singular-plural relationship between nouns in different classes. This is
the subject of the following section. For the present purpose this observ-
ervation is important only because it provides the major argument for dis-
tinguishing classes 3 and 8, 4 and 5, and 6 and 7. These pairs of classes
are formally identically in all contexts. In a purely synchronic analyses
we might renumber the noun classes and provide a single number to each of
these pairs. Because we have wanted to maintain the comparability with
other languages, we have not done so here. (The same argument could be
made, at least, for renumbering classes 13, 19 and 6a, i.e. as classes
13, 11 and 12, say, since these numbers are synchronically arbitrary in
Kom [cf. Hyman 1981 for Noni, where this is in fact done]). The basic
argument for distinguishing these class pairs is one of semantics only:
classes 3, 5 and 7 are singular classes, while classes 8, 4 and 6 are
plural classes. In any case, it should be noted that there is only one
noun that was found still to have a class 4 plural (i.e. 'bamboo(s)')--
except for it, we would not have this noun class at all. (Surrounding
languages represent represent both where Kom is coming from and where it
is going: some have a few more nouns with a class 4 plural; others have
no class 4 plurals and hence no class 4 at all; the same variation is
found in the Momo languages.)

1.2. Noun genders

When two classes join together to form a singular/plural pair, we
term this pair a "gender" in Bantu. A noun having only one form (e.g.
because it is semantically a mass noun, or perhaps because it is simply defective for whatever reason) is viewed as a single class gender. In this section we shall present each of the genders documented along with several examples of each one for future reference.

Gender 1/2  [n=6]

As seen from the following examples, all of the nouns in this gender have human referents, as expected throughout Bantu and GB:

(5) b ə-wàin/ə-yóin  'child/children'
    c ə-lóm/ə-γó-lóm  'husband(s)'
    d ə-ná bàbə/ə-γó-nábà  'mother(s)' [= 'mother of compound']
    e ə-bó/ə-bó  'owner(s)' [plural unclear; needs checking]
    f ə-wúl/ə-γéli  'person(s)'  
    g ə-wí/ə-γó-kí  'wife/wives'

These examples demonstrate also that there is considerable irregularity in this gender. It is not possible to predict the plural from the singular or vice-versa. There seems to be in the case of 'child' and 'person' and in the singular form of 'wife' evidence of an earlier w- vs. y- prefix opposition (cf. the subject pronouns in (4): wù vs. γó). The phonetic [γ] derives from an earlier voiced labial obstruent (e.g. [b], [β] or [ğ]), as suggested in Hyman (1980c). This gender thus is to be identified in all ways with de Wolf's ु-/bá- gender.

The above six nouns represent all of the 1/2 nouns we have found. Other nouns having human referents are found in other genders. Additional human nouns expected to be in 1/2 are so, but consist of compounds involving one of the above nouns (already 'mother' is a compound, as indicated):

(6) b ə-bó bə/ə-γó-bó bə  'father(s)' [= 'father of compound]
    c ə-wàin wi / ə-wóin γó-kí  'girl(s)'


'grandchild/grandchildren' [=child of child]
'man' [=person male]
'woman' [=person female]

The use of the nouns meaning 'husband' and 'wife' in isolation, seen in (5), as a second element in these (and other) forms is made possible via the adjectival concords, which for 1/2 are ʼe- and ʻe-γe- . The plural nouns 'husbands' and 'mothers' in (5) might themselves suggest an earlier noun class prefix ɣe- for class 2, though this will not concern us here.

Recall, finally, that the initial schwa on the 1/2 forms in (5) and (6) is not a noun class prefix, but rather the IV spoken of earlier.

Gender 1/13  [n=1]  ʻe-fi ʻm  chif  +  ʻe-fi ʻm
A single noun ʻe-fi ʻm (ʻe-fi ʻm?) 'child', plural ʻe-ti ʻm, constitutes this gender. It was hypothesized (Hyman 1980b) that the singular may have come from another class, e.g. 5/13, having the meaning 'royalty' with the singular having shifted to class 1, but the plural remaining in class 13. On the other hand, this noun is probably a often-borrowed one in the GB region, and there may be some other explanation for this highly irregular pairing.

Gender 3/4  [n=1]
As mentioned earlier, a singular noun, ʻe-lwet  'bamboo' (pl. T-1et) constitutes this gender which, in any case, is on its way out in Kom, as well as in nearby languages.

Gender 3/6  [n=#]
Only the following four nouns belong to this gender, as far as we know:

(7) ʻe-kwet/ʻe-  'arm(s)'  ʻe-fwen/ʻe-  'leg(s)'
 ʻe-wet/ʻe-  'body/bodies'  ʻe-cvet/ʻe-  'mouth(es)'

All four nouns are body parts and may once have belonged to another gender (e.g. one whose singular may have been a class no longer occurring in Kom, e.g. 12, 14 or 15). Note that the labializing effect of the singular prefix is maintained in the plural, e.g. ō-fwèn 'legs', even though it most certainly was attributable to the class 3 prefix historically.

This gender also has only four members in our corpus.

(8) D ō-kóin / ō-mō-kóin 'bed(s)'
A ō-lvōa / ō-mō-1ō 'belly/bellies'
C ō-kwō' / ō-mō-kwō' 'money/monies' [also 3/13]
( ō-cá?álā / ō-mō-cá?álā) 'mud(s)'

This final gender involving singular class 3 also has only four members (five, if we count 'money' which occurs in either 3/6a or 3/13):

(9) C ō-fuus' / ō-tō-fuus' 'branch(es)'
A ō-1uo / ō-tō-1uo 'bridge(s)'
C ō-kō? / ō-tō-kō? 'ladder(s)'
F ō-ngōin' / ō-tā-ngōin' 'tail(s)'

Only 13 nouns have thus been found in genders involving a class 3 prefix. One might ask whether class 3 is unstable (having merged, for example, in Babanki Tungo with class 5).

Gender 5/6 [n=18]

The following 18 nouns have been found in this gender:

(10) T-kóin'/ā- 'bean(s)'
T-wōm/ā- 'egg(s)'
T-sas'/ā- 'bottom(s)'
T-sā'/ā- 'eye(s)'
T-γén'/ā- 'breast(s)'
T-kā’/ā- 'face(s)''
Ten of the 18 nouns are body parts (including 'bottom', which also means 'buttock'), though body parts obviously do not all belong to this gender.

Gender 5/13 \( [n=5\frac{3}{4}] \)

This is a very large gender in part because deverbal nouns fall into it and swell its membership. The following 22 deverbal nouns (possibly treatable as a sort of "infinitive") have been identified:

(11) T-bè`/ō-tē`- 'bigness' T-tō?ɔn̪e/ō-tō- 'kindness'
T-l̞u 'bitterness' T-s̀a' 'law'
T-tōf` 'cleverness' T-d̀eʃ 'length'
T-s̀ain` 'coldness' T-jā' 'madness'
T-b̖n` 'dance' T-yaf` 'pain'
T-cèn `dance' T-kɔʔɔsè` 'praise'
T-kfɔ` 'death' T-cwɔn̪e 'promise'
T-khà ` 'slipperiness'
T-fən `fear' T-l̞e` 'smallness'
T-kɔʔi `illness' T-ngb` 'sting'
T-yus `itch' T-fèl `work'
T-jel `journey'

Some of the glosses clearly reveal the deverbal nature of the above 5/13 nouns ('bigness' from 'to be big', 'bitterness' from 'to be bitter' etc.). Some of the plural forms are probably more natural than others, though the consultant supplied the class 13 forms without coercion. Since class 13
appears to be the productive plural class, this is not surprising.

In addition to the above deverbal nouns, the following 31 nouns have been found in gender 5/13. A few of these may also be deverbal, but have not been identified as such.

<table>
<thead>
<tr>
<th>Number</th>
<th>English</th>
<th>Kweme Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>(12)</td>
<td>T-fôʔ /ô-tôʔ</td>
<td>'basket'</td>
</tr>
<tr>
<td></td>
<td>T-ôm`</td>
<td>'brain, marrow'</td>
</tr>
<tr>
<td></td>
<td>T-bôʔ</td>
<td>'bundle'</td>
</tr>
<tr>
<td></td>
<td>T-fô</td>
<td>'cave, cutlass'</td>
</tr>
<tr>
<td></td>
<td>T-kâŋ</td>
<td>'ceiling'</td>
</tr>
<tr>
<td></td>
<td>T-lâʔ</td>
<td>'country'</td>
</tr>
<tr>
<td></td>
<td>T-ôfôm°</td>
<td>'crocodile'</td>
</tr>
<tr>
<td></td>
<td>T-kâũ</td>
<td>'debt'</td>
</tr>
<tr>
<td></td>
<td>T-wôm°</td>
<td>'earthworm'</td>
</tr>
<tr>
<td></td>
<td>T-soʔ</td>
<td>'fat'</td>
</tr>
<tr>
<td></td>
<td>T-vâl</td>
<td>'feather'</td>
</tr>
<tr>
<td></td>
<td>T-jântê</td>
<td>'foolishness'</td>
</tr>
<tr>
<td></td>
<td>T-jônnê</td>
<td>'giddiness'</td>
</tr>
<tr>
<td></td>
<td>T-sê</td>
<td>'grave'</td>
</tr>
<tr>
<td></td>
<td>T-lûŋ</td>
<td>'handpiano'</td>
</tr>
<tr>
<td></td>
<td>T-kâl`</td>
<td>'headpad'</td>
</tr>
<tr>
<td></td>
<td>T-kêlêkêl /ô-tô-</td>
<td>'hook'</td>
</tr>
<tr>
<td></td>
<td>T-kâŋ</td>
<td>'jar'</td>
</tr>
<tr>
<td></td>
<td>T-bî-</td>
<td>'kolanut'</td>
</tr>
<tr>
<td></td>
<td>T-fô-</td>
<td>'leaf'</td>
</tr>
<tr>
<td></td>
<td>T-bû</td>
<td>'pit'</td>
</tr>
<tr>
<td></td>
<td>T-hôm°</td>
<td>'plantain, banana'</td>
</tr>
<tr>
<td></td>
<td>T-yâʔâle</td>
<td>'rib cage'</td>
</tr>
<tr>
<td></td>
<td>T-wû</td>
<td>'rock'</td>
</tr>
<tr>
<td></td>
<td>T-wûm°</td>
<td>'shame'</td>
</tr>
<tr>
<td></td>
<td>T-zvô</td>
<td>'sky'</td>
</tr>
<tr>
<td></td>
<td>T-yôŋ</td>
<td>'spear'</td>
</tr>
<tr>
<td></td>
<td>T-tî</td>
<td>'stone'</td>
</tr>
<tr>
<td></td>
<td>T-dzô-</td>
<td>'termite'</td>
</tr>
<tr>
<td></td>
<td>T-bâl`</td>
<td>'valley'</td>
</tr>
<tr>
<td></td>
<td>T-wô</td>
<td>'wing'</td>
</tr>
</tbody>
</table>

Gender 7/6a [n=9]

The following nine nouns belong to gender 7/6a.

<table>
<thead>
<tr>
<th>Number</th>
<th>English</th>
<th>Kweme Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>(13)</td>
<td>ô-kwî /ô-mô-</td>
<td>'belt'</td>
</tr>
<tr>
<td></td>
<td>ô-fô-</td>
<td>'medicine'</td>
</tr>
<tr>
<td></td>
<td>ô-cân</td>
<td>'clay'</td>
</tr>
<tr>
<td></td>
<td>ô-kô</td>
<td>'mortar (shallow one)'</td>
</tr>
<tr>
<td></td>
<td>ô-bé</td>
<td>'compound'</td>
</tr>
<tr>
<td></td>
<td>ô-kâŋ</td>
<td>'pestle'</td>
</tr>
<tr>
<td></td>
<td>ô-cî</td>
<td>'day'</td>
</tr>
<tr>
<td></td>
<td>ô-kûr</td>
<td>'forest'</td>
</tr>
</tbody>
</table>
Gender 7/8 [n=71]

This is largest single gender, comprising among our corpus the following nouns:

(14) ă-kāin/ă-kfāin 'barrenness' ă-vṓ/ă-vṓ 'foot'

ă-hnwā'/ă-hnwā? 'beehive'

ă-kwū'/ă-kwī 'bell'

ă-hfēf/ă-hfēcf 'blindness'

ă-vēf/ă-vēf 'bone'

ă-htáintān/ă-htwāintwān 'box'

ă-tā'/ă-tā? 'heap'

ă-țū'/ă-țū? 'breath'

ă-tēm/ă-twām 'heart'

ă-yēs'/ă-yūes' 'broom'

ă-kōtē'/ă- 'hip'

ă-tūŋ/ă- 'hump'

ă-hkōnl/ă-hkōnl 'calabash bottle'

ă-htāin'/ă-htwāin 'insect'

ă-gā?/ă-gā? 'cheek, jaw'

ă-gūŋ/ă-gūŋ 'clod'

ă-hfēam/ă-hfēam 'cockroach'

ă-lāŋ/ă-lūŋ 'cocoyam'

ă-lāŋ/ă-lūŋ 'cocooyam'

ă-ŋē'/ă-ăr' 'cowry' (PL)

ă-hkēm/ă-hkēm 'crab'

ă-hčēs'/ă-hčēs 'cricket'

ă-ğēn/ă-wēn 'cut open calabash'

ă-vōŋ/ă-vōŋ 'devil'

ă-bēl/ă-bēl 'dust'

ă-tūŋl̄'/ă-tūŋl̄ 'ear'

ă-tēm/ă-twām 'elephant'

ă-ngū'/ă-ngū 'fool'

ă-kēm/ă-kfēm 'iron'

ă-bē'/ă-bē? 'load'

ă-yās/ă-wās 'lung'

ă-hkān/ă-hkwān 'lyng'

ă-bās'/ă-bēas 'monitor lizard'

ă-wō? PL? 'mushroom'

ă-țū'/ă- 'nose'

ă-bā'/ă-bē? 'piece'

ă-lā'/ă-lū? 'place'

ă-bāŋ'/ă-bēŋ 'pliers'

ă-gvō/ă-gvo 'poverty'

ă-nfēf/ă-nfēf 'pumplun'

ă-lō'/ă- 'platform'

ă-hŋú'/ă-hŋū 'raphia palm'
As can be seen, there is often a segmental modification in passing from singular class 7 to plural class 8. This modification in almost completely predictable, depending on the identity of the initial consonant and the initial vowel of the stem, but also sometimes on the second consonant of the stem as well. As mentioned earlier, we do not wish to go into the analysis of this labial or labiodental element, i.e. whether it is a separate segment or not, and if so, whether it is a consonant or a vowel. Impressionistically, it is as we have written it in each example. Those nouns for which we have not completely spelled out the plural forms do not undergo any segmental modification in class 8.

**Gender 7/13**  \( [n=1] \)

The single noun \( a\-l\-m \) 'flavor, taste' has a singular in class 7 and a plural in class 13 (\( a\-t\-l\-m \)). Perhaps this plural was generated to distinguish between the clearly related, probably identical noun 'smell, odor' 7/8 which was given in (14). As mentioned earlier, 13 is the productive plural class, the one which would be called into play in cases of doubt or confusion.
Gender 9/10 [n= ]

This is also a very large gender, comprising not only a lot of animal referents, but some human and many inanimate ones as well. We shall present the data in two sets: (a) those not having a stem-initial NC cluster; and (b) those having this NC cluster. First the Ø nouns:

(15)  ꦠ-nám' 'animal'  ꦠ-núŋ' /|/ 'hair'
       ꦠ-dɔin 'anus'
       ꦠ-káŋ 'armpit'
       ꦠ-jém 'back'
       ꦠ-bò 'bag'
       ꦠ-ʔvó 'bee'
       ꦠ-nwàʔále 'book'
       ꦠ-bò 'cliff'
       ꦠ-káŋ 'crack'
       ꦠ-bóm 'cup'
       ꦠ-còin 'dance leader'
       ꦠ-bú 'dog'
       ꦠ-jém 'dream'
       ꦠ-lóm 'dry season'
       ꦠ-gwén 'farm'
       ꦠ-ʔvó 'fish'
       ꦠ-fɔ́lɔ́ 'flower' [Eng.]
       ꦠ-sórn 'friend'
       ꦠ-dàlá 'garment (native)'
       ꦠ-bú 'goat'
       ꦠ-háŋ 'hammer' [Eng.]
       ꦠ-káŋ 'hill, mountain'
       ꦠ-fú 'hoe'
       ꦠ-jέŋ 'hunger'
       ꦠ-mó 'lake'
       ꦠ-lábá 'loin-cloth'
       ꦠ-gvó 'maggot'
       ꦠ-káŋ 'monkey'
       ꦠ-sáʔγó 'news'
       ꦠ-kú̄ 'palm kernel'
       ꦠ-dzf 'path'
       ꦠ-bèŋ 'rainy season'
       ꦠ-cwoòkó? 'rat'
       ꦠ-fá 'rat'
       ꦠ-jvá 'river'
       ꦠ-tös 'torch' [Eng.]
       ꦠ-gẹ 'voice, word'

As can be seen in the examples 'flower', 'hammer' and 'torch', this also is the class into which borrowings are placed (also 'milk'?).
The initial schwa in the forms in (15) is of course the IV, and not a noun class prefix. Plural formation in class 10 will be discussed and illustrated after the second set of 9/10 forms have been presented.

This second set, slightly more numerous than the first, consists of 9/10 nouns whose stems begin with a NC cluster:

(16) ə-ngvə? 'age group' ə-ngwəm̩ 'locust'
     ə-nsū 'anteelope' ə-nswə 'log'
     ə-njâte 'axe' ə-ntəm̩ 'message'
     ə-nkwə 'basket' ə-njən̩ 'moon'
     ə-ngə 'calabash serving chip' ə-mbəin 'nail'
     ə-njTɨ 'canerat' ə-ngə 'nail, claw'
     ə-ntən̩ 'chief's palace' ə-ngwə 'porcupine'
     ə-mbə 'chisel' ə-ngən̩ 'pot'
     ə-njən̩ 'cooking stone' ə-ndən̩ 'potato'
     ə-nkən̩ 'cornbeer' ə-nkə 'rope'
     ə-mbən̩ 'dwarf cow' ə-mbən̩ 'snake'
     ə-mbən̩ 'fence' ə-njən̩ 'song'
     ə-njo 'flesh, meat' ə-nsən̩ gvwə 'spider'
     ə-nswə 'ground' ə-ngə 'stone'
     ə-ngwə 'hen, fowl' ə-ntən̩ 'tadpole [sp]'
     ə-nswə?əsə?ə 'hiccup' ə-njən̩ 'thorn'
     ə-mbək 'hole' ə-ndəbə? 'tobacco' [Eng.]
     ə-nsən̩ 'hook, needle' ə-ngə 'trouble' (PL +nə)
     ə-ndən̩ 'horn' ə-ndən̩ 'vagina'
     ə-nə 'house' ə-ntə 'village'
     ə-mbə? 'jigger' ə-njən̩ 'xylophone' PL?
The class 10 plural of class 9 nouns is formed by adding the suffix 
/-só/ to the singular form. The tone of this suffix is predictable on
the basis of the final tone written for each singular noun. Thus, the
tone of /-só/ in class 10 citation forms will be: (a) H after H, M or L°;
(b) M after a floating L; and (c) L° after a L tone. Examples are given
below in (17).

(17) a.  ꔧ-mó-só  'lakes'  ( ꔧ-mó)
       ꔧ-švóʔ-só  'fishes'  ( ꔧ-švóʔ)
       ꔧ-mbām-só  'snakes'  ( ꔧ-mbām)
       ꔧ-njām-só  'axes'  ( ꔧ-njām°)

b.  ꔧ-nám-só  'animals'  ( ꔧ-nám°)
       ꔧ-ngvō-só  'hens'  ( ꔧ-ngvō°)

b.  ꔧ-bō-só  'bags'  ( ꔧ-bō)
       ꔧ-kāf-só  'armpits'  ( ꔧ-kāf)

The tonal alternations found on the class 10 suffix are completely predic-
table from general tone rules existing in the language, as will be seen
in subsequent sections. For the present purposes, it will be noted that
the surface tone of the class 10 suffix is transparent according to the
above distributions—and that the one complication created by the presence
of floating L tones after certain class 9 nouns is justified by the class
10 suffix tone as well as by other tonal properties of these nouns in context.

Gender 19/6a  [n=  ]

This is another commonly observed gender in the language, with the
following nouns falling into it from our corpus.

(18)  ꔧ-fè-ngōnįs  'ant'  ꔧ-fè-wó  'bleeding cup'
       ꔧ-fè-gvōf  'bat' (sp.)  ꔧ-fè-ngēa  'bow & arrow'
       ꔧ-fè-pūTn  'bird'  ꔧ-fè-ndōmũे 'caterpillar' (sp.)

\text{ind\textbackslash

\text{hairy caterpillar}
ō-fō-gvām 'figtree'
ō-fō-ngwāŋ 'salt'
ō-fō-lám 'fruit, guava'
ō-fō-lé? 'smoke'
ō-fō-zhīnl 'god'
ō-fō-sésé 'spark'
ō-fō-bōʔ 'gorilla'
ō-fō-boľn 'squirrel' (ground)
ō-fō-nū 'knife'
ō-fō-cūo 'squirrel' (tree)
ō-fō-njēn 'star'
ō-fō-nsēs 'louse'
ō-fō-jvâ 'stream'
ō-fō-yâm 'mat'
ō-fō-ţţô 'tale'
ō-fō-kâ? 'tree'
ō-fā-ţvōkāţvōk 'mosquito'
ō-fō-ţâŋ 'vein'
ō-fō-sûs 'pepper'
ō-fō-ncōʔ 'wire, ring, bicycle'

All of the above nouns form their plural in class 6a, which is marked by ō-mē- substituting for ō-mē-, e.g. ō-mē-lám 'fruits', ō-mē-yâm 'mats' etc.

