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FROM THE EDITOR

This issue of *Studies in African Linguistics* completes Volume 19, 1988. The editor extends his apologies for the lateness of this issue. It has never been easy to find time for work on the journal in addition to normal teaching, research, and administrative duties. The recently acquired additional work as Chair of the UCLA Linguistics Department made continued work as in the past impossible.

We have begun to take steps to bring *SAL* back on schedule. Beginning with Volume 20, 1989, we will be producing the journal on a Macintosh computer. This should greatly speed the time of preparation of the camera-ready copy in addition to giving a more up-to-date appearance. Production of Volume 20, Number 1 is nearly complete, and that issue should appear shortly. The "Publications Received" column in this issue as well as this note will give an idea of the new appearance, though we will be making decisions about style over the next several issues. Please see "Guidelines for Contributors" on the inside back cover for information about submitting manuscripts on disk.

We will also be rethinking the editorial process in order to expedite the processing of submissions. With these expedients, we expect the journal to come out regularly. Research on African languages advances in quantity and quality every year and plays an increasingly important role in linguistic theory and the study of linguistic typology and universals. *Studies in African Linguistics* will continue to be a central contributor in this field.

R.G.S.
STUDIES IN AFRICAN LINGUISTICS

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DOWNSTEP IN PÄRI:  
THE TONE SYSTEM OF A WESTERN NILOTIC LANGUAGE*

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Päri, a Western Nilotic language, has a terraced-level tone system with total downstep. Although Päri could be analyzed as having three basic tone levels and automatic downstep, there is morphological evidence that it has two basic tone levels and non-automatic downstep. Furthermore, there is evidence that downstep is the manifestation of a floating high tone. Floating tones thus behave differently from tones of deleted vowels. In spite of many surface differences between Päri and Luo, a related language, a single tone change accounts for their underlying differences.

1. Introduction

Päri is a Western Nilotic language spoken by some 10,000 people around Lafon Hill in the Torit District of Eastern Equatoria Province in the southern Sudan.1 In Köhler's [1955] genetic classification, Päri belongs to the Northern Luo subbranch of Western Nilotic along with Shilluk among others. In this article, I describe and analyze the tonal system of Päri. This part of its phonology is ignored in Simeoni [1978], the first published source on

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*This article is based on fieldwork in the Sudan in May-August 1984, June-August 1985, June-August 1986, and April-June 1988. I wish to thank the Danish Research Council for the Humanities for its financial support and my principal informants, Jermano Okech, Gabriel Athom, Lino Ungang and Ukal Kawang Julu, for their assistance. I also wish to thank the editor and an anonymous referee for valuable comments on an earlier version of this article.

1 The Päri, who are called Lokoro by some of their neighbours, call themselves /pʌri/ , their language /dhi pʌri/ (lit. 'mouth of Päri'), and their mountain /lipo/ . Päri is different from Bari, a neighbouring Eastern Nilotic language.
The tonal system of Päri is less straightforward than for instance the discrete-level systems of the neighbouring Moru-Madi languages, which belong to the Central Sudanic language family (see Andersen [1986a, 1986b, 1987]). Because of the complexity and, it seems, unusual character of tone in Päri, I present my analysis step by step, starting with a phonetic level of representation in terms of relative pitch level values and ending up with an underlying level of representation that involves floating tones as well as segmentally unspecified tone-bearing vowels.

In section 2, I define the notion of relative pitch level value as applicable to Päri.

In section 3, I classify words into tonal classes in terms of their sequences of relative pitch level values in various tonal contexts while also taking into account their segmental and morphological structures. Furthermore, I identify key lowering and pitch raising as two contextually determined phenomena.

In section 4, I show that the phonetic facts introduced in section 3 can be accounted for by positing three basic tone levels and automatic downstep. However, this analysis is rejected because it implies that one of the three tones has a highly defective distribution.

In section 5, I demonstrate that the data are also compatible with an analysis using two basic tone levels and non-automatic downstep. This analysis is accepted because it simplifies the description of morphology.

In section 6, I demonstrate that additional pitch patterns can be accounted for by positing underlyingly unspecified vowels which are deleted unless deletion would result in an impermissible syllable structure. When such vowels are deleted, their tones are reassigned rather than set afloat, and when the vowels are not deleted, they get a default value.

In section 7, I show that floating high tones may be manifested as downsteps, and I propose that all downsteps should be analyzed as floating high tones. In this analysis, surface tones may violate the Obligatory Contour Principle, but I demonstrate that only exceptionally is this principle vio-
In section 8, finally, I show that although the surface tonology of Pari differs in many respects from that of Luo, a closely related language, one single tone change accounts for the underlying differences in the two languages' representation of cognate lexical items.