More will be said later on the tonal properties of the mē- prefix. The schwa observed preceding the CV prefix is, of course, the IV.

1.3. Single class noun genders

In addition to the above double class noun genders, a number of nouns fall into one of the 13 noun classes without having a corresponding class member to form a two class noun gender. We shall refer to these nouns as single class noun genders. In several cases where we have relied on the singular-plural opposition to assign class numbers, we shall be unable to do so here. Thus, in the single class noun genders, class 3 = class 8, class 4 = class 5, and class 6 = class 7. Nouns have this single class gender proper either are defective in some way for whatever reason or are semantically incapable of distinguishing singular and plural (e.g. they are mass or non-count nouns). We shall present the ones we found in our corpus below.
Gender 3=8  [n=1]

The one noun ̕o-vó 'fire' exists in this single class gender, though the homophonous noun 'gun' was entered into gender 3/6a and is definitely related etymologically. It is of course impossible to give this gender a single number, because classes 3 and 8 are formally identical in Kom and there is no alternating class to determine whether 'fire' is a singular or a plural (the noun 'gun' would suggest that it is a singular, perhaps, if we chose to view it as the identical noun).

Gender 4=5  [n=2]

Although these two classes are formally identical, the rarity of class 4 suggests that this single class gender could be viewed simply as gender 5/∅. Two nouns have been found in this category: ̕o-hgɔln 'green' grasshopper' and ̕o-vó 'rain'.

Gender 6=7  [n=7]

The following seven nouns occur in this single class gender:

(19) ̕o-bvó 'ashes' ̕o-yó 'excrement' ̕o-kó 'charcoal' ̕o-yú>só 'perspiration' ̕o-ŋándɔ 'chest' ̕o-fócf 'wind' (check)
̕o-múa? 'dew'

Except perhaps for 'chest', these nouns are of a mass or non-count nature. They thus would not be expected to have a singular/plural distinction and indeed they don't. Comparative data from related languages that distinguish class 6 from class 7 formally suggest that 'ashes', 'charcoal', 'chest', 'dew' and 'wind' are all historically from class 7. The data is too sketchy to say with certainty what the original class is for 'excrement' and 'perspiration'.

Gender 6a  [n=11]
Eleven nouns have been found in gender 6a.

(20) endcode

As seen, all of these nouns have mass or liquid referents and therefore are not expected to have singular-plural distinctions. The noun prefix of 'flour' is irregular; 'water' probably had a vowel-initial stem with which the regular mə- prefix fused.

Gender 9  [n=2]

Two nouns occur in class 9 without having a corresponding class 10 plural form: endcode

In related languages 'termite' varies in noun class.

Gender 10  [n=2]

Again two nouns occur in this gender, which consists of a class 10 form without the expected corresponding class 9 singular: endcode

This completes our survey of the different genders. We turn now to the structure of nouns as it can be determined from the 300+ nouns we have just illustrated.

2. NOUN STRUCTURE

All thirteen noun classes having been illustrated, we now are in a position to consider the general morphological and phonological structure of nouns themselves.

\[
(P repell) - \text{STEM} - (\text{SUF} \text{ NEX})
\]
2.1. Noun stems

The core element of any noun in Bantu is the noun stem itself. In Narrow Bantu and its proto language, the vast majority of noun stems are bisyllabic, either of a CVCV, CVVCV or CVNCV structure, where N is a syllabic nasal. In Grassfields Bantu, the vast majority of noun stems are mono-syllabic. However, it has been known at least since the time of Voorhoeve (1971) that these stems correspond to the bisyllabic ones found in NB and that there are traces of the "lost" syllable in the form of "floating" tones. We shall see evidence of these floating tones in Kom, but first consider the different shape the noun stem can take.

Every noun stem begins with a consonant in Kom. In the case of the alternating w-/y- consonants of gender 1/2 (see (5) above), an argument could be made that these are noun class prefixes and the stems to which they attach are vowel-initial. Since there are only 2 or 3 examples of this alternation, and since there are even irregularities in what would be the singular vs. plural stems for 'child' and 'person', we shall regard these consonants as stem-initial and leave for historical reconstruction the task of evaluating the significance of these remnant forms (the same case could conceivably be made for class 6a 'water', once presumably analyzed as ma-u, but now pronounced ū-mū- with the IV).

In some cases the stem-initial consonant appears complex. Examples have been seen, especially, though not exclusively, in classes 3 and 8, of initial Cf, Cv, and Cw "sequences", since the prefix of these classes has a labial(dental)izing effect. We shall have little to say about the phonological analysis of these entities. Where such sequences are written we shall simply assume that these are complex consonants, i.e. that they have a single unit on the central tier. Any other assumption would render the tonal analysis needlessly complex.
Most Kom stems have a single vowel segment as the nucleus of their single syllable. There is no opposition between long vs. short vowels in noun stems. There is, however, a noted tendency for diphthongs to occur in the language. Since the tonal patterns on diphthongs are identical to those found on monophthongs, we have two possible explanations: either (a) tone associates onto the syllable node directly without regard to how many syllabic units there are in any given syllable; or (b) tone associates onto syllabic units (mora's or weight units [WU's] in my framework) and monophthongs and diphthongs simply have the same number of WU's in every case. We shall opt for the second position. However, there are still two possibilities: either (a) diphthongs have a single WU and so do monophthongs; or (b) there is a higher level stem structure condition on WU's which accounts for the failure of diphthongs to be distinct from monophthongs tonally. Again it is the second position which appeals to us. For reasons that will be developed later we propose that there is a weight structure condition requiring that each stem consist of more than two WU's; or, in other words, that there be no stem ending in a short vowel (i.e. a vowel having a single WU). What this means is that stems such as -bô 'bag' [9/10] or -mô 'lake' [9/10] have the value of two moras. That is, the underlying structure of such CV stems starts out as (21a) and becomes (21b) by the onset creation rule (OCR) discussed in Hyman (in press):

(21) a. \[ \begin{array}{c} x \ x \ x \\ C \ \ \ \ V \end{array} \]  

b. \[ \begin{array}{c} x \ x \\ C \ \ \ \ V \end{array} \]  

c. \[ \begin{array}{c} * \ x \ x \\ C \ \ \ \ V \end{array} \]  

In (21a) the consonant onset has its own WU; in (21b) this WU has been deleted by the OCR, and the C has been reassOCIated to the next x. In the underlying representation we have a long vowel, i.e. a single vowel matrix associated onto two WU's, since there is a stem-structure condition outlawing single mora stems--i.e. stems of the underlying structure in (21c). The
reason for this will be seen later. The result of this condition, note, is that the only single-mora CV syllables will be non-stem morphemes, i.e. syllables which do not occur as the only syllable within a stem. I believe that this condition, motivated as we shall see by tonal considerations, is the synchronic reflex of the fact that all stems had two syllables historically, as we have mentioned for NB.

2.2. Noun suffixes
A stem may, of course, be longer than the representation in (21a); i.e. it may have more than two WU's. The single-syllable stems are of the form CVV (=either a long vowel or a diphthong) or CVC, where the second C has its own WU and hence the stem condition is met. The examples given under several noun genders indicate occasionally longer "stems", though there is always an open question as to whether the additional syllabic material is part of the stem or is a suffix. In some cases we are confident in ascribing a suffixal status to this material, e.g. the final -Ce of words such as ǝ-yǝn-sǝ 'sugarcane' [7/8] or ǝ-ŋǝŋ-tǝ 'chest' [6=7]. Not only does their phonological identity with real suffixes in the language (as found in the plural suffix of class 10 or in verb forms) suggest their suffixal status; but so does the fact that stems do not have internal consonant sequences. Thus, CVCCV must be analyzed as CVC-CV, even though the -CV suffix may not have any particular meaning: the lexical items in questions are assumed simply to have internal morphological structure, even if their overall meaning cannot be attributed to the sum of the meanings of the parts, a very frequent phenomenon in morphology, anyway. In other cases, however, it is not so easy to decide whether something is a suffix, e.g. cases where the would-be suffix is a vowel, e.g. ǝ-ngǝmǝ'[locust' [9/10] or T-ǝmǝ'[tongue' [5/6]. We will in these cases consider the final vowel, usually i, to be the manifestation of the second mora required of stems.

Longer stems are either compounds, reduplications, or borrowings from other languages, mostly English.
The only productive noun suffix is the class 10 plural suffix -só. It is almost certainly a recent development designed to disambiguate the plural class 10 from the corresponding singular class 9. Within the Ring group it is frequently found, though it is conspicuously missing from the Wum dialects, where class 10 has merged with class 13 and a prefix té- is added to class 9 nouns to form the plural. It is probably derived from an earlier demonstrative or generalized determiner (e.g. 'the one in question') and it is missing whenever there is an agreeing element following the class 10 noun; i.e. whenever there is a modifier or a subject-verb agreement marker, we do not obtain two só's in a row, but rather only one, e.g. ó-mbó cm só-bó 'two snakes' and not "ó-mbó só só-bó". Its role as a disambiguator is thus confirmed: where another marker clearly establishes that the noun in question is plural [class 10], the suffix is not found. In citation or in contexts where there is no overt class 10 agreement marker, the noun would be ambiguous between singular [class 9] and plural [class 10] and the suffix -só is thus required.

While this one suffix is productive within the noun morphology, there is no productive reduplication or juxtaposition of stems (i.e. true compounding) that we know of. The occasional cases of these are thus lexical rather than derived by some productive rule. This does not preclude their derivation by "minor rules" within the lexicon, however. In the case of class 8 reduplications, where each reduplicated stem must become labialized, this seems required: the labialization takes place and then reduplication occurs... or, in McCarthy's framework, we have an internal structure such that the labialization takes place on the whole stem and percolates down to each separate stem. [Develop or drop?]

Borrowings will not concern us here. They are not numerous in the corpus, but coming from English as they do, they will have certain exceptional features with varying degrees of nativization.
2.3. **Tone patterns on CV- prefix**

We now come to the major topic at hand: the tones of nouns in isolation. We shall restrict ourselves first to nouns which have a CV- prefix, since they allow for the most transparent analysis—an analysis which will be readily transferrable to the other noun classes. We thus approach first the tones found in classes 13, 19 and 6a, whose prefixes are, respectively, ʦə-, ʃə- and mo-.

We begin thus with tone patterns on nouns having the IV ə- (always with surface M tone), one of the above CV- prefixes (varying between M and L), and a single syllable stem. The different patterns and their frequency in each of the classes 13, 19 and 6a are given in the following table:

<table>
<thead>
<tr>
<th>(22)</th>
<th>TONE PATTERN</th>
<th>CLASS 13</th>
<th>CLASS 19</th>
<th>CLASS 6a</th>
<th>TOTAL STEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-M-[</td>
<td>HL</td>
<td>15</td>
<td>8</td>
<td>8 + 4</td>
<td>27</td>
</tr>
<tr>
<td>M-M-[</td>
<td>HM</td>
<td>5</td>
<td>2</td>
<td>2 + 4</td>
<td>11</td>
</tr>
<tr>
<td>M-M-[</td>
<td>H ŋ</td>
<td>20</td>
<td>3</td>
<td>3 + 7</td>
<td>30</td>
</tr>
<tr>
<td>M-M-[</td>
<td>H</td>
<td>7</td>
<td>4</td>
<td>4 + 8</td>
<td>19</td>
</tr>
<tr>
<td>M-L-[</td>
<td>L</td>
<td>0</td>
<td>1</td>
<td>1 + 0</td>
<td>1</td>
</tr>
<tr>
<td>M-L-[</td>
<td>L⁰</td>
<td>1</td>
<td>1</td>
<td>1 + 0</td>
<td>4</td>
</tr>
<tr>
<td>M-L-[</td>
<td>M</td>
<td>0</td>
<td>2</td>
<td>2 + 0</td>
<td>2</td>
</tr>
<tr>
<td>M-L-[</td>
<td>HL</td>
<td>0</td>
<td>1</td>
<td>1 + 0</td>
<td>1</td>
</tr>
</tbody>
</table>

As seen, the vast majority of nouns in these classes begin with a M tone prefix (a total of 87 nouns, counting the nouns in 19/6a only once each) as opposed to beginning with a L tone prefix (a total of 8 nouns). Since less than 10% of such nouns begin with a L prefix, we shall consider these not to represent a major pattern in the language: CV- prefixes are expected, thus, to have a M tone. Let us thus consider first the four tone patterns appearing above attested, statistically, the broken line, each of which is amply represented in these noun classes.
The [ symbol indicates where the stem begins.

Consider thus the following representative nouns from each of the three noun classes and each of the four tone patterns:

<table>
<thead>
<tr>
<th>TONE PATTERN</th>
<th>CLASS 13</th>
<th>CLASS 19</th>
<th>CLASS 6a</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-M-[ HL</td>
<td>ǝ-tǝ-fǝn 'chiefs'</td>
<td>ǝ-fǝ-ǝn 'squirrel'</td>
<td>ǝ-mǝ-ǝn</td>
</tr>
<tr>
<td>M-M-[ HM</td>
<td>ǝ-tǝ-dǝk 'termites'</td>
<td>ǝ-fǝ-nuŋ 'bird'</td>
<td>ǝ-mǝ-nuŋ</td>
</tr>
<tr>
<td>M-M-[ H ǝ</td>
<td>ǝ-tǝ-bǝi 'valleys'</td>
<td>ǝ-fǝ-buŋ 'gorilla'</td>
<td>ǝ-mǝ-buŋ</td>
</tr>
<tr>
<td>M-M-[ H ǝ</td>
<td>ǝ-tǝ-wú 'rocks'</td>
<td>ǝ-fǝ-tǝm 'fruit'</td>
<td>ǝ-mǝ-tǝm</td>
</tr>
</tbody>
</table>

The class 6a forms, of course, the plural of the corresponding class 19 nouns, as can be readily seen.

The first important observation to be made about the stem tones is that all stems in these major tone patterns begin with a H tone. This is highly suspect, of course, since we expect, other things being equal, H and L tones to be equally distributed morphologically, i.e. that there should be H tone stems and L tone stems, etc. It is noted also that this initial H of each stem can be followed by a L (to create a HL falling tone), a M (to create a HM falling tone), by a floating ǝ tone (to be discussed) or by Ø. How to account for this?

The basic hypothesis is this: the above (and most) noun stems in isolation noun forms begin with a H tone because the prefix is underlyingly H tone, i.e. /tǝ-/, /fǝ-/, and /mǝ-/ (we shall, however, have more to say about the class 6a prefix, since it alternates, along with classes 1 and 9, in a curious way between underlying H and underlying L tone). Noun stems which underlyingly begin with H need no further explanation in order to account for their initial H tone. Noun stems which underlyingly begin with L, on the other hand, acquire their initial H from a spreading rule which associates the H of the prefix onto the stem syllable... somehow creating HL and HM contours, as we shall now see. A later rule accounts for the lowering...
of the prefix (and the IV) from H to M.

But how do we assign underlying tones to the stem classes in (23)?

In order to gain further insight into their underlying tone patterns, consider the realization of the same class 13 nouns after a L tone associative:

(24) a. ʔ-ɘ-mo-cūo mè tè-fòìn 'squirrels of the chiefs'
b. ʔ-ɘ-mo-cūo mè tè-dzè'ò 'squirrels of the termites'
c. ʔ-ɘ-mo-cūo mè tè-bāl 'squirrels of the valleys'
d. ʔ-ɘ-mo-cūo mè tè-wù'ò 'squirrels of the rocks'

As in previous studies on GB tonology, we shall not be concerned with the sense or lack of sense acquired in juxtaposing different nouns in the N1 of N2 associative construction. Thus, while 'the squirrels of the chiefs' makes enough sense, 'the squirrels of the termites' makes less sense. We shall be interested only in the tonal alternations of these forms.

The reason for looking at these nouns in N2 position is the following: we have remarked already on the general WGB property according to which nouns in this position all have underlying L tone prefixes (with, in fact, no exceptions). Kom is no exception to this rule. Thus, we assume that a morphological tone assignment or tone modification rule spells out the tone of prefixes in N2 position as L and that the underlying form of the N2 prefix in (24) is thus /tè-/. (We need not enter into a debate over whether the prefix begins as H and is lowered, or whether there is an additional L tone floating around, perhaps the mark of the associative construction, which "replaces" the H or what. The effect is the same and the cause of this effect so deeply embedded historically in these languages that little is expected to hinge on the exact statement of this clearly morphologically conditioned rule.) We now see that it is possible to observe the tone patterns of stems when preceded either by a H or by a L prefix, i.e. to compare the tone patterns of the class 13 nouns in (23)
with those in $N_2$ position in (24).

We have noted that there are exactly four major tone patterns on stems. Our task is to determine the underlying tone representation of these stems. We already suspect that all can be done with two tones, $H$ and $L$, and that the $M$ tone is a derived tone. Four tone patterns can thus be obtained by assuming bi-tonal patterns of $H$ and $L$, i.e. $L-L$, $L-H$, $H-L$ and $H-H$. This is what has been followed ever since Voorhoeve (1971) cracked the first GB tone system. Within autosegmental theory we make the simple adjustment of eliminating the second tone of the pattern when it is identical to the preceding tone, i.e. we then have the patterns $L$, $L-H$, $H-L$ and $H$. Already in Hyman and Tadadjeu (1976) we alluded to the fact that the second like tone was unnecessary but was included only for "symmetrical" reasons.

Stems will thus either have an underlying $L$ or $H$ tone, or they will have a "contour" representation of $LH$ or $HL$. This being accepted, it is fairly easy to assign each of the four patterns one of these underlying tonal representations:

\[
\begin{align*}
(25) \ a. & \quad /-\text{foin}/, \ L \\
& \quad /-\text{ba}/, \ HL \\
& \quad /-\text{di}/, \ LH \\
& \quad /-\text{wu}/, \ H \\
\end{align*}
\]

In (23a) we see that the stem 'chief' has an underlying $L$ tone. This is the same as its realization in $N_2$ position in (24) and there should be little question of its correctness. In (25b), 'termite' gets a $LH$ representation. In $N_2$ position in (24b) it had a $L^0$ tone before pause, i.e. a level $L$ tone. Since $L$ is expected to "downglide" before pause, and since this $L$ does not do so (as symbolized by the $^0$ mark), we can now attribute this to the presence of a "floating" $H$ tone in the representation, i.e. $dz^+\text{ L H}$.

The $HL$ and $HM$ contours seen on these nouns when their prefix is $H$, as in (23a) and (23b), come from the spreading of the $H$ tone of the prefix, as we have already said. We assume, then, that there is a rule of the
form in (26).

(26) H-spreading

\[
\begin{array}{c}
\text{X} \\
\hline
\text{H} \\
\text{L}
\end{array}
\]

In a H L sequence, the H spreads onto the following TBU to create a HL falling tone. This produces the stem tones -f3in and -dz4f, the latter later simplifying to -dzf by a process we shall discuss later.

More remains to be said about H-spreading and the rules with which it interacts. Let us for the moment postpone further discussion of this and turn to the remaining tone patterns in (25), those which begin with a H tone. Throughout the listing of nouns whose stems are phonetically H we have followed the practice of indicating floating L tones for some, but not for others. In (24c) and (24d) we see the first motivation for distinguishing two classes of H tone stems: some of these (the ones we have marked with a floating L tone) become L-M in this context; others (the ones we have not marked with a floating tone) acquire a level L^0 tone instead. We suggest that there is, corresponding to H-spreading but applying at a later stage in the derivation (and hence not collapseable with H-spreading), a rule of L-spreading, as formalized in (27).

(27) L-spreading

\[
\begin{array}{c}
\text{X} \\
\hline
\text{L} \\
\text{H} \\
\#
\end{array}
\]

A L-H sequence which occurs word-finally (utterance-finally?) is converted to a L-LH sequence by spreading of the L tone onto the following TBU. A later rule simplifies the LH rising contour to L^0 before pause.

That this could apply to 'rocks' in (24d), but not to 'valleys' in (24c) is now seen from the fact that the latter noun has a floating L tone occurring between the L-H sequence and the # boundary. This floating L tone blocks L-spreading, as desired. Peeking ahead slightly just to further
convince us of the correctness of this analysis is seen from the realization of the /tə/ associative marker after each of these two nouns in (28):

(28) a. ṭ̣ə-tə-bál tə wāin 'valleys of the child'
   b. ṭ̣ə-tə-wú tə wāin 'rocks of the child'

In (28b) the associative marker /tə/ surfaces with its underlying H tone intact, whereas in (28a), it is realized on the surface on a M tone. The cause of this difference is, of course, the floating L tone found in the HL pattern of 'valleys' as opposed to the simple H pattern of 'rocks'.

This floating L is itself not pronounced, but it has the effect of lowering a following H to M. In fact, the same rule is responsible for the M tone on 'valleys' observed in N₂ position in (24c). We generalized and say, then, that a floating or anchored L tone will cause a following H tone to be pronounced on a M tone level. Finally, since prefixes themselves are realized on a M tone level, the rule must also apply to a H tone that immediately follows a word boundary. This low-level phonetic rule will be reformulated later, but for reference we present it in (29) in its most straightforward version, i.e. as a rule changing a tone feature. The inadequacy of this formulation will be addressed in a subsequent section.

(29) H-lowering [first formulation]  

<table>
<thead>
<tr>
<th>(x)</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>H</td>
</tr>
<tr>
<td>#</td>
<td>M</td>
</tr>
</tbody>
</table>

2.4. Tone patterns with V- prefixes

In the previous section we saw that there are four major tone patterns occurring on stems following a CV- prefix. The same is true in the case of classes having a V- prefix, i.e. in classes 3, 4, 5, 6, 7, and 8. The following table summarizes the distribution of each tone pattern.
<table>
<thead>
<tr>
<th></th>
<th>3/4</th>
<th>3/6</th>
<th>3/6a</th>
<th>3/13</th>
<th>5/6</th>
<th>5/13*</th>
<th>7/6a</th>
<th>7/8</th>
<th>7/13</th>
<th>3</th>
<th>5</th>
<th>6=7</th>
<th>TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-HL</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5/7</td>
<td>15</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M-HM</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>5/0</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M-Hp</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>7/11</td>
<td>2</td>
<td>15</td>
<td>3</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M-H</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>6/0</td>
<td>4</td>
<td>10</td>
<td>1</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>ML-L</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>ML-L°</td>
<td></td>
<td>1</td>
<td></td>
<td>2/1</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ML-M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ML-H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(*5/13 is presented first for non-deverbal and then deverbal nouns)

Again we have separated by a broken line the major tone patterns from the minor tone patterns, presenting only cases of where the noun stem has a single syllable. The totals to the right indicate that the vast majority of nouns fall into one of the four major patterns, i.e. 131 vs. 21. This time the minority patterns consist of just under 14% of the total single-syllable noun stems having a V- prefix. Curiously, 16 of these are in gender 7/8, 16 out of 58, or 27.6% of all of the single syllable stems in that gender. (A curious second observation about 7/8 is the paucity of M-HM nouns.)

The follow class 7 nouns will be used in later constructions and adequately illustrate the major tone patterns of V- prefix nouns:

(51) a. ṣ-ôn? 'place'  ṣ-ôkô 'slave'
b. ṣ-l'ān 'coco-yam'  ṣ-ôkôô 'forest'  
c. ṣ-ômôn 'trap'  ṣ-ôbôc 'lizard'
d. ṣ-ôyôl 'grass'  ṣ-ôkôf 'tick'

All of these belong to gender 7/8 except 'forest', which belongs to gender 7/6a. Their underlying tones correspond to those seen for CV- prefix nouns in (23) and (25):
(52) a. L : -ləʔ , -kəs
   b. LH : -ləŋ', -k'u'
   c. HL : -təm', -bəs'
   d. H : -yəl , -kəf

To further justify these underlying stem tones, consider how the nouns of the second column are realized as N₂ after the L tone associative marker /mə/ of class 6a:

(53) a. ə-mə-ˈcə m' ə-kəs 'squirrels of the slave'
   b. ə-mə-ˈkə m' ə-kə' 'squirrels of the forest'
   c. ə-mə-ˈbə m' ə-bəs 'squirrels of the lizard'
   d. ə-mə-ˈkə m' ə-kəf 'squirrels of the tick'

The tonal alternations on the V- prefix N₂ nouns should be compared to the corresponding ones on CV- prefix N₂ nouns seen earlier in (24). The exact same tones are observed on the stems, as expected. The only difference between the forms in (24) and those in (53) is the coalescence which occurs between /mə/ and the class 7 prefix /ə-/, which, recall, has an underlying L tone in N₂ position.

We thus conclude that the major tone patterns on single syllable noun stems are identical in noun classes having either a V- or a CV- prefix.

2.5. **Minor tone patterns**

Before turning to the third possible noun structure, that lacking a prefix altogether, let us consider the tone patterns given below the broken line in (22) and (30). These patterns were said to be much less frequent and "minor" in nature, i.e. exceptional in some sense. Since they are not that numerous, we shall list them here in (54) and (55).
(54) -L : әң-ٵәф / әң-ٵәф 'blindness(es)' 7/8
әә-тәәм / әә-тәәм 'elephant(s)' 7/8
әә-дәә / әә-дәә 'sore(s)' 7/8
әә-тәә / әә-тәә 'spoon(s)' 7/8
әә-бәә / әә-бәә 'tadpole(s)' 7/8
Thә-gәәә 'green grasshopper(s)' 5
әә-фәә-әә / әә-мәә-әә 'ground squirrel(s)' 19/6a

-L° : әә-кәәә / әә-тәә-нәәә 'tail(s)' 3/13
Thә-фәәә / әә-тәә-нфәәә 'crocodile(s)' 5/13
Thә-ғәәә / әә-тәә-ңәәә 'plantain(s)' 5/13
Thә-ңәәә / әә-тәә-ңәәә 'sting(s)' 5/13
(әә-ңәәә әә-ңәәә / әә-ңәәә) 'centipede(s)' 7/8

-әә-cәәә / әә-ңәәә 'cricket(s)' 7/8
әә-ғәәә / әә-ғәәә 'fool(s)' 7/8
әә-тәәә / әә-тәәә 'insect(s)' 7/8
әә-ңәәә / әә-ңәәә 'stomach(s)' 7/8
әә-ңәәә / әә-ңәәә 'knife(s)' 19/6a

-M : әә-ңәәә / әә-ңәәә 'beehive(s)' 7/8
әә-ңәәә / әә-ңәәә 'lie(s)' 7/8 (gloss)
әә-ңәәә / әә-ңәәә 'delirious(s)' 7/8
әә-ңәәә / әә-ңәәә 'bow(s) & arrow(s)' 19/6a
әә-ңәәә / әә-ңәәә 'wire(s)' 19/6a

-H : (әә-ңәәә / әә-ңәәә) 'cockroach(es)' 7/8
әә-ңәәә / әә-ңәәә 'crab(s)' 7/8
әә-ңәәә / әә-ңәәә 'poverty/poverties' 7/8

-әә / әә-ңәәә / әә-ңәәә 'bat(s) [sp.]' 19/6a
Again we are faced with four stem patterns: L, L⁰, M and H, with the one exception HL stem which we will regard simply as requiring exceptional lexical marking on the stem itself. The irregularities in these surface tones are due to the fact that these nouns involve a L tone prefix. As can be seen, 18 out of 26 of these nouns, i.e. over two-thirds of them, have a homorganic nasal occurring between the prefix and the stem-initial consonant. (We have transcribed this nasal as part of the prefix in cases where it alone is syllabic and tone-bearing; otherwise, where it is not tone bearing, we have transcribed it as part of the stem--this is an arbitrary decision motivated solely by our desire to make the stem properties as transparent as possible.) As in related WGB languages, a NC sequence appears to have a tone-depressing effect on the prefix (cf. Ngamambo [Asongwed and Hyman 1976], Babanki [Hyman 1979] etc.). Perhaps those nouns having this L tone prefix but lacking the nasal once had the nasal--for some of these nouns cognate forms in related languages DO have a nasal. Be this as it may, the analysis of these forms is straightforward only in part: the L stems clearly have an underlying /L/ representation, and the L⁰ stems clearly have an underlying /LH/ representation, as we have argued above for other nouns. Thus, these nouns merged with their "regular" counterparts in N₂ position, since in this position the latter have a morphologically imposed L prefix, as we have seen.

The remaining patterns with M and H tone are somewhat perplexing. The M stems suggest a /HL/ stem pattern so that the L of the prefix will not condition L-spreading (rule (27)), though it will condition H-lowering (rule (29)). However, if the -H nouns are recognized as /H/, then why do we observe neither L-spreading, nor H-lowering? We can block L-spreading by placing an additional (floating) L tone into the representation (e.g. on a separate tier hooked to the nasal--but note from class 19 [check] that not all nasals automatically condition this L... in genders other than 19/6a
they DO, however. [More information is needed on the structure of the 8 nouns having M and H stems--e.g. do they all pattern identically, or are they differentiable according to the presence vs. absence of a floating L after the stem?]

2.6. Prefixless nouns

Having established that the minor tone patterns are identical to the N₂ forms of major tone patterns, and that they are identical because they all involve a L- prefix, we are ready to consider the tones of the so-called prefixless noun classes. These are classes 1, 2, 9 and 10. We shall first concentrate on class 9 (recall that class 10 is identical to class 9 except for the addition of a /-sè/ suffix), since there are many more nouns in this class than in class 1.

It is recalled that there are roughly equal numbers of 9/10 nouns having an initial NC cluster, vs. not having one: within our corpus, 44 nouns have the cluster, while 39 do not. Counting the IV ò- M tone within the calculation, since we interested at the moment only in how these nouns are pronounced with the IV, we have the following distribution of tone patterns within class 9:

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NC-</td>
<td>14</td>
<td>3</td>
<td>3</td>
<td>15</td>
<td>(2)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ØC-</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>(1)</td>
<td>(1)</td>
<td>7/2</td>
<td>(2)</td>
<td>13</td>
</tr>
<tr>
<td>TOTALS</td>
<td>19</td>
<td>3</td>
<td>3</td>
<td>16</td>
<td>3</td>
<td>7/2</td>
<td>2</td>
<td>13</td>
</tr>
</tbody>
</table>

The numbers in parentheses indicate exceptional patterns due to borrowings or other causes. They need not concern us too much, though their tonal properties will of course have to be accounted for by the rules we shall establish. With these aside, there are appear to be four patterns on class 9 nouns with an initial NC- cluster, and three on ØC- initials (one of which,
7/2 indicating, however, two distinct subclasses to be discussed shortly.)

Let us consider first the NC-class 9 noun tone patterns, illustrated in (56) along with their class 10 plurals.

(56) a. ə-mɓonə / ə-mɓonə-ːso / 'dwarf cow(s)' /ə - `mɓonə /

b. ə-njámə / ə-njám-sə / 'axe(s)' /ə - `njám'/

c. ə-ntenəm / ə-ntenəm-so / 'message(s)' /ə - `ntenəm'/

d. ə-mɓəm / ə-mɓəm-so / 'snake(s)' /ə - `mɓəm /

The forms given above are the citation pronunciations of these singular and plural nouns. To the write are the underlying tonal representations proposed to handle these forms (exclusive of the /-sə/ class 10 suffix, which need merely be added to these representations). As can be seen, the four expected tone patterns on noun stems are obtained: L, LH, HL and H. These are considered to be preceded by the H tone IV /ə-/ and a floating L tone indicating the noun class (for both singular and plural). The nasal of the NC initial is non-syllabic, even when the IV is absent, though either it once was the noun class prefix and carried the L tone, or there was a vowel (perhaps l-, which dropped out). The floating L tone is of course responsible for the fact that both 'message' and 'snake' are pronounced on a M tone level. The two nouns which are M-H in isolation, namely ə-ŋkáŋ 'cornbeer' and ə-ŋjáŋ 'xylophone' simply lack, exceptionally, this floating L tone. Both have simple H tone stems [check & give plurals].

The situation with ØC-initials is slightly more complex. First of all, the statistics are striking: nearly half of the nouns attested in the "major" patterns, i.e. M-L, M-H ə, and M-HM, have the M-HM pattern. These patterns are illustrated in (57), both for singular and plural forms, and recognizing a split within the M-H ə pattern.
(57) a. ə-bo / ə-bo-šə 'bag(s)' /ə - 'bə /
b. ə-nəm / ə-nəm-šə 'animal(s)' /ə - nəm /
c. ə-bə / ə-bə-šə 'dog(s)' /ə - bə ' /
d. ə-jəm / ə-jəm-šə 'back(s)' /ə - jəm '/

As in the forms in (57), the plural suffix -šə is simply added to the singular form and undergoes L-spreading when preceded directly by an anchored L tone (the LH rising tone undergoing simplification to L° before pause) or H-lowering, if preceded by a floating L tone, as seen in the forms for 'animals' and 'dogs'. The underlying tonal representations are again given to the right, but they raise several questions. The nouns of the structure M-L are assumed to have an additional tone-depressor, a floating L tone, between the IV and the L stem. This is the only place this is needed in ØC- initials, i.e. there is no M-L° pattern here, and there is only one attested noun with the surface realization M-M (ə-bo 'cliff' [needs to be checked anyway]). The numerous nouns in the (57d) M-HM pattern have a LH stem, though many of these nouns can be shown to derive, historically, from H stems (from earlier HH). In other words, (57d) is the result of a merger of two tone classes, LH and H. What we might assume is a reconstructed *L appearing between the IV and the stem here too, but this L, is lost before a historical LH stem, but remains with the H stem to create new LH stems merging with the historical ones. There is no trace of the historical H stem in present-day Kom.

The same phenomenon seems to have been at work in the case of the L-HL° nouns. Two of these, 'dog' (57c) and ə-ʒə 'goat' clearly have HL stems. The remaining 7 nouns in this pattern have an underlying L stem, as indicated in (57b). We know this historically, as well as synchronically, as from a comparison of the nouns 'animal' and 'dog' in N₂ position after a L associative:
(58) a. ə-muu mə bo 'water of the bag'
    b. ə-muu mə nəm 'water of the animal'
    c. ə-muu mə bə 'water of the dog'
    d. ə-muu mə jəm 'water of the back'

The noun 'animal' is now realized with its underlying L tone, merging with
'bag'. 'Dog', on the other hand, is realized on a M tone, the result of
its H being lowered by the preceding L of the class 6a associative marker
/mə/. Finally, in (58d) we see the evidence for treating nouns such as
'back' as having a LH stem: as we have seen elsewhere, this sequence is
realized as L before pause, and (58d) is no exception.

The tonology of class 9 nouns is not as symmetric as we would like
it. We cannot explain why certain patterns are present and others are not,
and we have already seen the need to accept some exceptionally marked tonal
patterns. Within the ØC-initials, we need to mark as exceptional the
one noun which is M-H (ə-mó 'lake') and the two nouns which are M-HL (i.e.
ə-kaf 'armpit' and ə-tos 'torch', the latter of which is clearly a borrowing
from English, anyway). The question arises as to whether 'dog' and 'goat',
the two nouns which have Hₙ stems, are exceptional in some way.

These nouns, for one thing, do not undergo H-lowering, as seen in the
following associative constructions analogous to those in (58).

(59) a. ə-muu mə kaf 'water of the armpit' [CHECK]
    b. ə-muu mə mə 'water of the lake'

We have no explanation for this failure to undergo a general rule except
to postulate an extra H tone on each stem, i.e. HHL, HH, though this would
be hard to justify. We may simply need an exception feature on these forms.

It seems as though 'dog' and 'goat', if exceptional at all, are so because
they do not have a nasal prefix (indeed they don't throughout WGB!).

We cannot pretend to have resolved these questions mired in history, but
at least feel confident that we have provided reasonable and justifiable
underlying tonal representations for all of the major classes of nouns.

What we have not done yet is to explain how or why the underlying
/ό-ɲàm/ representation of 'animal' should surface as M-H ɭ. This repre-
sentation has in all other cases resulted in a M-HL surface pronunciation,
e.g. /ό-kòs/ 'slave' is pronounced [ό-kòs]. The only difference between
these forms is that 'animal' has a H IV and a L stem, whereas 'slave' has
a H prefix and a L stem. So it has something to do with the word struc-
ture. Before attempting an explanation to this problem, it will be neces-
sary to investigate the remaining unusual tonal properties of 0- prefix
L tone stems—and since these are not discussed until a much later section,
we shall postpone further treatment of this irregularity.

However, please note that this "irregularity" is found in class 1
as well. The complete list of monomorphemic class 1 nouns we have iden-
tified are given in (60).

(60) a. ɭ-woo̍n 'child' /ό - wáín /
b. ɭ-li̍m 'husband' /ό - lóm /
c. ɭ-ña 'mother' /ό - ˈ nà /
d. ɭ-bò 'father, owner' /ό - ˈ bò /
e. ɭ-wúl 'person' /ό - wûl /
f. ɭ-wî 'wife' /ό - wî /
g. ɭ-fósìn 'chief' /ό - ɭ-fósìn/

The one noun 'chief' belongs to gender 1/13 (instead of 1/2) and is excep-
tional in being distinct both from 'mother, father' and from 'person', all
of which also have a L tone stem. We suggest in the underlying represent-
ation that it has a prefix /ό-/, making it identical with the form 'slave'
or 'place' in (51a). What is important for our present purpose is that
the noun 'person' has exactly the same characteristics as nouns such as
'animal' in 9/10. And in this case as well as the 9/10 cases it is clear
that we are dealing with an underlying L tone stem and a stem which was
diachronically L as well!

After we have consider the tonal properties of associative construc-
tions with a $\emptyset$ prefix $N_2$, we will address the necessary steps that must be
taken to account for the tonal irregularities in class 1 and class 9 nouns.

3. TONE IN THE ASSOCIATIVE CONSTRUCTION

We have already had occasion to refer to the associative construction,
that construction characterizing possessive and other relations holding
between noun phrases. Since we will be limiting ourselves to unmodified
nouns, we are able to refer to it as in (61).

$$
(61) \quad \begin{array}{ccc}
N_1 & \text{of} & N_2 \\
CV-CV(V)(C) & CV & CV-CV(V)(C) \\
V- & V & V- \\
\emptyset- & \emptyset- & 
\end{array}
$$

In the above schema, "$N_1$" refers to the possessed noun, while "$N_2$" refers
to the possessor noun. The 'of' morpheme is the associative marker itself.
The various canonical shapes of $N_1$ of $N_2$' strings are enumerated in (61):
noun prefixes may be of the shapes CV-, V- or $\emptyset$-, as we have seen, ignoring
the sometimes syllabic nasal we have encountered for further discussion
later. The associative marker may be of the shape CV or V and can be gotten
for each noun class from #2 in the table in (4) above. There it is also
seen that the associative marker, agreeing as it does with the $N_1$, may have
either H or L tone; the nouns with a single syllable stem may also have any
of these tones... in fact, as we have seen, quite a number of major and minor
tone patterns are observed, some we have not yet accounted for.
In the following subsections it will be necessary to control for the relevant segmental and tonal shapes that enter into this construction in order to expose the different properties of the system and to provide an account thereof. I emphasize the notion "relevant", because it turns out that we do not need to present every conceivable permutation of these features, something which would lead to needless repetition. It is necessary to consider, specifically, the following:

(a) All of the major and minor tone patterns of $N_1$
(b) Both tone patterns of the associative marker
(c) All of the major tone patterns of $N_2$
(d) The segmental structure of the associative marker
(e) The segmental structure of the $N_2$ prefix

To a limited extent we shall have to point out the importance of the segmental structure of the $N_1$ noun stem.

The organization of this section will thus necessarily be complex, taking the following structure:

(a) Section 3.1 will consider associative constructions having a CV associative marker and then a V associative marker, both occurring with a $N_2$ with a CV- prefix. Data will first be presented with a H associative

(b) Section 3.2 will present cases where the $N_2$ prefix is CV-
(c) Section 3.3 will present cases where the $N_2$ prefix is $\emptyset$-

Under each section there will be subsections which, respectively, consider combinations of CV associative, V associative, CV associative and V associative markers.
3.1. $N_2$ prefix is CV-

The reason for separating out associative combinations where the $N_2$ prefix is CV- is that in such cases, independent of what precedes this prefix, there will be no coalescence between the AM and this prefix. The first set of data involve cases where the AM is of the shape CV. In just this case there is not only no coalescence between it and the following $N_2$ prefix; there also is no possible coalescence between it and the preceding $N_1$ stem:

\[(62)a. /ə-fə-cù-o + fə + tə-fə-in/ \rightarrow ə-fə-cù-o fə tə-fə-in \quad \text{tree 'squirrel of the chiefs'}
\]
\[b. /ə-fə-cù-o + fə + tə-dzə/ \rightarrow ə-fə-cù-o fə tə-dzə \quad \text{...of the termites'}
\]
\[c. /ə-fə-cù-o + fə + tə-bāl/ \rightarrow ə-fə-cù-o fə tə-bāl \quad \text{...of the valleys'}
\]
\[d. /ə-fə-cù-o + fə + tə-wū/ \rightarrow ə-fə-cù-o fə tə-wū \quad \text{...of the rocks'}
\]

\[(63)a. /ə-fə-nù-in′ + fə + tə-fə-in/ \rightarrow ə-fə-nù-in fə tə-fə-in \quad \text{'bird of the chiefs'}
\]
\[b. /ə-fə-nù-in′ + fə + tə-dzə/ \rightarrow ə-fə-nù-in fə tə-dzə \quad \text{...of the termites'}
\]
\[c. /ə-fə-nù-in′ + fə + tə-bāl/ \rightarrow ə-fə-nù-in fə tə-bāl \quad \text{...of the valleys'}
\]
\[d. /ə-fə-nù-in′ + fə + tə-wū/ \rightarrow ə-fə-nù-in fə tə-wū \quad \text{...of the rocks'}
\]

\[(64)a. /ə-fə-bù? + fə + tə-fə-in/ \rightarrow ə-fə-bù? fə tə-fə-in \quad \text{'gorilla of the chiefs'}
\]
\[b. /ə-fə-bù? + fə + tə-dzə/ \rightarrow ə-fə-bù? fə tə-dzə \quad \text{...of the termites'}
\]
\[c. /ə-fə-bù? + fə + tə-bāl/ \rightarrow ə-fə-bù? fə tə-bāl \quad \text{...of the valleys'}
\]
\[d. /ə-fə-bù? + fə + tə-wū/ \rightarrow ə-fə-bù? fə tə-wū \quad \text{...of the rocks'}
\]

\[(65)a. /ə-fə-tám + fə + tə-fə-in/ \rightarrow ə-fə-tám fə tə-fə-in \quad \text{'fruit of the chiefs'}
\]
\[b. /ə-fə-tám + fə + tə-dzə/ \rightarrow ə-fə-tám fə tə-dzə \quad \text{...of the termites'}
\]
\[c. /ə-fə-tám + fə + tə-bāl/ \rightarrow ə-fə-tám fə tə-bāl \quad \text{...of the valleys'}
\]
\[d. /ə-fə-tám + fə + tə-wū/ \rightarrow ə-fə-tám fə tə-wū \quad \text{...of the rocks'}
\]

\[(66)a. /ə-fə-bò-in + fə + tə-fə-in/ \rightarrow ə-fə-bò-in fə tə-fə-in \quad \text{'squirrel of the chiefs'}
\]
\[b. /ə-fə-bò-in + fə + tə-dzə/ \rightarrow ə-fə-bò-in fə tə-dzə \quad \text{...of the termites'}
\]
c. /é-fè-bòin + fá + tè-bál/ → ő-fè-bòin fá tè-bál  'gr.squirrel of the valleys'
d. /é-fè-bòin + fá + tè-wú/ → ő-fè-bòin fá tè-wú  '... of the rocks'

(67)a. /é-fè-nù' + fá + tè-fòin/ → ő-fè-nù' fá tè-fòin  'knife of the chiefs'
b. /é-fè-nù' + fá + tè-dzé'/ → ő-fè-nù' fá tè-dzé  '... of the termites'
c. /é-fè-nù' + fá + tè-bál/ → ő-fè-nù' fá tè-bál  '... of the valleys'
d. /é-fè-nù' + fá + tè-wú/ → ő-fè-nù' fá tè-wú  '... of the rocks'

[Acquire data on the two nouns in 19/6a of the shape M-L-M.]

In (62)-(67) we have presented the "uncoalesced" combinations of N₁ of N₂, varying the tonal patterns found in N₁ and N₂ position. The N₂ nouns 'chiefs', 'termites', 'valleys' and 'rocks' are all of the class 13 and all have an underlying L tone prefix, which is required of all nouns in this position. Their stem tones are, respectively, L, LH, HL and H. Because there is a merger between H and L prefix nouns in this position, we have not included N₂ nouns from the minor tone patterns. In N₁ position, on the other hand, we observe first the presence of the IV (more about which to follow in a later section) and, in the case of (62)-(65), a H tone prefix. The nouns 'tree squirrel', 'bird', 'gorilla' and 'fruit' all belong to class 19 and have, respectively, the underlying stem tones L, LH, HL and H. The nouns 'ground squirrel' and 'knife', also belonging to class 19, differ from the others in having an underlying L tone prefix--thus accounting for their surface minor tone patterns. The citation forms of all of these nouns (with the IV) are given in (68) for comparison:

(68) a. ő-fè-cùo ő-fè-bòin  b. ő-tò-fòin
    ő-fè-nùn ő-fè-nù  ő-tò-dźfì
    ő-fè-bú' ő-fè-bál
    ő-fè-tám ő-tò-wú
citations
The N₁ nouns in (68a) are all identical to the way they appear in the associative N₁ position except for the opposition between L and L⁰ in 'ground squirrel' and 'knife', which is neutralized on the noun itself in (66) and (67), though a difference does occur on the following associative morpheme, which is M in (66), but H in (67). We shall address this difference shortly. In class 13 (68b) we see the citation forms of these nouns, all having a major tone pattern—and being identical, in fact, to the four class 19 nouns given in (62)-(65). There are considerable differences between these citation forms in (68b) and the N₂ realizations of the same nouns in (62)-(67). Most of these changes are due, of course, to the fact that in this latter position, the underlying tone of the N₂ prefix is L, not H.

But this is not the complete story. We have already formalized in a preliminary way the rules of H-spreading, L-spreading, and H-lowering. We see these rules in operation throughout these forms. We shall not be concerned with the N₁ forms, since we have already explained how the underlying representations become the surface ones observed, e.g. how the H of the prefix spreads onto both the L and the LH stems. Let us then consider the changes in tone which take place across word boundaries.

We see first that the H of the associative marker /fé/ in every case spreads onto the L tone of the N₂ prefix /tə-/ . In (63), (65) and (67), the result is a phonetic sequence [fé tə- ]. This is accomplished via the H-spreading rule. In (62), (64) and (66), however, the phonetic sequence obtained is [fə tə- ]. That is, after the H of /fé/ has spread to create a HL falling contour on [tə- ], its own (original) H tone is lowered to M. This instantiation of the H-lowering rule has serious consequences for the correct formulation of this rule; we postpone discussion of this problem until section ___, taking note only that it must be the underlying (single) H tone that is affected, and NOT both the original and the copied H tone.
The formulation given tentatively in (29) of H-lowering is thus inadequate because in changing the one H tone (now doubly associated onto two TBU's by H-spreading) into M tone, both TBU's would be affected. (H-lowering, of course, cannot precede H-spreading either, because we would in this case get a M-ML sequence on the surface, instead of the desired M-HL.) Note, finally, that H-lowering is blocked in (67) because of the floating H tone of the N₁ noun 'knife'. The rule should probably be formalized to change this H to M; however, since it does not anchor, the effect of the H-lowering rule in this case is not felt—except, of course, in that it "protects" the following H from undergoing the rule. On the surface, then, the L vs. LH (L⁰) opposition is realized by the operation vs. non-operation of the H-lowering rule on the following H tone morpheme.

There must be a rule simplifying LH to L⁰ before pause, accounting for the realization of N₂ 'termites' as [tə-dz⁹] in every case. The realization of N₂ 'rocks' as [tə-wu⁰] is due first to the L-spreading rule which then creates a LH intermediate representation, feeding the LH to L⁰ simplification rule before pause.

3.1(2) CV associative

In this section we consider the same syllable structures (CV associative, CV- N₂ prefix), but this time the associative marker bears a L tone. The one class with a CV associative marker is class 6a. The appropriate forms are obtained by substituting the plural 6a forms for the singular 19 forms in (62)-(67). The results are shown in (69)-(74).

77(69)a. /á-mé-cúo + mè + tè-foin/ → á-mé-cúo mè tè-foin 'raccoons of chiefs'  
77b. /á-mé-cúo + mè + tè-dz⁹/ → á-mé-cúo mè tè-dz⁹ '... of the termites'  
77c. /á-mé-cúo + mè + tè-bāl/ → á-mé-cúo mè tè-bāl '... of the valleys'  
77d. /á-mé-cúo + mè + tè-wu⁰/ → á-mé-cúo mè tè-wu⁰ '... of the rocks'
(70) a. /ér-mō-nūin' + mē + tà-fōin/ → őr-mō-nūin mē tà-fōin 'birds of the chiefs'
   b. /ér-mō-nūin' + mē + tà-dzê'/ → őr-mō-nūin mē tà-dzê° '... of the termites'
   c. /ér-mō-nūin' + mē + tà-bāl'/ → őr-mō-nūin mē tà-bāl '... of the valleys'
   d. /ér-mō-nūin' + mē + tà-wū'/ → őr-mō-nūin mē tà-wū° '... of the rocks'

(71) a. /ér-mō-bū' + mē + tà-fōin/ → őr-mō-bū mē tà-fōin 'gorillas of the chiefs'
   b. /ér-mō-bū' + mē + tà-dzê'/ → őr-mō-bū mē tà-dzê° '... of the termites'
   c. /ér-mō-bū' + mē + tà-bāl'/ → őr-mō-bū mē tà-bāl '... of the valleys'
   d. /ér-mō-bū' + mē + tà-wū'/ → őr-mō-bū mē tà-wū° '... of the rocks'

(72) a. /ér-mō-tām + mē + tà-fōin/ → őr-mō-tām mē tà-fōin 'fruits of the chiefs'
   b. /ér-mō-tām + mē + tà-dzê'/ → őr-mō-tām mē tà-dzê° '... of the termites'
   c. /ér-mō-tām + mē + tà-bāl'/ → őr-mō-tām mē tà-bāl '... of the valleys'
   d. /ér-mō-tām + mē + tà-wū'/ → őr-mō-tām mē tà-wū° '... of the rocks'

(73) a. /ér-mō-bōin + mē + tà-fōin/ → őr-mō-bōin mē tà-fōin 'gr.squirrels of the chiefs'
   b. /ér-mō-bōin + mē + tà-dzê'/ → őr-mō-bōin mē tà-dzê° '... of the termites'
   c. /ér-mō-bōin + mē + tà-bāl'/ → őr-mō-bōin mē tà-bāl '... of the valleys'
   d. /ér-mō-bōin + mē + tà-wū'/ → őr-mō-bōin mē tà-wū° '... of the rocks'

(74) a. /ér-mō-nū' + mē + tà-fōin/ → őr-mō-nū mē tà-fōin 'knives of the chiefs'
   b. /ér-mō-nū' + mē + tà-dzê'/ → őr-mō-nū mē tà-dzê° '... of the termites'
   c. /ér-mō-nū' + mē + tà-bāl'/ → őr-mō-nū mē tà-bāl '... of the valleys'
   d. /ér-mō-nū' + mē + tà-wū'/ → őr-mō-nū mē tà-wū° '... of the rocks'

There is nothing surprising in the realization of the N₂ nouns, which are
realized, respectively, as L-L, L-L°, L-M and L-L° in each set. The associa-
tive marker remains L in all cases and, except for the N₁ realization in (74),
there are no differences between the citation and N₁ noun tones when followed
by the class 6a /mē/ marker. In (74) we observe that 'knives', pronounced
M-L-L° in pre-pause position, is here pronounced M-L-LM. The final M is, of
course, none other than the underlying floating H which, we have said, is simplified before pause. As we shall see, it is simplified before H as well—in fact, it is realized phonetically only when followed by a L tone within the same prosodic domain. It, of course, is lowering to M by the H-lowering rule we have referred to on several occasions.

3.1.2. V associative

In this subsection we shall shift to an N₁ noun class which has, instead of a CV associative marker, a V associative marker. Because its vowel is the most stable, i.e. the most resistant to elision, we choose nouns of class 7, whose associative marker is /á/. Any differences observed in the following sets of data from those just presented in (62)-(67) will be attributable to the difference in canonical shape of the two different associative markers.

(69)a. /á-làʔ + á + tà-fò̂in/ → ì-làʔ á tà-fò̂in 'place of the chiefs'
b. /á-làʔ + á + tà-dzò/ → ì-làʔ á tà-dzò '... of the termites'
c. /á-làʔ + á + tà-bàíl/ → ì-làʔ á tà-bàí '... of the valleys'
d. /á-làʔ + á + tà-wú/ → ì-làʔ á tà-wú '... of the rocks'

(70)a. /á-làŋ' + á + tà-fò̂in/ → ì-làŋ' á tà-fò̂in 'cocoyam of the chiefs'
b. /á-làŋ' + á + tà-dzò/ → ì-làŋ' á tà-dzò '... of the termites'
c. /á-làŋ' + á + tà-bàíl/ → ì-làŋ' á tà-bàí '... of the valleys'
d. /á-làŋ' + á + tà-wú/ → ì-làŋ' á tà-wú '... of the rocks'

(71)a. /á-yès` + á + tà-fò̂in/ → ì-yès á tù-fò̂in 'broom of the chiefs'
b. /á-yès` + á + tà-dzò/ → ì-yès á tà-dzò '... of the termites'
c. /á-yès` + á + tà-bàíl/ → ì-yès á tà-bàí '... of the valleys'
d. /á-yès` + á + tà-wú/ → ì-yès á tà-wú '... of the rocks'

(72)a. /á-yòl + á + tà-fò̂in/ → ì-yòl á tà-fò̂in 'grass of the chiefs'
b. /á-yòl + á + tà-dzò/ → ì-yòl á tà-dzò '... of the termites'
c. /á-yóí + á + tā-bāl/ → á-yóí á tā-bāl '... of the valleys'
d. /á-yóí + á + tā-wú/ → á-yóí á tā-wú° '... of the rocks'

(73a). /ān-tās + á + tā-fōin/ → ān-tās ō tā-fōin 'spoon of the chiefs'
b. /ān-tās + á + tā-dzāl/ → ān-tās ō tā-dzāl° '... of the termites'
c. /ān-tās + á + tā-bāl/ → ān-tās ō tā-bāl '... of the valleys'
d. /ān-tās + á + tā-wú/ → ān-tās ō tā-wú° '... of the rocks'

(74a). /ān-tōf' + á + tā-fōin/ → ān-tōf' ō tā-fōin 'stomach of the chiefs'
b. /ān-tōf' + á + tā-dzāl/ → ān-tōf' ō tā-dzāl° '... of the termites'
c. /ān-tōf' + á + tā-bāl/ → ān-tōf' ō tā-bāl '... of the valleys'
d. /ān-tōf' + á + tā-wú/ → ān-tōf' ō tā-wú° '... of the rocks'

As in the previous set we have included N₁ nouns representing all of the four major tone patterns, as well as the ML-L and ML-L° minor tone patterns. The results are exactly the same except for (69) and (70): in these two sets the N₁ nouns fail to manifest the HL and HM contour tones on their stems that their counterparts exhibited in (62) and (63). The question is why?

We shall put off an explanation until the theoretical framework is introduced and supported. It is important to note that the L of the HL contour expected on the N₁ in (69) is not realized phonetically, but it is present underlyingly, since the following associative marker /á/ is realized on a M tone. The stem L tone thus floats between the H stem tone and the following associative marker, lowering the latter to M. The cause of its disassociation with the stem to which it belongs underlyingly is the fact that the AM consists solely of a V. Note that in (70) there is no corresponding lowering of the H associative marker, because of the additional floating H. That is, we must assume that there is both a floating L and a floating H following the stem 'cocyam', i.e. -lān 'á. Finally, note in the following two sets of data that the syllable structure of the N₁ stem is irrelevant since it is observed in (75) and (76) that a -CV(V) stem
undergoes the same tonal simplification process as the -CVC stems in (69) and (70).

\[
\begin{array}{ll}
75a. & /á-žù + á + tè-fòin/ → ̣á-žù ̣a tè-fòin 'breath of the chiefs' \\
b. & /á-žù + á + tè-dz'ì/ → ̣á-žù ̣a tè-dzù° '... of the termites' \\
c. & /á-žù + á + tè-bál/ → ̣á-žù ̣a tè-bàl '... of the valleys' \\
d. & /á-žù + á + tè-wù/ → ̣á-žù ̣a tè-wù° '... of the rocks'
\end{array}
\]

\[
\begin{array}{ll}
76a. & /á-vò' + á + tè-fòin/ → ̣á-vò ̣a tè-fòin 'foot of the chiefs' \\
b. & /á-vò' + á + tè-dz'ì/ → ̣á-vò ̣a tè-dzù° '... of the termites' \\
c. & /á-vò' + á + tè-bál/ → ̣á-vò ̣a tè-bàl '... of the valleys' \\
d. & /á-vò' + á + tè-wù/ → ̣á-vò ̣a tè-wù° '... of the rocks'
\end{array}
\]

The two N₁ nouns are pronounced ̣á-žù 'breath' and ̣á-vò' 'foot' in citation form. However, just as we do not hear the pronunciations *₃-₁á? ̣a tè-fòin and *₃-₁á? ̣a tè-fòin, we do not obtain *₃-žù ̣a tè-fòin or *₃-vò' ̣a tè-fòin. While one might rule out the last two pronunciations because they involve HLM and HMH falling-rising tones without a non-syllabic consonant intervening, this cannot be said for the first two pronunciations. In fact, as we see from the pronunciation of the /tè-/ suffix in forms involving 'valleys', pronounced ̣[tè-bàl], the very same sequence is observed, i.e. HL-M, that is disallowed in *(₃-)₁á? ̣a... Somehow the analysis must be made sensitive to the internal structure such as ̣V + CV is acceptable, but ̣VC + V is not.

More on this later (see section __).

3.1.4. V associative

Classes 1 and 9 both have a /ò/ associative marker whose vowel elides in most instances. In the following sets of forms, the N₁ nouns belong all to class 9.
(83a. /á- `nte? + e + tè-fòin/ → ̄nte? e tè-fòin 'village of the chiefs'
b. /á- `nte? + e + tè-dzli/ → ̄nte? e tè-dzi° '... of the termites'
c. /á- `nte? + e + tè-bál/ → ̄nte? e tè-bāl '... of the valleys'
d. /á- `nte? + e + tè-wú/ → ̄nte? e tè-wú° '... of the rocks'

(84a. /á- `njàm' + e + tè-fòin/ → ̄njàm m tè-fòin 'axe of the chiefs'
b. /á- `njàm' + e + tè-dzli/ → ̄njàm m tè-dzi° '... of the termites'
c. /á- `njàm' + e + tè-bál/ → ̄njàm m tè-bāl '... of the valleys'
d. /á- `njàm' + e + tè-wú/ → ̄njàm m tè-wú° '... of the rocks'

(85a. /á- `ngó? + e + tè-fòin/ → ̄ngó? e tè-fòin 'trouble of the chiefs'
b. /á- `ngó? + e + tè-dzli/ → ̄ngó? e tè-dzi° '... of the termites'
c. /á- `ngó? + e + tè-bál/ → ̄ngó? e tè-bāl '... of the valleys'
d. /á- `ngó? + e + tè-wú/ → ̄ngó? e tè-wú° '... of the rocks'

(86a. /á-kâf + e + tè-fòin/ → ̄kâf e tè-fòin 'armpit of the chiefs'
b. /á-kâf + e + tè-dzli/ → ̄kâf e tè-dzi° '... of the termites'
c. /á-kâf + e + tè-bál/ → ̄kâf e tè-bāl '... of the valleys'
d. /á-kâf + e + tè-wú/ → ̄kâf e tè-wú° '... of the rocks'

(87a. /á- kà`/ + e + tè-fòin/ → ̄kà` e tè-fòin 'crack of the chiefs'
b. /á- kà`/ + e + tè-dzli/ → ̄kà` e tè-dzi° '... of the termites'
c. /á- kà`/ + e + tè-bál/ → ̄kà` e tè-bāl '... of the valleys'
d. /á- kà`/ + e + tè-wú/ → ̄kà` e tè-wú° '... of the rocks'

(88a. /á-bú / + e + tè-fòin/ → ̄bú e tè-fòin 'dog of the chiefs'
b. /á-bú / + e + tè-dzli/ → ̄bú e tè-dzi° '... of the termites'
c. /á-bú / + e + tè-bál/ → ̄bú e tè-bāl '... of the valleys'
d. /á-bú / + e + tè-wú/ → ̄bú e tè-wú° '... of the rocks'

(89a. /á-mó / + e + tè-fòin/ → ̄mó o tè-fòin 'lake of the chiefs'
b. /á-mó / + e + tè-dzli/ → ̄mó o tè-dzi° '... of the termites'
c. /á-mó + à + tè-bál'/ \rightarrow ò-mó ò tè-bál '... of the valleys'
d. /á-mó + à + tè-wù/ \rightarrow ò-mó ò tè-wù° '... of the rocks'

We have not bothered to present distinct N₁ nouns differentiating M-M from what we have entered as M-M₁, since the two are not distinct before a L tone associative. Nor have we entered any example of /H-L/, since as we saw in the case of ò-nám 'animal', these nouns exceptionally merge with the /H-HL/ nouns (e.g. 'dog' in (88)) in this position. The above forms should thus suffice in exemplifying the properties of the V associative.

The N₁ nouns in (83)-(89) are pronounced as follows in isolation: ò-ntè? 'village', ò-njám° 'axe', ò-ngə? 'trouble', ò-kåf 'armpit', ò-kå? 'crack', ò-bù 'dog', and ò-mó 'lake'. The noun 'armpit' is exception in having a lexically linked HL contour to its stem (see discussion in section ___ above).

Class 9 nouns differ in that some (including all that have an initial NC cluster) have a L depressor tone immediately preceding the stem such that the and IV à- in (83) \( V \) (84), \textbf{ûmúñùi} cannot spread onto the following L(H) stem, and such that the H of the stem in (85) is lowered to M.

There are no surprises in these data. The /à/ marker is present on the surface as [è] when preceded by an obstruent (including glottal stop), but assimilates to the preceding segment when it is a sonorant (vowel or sonorant consonant, e.g. nasal). The same realization of schwa is observed in classes 3 and 8, where the associative marker is /à/. Other than this observation, we also observe that the contour-simplification process found in the preceding section is in effect here: in (86) the HL of 'armpit' simplifies to H (and is followed by a L) as does the HM of 'crack' in (87) (also followed by a L). 'Armpit' is an exceptional noun, such examples being rare. The set of data in (90), however, clearly show that the same contour simplification is present when the N₁ stem is of the structure CV(V):
(90a. /ó-zvó' + è + tè-fòìn/ → ó-zvó' ø tè-fòìn 'bee of the chiefs'

b. /ó-zvó' + è + tè-dzì'/ → ó-zvó' ø tè-dzì° '... of the termites'

c. /ó-zvó' + è + tè-bàl'/ → ó-zvó' ø tè-bàl '... of the valleys'

d. /ó-zvó' + è + tè-wù/ → ó-zvó' ø tè-wù° '... of the rocks'

The noun 'bee' is pronounced in isolation as ó-zvóó. There is in (90), however, no question of hearing forms such as *ó-zvóó ø tè-fòìn. We thus see that in the case of a following L tone associative, a preceding HL or HM contour is always simplified, just as it is when followed by a H tone V associative.

The LM contour on 'axe' in (84) is, of course, the result of the H of the LH stem being assigned to the stem to create a LH rising tone, lowered to LM by H-lowering. The elision of the following schwa gives the impression of a ML falling tone on the labial nasal.

3.2. N2 prefix is V-

We have seen in some of the above examples that syllable structure is important in determining the surface tonal realization of otherwise identical underlying representations. Where every tone was separated from every other tone by an "intervening" consonant, i.e. where we have alternation of CVCV, a more direct realization of the underlying tones was observed. Where tones abut without the intervention of a non-syllabic segment, further modifications may and do take place.

There are important differences observed in the associative construction when the N2 is of the structure V-. Since the AM is always CV or V, this means that two vowels will necessarily come together. The result is elision and the effect on tone is substantial. This section considers sets of forms corresponding to those seen but where the N2 begins with a V- prefix. The possessors chosen for this purpose are given in (91).
All of these nouns belong to class 7, a decision that was made because the /á-/ prefix is resistant to elision. The forms in (91) are as pronounced in isolation. Again, the L, LH, HL and H stem patterns are represented.

3.2.1. **CV associative**

As in section 3.1.1, we begin with CV associatives. The same class 19 nouns are observed in N₁ position in (92)-(97) as were seen in (67)--this time, however, with the N₂ nouns of (91), as they occur with a L- prefix:

(92a) /á-f₆-k₆s/ → ò-f₆-k₆s 'slight
b. /á-f₆-k₆ / → ò-f₆-k₆o '... of the forest'
c. /á-f₆-b₆ / → ò-f₆-b₆o '... of the lizard'
d. /á-f₆-k₆f/ → ò-f₆-k₆f '... of the tick'

(93a) /á-f₆-ₘ₃₁ / + f₆ + ò-k₆s/ → ò-f₆-ₘ₃₁ f₆ ò-k₆s 'bird of the slave'
b. /á-f₆-ₘ₃₁ / + f₆ + ò-k₆ / → ò-f₆-ₘ₃₁ f₆ ò-k₆o '... of the forest'
c. /á-f₆-ₘ₃₁ / + f₆ + ò-b₆ / → ò-f₆-ₘ₃₁ f₆ ò-b₆o '... of the lizard'
d. /á-f₆-ₘ₃₁ / + f₆ + ò-k₆f/ → ò-f₆-ₘ₃₁ f₆ ò-k₆f '... of the tick'

(94a) /á-f₆-b₆?` / + f₆ + ò-k₆s/ → ò-f₆-b₆?` f₆ ò-k₆s 'gorilla of the slave'
b. /á-f₆-b₆?` / + f₆ + ò-k₆ / → ò-f₆-b₆?` f₆ ò-k₆o '... of the forest'
c. /á-f₆-b₆?` / + f₆ + ò-b₆ / → ò-f₆-b₆?` f₆ ò-b₆o '... of the lizard'
d. /á-f₆-b₆?` / + f₆ + ò-k₆f/ → ò-f₆-b₆?` f₆ ò-k₆f '... of the tick'

(95a) /á-f₆-t₆m + f₆ + ò-k₆s/ → ò-f₆-t₆m f₆ ò-k₆s 'fruit of slave'
b. /á-f₆-t₆m + f₆ + ò-k₆ / → ò-f₆-t₆m f₆ ò-k₆o '... of forest'
c. /á-f₆-t₆m + f₆ + ò-b₆ / → ò-f₆-t₆m f₆ ò-b₆o '... of lizard'
d. /á-f₆-t₆m + f₆ + ò-k₆f/ → ò-f₆-t₆m f₆ ò-k₆f '... of tick'
(96) a. /ə-fè-bò̀in + fò + ã-kòs/ \rightarrow ə-fè-bò̀in f' ã-kòs 'gr. squirrel of the slave'
b. /ə-fè-bò̀in + fò + ã-kù'/ \rightarrow ə-fè-bò̀in f' ã-kù° '... of the forest'
c. /ə-fè-bò̀in + fò + ã-bás'/ \rightarrow ə-fè-bò̀in f' ã-bãs '... of the lizard'
d. /ə-fè-bò̀in + fò + ã-kòf/ \rightarrow ə-fè-bò̀in f' ã-kòf '... of the tick'

(97)a. /ə-fè-ŋù' + fò + ã-kòs/ \rightarrow ə-fè-ŋù' f' ã-kòs 'knife of the slave'
b. /ə-fè-ŋù' + fò + ã-kù'/ \rightarrow ə-fè-ŋù' f' ã-kù° '... of the forest'
c. /ə-fè-ŋù' + fò + ã-bás'/ \rightarrow ə-fè-ŋù' f' ã-bãs '... of the lizard'
d. /ə-fè-ŋù' + fò + ã-kòf/ \rightarrow ə-fè-ŋù' f' ã-kòf '... of the tick'

There are a number of striking differences between (92)-(97) and their counterparts in (62)-(67):

(a) There is elision between the CV associative (here, /fò/) and the following V- N₂ prefix (here, /ã-/), whereas there was no elision in (62)-(67). In the above forms, elision is indicated by an apostrophe ('') indicating that the schwa of the /fò/ associative marker has been deleted. As far as can be determined, however, the result remaining is a **short** vowel.

(b) The resulting elision of the associative vowel somehow causes the vowel of the N₂ prefix to be realized on a level tone (H or M), whereas in (62)-(67) the N₂ prefix was always realized on a HL falling tone.

(c) The N₂ of the (d) forms is realized above as H-M or M-M, whereas it was realized in (62)-(67) as HL-L° in all cases. This seems somehow related to the point in (b) that the single AM + N₂ prefix syllable is a level tone, not a falling tone.

Let us consider the input fò + ã-kòf 'of the tick'. Clearly the H of the AM wants to spread over the L tone N₂ prefix; clearly, also, the L of this prefix wants to spread onto the H of the stem. If the latter is allowed we will erroneously derive *f' ã-kòf°. Here is the dilemma, however: in effecting this elision process, it is the vowel of the AM which is elided, but the tone of the N₂ prefix which is "lost", i.e. which is set afloat.
Put somewhat differently, the tone of the AM and the vowel segment of the $N_2$ prefix survive.

What we propose is a two-step adjustment, as in (98).

(98) a. \[ \begin{array}{c}
\text{a} \\
\text{x} \\
\text{H} \\
\end{array} \]

b. \[ \begin{array}{c}
\text{\textastripedtext{a}} \\
\text{x} \\
\text{H} \\
\end{array} \]

c. \[ \begin{array}{c}
\text{a} \\
\text{x} \\
\text{H} \\
\end{array} \]

The input to coalescence is given in (98a): two core units (WU's), represented by the x's, each one of which has on one tier a set of vowel features and on another tier the appropriate tone. In (98b) we see that the first set of vowel features, the schwa, is elided, and the second set of vowel features, the $a$, associates leftwards to take its WU. At this point we have a geminate $aa$ vowel, with the first "mora" carrying H tone and the second carrying L tone. In (98c) we have vowel truncation, i.e. the second unit is deleted, since Kom does not normally permit long vowels (except perhaps on stems--see below), and the result is that the WU which had the L associated to it is deleted and the L now floats. This accounts for the non-contour nature of the remaining vowel length, also for the reason why L-spreading does not occur in the (d) forms: the L-spreading rule will be formulated to require that the L that spreads be an anchored one. A floating L will not suffice to cause L-spreading, though it will suffice to cause H-lowering.

Finally, note in (98c) that it is possible, even probable, that we shall order the rules so that H-spreading will take place prior to x-truncation. This creates an intermediate $â$ sequence from the $ââ$ acquired in (98b).

Since the second WU is to be deleted anyway, it makes no difference in the output whether H-spreading takes place or not.

It is hard to imagine how such facts could be handled in a non-ad-hoc way without having a tier of core elements such as the WU's we have assumed.
3.2.2. * associative

The forms in (99)-(106) show the same elision effects on the tone of the N₂ nouns:

(99a. /á-ıl? + á + à-kōs/  →  ǝ-ló?  'ǝ-kōs 'place of the slave'
  b. /á-ıl? + á + à-kù'/  →  ǝ-ló?  'ǝ-kù'  '... of the forest'
  c. /á-ıl? + á + à-bās'/  →  ǝ-ló?  'ǝ-bās '... of the lizard'
  d. /á-ıl? + á + à-kōf/  →  ǝ-ló?  'ǝ-kōf '... of the tick'

(100) a. /á-lān' + á + à-kōs/  →  ǝ-lān  'ǝ-kōs 'cocoyam of the slave'
    b. /á-lān' + á + à-kù'/  →  ǝ-lān  'ǝ-kù'  '... of the forest'
    c. /á-lān' + á + à-bās'/  →  ǝ-lān  'ǝ-bās '... of the lizard'
    d. /á-lān' + á + à-kōf/  →  ǝ-lān  'ǝ-kōf '... of the tick'

(101a. /á-yēs' + á + à-kōs/  →  ǝ-yēs  'ǝ-kōs 'broom of the slave'
    b. /á-yēs' + á + à-kù'/  →  ǝ-yēs  'ǝ-kù'  '... of the forest'
    c. /á-yēs' + á + à-bās'/  →  ǝ-yēs  'ǝ-bās '... of the lizard'
    d. /á-yēs' + á + à-kōf/  →  ǝ-yēs  'ǝ-kōf '... of the tick'

(102a. /á-yōl + á + à-kōs/  →  ǝ-yōl  'ǝ-kōs 'grass of the slave'
    b. /á-yōl + á + à-kù'/  →  ǝ-yōl  'ǝ-kù'  '... of the forest'
    c. /á-yōl + á + à-bās'/  →  ǝ-yōl  'ǝ-bās '... of the lizard'
    d. /á-yōl + á + à-kōf/  →  ǝ-yōl  'ǝ-kōf '... of the tick'

(103a. /án-tās + á + à-kōs/  →  ǝn-tās  'ǝ-kōs 'spoon of the slave'
    b. /án-tās + á + à-kù'/  →  ǝn-tās  'ǝ-kù'  '... of the forest'
    c. /án-tās + á + à-bās'/  →  ǝn-tās  'ǝ-bās '... of the lizard'
    d. /án-tās + á + à-kōf/  →  ǝn-tās  'ǝ-kōf '... of the tick'

(104a. /án-tōf + á + à-kōs/  →  ǝn-tōf  'ǝ-kōs 'stomach of the slave'
    b. /án-tōf + á + à-kù'/  →  ǝn-tōf  'ǝ-kù'  '... of the forest'
    c. /án-tōf + á + à-bās'/  →  ǝn-tōf  'ǝ-bās '... of the lizard'
    d. /án-tōf + á + à-kōf/  →  ǝn-tōf  'ǝ-kōf '... of the tick'
Because both the AM and the N₂ prefix are identical in segment features (both are /a/), it is not immediately obvious which vowel is deleting and which is remaining. Be this as it may, the same characteristics of CV associatives is found here: the surviving vowel is either of H or M tone, and the (d) forms have a M tone stem, rather than a L° one. The main difference here is that we also observe in (99) and (100) the contour simplification that has characterized N₁ stems before when they are followed by a V associative marker. Though not shown, this simplification of HL and HM to H occurs independent of the syllable structure of the N₁ stem, i.e. whether it has CVC structure (as shown) or CV(V) structure.

In the transcriptions in (39)-(104) we have indicated the apostrophe before the surviving vowel. [Somewhere in here it would be good to have the results of elision, as understood. It would appear that there is a hierarchy, with /i/ stronger than /a/, which is stronger than schwa.]

3.2.3. **CV associative**

In order to obtain sets of forms requiring a CV associative, we turn again to class 6a in N₁ position.

(105)a. /é-mó-cúo + mè + à-kós/ →  

 b. /é-mó-cúo + mè + à-kù'/ →  

 c. /é-mó-cúo + mè + à-bás'/ →  

d. /é-mó-cúo + mè + à-kòf/ →  

(106)a. /é-mó-nùn' + mè + à-kós/ →  

 b. /é-mó-nùn' + mè + à-kù'/ →  

 c. /é-mó-nùn' + mè + à-bás'/ →  

d. /é-mó-nùn' + mè + à-kòf/ →  

(107)a. /é-mó-bùʔ + mè + à-kós/ →  

 b. /é-mó-bùʔ + mè + à-kù'/ →  

 'tr.squirrels of the slave'

 '... of the forest'

 '... of the lizard'

 '... of the tick'

 'birds of the slave'

 '... of the forest'

 '... of the lizard'

 '... of the tick'

 'gorillas of the slave'

 '... of the forest'
c. /ə-mə-búʔ' + mə + à-bās/ → ə-mə-búʔ' mə à-bās '... of the lizard'
d. /ə-mə-búʔ' + mə + à-kōf/ → ə-mə-búʔ' mə à-kōf° '... of the tick'

(108)a. /ə-mə-tā́m + mə + à-kōs/ → ə-mə-tā́m mə à-kōs 'fruits of the slave'
b. /ə-mə-tā́m + mə + à-kū' / → ə-mə-tā́m mə à-kū° '... of the forest'
c. /ə-mə-tā́m + mə + à-bās' / → ə-mə-tā́m mə à-bās '... of the lizard'
d. /ə-mə-tā́m + mə + à-kōf/ → ə-mə-tā́m mə à-kōf° '... of the tick'

(109)a. /ə-mə-bṓin + mə + à-kōs/ → ə-mə-bṓin mə à-kōs 'gr.squirrels of the slave'
b. /ə-mə-bṓin + mə + à-kū' / → ə-mə-bṓin mə à-kū° '... of the forest'
c. /ə-mə-bṓin + mə + à-bās' / → ə-mə-bṓin mə à-bās '... of the lizard'
d. /ə-mə-bṓin + mə + à-kōf/ → ə-mə-bṓin mə à-kōf° '... of the tick'

(110)a. /ə-mə-nū́' + mə + à-kōs/ → ə-mə-nū́' mə à-kōs 'knives of the slave'
b. /ə-mə-nū́' + mə + à-kū' / → ə-mə-nū́' mə à-kū° '... of the forest'
c. /ə-mə-nū́' + mə + à-bās' / → ə-mə-nū́' mə à-bās '... of the lizard'
d. /ə-mə-nū́' + mə + à-kōf/ → ə-mə-nū́' mə à-kōf° '... of the tick'

In the above forms we are back to the pattern we were used to in section 3.1.
The tone of the N₁ stem in the (d) forms is L° again. There are no tonal
modifications of note except for the LM rising tone found on the stem of N₁
in (110). The M comes from the underlying H which anchors onto the N₁ stem
syllable (creating a long vowel length, as indicated), lowered as we have seen
so many times by the H-lowering rule. Note that neither this H nor the H of
the N₁ stem in (108) are allowed to spread onto the following /mə/ L tone as-
sociative marker. H-spreading must be blocked from applying across certain
"boundaries". We thus assume that there is a prosodic domain juncture occur-
ring between N₁ and the AM--in other words, that the AM belongs to the follow-
ing unit in terms of phonological domains.

3.2.4. \[ \text{V associative} \]

The following sets of forms illustrate N₂ V- prefixes preceded by \[ \text{V} \]
associative, namely the /ə/ of class 9.

(111) a. /é-'ntë?+ə+ə-kōs/  →  ō-ntë? 'a-koś  'village of the slave'
    b. /é-'ntë?+ə+ə-kū'/  →  ō-ntë? 'a-kū'  '... of the forest'
    c. /é-'ntë?+ə+ə-bās'/  →  ō-ntë? 'a-bās  '... of the lizard'
    d. /é-'ntë?+ə+ə-kōf/  →  ō-ntë? 'a-kōf  '... of the tick'

(112) a. /é-'njām'+ə+ə-kōs/  →  ō-njām'a-koś  'axe of the slave'
    b. /é-'njām'+ə+ə-kū'/  →  ō-njām'a-kū'  '... of the forest'
    c. /é-'njām'+ə+ə-bās'/  →  ō-njām'a-bās  '... of the lizard'
    d. /é-'njām'+ə+ə-kōf/  →  ō-njām'a-kōf  '... of the tick'

(113) a. /é-'ngē?+ə+ə-kōs/  →  ō-ngē?'a-koś  'trouble of the slave'
    b. /é-'ngē?+ə+ə-kū'/  →  ō-ngē?'a-kū'  '... of the forest'
    c. /é-'ngē?+ə+ə-bās'/  →  ō-ngē?'a-bās  '... of the lizard'
    d. /é-'ngē?+ə+ə-kōf/  →  ō-ngē?'a-kōf  '... of the tick'

(114) a. /é-kāf+ə+ə-kōs/  →  ō-kāf'a-koś  'armpit of the slave'
    b. /é-kāf+ə+ə-kū'/  →  ō-kāf'a-kū'  '... of the forest'
    c. /é-kāf+ə+ə-bās'/  →  ō-kāf'a-bās  '... of the lizard'
    d. /é-kāf+ə+ə-kōf/  →  ō-kāf'a-kōf  '... of the tick'

(115) a. /é-kā?'+ə+ə-kōs/  →  ō-kā?'a-koś  'crack of the slave'
    b. /é-kā?'+ə+ə-kū'/  →  ō-kā?'a-kū'  '... of the forest'
    c. /é-kā?'+ə+ə-bās'/  →  ō-kā?'a-bās  '... of the lizard'
    d. /é-kā?'+ə+ə-kōf/  →  ō-kā?'a-kōf  '... of the tick'

(116) a. /é-bū'+ə+ə-kōs/  →  ō-bū' 'a-koś  'dog of the slave'
    b. /é-bū'+ə+ə-kū'/  →  ō-bū' 'a-kū'  '... of the forest'
    c. /é-bū'+ə+ə-bās'/  →  ō-bū' 'a-bās  '... of the lizard'
    d. /é-bū'+ə+ə-kōf/  →  ō-bū' 'a-kōf  '... of the tick'
(117a. /ə-mó + ə + ə-kós/ → ə-mó 'à-kós 'lake of the slave'
   b. /ə-mó + ə + ə-kù'/ → ə-mó 'à-kù' '... of the forest'
   c. /ə-mó + ə + ə-bàs'/ → ə-mó 'à-bàs '... of the lizard'
   d. /ə-mó + ə + ə-kóf/ → ə-mó 'à-kóf '... of the tick'

In all of the above forms we see that the class 9 /à/ AM has been elided before the N₂ class 7 prefix /à-/. The forms in (114) and (115) show the familiar simplification of HL and HM contours before a vowel—but the forms in (112) show something not yet seen. In this case the would-be LM rising tone on the N₁ noun stem 'axe' is shifted over to the following L tone vowel, creating instead a ML falling tone, as indicated. It now becomes clear that we have two separate processes:

(a) contour simplification of HL, HM or LM by means of setting afloat all but the first tone (thus, simplification to H, H and L, respectively);
(b) reassociation of the tones set afloat—as seen in (112), only a M (/H/) between L's is reassociated.

We might consider direct assigning of the H of the -LH stem 'axe' to the following vowel. However, we would run into difficulties with the "HM" pattern which, as indicated in (115) and elsewhere, derives from a H-LH underlying sequence. In other words, it would be difficult to treat the H of -LH differently according to whether it is preceded by a H vs. L prefix. [Consider the possibility of having first tone of a noun associated directly onto the stem syllable?] This still does not help us with the H-HM pattern if at the stage where contour simplification takes place we are dealing with H-HLH, because then when followed by L the final H should do the same as it does in (112), i.e. we should obtain ə̌-kó? ə̌-kós 'crack of slave' etc.

We shall therefore have to make the reassignment of the [M] tone to the N₂ prefix in (112) sensitive to the fact that the preceding L is an anchored one.
3.5. $N_2$ prefix is Ø

Classes 1, 2, 9 and 10 all have Ø prefixes. There is some question as to whether some of these should be established with a floating (L) tone, i.e. in classes 1 and 9. These classes are distinct from all of the others, in any case, by their failure to have either a CV- or a V- prefix. The initial schwa which has sometimes been present before these nouns has been said to be the IV and not a noun class prefix.

This section looks at the tones of the associative construction when the $N_2$ nouns are prefixless. The nouns used in this position are those seen in their isolation form in (118).

(118) a. /ˈã-nàm/ → ə-nâm 'animal'
b. /ˈã-kàin'/ → ə-kàtn 'monkey'
c. /ˈã-ðú˦/ → ə-ðú˧ 'goat'
d. /ˈã-ˈmbèn/ → ə-mbèn 'dwarf cow'

e. /ˈã-ˈngòm'/ → ə-ŋòm° 'porcupine'

f. /ˈã-ˈngvô'/ → ə-ŋvô 'hen'

g. /ˈã-ˈwèin/ → ə-wèin 'child'

Of the above nouns, all except (118d) 'child' belong to class 9; 'child' belongs to class 1. (118a-d) have nouns with a C- initial, while (118e-g) have nouns with a NC- initial. [Note on not having NC- H stem or the one noun 'lake'; check realization of such words including HL ones in $N_2$ position after L AM.] We shall see that in most cases the presence of the nasal results in a different realization from nouns not having the nasal. [We have already remarked on the unusual realization of C- initial stems with L tone, e.g. 'animal' in (118a) with its M-H instead of expected *M-HL tone. It will be important to keep an idea on this pattern throughout the data to be presented.]
3.3.1. CV associative

The following sets of forms illustrate the associative tones when the $N_2$ is prefixless and the associative consists of an H tone CV- structure, in this case that of class 19, as we have seen earlier.

(119) a. /á-fó-cúo + fô + nám/ → ă-fó-cúo fô nám  'trans-squirrel of the animal'
   b. /á-fó-cúo + fô + kàin'/ → ă-fó-cúo fô kàihn  '... of the monkey'
   c. /á-fó-cúo + fô + bûi/ → ă-fó-cúo fô bûi  '... of the goat'
   d. /á-fó-cúo + fô + wàin/ → ă-fó-cúo fô wàihn  '... of the child'
   e. /á-fó-cúo + fô + mbôñ/ → ă-fó-cúo fô mbôñ  '... of the dwarf cow'
   f. /á-fó-cúo + fô + ngôm'/ → ă-fó-cúo fô ngôm  '... of the porcupine'
   g. /á-fó-cúo + fô + ngvô/ → ă-fó-cúo fô ngvô  '... of the hen'

(120) a. /á-fó-pûin' + fô + nám/ → ă-fó-pûin fô nâm  'bird of the animal'
   b. /á-fó-pûin' + fô + kàin'/ → ă-fó-pûin fô kàihn  '... of the monkey'
   c. /á-fó-pûin' + fô + bûi/ → ă-fó-pûin fô bûi  '... of the goat'
   d. /á-fó-pûin' + fô + wàin/ → ă-fó-pûin fô wàihn  '... of the child'
   e. /á-fó-pûin' + fô + mbôñ/ → ă-fó-pûin fô mbôñ  '... of the dwarf cow'
   f. /á-fó-pûin' + fô + ngôm'/ → ă-fó-pûin fô ngôm  '... of the porcupine'
   g. /á-fó-pûin' + fô + ngvô/ → ă-fó-pûin fô ngvô  '... of the hen'

(121) a. /á-fó-bû? + fô + nám/ → ă-fó-bû? fô nâm  'gorilla of the animal'
   b. /á-fó-bû? + fô + kàin'/ → ă-fó-bû? fô kàihn  '... of the monkey'
   c. /á-fó-bû? + fô + bûi/ → ă-fó-bû? fô bûi  '... of the goat'
   d. /á-fó-bû? + fô + wàin/ → ă-fó-bû? fô wàihn  '... of the child'
   e. /á-fó-bû? + fô + mbôñ/ → ă-fó-bû? fô mbôñ  '... of the dwarf cow'
   f. /á-fó-bû? + fô + ngôm'/ → ă-fó-bû? fô ngôm  '... of the porcupine'
   g. /á-fó-bû? + fô + ngvô/ → ă-fó-bû? fô ngvô  '... of the hen'
There are a number of important observations that must be made on the basis of the above forms.

(a) There appears to be a need for a floating L tone prefix on nouns whose stems begin with a H tone, i.e. in the (c), (d) and (g) forms. Otherwise we would not be able to account for the M tone observed on 'goat', 'child' and 'hen' in all cases. Since the N₂ position is characterized by a
L prefix anyway, this appears to be the same entity and is not alarming in any way.

(b) However, if we generalize this L prefix to all prefixless nouns in N₂ position, we run into trouble in the (a) and (b) forms. In all cases, the L and LH stems 'animal' and 'monkey' are realized with H and HM tone. If there were an extra L prefix preceding them, we would expect the incorrect realizations *ā-fō-cūo fō pām and *ō-fō-cūo fō kāin⁰. We therefore either have to stipulate that this L prefix is present only if a stem begins with an underlying H tone, or that it is present everywhere but is deleted by a special rule when the stem begins with a L tone. Since this is an instantiation of Leben's "obligatory contour principle", i.e. since ḥ L simplifies to a single L, this is not too disturbing. We shall later attempt an analysis which combines this irregular aspect of L(H) nouns with the irregular aspects of L nouns seen earlier. It should be noted in this respect, however, that were there no L tone, we might expect realizations such as *ō-fō-cūo fō pām (cf. ē-pām in (118a)), whereby the underlying L stem is realized H, not HL. This irregular realization of 'animal' and other such nouns is restricted to cases where the H to its left is from the IV. That is, a real prefix will simply spread and create the HL contour expected. Of course, we do have the problem of getting rid of the extra L prefix, as mentioned.

(c) In realizations such as pām and kāin, the H of the CV associative has spread onto the stem of the N₂. It is noted in the (e) and (f) forms that this spreading is not observed when the noun in question begins with a NC- sequence. We either attribute this non-spreading to the sequence, or possibly to an extra L tone (=the N₂ prefix? or perhaps lexical, since some such nouns do not have a nasal, e.g. ē-bō 'father, owner'). The L tone is needed in the (g) forms in order to get the M realization on ngvō.
3.3.2. \( \hat{v} \) associative

The following sets of data illustrate \( \emptyset \) prefix \( N_2 \) nouns following a \( \hat{v} \) associative:

(125)a. /á-làʔ + á + nàm/ \( \rightarrow \) á-làʔ á nàm 'place of the animal'
b. /á-làʔ + á + kàin'/ \( \rightarrow \) á-làʔ á kàin '... of the monkey'
c. /á-làʔ + á + `bùi' \( \rightarrow \) á-làʔ á bùi '... of the goat'
d. /á-làʔ + á + `wàin/ \( \rightarrow \) á-làʔ á wàin '... of the child'
e. /á-làʔ + á + mbòn/ \( \rightarrow \) á-làʔ á mbòn '... of the dwarf cow'
f. /á-làʔ + á + ngòm'/ \( \rightarrow \) á-làʔ á ngòm '... of the porcupine'
g. /á-làʔ + á + `ngvò'/ \( \rightarrow \) á-làʔ á ngvò '... of the hen'

(126)a. /á-làŋ' + á + nàm/ \( \rightarrow \) á-làŋ á nàm 'coco Yam of the animal'
b. /á-làŋ' + á + kàin'/ \( \rightarrow \) á-làŋ á kàtn '... of the monkey'
c. /á-làŋ' + á + `bùi' \( \rightarrow \) á-làŋ á bùi '... of the goat'
d. /á-làŋ' + á + `wàin/ \( \rightarrow \) á-làŋ á wàin '... of the child'
e. /á-làŋ' + á + mbòn/ \( \rightarrow \) á-làŋ á mbòn '... of the dwarf cow'
f. /á-làŋ' + á + ngòm'/ \( \rightarrow \) á-làŋ á ngòm '... of the porcupine'
g. /á-làŋ' + á + `ngvò'/ \( \rightarrow \) á-làŋ á ngvò '... of the hen'

(127)a. /á-yès' + á + nàm/ \( \rightarrow \) á-yès á nàm 'broom of the animal'
b. /á-yès' + á + kàin'/ \( \rightarrow \) á-yès á kàtn '... of the monkey'
c. /á-yès' + á + `bùi' \( \rightarrow \) á-yès á bùi '... of the goat'
d. /á-yès' + á + `wàin/ \( \rightarrow \) á-yès á wàin '... of the child'
e. /á-yès' + á + mbòn/ \( \rightarrow \) á-yès á mbòn '... of the dwarf cow'
f. /á-yès' + á + ngòm'/ \( \rightarrow \) á-yès á ngòm '... of the porcupine'
g. /á-yès' + á + `ngvò'/ \( \rightarrow \) á-yès á ngvò '... of the hen'

(128)a. /á-yòl + á + nàm/ \( \rightarrow \) á-yòl á nàm 'grass of the animal'
b. /á-yòl + á + kàin'/ \( \rightarrow \) á-yòl á kàtn '... of the monkey'
c. /á-yòl + á + `bùi' \( \rightarrow \) á-yòl á bùi '... of the goat'
d. /ä-yöl + ä + 'wain/ → ä-yöl ä wain '... of the child'

e. /ä-yöl + ä + mbën/ → ä-yöl ä mbën '... of the dwarf cow'

f. /ä-yöl + ä + ngöm'/ → ä-yöl ä ngöm° '... of the porcupine'

g. /ä-yöl + ä + 'ngvö' / → ä-yöl ä ngvö '... of the hen'

(129)a. /än-täs + ä + nám/ → än-täs ä nám 'spoon of the animal'

b. /än-täs + ä + kän'/ → än-täs ä kän '... of the monkey'

c. /än-täs + ä + 'bái' / → än-täs ä bái '... of the goat'

d. /än-täs + ä + 'wain/ → än-täs ä wain '... of the child'

(130)a. /än-töf + ä + nám/ → än-töf ä nám 'stomach of the animal'

b. /än-töf + ä + kän'/ → än-töf ä kän '... of the monkey'

c. /än-töf + ä + 'bái' / → än-töf ä bái '... of the goat'

d. /än-töf + ä + 'wain/ → än-töf ä wain '... of the child'

e. /än-töf + ä + mbën/ → än-töf ä mbën '... of the dwarf cow'

f. /än-töf + ä + ngöm'/ → än-töf ä ngöm° '... of the porcupine'

g. /än-töf + ä + 'ngvö' / → än-töf ä ngvö '... of the hen'

The same observations are to be made as in the last set of data—in addition, the familiar HL and HM simplification processes are in effect, respectively, in (125) and (126).

3.3.3. CV associative

In (131)-(136) we have substituted the plural 6a forms for their corresponding class 19 singulars seen earlier in (119)-(124). The result is a L tone /mə/ AM followed by the ø prefix we are interested in:
(131) a. /'e-mə-cùo + mə + nàm/ → e-mə-cùo mə nàm 'squirrels of the animal'
b. /'e-mə-cùo + mə + kàin'/ → e-mə-cùo mə kàin° '... of the monkey'
c. /'e-mə-cùo + mə + 'bùi'/ → e-mə-cùo mə bùi° '... of the goat'
d. /'e-mə-cùo + mə + 'wàin'/ → e-mə-cùo mə wàin° '... of the child'
e. /'e-mə-cùo + mə + mbɔŋ/ → e-mə-cùo mə mbɔŋ '... of the dwarf cow'
f. /'e-mə-cùo + mə + ngòm'/ → e-mə-cùo mə ngòm° '... of the porcupine'
g. /'e-mə-cùo + mə + 'ngvɔ'/ → e-mə-cùo mə ngvɔ '... of the hen'

(132) a. /'e-mə-nùin' + mə + nàm/ → e-mə-nùin mə nàm 'birds of the animal'
b. /'e-mə-nùin' + mə + kàin'/ → e-mə-nùin mə kàin° '... of the monkey'
c. /'e-mə-nùin' + mə + 'bùi'/ → e-mə-nùin mə bùi° '... of the goat'
d. /'e-mə-nùin' + mə + 'wàin'/ → e-mə-nùin mə wàin° '... of the child'
e. /'e-mə-nùin' + mə + mbɔŋ/ → e-mə-nùin mə mbɔŋ '... of the dwarf cow'
f. /'e-mə-nùin' + mə + ngòm'/ → e-mə-nùin mə ngòm° '... of the porcupine'
g. /'e-mə-nùin' + mə + 'ngvɔ'/ → e-mə-nùin mə ngvɔ '... of the hen'

(133) a. /'e-mə-bù? + mə + nàm/ → e-mə-bù? mə nàm 'gorillas of the animal'
b. /'e-mə-bù? + mə + kàin'/ → e-mə-bù? mə kàin° '... of the monkey'
c. /'e-mə-bù? + mə + 'bùi'/ → e-mə-bù? mə bùi° '... of the goat'
d. /'e-mə-bù? + mə + 'wàin'/ → e-mə-bù? mə wàin° '... of the child'
e. /'e-mə-bù? + mə + mbɔŋ/ → e-mə-bù? mə mbɔŋ '... of the dwarf cow'
f. /'e-mə-bù? + mə + ngòm'/ → e-mə-bù? mə ngòm° '... of the porcupine'
g. /'e-mə-bù? + mə + 'ngvɔ'/ → e-mə-bù? mə ngvɔ '... of the hen'

(134) a. /'e-mə-tám + mə + nàm/ → e-mə-tám mə nàm 'fruits of the animal'
b. /'e-mə-tám + mə + kàin'/ → e-mə-tám mə kàin° '... of the monkey'
c. /'e-mə-tám + mə + 'bùi'/ → e-mə-tám mə bùi° '... of the goat'
d. /'e-mə-tám + mə + 'wàin'/ → e-mə-tám mə wàin° '... of the child'
e. /'e-mə-tám + mə + mbɔŋ/ → e-mə-tám mə mbɔŋ '... of the dwarf cow'
f. /'e-mə-tám + mə + ngòm'/ → e-mə-tám mə ngòm° '... of the porcupine'
g. /'e-mə-tám + mə + 'ngvɔ'/ → e-mə-tám mə ngvɔ '... of the hen'
There are no surprises here, though the following can be noted:

(a) Both 'monkey' and 'porcupine' in the (b) and (f) forms are realized L_0 before pause, coming as they do from underlying LH. In the (d) forms we see that 'child' also is realized L_0, since the L of the L + H sequence spreads and then, creating a LM (LH) contour, feeds the simplification rule.

(b) The L- prefix we needed earlier in this section before H-initial stems is not needed here, but is indicated in order to be consistent. We must suppose that it early on is absorbed (i.e. deleted) by the preceding anchored L tone of the AM.

(c) In (136) we see once again that the LH stem is realized LM before a L tone CV AM. In the next set this will be slightly different.

3.3.4. \( \overline{v} \) associative

The final data sets illustrate a L tone V associative before prefixless N2 nouns.
(137) a. /ə̞-̞ntəʔ+ə+nam/ → ə̞-̞ntəʔ ə nam 'village of the animal'
b. /ə̞-̞ntəʔ+ə+kain/ → ə̞-̞ntəʔ ə kain° '... of the monkey'
c. /ə̞-̞ntəʔ+ə+bēi/ → ə̞-̞ntəʔ ə bēi '... of the goat'
d. /ə̞-̞ntəʔ+ə+wain/ → ə̞-̞ntəʔ ə wain° '... of the child'
e. /ə̞-̞ntəʔ+ə+mbon/ → ə̞-̞ntəʔ ə mbon '... of the dwarf cow'
f. /ə̞-̞ntəʔ+ə+ngöm/ → ə̞-̞ntəʔ ə ngöm° '... of the porcupine'
g. /ə̞-̞ntəʔ+ə+ngvo/ → ə̞-̞ntəʔ ə ngvo '... of the hen'

(138) a. /ə̞-̞njam+ə+nam/ → ə̞-̞njam ə nam 'axe of the animal'
b. /ə̞-̞njam+ə+kain/ → ə̞-̞njam ə kain° '... of the monkey'
c. /ə̞-̞njam+ə+bēi/ → ə̞-̞njam ə bēi '... of the goat'
d. /ə̞-̞njam+ə+wain/ → ə̞-̞njam ə wain° '... of the child'
e. /ə̞-̞njam+ə+mbon/ → ə̞-̞njam ə mbon '... of the dwarf cow'
f. /ə̞-̞njam+ə+ngöm/ → ə̞-̞njam ə ngöm° '... of the porcupine'
g. /ə̞-̞njam+ə+ngvo/ → ə̞-̞njam ə ngvo '... of the hen'

(139) a. /ə̞-̞ngō+ə+nam/ → ə̞-̞ngō ə nam 'trouble of the animal'
b. /ə̞-̞ngō+ə+kain/ → ə̞-̞ngō ə kain° '... of the monkey'
c. /ə̞-̞ngō+ə+bēi/ → ə̞-̞ngō ə bēi '... of the goat'
d. /ə̞-̞ngō+ə+wain/ → ə̞-̞ngō ə wain° '... of the child'
e. /ə̞-̞ngō+ə+mbon/ → ə̞-̞ngō ə mbon '... of the dwarf cow'
f. /ə̞-̞ngō+ə+ngöm/ → ə̞-̞ngō ə ngöm° '... of the porcupine'
g. /ə̞-̞ngō+ə+ngvo/ → ə̞-̞ngō ə ngvo '... of the hen'

(140) a. /ə̞-̞kaf+ə+nam/ → ə̞-̞kaf ə nam 'armpit of the animal'
b. /ə̞-̞kaf+ə+kain/ → ə̞-̞kaf ə kain° '... of the monkey'
c. /ə̞-̞kaf+ə+bēi/ → ə̞-̞kaf ə bēi '... of the goat'
d. /ə̞-̞kaf+ə+wain/ → ə̞-̞kaf ə wain° '... of the child'
e. /ə̞-̞kaf+ə+mbon/ → ə̞-̞kaf ə mbon '... of the dwarf cow'
f. /ə̞-̞kaf+ə+ngöm/ → ə̞-̞kaf ə ngöm° '... of the porcupine'
g. /ə̞-̞kaf+ə+ngvo/ → ə̞-̞kaf ə ngvo '... of the hen'
There are again no surprises. However, some comment is necessary on the realization of the /ə/ AM phonetically:

(a) After obstruents it is realized as a schwa (see, e.g. (137), (139), (140) and (141)), independent of what follows.

(b) After a sonorant and before a C-initial there is a tendency for the schwa to assimilate to this sonorant, e.g. ə-njəm m kān°, ə-bu a kān°, etc. A schwa has been recorded in this position, though not when the sonorant
is a nasal.

(c) After a sonorant and before a NC- initial one either obtains a schwa or the nasal becomes syllabic carrying the L tone of the associative, e.g. ə-bá ʔm-bòŋ. One apparently does not obtain lengthening of the preceding sonorant (here a vowel) in this position [to be checked].

The very low level adjustments give the impression of the H of a /-H/ stem (realized M, of course) going to the right onto the ʔ AM. This clearly did not happen in cases where the AM was CV, e.g. in (136). What is proposed is that the H goes to the preceding syllable, but when there is assimilation as there is, e.g. in ... [this should go earlier].

This completes our survey through the different associative tone patterns.

4. ANALYSIS OF NOUN TONES

In this section we shall present our analysis of the tone of Kom nominals. We shall enlarge the data slightly after accounting for what we have seen in the above paradigms.

4.1. Noun prefix

We have seen three canonical shapes of noun prefixes: CV-, V- and Ø-. As we have seen in the underlying representations in section 3, we conclude that any noun having a M tone prefix has, underlyingly, a H tone on this prefix. This applies, of course, only to CV- and V- prefixes at the moment:

(144) a. (ə-)fë-cùo / ə-fō-cùo ə-líʔ / ə-líʔ
b. (ə-)fë-nûnɭ/ə-fō-nûTn ə-λàŋɭ / ə-λàŋə
c. (ə-)fë-bûʔ/ ə-fō-bûʔ ə-yēs / ə-yēs
d. (ə-)fë-lám / ə-fō-lám ə-yōl / ə-yōl

(We will formalize the rule of H-lowering later.)

Concerning CV- and V- prefixes which are not M tone on the surface (and hence for which an underlying H will not in itself due as a tonal represen-
tation, we have slightly different, though parallel realizations: L tone CV-, but ML V- prefixes. In transcriptions we have written these ML V-
prefixes as having two vowels. We now claim that the M part of the contour
is due to the IV, while the L part is the actual prefix, i.e.

(145) a. /á-fè-bòm/ — ì-fè-bòm /á-à-tàm/ — ìà-tàm

b. /á-fè-ny'/ — ì-fè-ny° /á-à-nìòf'/ — ìà-nìòf°

The justification for this analysis comes from the fact that in the gram-
matical contexts where the IV is not present, we obtain L prefixes instead
of M-L or ML- (e.g. in subject or prepositional object positions, as well
as in N₂ position, where all nouns have an underlying L prefix).
### STEM + SUFFIX NOUNS

<table>
<thead>
<tr>
<th>-HL-L</th>
<th>-H-H(L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ṣe-cá?lèlè 'mud' 3/6a</td>
<td>ṭe-lémè 'tongue' 5/6</td>
</tr>
<tr>
<td>ṭe-tó?né 'kindness' 5/13</td>
<td>ṭe-kó?i 'illness' 5/13</td>
</tr>
<tr>
<td>ṭe-cvóńe 'promise' 5/13</td>
<td>ṭe-kó?ósé 'praise' 5/13</td>
</tr>
<tr>
<td>ṭe-jáŋtè 'foolishness' 5/13</td>
<td>ṭe-jáŋné 'giddiness' 5/13</td>
</tr>
<tr>
<td>ṭe-ɣá?lèlè 'rib cage' 5/13</td>
<td>ṭe-wúmè 'shame' 5/13</td>
</tr>
<tr>
<td>ṣe-námmè 'hyena' 7/8</td>
<td>ṣe-γéʔé 'cowry' 7/8</td>
</tr>
<tr>
<td>ṣe-bóʔásè 'twin' 7/8</td>
<td>ṣe-túníé 'ear' 7/8</td>
</tr>
<tr>
<td>ṣe-ŋwèʔelè 'book' 9/10</td>
<td>ṣe-lóŋsé 'shadow' 7/8</td>
</tr>
<tr>
<td>ṣe-nCTè 'life' T?</td>
<td>ṣe-cwíʔté 'sigh' 7/8</td>
</tr>
<tr>
<td>ṣe-fè-žiʔì 'god' 19/6a</td>
<td>ṣe-γáŋsé 'sugarcane' 7/8</td>
</tr>
<tr>
<td>ṣe-gáŋtè 'chest' 6/7</td>
<td>( ṣe-ŋóqí 'locust' 9/10 ) n.c. in N2 after munn na</td>
</tr>
<tr>
<td>ṣe-njíl 'canerat' 9/10</td>
<td>ṣe-fè-cóó 'pipe' 19/6a</td>
</tr>
<tr>
<td>ṣe-końi 'calabash bottle' 7/8</td>
<td>ṣe-fè-sé 'spark' 19/6a</td>
</tr>
<tr>
<td></td>
<td>ṣe-yúʔsé 'perspiration' 6=7</td>
</tr>
<tr>
<td></td>
<td>ṣe-báʔí/?keyʔílá 'piece' 7/8</td>
</tr>
</tbody>
</table>

### REDUPLICATIONS

| ṭe-wóqáwóq 'earthworm' 5/13 | ṣe-táintáin 'box' 7/8 |
| ṭe-ké láké 'hook' 5/13      | ṣe-lóʔíʔ 'hunting bell' 7/8 |
| ṣe-nzàʔasàʔà 'hiccup' 9/10  | ṣe-fè-zvòkábó 'mosquito' 19/6a |
| ṣe-fè-njéntè 'fly' 19/6a    | ( ṣe-fè-ťě́stè 'story,tale'  ) |
| ṣe-fè-néjànénà 'gall bladder' 19/6a |

### MISCELLANEOUS

| ṣe-fáláwà 'flower'              | ṣe-tòlákí 'tortoise'          |
| ṣe-háma 'hammer'                | ṣe-dálé 'garment'             |
| ṣe-ndába? 'tobacco'             | ṣe-fè-ńgòŋí 'ant'             |
| ṣe-lábà 'loin cloth'            | ṣe-cwóóko?'rat'               |
| ṣe-fè-ndòmmà 'caterpillar'      |
APPENDIX

Genitive Tone Patterns

1. N2 prefix is CV

1.1. Genitive marker is CV

(1) a. fe-gham : fe te-fojn → fē-ghām fē tē-fojn 'mat of chiefs'
    H L H L L
    b. fe-gham : fe te-dzī → fē-ghām fē tē-dzī° 'mat of termites'
    H L H L LH
    c. fe-gham : fe te-bal → fē-ghām fē tē-bāl 'mat of valleys'
    H L H L HL
    d. fe-gham : fe te-wu → fē-ghām fē tē-wu° 'mat of rocks'
    H L H L HH

(2) a. fe-nywin : fe te-fojn → fē-nywīn fē tē-fojn 'bird of chiefs'
    H L H L L
    b. fe-nywin : fe te-dzī → fē-nywīn fē tē-dzī° 'bird of termites'
    H L H L LH
    c. fe-nywin : fe te-bal → fē-nywīn fē tē-bāl 'bird of valleys'
    H L H L HL
    d. fe-nywin : fe te-wu → fē-nywīn fē tē-wu° 'bird of rocks'
    H L H L HH

(3) a. fe-bu? : fe te-fojn → fē-bū? fē tē-fojn 'gorilla of chiefs'
    H L H L L
    H L H L LH
    H L H L HL
    d. fe-bu? : fe te-wu → fē-bū? fē tē-wu° 'gorilla of rocks'
    H L H L HH

(4) a. fe-tam : fe te-fojn → fē-tām fē tē-fojn 'fruit of chiefs'
    H H H L L
    b. fe-tam : fe te-dzī → fē-tām fē tē-dzī° 'fruit of termites'
    H H H L LH
    c. fe-tam : fe te-bal → fē-tām fē tē-bāl 'fruit of valleys'
    H H H L HL
    d. fe-tam : fe te-wu → fē-tām fē tē-wu° 'fruit of rocks'
    H H H L HH

(5) a. fe-bojn : fe te-fojn → fē-bojn fē tē-fojn 'ground squirrel of chiefs'
    L L H L L
    b. fe-bojn : fe te-dzī → fē-bojn fē tē-dzī° 'gr.squirrel of termites'
    L L H L LH
    c. fe-bojn : fe te-bal → fē-bojn fē tē-bāl 'gr.squirrel of valleys'
    L L H L HL
    d. fe-bojn : fe te-wu → fē-bojn fē tē-wu° 'gr.squirrel of rocks'
    L L H L HH
(6) a. ɗe-nywi ɗe te-fojną  → ɗe-nywi ɗe té-fōjńa  'knife of chiefs'
b. ɗe-nywi ɗe te-dzial  → ɗe-nywi ɗe té-dzǐl°  'knife of termites'
c. ɗe-nywi ɗe te-bal  → ɗe-nywi ɗe té-bāl  'knife of valleys'
d. ɗe-nywi ɗe te-wu  → ɗe-nywi ɗe té-wū°  'knife of rocks'

(7) a. ɗe-nca? ɗe te-fojną  → ɗe-nca? ɗe té-fōjńa  'wire of chiefs'
b. ɗe-nca? ɗe te-dzial  → ɗe-nca? ɗe té-dzǐl°  'wire of termites'
c. ɗe-nca? ɗe te-bal  → ɗe-nca? ɗe té-bāl  'wire of valleys'
d. ɗe-nca? ɗe te-wu  → ɗe-nca? ɗe té-wū°  'wire of rocks'

1.2. Genitive marker is ɗ

(8) a. a-le? a te-fojną  → a-ɗe? a té-fōjńa  'place of chiefs'
b. a-le? a te-dzial  → a-ɗe? a té-dzǐl°  'place of termites'
c. a-le? a te-bal  → a-ɗe? a té-bāl  'place of valleys'
d. a-le? a te-wu  → a-ɗe? a té-wū°  'place of rocks'

(9) a. a-lanq a te-fojną  → a-ɗeŋ a té-fōjńa  'coco-yam of chiefs'
b. a-lanq a te-dzial  → a-ɗeŋ a té-dzǐl°  'coco-yam of termites'
c. a-lanq a te-bal  → a-ɗeŋ a té-bāl  'coco-yam of valleys'
d. a-lanq a te-wu  → a-ɗeŋ a té-wū°  'coco-yam of rocks'

(10) a. a-yes a te-fojną  → a-ɗeŋ a té-fōjńa  'broom of chiefs'
b. a-yes a te-dzial  → a-ɗeŋ a té-dzǐl°  'broom of termites'
c. a-yes a te-bal  → a-ɗeŋ a té-bāl  'broom of valleys'
d. a-yes a te-wu  → a-ɗeŋ a té-wū°  'broom of rocks'

(11) a. a-vaf a te-fojną  → a-ɗeŋ a té-fōjńa  'bone of chiefs'
b. a-vaf a te-dzial  → a-ɗeŋ a té-dzǐl°  'bone of termites'
c. a-vaf a te-bal  → a-ɗeŋ a té-bāl  'bone of valleys'
d. a-vaf a te-wu  → a-ɗeŋ a té-wū°  'bone of rocks'
(12) a. a-ntas a te-fójn → à-ntás à tâ-fójn 'spoon of chiefs'
b. a-ntas a te-dzì → à-ntás à tâ-dzì° 'spoon of termites'
c. a-ntas a te-bal → à-ntás à tê-bal 'spoon of valleys'
d. a-ntas a te-wu → à-ntás à tê-wu° 'spoon of rocks'

(13) a. a-ntán a te-fójn → à-ntàn à tâ-fójn 'insect of chiefs'
b. a-ntán a te-dzì → à-ntàn à tâ-dzì° 'insect of termites'
c. a-ntán a te-bal → à-ntàn à tê-bâl 'insect of valleys'
d. a-ntán a te-wu → à-ntàn à tê-wu° 'insect of rocks'

(14) a. a-ŋkān a te-fójn → à-ŋkān à tâ-fójn 'lie of chiefs'
b. a-ŋkān a te-dzì → à-ŋkān à tâ-dzì° 'lie of termites'
c. a-ŋkān a te-bal → à-ŋkān à tê-bâl 'lie of valleys'
d. a-ŋkān a te-wu → à-ŋkān à tê-wu° 'lie of rocks'

1.3. Genitive marker is CV

(15) a. me-gham më te-fójn → më-ghâm më tâ-fójn 'mats of chiefs'
b. me-gham më te-dzì → më-ghâm më tê-dzì° 'mats of termites'
c. me-gham më te-bal → më-ghâm më tê-bâl 'mats of valleys'
d. me-gham më te-wu → më-ghâm më tê-wu° 'mats of rocks'

(16) a. me-nywin më te-fójn → më-nywín më tâ-fójn 'birds of chiefs'
b. me-nywin më te-dzì → më-nywín më tê-dzì° 'birds of termites'
c. me-nywin më te-bal → më-nywín më tê-bâl 'birds of valleys'
d. me-nywin më te-wu → më-nywín më tê-wu° 'birds of rocks'

(17) a. me-bû? më te-fójn → më-bû? më tâ-fójn 'gorillas of chiefs'
b. me-bû? më te-dzì → më-bû? më tê-dzì° 'gorillas of termites'
c. me-bû? më te-bal → më-bû? më tê-bâl 'gorillas of valleys'
d. me-bû? më te-wu → më-bû? më tê-wu° 'gorillas of rocks'
(18) a. ma-tem me te-føjn → mœ-tam mœ tà-føjn  'fruits of chiefs'
b. ma-tem me te-dz½ → mœ-tam mœ tà-dz½  'fruits of termites'
c. ma-tem me te-bal → mœ-tam mœ tà-bal  'fruits of valleys'
d. ma-tem me te-wu → mœ-tam mœ tà-wu  'fruits of rocks'

(19) a. ma-boyn me te-føjn → mœ-boyn mœ tà-føjn  'gr.squirrels of chiefs'
b. ma-boyn me te-dz½ → mœ-boyn mœ tà-dz½  'gr.squirrels of termites'
c. ma-boyn me te-bal → mœ-boyn mœ tà-bal  'gr.squirrels of valleys'
d. ma-boyn me te-wu → mœ-boyn mœ tà-wu  'gr.squirrels of rocks'

(20) a. ma-nywi me te-føjn → mœ-nywiT mœ tà-føjn  'knives of chiefs'
b. ma-nywi me te-dz½ → mœ-nywiT mœ tà-dz½  'knives of termites'
c. ma-nywi me te-bal → mœ-nywiT mœ tà-bal  'knives of valleys'
d. ma-nywi me te-wu → mœ-nywiT mœ tà-wu  'knives of rocks'

(21) a. ma-nca? me te-føjn → mœ-nca? mœ tà-føjn  'wires of chiefs'
b. ma-nca? me te-dz½ → mœ-nca? mœ tà-dz½  'wires of termites'
c. ma-nca? me te-bal → mœ-nca? mœ tà-bal  'wires of valleys'
d. ma-nca? me te-wu → mœ-nca? mœ tà-wu  'wires of rocks'

1.4. Genitive marker is  V

(22) a. nte? e te-føjn → nte? e tà-føjn  'village of chiefs'
b. nte? e te-dz½ → nte? e tà-dz½  'village of termites'
c. nte? e te-bal → nte? e tà-bal  'village of valleys'
d. nte? e te-wu → nte? e tà-wu  'village of rocks'

(23) a. njam e te-føjn → njam m te-føjn  'axe of chiefs'
b. njam e te-dz½ → njam m te-dz½  'axe of termites'
c. njam e te-bal → njam m te-bal  'axe of valleys'
d. njam e te-wu → njam m te-wu  'axe of rocks'
(24) a.  nga? a te-fojn → ngā? a te-fojn  'trouble of chiefs'
     L H L L L  L H L L L  a  a  a

b.  nga? a te-dzi → ngā? a te-dzi  ò  'trouble of termites'
     L H L L L  L H L L L  a  a  a

c.  nga? a te-bal → ngā? a te-bal  'trouble of valleys'
     L H L L L  L H L L L  a  a  a

d.  nga? a te-wu  → ngā? a te-wu  ò  'trouble of rocks'
     L H L L L  L H L L L  a  a  a

(25) a.  wuł a te-fojn → wuł a te-fojn  'person of chiefs'
     H L L L L  H L L L L  a  a  a

b.  wuł a te-dzi → wuł a te-dzi  ò  'person of termites'
     H L L L L  H L L L L  a  a  a

c.  wuł a te-bal → wuł a te-bal  'person of valleys'
     H L L L L  H L L L L  a  a  a

d.  wuł a te-wu  → wuł a te-wu  ò  'person of rocks'
     H L L L L  H L L L L  a  a  a

(26) a.  bom a te-fojn → bom m te-fojn  'cup of chiefs'
     H L H L L  H L H L L  a  a  a  a

b.  bom a te-dzi → bom m te-dzi  ò  'cup of termites'
     H L H L L  H L H L L  a  a  a  a

c.  bom a te-bal → bom m te-bal  'cup of valleys'
     H L H L L  H L H L L  a  a  a  a

d.  bom a te-wu  → bom m te-wu  ò  'cup of rocks'
     H L H L L  H L H L L  a  a  a  a

(27) a.  bi a te-fojn → bi  ò  te-fojn  'dog of chiefs'
     H L H L L  H L H L L  a  a  a  a

b.  bi a te-dzi → bi  ò  te-dzi  ò  'dog of termites'
     H L H L L  H L H L L  a  a  a  a

c.  bi a te-bal → bi  ò  te-bal  'dog of valleys'
     H L H L L  H L H L L  a  a  a  a

d.  bi a te-wu  → bi  ò  te-wu  ò  'dog of rocks'
     H L H L L  H L H L L  a  a  a  a

(28) a.  mo a te-fojn → mo  ò  te-fojn  'lake of chiefs'
     H L H L L  H L H L L  a  a  a  a

b.  mo a te-dzi → mo  ò  te-dzi  ò  'lake of termites'
     H L H L L  H L H L L  a  a  a  a

c.  mo a te-bal → mo  ò  te-bal  'lake of valleys'
     H L H L L  H L H L L  a  a  a  a

d.  mo a te-wu  → mo  ò  te-wu  ò  'lake of rocks'
     H L H L L  H L H L L  a  a  a  a

2. N₂ prefix is V-.

2.1. Genitive marker is CV

(29) a.  fe-gham fe a-kos → fe-gham f' a-kòs  'mat of slave'
     H L H L L  H L H L L  a  a

b.  fe-gham fe a-ku → fe-gham f' a-ku  ò  'mat of forest'
     H L H L L  H L H L L  a  a

c.  fe-gham fe a-bas → fe-gham f' a-bəs  'mat of lizard'
     H L H L L  H L H L L  a  a
d. fa-gham fa a-kof  \(\rightarrow\) fā-ghām f' ā-kōf 'mat of tick'
H L H H H

(30) a. fa-nywin fa a-kos. \(\rightarrow\) fā-nywīn f' ā-kōs 'bird of slave'
H L H H L L
b. fa-nywin fa a-kū. \(\rightarrow\) fā-nywīn f' ā-kū 'bird of forest'
H L H H L L
c. fa-nywin fa a-bas \(\rightarrow\) fā-nywīn f' ā-bās 'bird of lizard'
H L H H L H

d. fa-nywin fa a-kof \(\rightarrow\) fā-nywīn f' ā-kūf 'bird of tick'
H L H L H

(31) a. fa-bu? fa a-kos \(\rightarrow\) fā-bū? f' ā-kōs 'gorilla of slave'
H H H L L
b. fa-bu? fa a-kū \(\rightarrow\) fā-bū? f' ā-kū 'gorilla of forest'
H H H L L
c. fa-bu? fa a-bas \(\rightarrow\) fā-bū? f' ā-bās 'gorilla of lizard'
H H H L H

d. fa-bu? fa a-kof \(\rightarrow\) fā-bū? f' ā-kūf 'gorilla of tick'
H H H H H

(32) a. fa-tam fa a-kos \(\rightarrow\) fā-tām f' ā-kōs 'fruit of slave'
H H H L L
b. fa-tam fa a-kū \(\rightarrow\) fā-tām f' ā-kū 'fruit of forest'
H H H L L
c. fa-tam fa a-bas \(\rightarrow\) fā-tām f' ā-bās 'fruit of lizard'
H H H L H
d. fa-tam fa a-kof \(\rightarrow\) fā-tām f' ā-kūf 'fruit of tick'
H H H H H

(33) a. fa-bojn fa a-kos \(\rightarrow\) fā-bojn f' ā-kōs 'gr.squirrel of slave'
L' L L H L L
b. fa-bojn fa a-kū \(\rightarrow\) fā-bojn f' ā-kū 'gr.squirrel of forest'
L' L L L H

c. fa-bojn fa a-bas \(\rightarrow\) fā-bojn f' ā-bās 'gr.squirrel of lizard'
L' L L L H
d. fa-bojn fa a-kof \(\rightarrow\) fā-bojn f' ā-kūf 'gr.squirrel of tick'
L' L L L H

(34) a. fa-nywi fa a-kos \(\rightarrow\) fā-nywī f' ā-kōs 'knife of slave'
L L H H L L
b. fa-nywi fa a-kū \(\rightarrow\) fā-nywī f' ā-kū 'knife of forest'
L L H L L H
c. fa-nywi fa a-bas \(\rightarrow\) fā-nywī f' ā-bās 'knife of lizard'
L L L H L H
d. fa-nywi fa a-kof \(\rightarrow\) fā-nywī f' ā-kūf 'knife of tick'
L L H L H H

(35) a. fa-nca? fa a-kos \(\rightarrow\) fā-nca? f' ā-kōs 'wire of slave'
L L H L L L
b. fa-nca? fa a-kū \(\rightarrow\) fā-nca? f' ā-kū 'wire of forest'
L L H L L H
c. fa-nca? fa a-bas \(\rightarrow\) fā-nca? f' ā-bās 'wire of lizard'
L L H L H L
d. fa-nca? fa a-kof \(\rightarrow\) fā-nca? f' ā-kūf 'wire of tick'
L L H L H H
2.2. Genitive marker is ŕ

(36) a. a-ləʔ a a-kəs  \[\text{H L H L L}\]  →  ŕ-ləʔ ŕ-kəs  'place of slave'
   b. a-ləʔ a a-kə  \[\text{H L H L L}\]  →  ŕ-ləʔ ŕ-kə  'place of forest'
   c. a-ləʔ a a-bəs  \[\text{H L H L L}\]  →  ŕ-ləʔ ŕ-bəs  'place of lizard'
   d. a-ləʔ a a-kuf  \[\text{H L H L L}\]  →  ŕ-ləʔ ŕ-kuf  'place of tick'

(37) a. a-ləŋ a a-kəs  \[\text{H H L H L L}\]  →  ŕ-ləŋ ŕ-kəs  'cccyoyam of slave'
   b. a-ləŋ a a-kə  \[\text{H H L H L L}\]  →  ŕ-ləŋ ŕ-kə  'cccyoyam of forest'
   c. a-ləŋ a a-bəs  \[\text{H H L H L L}\]  →  ŕ-ləŋ ŕ-bəs  'cccyoyam of lizard'
   d. a-ləŋ a a-kuf  \[\text{H H L H L L}\]  →  ŕ-ləŋ ŕ-kuf  'cccyoyam of tick'

(38) a. a-yəs a a-kəs  \[\text{H H H L L L}\]  →  ŕ-yəs ŕ-kəs  'broom of slave'
   b. a-yəs a a-kə  \[\text{H H H L L L}\]  →  ŕ-yəs ŕ-kə  'broom of forest'
   c. a-yəs a a-bəs  \[\text{H H H L L L}\]  →  ŕ-yəs ŕ-bəs  'broom of lizard'
   d. a-yəs a a-kuf  \[\text{H H H L L L}\]  →  ŕ-yəs ŕ-kuf  'broom of tick'

(39) a. a-vəf a a-kəs  \[\text{H H H H L L}\]  →  ŕ-vəf ŕ-kəs  'bone of slave'
   b. a-vəf a a-kə  \[\text{H H H H L L}\]  →  ŕ-vəf ŕ-kə  'bone of forest'
   c. a-vəf a a-bəs  \[\text{H H H H L L}\]  →  ŕ-vəf ŕ-bəs  'bone of lizard'
   d. a-vəf a a-kuf  \[\text{H H H H L L}\]  →  ŕ-vəf ŕ-kuf  'bone of tick'

(40) a. a-ntəs a a-kəs  \[\text{L L L L L}\]  →  ŕ-ntəs ŕ-kəs  'spoon of slave'
   b. a-ntəs a a-kə  \[\text{L L L L L}\]  →  ŕ-ntəs ŕ-kə  'spoon of forest'
   c. a-ntəs a a-bəs  \[\text{L L L L L}\]  →  ŕ-ntəs ŕ-bəs  'spoon of lizard'
   d. a-ntəs a a-kuf  \[\text{L L L L L}\]  →  ŕ-ntəs ŕ-kuf  'spoon of tick'

(41) a. a-ntən a a-kəs  \[\text{L L H H L L}\]  →  ŕ-ntən ŕ-kəs  'insect of slave'
   b. a-ntən a a-kə  \[\text{L L H H L L}\]  →  ŕ-ntən ŕ-kə  'insect of forest'
   c. a-ntən a a-bəs  \[\text{L L H H L L}\]  →  ŕ-ntən ŕ-bəs  'insect of lizard'
   d. a-ntən a a-kuf  \[\text{L L H H L L}\]  →  ŕ-ntən ŕ-kuf  'insect of tick'
(42) a. a-ŋkaŋ a a-kos → ə-ŋkaŋ Ñ-a-kôs  'lie of slave'
    L H L H L L

b. a-ŋkaŋ a a-ku → ə-ŋkaŋ Ñ-a-kû  'lie of forest'
    L H L L L H

c. a-ŋkaŋ a a-bas → ə-ŋkaŋ Ñ-a-bâs  'lie of lizard'
    L H L L L H

d. a-ŋkaŋ a a-kuf → ə-ŋkaŋ Ñ-a-kûf  'lie of tick'
    L H L H L H

2.3. Genitive marker is C'v

(43) a. mə-gham me a-kos → mə-ghâm m' â-kôs  'mats of slave'
    H L L L L L

b. mə-gham me a-ku → mə-ghâm m' â-kû  'mats of forest'
    H L L L L H

c. mə-gham me a-bas → mə-ghâm m' â-bâs  'mats of lizard'
    H L L L H L

d. mə-gham me a-kuf → mə-ghâm m' â-kûf  'mats of tick'
    H L H L L H

(44) a. mə-nywin me a-kos → mə-nywîn m' â-kôs  'birds of slave'
    H L H L L L

b. mə-nywin me a-ku → mə-nywîn m' â-kû  'birds of forest'
    H L H L L H

c. mə-nywin me a-bas → mə-nywîn m' â-bâs  'birds of lizard'
    H L H L H L

d. mə-nywin me a-kuf → mə-nywîn m' â-kûf  'birds of tick'
    H L H L H H

(45) a. mə-bu? me a-kos → mə-bû? m' â-kôs  'gorillas of slave'
    H H L L L L

b. mə-bu? me a-ku → mə-bû? m' â-kû  'gorillas of forest'
    H H L L L H

c. mə-bu? me a-bas → mə-bû? m' â-bâs  'gorillas of lizard'
    H H L L H L

d. mə-bu? me a-kuf → mə-bû? m' â-kûf  'gorillas of tick'
    H H H L L H

(46) a. mə-tám me a-kos → mə-tâm m' â-kôs  'fruits of slave'
    H H L L L L

b. mə-tám me a-ku → mə-tâm m' â-kû  'fruits of forest'
    H H L L L H

c. mə-tám me a-bas → mə-tâm m' â-bâs  'fruits of lizard'
    H H L L H L

d. mə-tám me a-kuf → mə-tâm m' â-kûf  'fruits of tick'
    H H H L L H

(47) a. mə-bojîn me a-kos → mə-bojîn m' â-kôs  'gr.squirrels of slave'
    L L H L L L

b. mə-bojîn me a-ku → mə-bojîn m' â-kû  'gr.squirrels of forest'
    L L L L L H

c. mə-bojîn me a-bas → mə-bojîn m' â-bâs  'gr.squirrels of lizard'
    L L L L H L
d. me-boyjn me a-kuf → me-boyjn m' à-kúf° 'gr.squirrels of tick'

(48) a. me-nywi me a-kos → me-nywi m' à-kòs 'knives of slave'
b. me-nywi me a-ku → me-nywi m' à-kú° 'knives of forest'
c. me-nywi me a-bas → me-nywi m' à-bášs 'knives of lizard'
d. me-nywi me a-kuf → me-nywi m' à-kúf° 'knives of tick'

(49) a. me-nca? me a-kos → me-nca? m' à-kòs 'wires of slave'
b. me-nca? me a-ku → me-nca? m' à-kú° 'wires of forest'
c. me-nca? me a-bas → me-nca? m' à-bášs 'wires of lizard'
d. me-nca? me a-kuf → me-nca? m' à-kúf° 'wires of tick'

2.4. Genitive marker is V

(50) a. nte? e a-kos → nte? 'à-kòs 'village of slave'
b. nte? e a-ku → nte? 'à-kú° 'village of forest'
c. nte? e a-bas → nte? 'à-bášs 'village of lizard'
d. nte? e a-kuf → nte? 'à-kúf° 'village of tick'

(51) a. njam e a-kos → njám 'àà-kòs 'axe of slave'
b. njam e a-ku → njám 'àà-kú° 'axe of forest'
c. njam e a-bas → njám 'àà-bášs 'axe of lizard'
d. njam e a-kuf → njám 'àà-kúf° 'axe of tick'

(52) a. ngé? e a-kos → ngé? 'à-kòs 'trouble of slave'
b. ngé? e a-ku → ngé? 'à-kú° 'trouble of forest'
c. ngé? e a-bas → ngé? 'à-bášs 'trouble of lizard'
d. ngé? e a-kuf → ngé? 'à-kúf° 'trouble of tick'

(53) a. wul e a-kos → wúl 'à-kòs 'person of slave'
b. wul e a-ku → wúl 'à-kú° 'person of village'
c. wul a a-bas \( \rightarrow \) wūl 'à-bās 'person of lizard'
d. wul a a-kuf \( \rightarrow \) wūl 'à-kūf' 'person of tick'

(54) a. bom a a-kos \( \rightarrow \) bóm 'à-kōs' 'cup of slave'
b. bom a a-ku \( \rightarrow \) bóm 'à-kū' 'cup of forest'
c. bom a a-bas \( \rightarrow \) bóm 'à-bās' 'cup of lizard'
d. bom a a-kuf \( \rightarrow \) bóm 'à-kūf' 'cup of tick'

(55) a. bī a a-kos \( \rightarrow \) bī 'à-kōs' 'dog of slave'
b. bī a a-ku \( \rightarrow \) bī 'à-kū' 'dog of forest'
c. bī a a-bas \( \rightarrow \) bī 'à-bās' 'dog of lizard'
d. bī a a-kuf \( \rightarrow \) bī 'à-kūf' 'dog of tick'

(56) a. mo a a-kos \( \rightarrow \) mó 'à-kōs' 'lake of slave'
b. mo a a-ku \( \rightarrow \) mó 'à-kū' 'lake of forest'
c. mo a a-bas \( \rightarrow \) mó 'à-bās' 'lake of lizard'
d. mo a a-kuf \( \rightarrow \) mó 'à-kūf' 'lake of tick'

3. N2 prefix is Ø

3.1. Genitive marker is CV

(57) a. fa-gham fe nyam \( \rightarrow \) fā-ghām fē nyām 'mat of animal'
b. fa-gham fe kajn \( \rightarrow \) fā-ghām fē kājīn 'mat of monkey'
c. fa-gham fe bzi \( \rightarrow \) fā-ghām fē bzi 'mat of goat'
d. fa-gham fe wañn \( \rightarrow \) fā-ghām fē wañī 'mat of child'
e. fa-gham fe mbon \( \rightarrow \) fā-ghām fē mbon 'mat of dwarf cow'
f. fa-ghem fe ngom \( \rightarrow \) fā-ghām fē ngōm 'mat of porcupine'
g. fa-gham fe ngvi \( \rightarrow \) fā-ghām fē ngvī 'mat of hen'

(58) a. fe-nywin fe nyam \( \rightarrow \) fē-nywīn fē nyām 'bird of animal'
<table>
<thead>
<tr>
<th>Case</th>
<th>Base形态</th>
<th>Stem</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>fe-nywin fə kəyın</td>
<td>fə-nywin fə kəyın</td>
<td>'bird of monkey'</td>
</tr>
<tr>
<td>c.</td>
<td>fe-nywin fə bəž</td>
<td>fə-nywin fə bəž</td>
<td>'bird of goat'</td>
</tr>
<tr>
<td>d.</td>
<td>fe-nywin fə wəýn</td>
<td>fə-nywin fə wəýn</td>
<td>'bird of child'</td>
</tr>
<tr>
<td>e.</td>
<td>fe-nywin fə mbon</td>
<td>fə-nywin fə mbon</td>
<td>'bird of dwarf cow'</td>
</tr>
<tr>
<td>f.</td>
<td>fe-nywin fə ngom</td>
<td>fə-nywin fə ngom</td>
<td>'bird of porcupine'</td>
</tr>
<tr>
<td>g.</td>
<td>fe-nywin fə ngvi</td>
<td>fə-nywin fə ngvi</td>
<td>'bird of hen'</td>
</tr>
<tr>
<td>(59)</td>
<td>fe-bu? fə nyam</td>
<td>fə-bu? fə nyam</td>
<td>'gorilla of animal'</td>
</tr>
<tr>
<td>a.</td>
<td>fe-bu? fə kəyın</td>
<td>fə-bu? fə kəyın</td>
<td>'gorilla of monkey'</td>
</tr>
<tr>
<td>b.</td>
<td>fe-bu? fə bəž</td>
<td>fə-bu? fə bəž</td>
<td>'gorilla of goat'</td>
</tr>
<tr>
<td>c.</td>
<td>fe-bu? fə wəýn</td>
<td>fə-bu? fə wəýn</td>
<td>'gorilla of child'</td>
</tr>
<tr>
<td>d.</td>
<td>fe-bu? fə mbon</td>
<td>fə-bu? fə mbon</td>
<td>'gorilla of dwarf cow'</td>
</tr>
<tr>
<td>e.</td>
<td>fe-bu? fə ngom</td>
<td>fə-bu? fə ngom</td>
<td>'gorilla of porcupine'</td>
</tr>
<tr>
<td>f.</td>
<td>fe-bu? fə ngvi</td>
<td>fə-bu? fə ngvi</td>
<td>'gorilla of hen'</td>
</tr>
<tr>
<td>(60)</td>
<td>fe-tam fə nyam</td>
<td>fə-tam fə nyam</td>
<td>'fruit of animal'</td>
</tr>
<tr>
<td>a.</td>
<td>fe-tam fə kəyın</td>
<td>fə-tam fə kəyın</td>
<td>'fruit of monkey'</td>
</tr>
<tr>
<td>b.</td>
<td>fe-tam fə bəž</td>
<td>fə-tam fə bəž</td>
<td>'fruit of goat'</td>
</tr>
<tr>
<td>c.</td>
<td>fe-tam fə wəýn</td>
<td>fə-tam fə wəýn</td>
<td>'fruit of child'</td>
</tr>
<tr>
<td>d.</td>
<td>fe-tam fə mbon</td>
<td>fə-tam fə mbon</td>
<td>'fruit of dwarf cow'</td>
</tr>
<tr>
<td>e.</td>
<td>fe-tam fə ngom</td>
<td>fə-tam fə ngom</td>
<td>'fruit of porcupine'</td>
</tr>
<tr>
<td>f.</td>
<td>fe-tam fə ngvi</td>
<td>fə-tam fə ngvi</td>
<td>'fruit of hen'</td>
</tr>
<tr>
<td>(61)</td>
<td>fe-boy̌n fə nyam</td>
<td>fe-boy̌n fə nyam</td>
<td>'gr.squirrel of animal'</td>
</tr>
<tr>
<td>a.</td>
<td>fe-boy̌n fə kəyın</td>
<td>fe-boy̌n fə kəyın</td>
<td>'gr.squirrel of monkey'</td>
</tr>
<tr>
<td>b.</td>
<td>fe-boy̌n fə bəž</td>
<td>fe-boy̌n fə bəž</td>
<td>'gr.squirrel of goat'</td>
</tr>
<tr>
<td>c.</td>
<td>fe-boy̌n fə wəýn</td>
<td>fe-boy̌n fə wəýn</td>
<td>'gr.squirrel of child'</td>
</tr>
<tr>
<td>d.</td>
<td>fe-boy̌n fə mbon</td>
<td>fe-boy̌n fə mbon</td>
<td>'gr.squirrel of dwarf cow'</td>
</tr>
<tr>
<td>e.</td>
<td>fe-boy̌n fə ngom</td>
<td>fe-boy̌n fə ngom</td>
<td>'gr.squirrel of porcupine'</td>
</tr>
</tbody>
</table>
g. fe-bolin fe ngvi → fè-bòln fē ngvī 'gr.squirrel of hen'

(62) a. fe-nywì fe nyam → fè-nywì fē nyâm 'knife of animal'
b. fe-nywì fe kajn → fè-nywì fē kajn 'knife of monkey'
c. fe-nywì fe bzi → fè-nywì fē bzi 'knife of goat'
d. fe-nywì fe wajn → fè-nywì fē wajn 'knife of child'
e. fe-nywì fe mboŋ → fè-nywì fē mboŋ 'knife of dwarf cow'
f. fe-nywì fe ngom → fè-nywì fē ngom° 'knife of porcupine'
g. fe-nywì fe ngvi → fè-nywì fē ngvī 'knife of hen'

(63) a. fe-nca? fe nyam → fè-nca? fē nyâm 'wire of animal'
b. fe-nca? fe kajn → fè-nca? fē kajn 'wire of monkey'
c. fe-nca? fe bzi → fè-nca? fē bzi 'wire of goat'
d. fe-nca? fe wajn → fè-nca? fē wajn 'wire of child'
e. fe-nca? fe mboŋ → fè-nca? fē mboŋ 'wire of dwarf cow'
f. fe-nca? fe ngom → fè-nca? fē ngom° 'wire of porcupine'
g. fe-nca? fe ngvi → fè-nca? fē ngvī 'wire of hen'

3.2. Genitive marker is V

(64) a. a-λe? a nyam → a-λé? a nyâm 'place of animal'
b. a-λe? a kajn → a-λé? a kajn 'place of monkey'
c. a-λe? a bzi → a-λé? a bzi 'place of goat'
d. a-λe? a wajn → a-λé? a wajn 'place of child'
e. a-λe? a mboŋ → a-λé? a mboŋ 'place of dwarf cow'
f. a-λe? a ngom → a-λé? a ngom° 'place of porcupine'
g. a-λe? a ngvi → a-λé? a ngvī 'place of hen'

(65) a. a-lan a nyam → a-λànl a nyâm 'cocyam of animal'
b. a-lan a kajn → а-lan а kajn 'cocyam of monkey'

c. a-lan a bzi → а-lan а bzi 'cocyam of goat'

d. a-lan a wajn → а-lan а wajn 'cocyam of child'

e. a-lan a mbon → а-lan а mbon 'cocyam of dwarf cow'

f. a-lan a ngom → а-lan а ngom 'cocyam of porcupine'

g. a-lan a ngvi → а-lan а ngvi 'cocyam of hen'

(66) a. a-yes a nyam → а-yes а nyam 'broom of animal'

b. a-yes a kajn → а-yes а kajn 'broom of monkey'

c. a-yes a bzi → а-yes а bzi 'broom of goat'

d. a-yes a wajn → а-yes а wajn 'broom of child'

e. a-yes a mbon → а-yes а mbon 'broom of dwarf cow'

f. a-yes a ngom → а-yes а ngom 'broom of porcupine'

g. a-yes a ngvi → а-yes а ngvi 'broom of hen'

(67) a. a-vaf a nyam → а-vaf а nyam 'bone of animal'

b. a-vaf a kajn → а-vaf а kajn 'bone of monkey'

c. a-vaf a bzi → а-vaf а bzi 'bone of goat'

d. a-vaf a wajn → а-vaf а wajn 'bone of child'

e. a-vaf a mbon → а-vaf а mbon 'bone of dwarf cow'

f. a-vaf a ngom → а-vaf а ngom 'bone of porcupine'

g. a-vaf a ngvi → а-vaf а ngvi 'bone of hen'

(68) a. a-ntas a nyam → а-ntas а nyam 'spoon of animal'

b. a-ntas a kajn → а-ntas а kajn 'spoon of monkey'

c. a-ntas a bzi → а-ntas а bzi 'spoon of goat'

d. a-ntas a wajn → а-ntas а wajn 'spoon of child'

e. a-ntas a mbon → а-ntas а mbon 'spoon of dwarf cow'

f. a-ntas a ngom → а-ntas а ngom 'spoon of porcupine'
g. a-ntas a ngvị → à-ntàs a ngvị 'spoon of hen'

(69) a. a-ntan a nyam → à-ntàn a nyám 'insect of animal'
b. a-ntan a kağn → à-ntàn a kağn 'insect of monkey'
c. a-ntan a bzi → à-ntàn a bzi 'insect of goat'
d. a-ntan a wājn → à-ntàn a wājn 'insect of child'
e. a-ntan a mbon → à-ntàn a mbon 'insect of dwarf cow'
f. a-ntan a ngom → à-ntàn a ngôm 'insect of porcupine'
g. a-ntan a ngvị → à-ntàn a ngvị 'insect of hen'

(70) a. a-ŋkan a nyam → à-ŋkān a nyám 'lie of animal'
b. a-ŋkan a kağn → à-ŋkān a kağn 'lie of monkey'
c. a-ŋkan a bzi → à-ŋkān a bzi 'lie of goat'
d. a-ŋkan a wājn → à-ŋkān a wājn 'lie of child'
e. a-ŋkan a mbon → à-ŋkān a mbon 'lie of dwarf cow'
f. a-ŋkan a ngom → à-ŋkān a ngôm 'lie of porcupine'
g. a-ŋkan a ngvị → à-ŋkān a ngvị 'lie of hen'

3.3. Genitive marker is CV

(71) a. mè-gham mè nyam → mè-ghám mè nyám 'mats of animal'
b. mè-gham mè kağn → mè-ghám mè kağn 'mats of monkey'
c. mè-gham mè bzi → mè-ghám mè bzi 'mats of goat'
d. mè-gham mè wājn → mè-ghám mè wājn 'mats of child'
e. mè-gham mè mbon → mè-ghám mè mbon 'mats of dwarf cow'
f. mè-gham mè ngom → mè-ghám mè ngôm 'mats of porcupine'
g. mè-gham mè ngvị → mè-ghám mè ngvị 'mats of hen'

(72) a. mè-nywin mè nyam → mè-nywín mè nyám 'birds of animal'
b. mè-nywin mè kağn → mè-nywín mè kağn 'birds of monkey'
c.  ma-nywin mə bzi → mə-nywin mə bzi  'birds of goat'

d.  ma-nywin mə wajn → mə-nywin mə wajn°  'birds of child'

e.  ma-nywin mə mboŋ → mə-nywin mə mboŋ  'birds of dwarf cow'

f.  ma-nywin mə ngom → mə-nywin mə ngom°  'birds of porcupine'

g.  ma-nywin mə ngvi → mə-nywin mə ngvi  'birds of hen'

(73) a.  ma-bu? mə nyan → mə-bu? mə nyan  'gorillas of animal'

b.  ma-bu? mə kajn → mə-bu? mə kajn°  'gorillas of monkey'

c.  ma-bu? mə bzi → mə-bu? mə bzi  'gorillas of goat'

d.  ma-bu? mə wajn → mə-bu? mə wajn°  'gorillas of child'

e.  ma-bu? mə mboŋ → mə-bu? mə mboŋ  'gorillas of dwarf cow'

f.  ma-bu? mə ngom → mə-bu? mə ngom°  'gorillas of porcupine'

g.  ma-bu? mə ngvi → mə-bu? mə ngvi  'gorillas of hen'

(74) a.  ma-tam mə nyan → mə-tam mə nyan  'fruits of animal'

b.  ma-tam mə kajn → mə-tam mə kajn°  'fruits of monkey'

c.  ma-tam mə bzi → mə-tam mə bzi  'fruits of goat'

d.  ma-tam mə wajn → mə-tam mə wajn°  'fruits of child'

e.  ma-tam mə mboŋ → mə-tam mə mboŋ  'fruits of dwarf cow'

f.  ma-tam mə ngom → mə-tam mə ngom°  'fruits of porcupine'

g.  ma-tam mə ngvi → mə-tam mə ngvi  'fruits of hen'

(75) a.  mə-bojn mə nyan → mə-bojn mə nyan  'gr. squirrels of animal'

b.  mə-bojn mə kajn → mə-bojn mə kajn°  'gr. squirrels of monkey'

c.  mə-bojn mə bzi → mə-bojn mə bzi  'gr. squirrels of goat'

d.  mə-bojn mə wajn → mə-bojn mə wajn°  'gr. squirrels of child'

e.  mə-bojn mə mboŋ → mə-bojn mə mboŋ  'gr. squirrels of dwarf cow'

f.  mə-bojn mə ngom → mə-bojn mə ngom°  'gr. squirrels of porcupine'

g.  mə-bojn mə ngvi → mə-bojn mə ngvi  'gr. squirrels of hen'
(76) a. mè-nywì mè nyam → mè-nywìt mè nyām 'knives of animal'
b. mè-nywì mè kajì → mè-nywìt mè kajì° 'knives of monkey'
c. mè-nywì mè bzi → mè-nywìt mè bzi° 'knives of goat'
d. mè-nywì mè wajì → mè-nywìt mè wajì° 'knives of child'
e. mè-nywì mè mbōŋ → mè-nywìt mè mbōŋ° 'knives of dwarf cow'
f. mè-nywì mè ngom → mè-nywìt mè ngom° 'knives of porcupine'
g. mè-nywì mè ngvi° → mè-nywìt mè ngvi° 'knives of hen'

(77) a. mè-nca? mè nyam → mè-nca? mè nyām 'wires of animal'
b. mo-nca? mè kajì → mè-nca? mè kajì° 'wires of monkey'
c. mè-nca? mè bzi → mè-nca? mè bzi° 'wires of goat'
d. mè-nca? mè wajì → mè-nca? mè wajì° 'wires of child'
e. mè-nca? mè mbōŋ → mè-nca? mè mbōŋ° 'wires of dwarf cow'
f. mè-nca? mè ngom → mè-nca? mè ngom° 'wires of porcupine'
g. mè-nca? mè ngvi° → mè-nca? mè ngvi° 'wires of hen'

3.4. Genitive marker is V

(78) a. nte? e nyam → ntā? è nyām 'village of animal'
b. nte? e kajì → ntā? è kajì° 'village of monkey'
c. nte? e bzi → ntā? è bzi° 'village of goat'
d. nte? e wajì → ntā? è wajì° 'village of child'
e. nte? e mbōŋ → ntā? è mbōŋ° 'village of dwarf cow'
f. nte? e ngom → ntā? è ngom° 'village of porcupine'
g. nte? e ngvi → ntā? è ngvi° 'village of hen'

(79) a. njam e nyam → njām è nyām 'axe of animal'
b. njam e kajì → njām è kajì° 'axe of monkey'
c. njam e bzi → njām è bzi° 'axe of goat'
d. njam e waιn → njâm m wâjîn° 'axe of child'
e. njam e mbon → njâm m mbôn° 'axe of dwarf cow'
f. njam e ngom → njâm m ngîm° 'axe of porcupine'
g. njam e ngvî → njâm m ngvî 'axe of hen'

(80) a. ngea? e nyam → ngê? è nyåm 'trouble of animal'
b. ngea? e kâün → ngê? è kâjn° 'trouble of monkey'
c. ngea? e bzî → ngê? è bzî 'trouble of goat'
d. ngea? e waιn → ngê? è wâjîn° 'trouble of child'
e. ngea? e mbon → ngê? è mbôn° 'trouble of dwarf cow'
f. ngea? e ngom → ngê? è ngîm° 'trouble of porcupine'
g. ngea? e ngvî → ngê? è ngvî 'trouble of hen'

(81) a. wuι e nyam → wûl è nyåm 'person of animal'
b. wuι e kâün → wûl è kâjn° 'person of monkey'
c. wuι e bzî → wûl è bzî 'person of goat'
d. wuι e waιn → wûl è wâjîn° 'person of child'
e. wuι e mbon → wûl è mbôn° 'person of dwarf cow'
f. wuι e ngom → wûl è ngîm° 'person of porcupine'
g. wuι e ngvî → wûl è ngvî 'person of hen'

(82) a. bom e nyam → bûm m nyåm 'cup of animal'
b. bom e kâün → bûm m kâjn° 'cup of monkey'
c. bom e bzî → bûm m bzî 'cup of goat'
d. bom e waιn → bûm m wâjîn° 'cup of child'
e. bom e mbon → bûm m mbôn° 'cup of dwarf cow'
f. bom e ngom → bûm m ngîm° 'cup of porcupine'
g. bom e ngvî → bûm m ngvî 'cup of hen'
<table>
<thead>
<tr>
<th>Example</th>
<th>Phonetic Representation</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(83) a.</td>
<td>bi nyam</td>
<td>'dog of animal'</td>
</tr>
<tr>
<td>b.</td>
<td>bi kajn</td>
<td>'dog of monkey'</td>
</tr>
<tr>
<td>c.</td>
<td>bi bzi</td>
<td>'dog of goat'</td>
</tr>
<tr>
<td>d.</td>
<td>bi waqin</td>
<td>'dog of child'</td>
</tr>
<tr>
<td>e.</td>
<td>bi mbon</td>
<td>'dog of dwarf cow'</td>
</tr>
<tr>
<td>f.</td>
<td>bi ngom</td>
<td>'dog of porcupine'</td>
</tr>
<tr>
<td>g.</td>
<td>bi ngvi</td>
<td>'dog of hen'</td>
</tr>
</tbody>
</table>

| (84) a. | mo nyam                  | 'lake of animal' |
| b.      | mo kain                  | 'lake of monkey' |
| c.      | mo bzi                   | 'lake of goat'   |
| d.      | mo waqin                 | 'lake of child'  |
| e.      | mo mbon                  | 'lake of dwarf cow' |
| f.      | mo ngom                  | 'lake of porcupine' |
| g.      | mo ngvi                  | 'lake of hen'    |