2. Relative Pitch Level Values

Pitch in Pari can be described abstractly in terms of a set of relative pitch level values. This set consists of (i) an ultra high pitch level \([U]\) near the higher limit of the speaker's pitch range, (ii) an extra low pitch \([E]\) near the lower limit, and (iii) a subset of perceptually equidistant pitch levels in the middle of the speaker's pitch range. The use of the latter subset is illustrated by the sentence in (1).

(1) ɔnɛn kuura kəŋjo

'see ball there!' See ball there

\[
\begin{array}{cccc}
\text{ultra high} & \text{extra low} \\
\text{U} & \text{E} \\
\text{x-2} & \text{x+2} \\
\text{x-1} & \text{x+1} \\
x & x \\
\end{array}
\]

This sentence contains five vowels, each of which carries a level pitch. By assigning the pitch of the first vowel the integer value \(x\), the following pitches can be described as having the integer values \(x-1, x+1, x, \text{ and } x+1\). It should be noted that the absolute pitch level of a vowel with a given integer value is perceptually exactly the same as all other vowels with the same integer value within an utterance, at least if the utterance is whistled.

The two extreme pitch levels, \(U\) and \(E\), are immediately identifiable. Under normal circumstances, they are used only in prepausal position and not utterance-initially. The ultra-high pitch \(U\) is of an intonational rather than tonal nature, occurring for instance at the end of yes/no-questions. Since it is not pertinent to the tonal system as such, it will not be fur-
ther dealt with in the present article.

In the next section, I use sentence (1) as one tonal frame for classifying nouns into tonal classes by substituting other nouns for /kuura/ . By such substitutions, no pitch will get an integer value lower than x - 1. Hence I stipulate that x = 2, whereby [1] will indicate the highest pitch level apart from [U], and [2, 3, 4, ...] successively lower pitch levels.

Instead of a level pitch, a vowel may carry a contour pitch, which consists in a movement between two or more pitch levels in successively alternating directions. Contour pitches will be indicated by juxtaposing the digit values of the pitch levels in question, e.g. [1E] and [232]. A space or a hyphen between two pitch level values indicates that they belong to different vowels.

As we shall see later, a monosyllabic word which has pitch [2] in utterance-initial position, like /nėen/ in (1), does not affect the relative value of the (first) level of the first pitch of a following word. Hence, when a word occurs utterance-initially, for instance as an isolated word, I will represent the (first) level of its first pitch with the same integer as when that word occurs after an utterance-initial monosyllabic word with pitch [2].

3. Tonal Word Classes

3.1. Segmental word structure. In general, the segmental structure of a Pāri word conforms to the following formula, in which optional segments are enclosed in parentheses:

\[(2) \text{((C)V-)} \text{C(w)V(V)} \text{C((C)} \text{-V)}\]

prefix stem suffix

Thus a word consists of at most three segmental morphs: a stem and, optionally, a prefix and a suffix. The stem consists of three parts: an initial, consonantal part with a single consonant /C/ or a /Cw/ cluster; a medial, vocalic part with a short monophthong /V/, a long monophthong /V_1V_1/, or a diphthong /V_1V_3/; a final, consonantal part with a single consonant /C/ or a cluster /CC/ , the latter option being available only if the stem is
followed by a suffix.\(^2\) A prefix consists of a short monophthong optionally preceded by a single consonant.\(^3\) A suffix consists of a short monophthong.\(^4\)

In the following, I shall examine the pitch sequences carried by words that consist of either a stem alone or of a stem and a suffix. Words with a prefix will be accounted for in section 7. I shall mainly use nouns as examples, but verbs and other lexical word classes behave tonally in the same way as nouns.

3.2. Pitch patterns. Nouns can be categorized into tonal classes on the basis of the pitches they carry in a frame like the following:

(3) \(\text{n\text{\text{ee}}n}\_\_\_\_\_\_\_) 'look at \_\_'

For nouns consisting of a stem and a suffix, the number of possible pitch sequences in frame (3) is 17. Displaying these sequences in a two-dimensional array in accordance with their two pitches results in a system that may seem extremely erratic:

(4) 1-1 2-1 12-1 2-12 1-1E 2-1E 12-1E 1-2 2-2 12-23 23-23 23-2E 13-3 13-3E 1-E 2-E

---

\(^2\)Following the orthographic tradition of Western Nilotic languages, I use the digraphs /th dh nh/ as symbols for interdental stops and nasal, respectively. /tth/ symbolizes a geminate voiceless interdental stop, /nnh/ a geminate interdental nasal, and /ndh/ an interdental nasal plus an interdental voiced stop. Other deviations from IPA are /y/, which is a palatal glide, and /j/, which is a voiced palatal stop. For an analysis of the consonant system, see Andersen [1988a].

\(^3\)In nouns, a prefix actually belongs to the stem morphologically, but phonologically it behaves as a separate entity.

\(^4\)In nouns with the absolutive case, suffix vowels have no specific function apart from indicating the difference between the singular and the plu-
At this point, however, it can be observed that there are no \[4\]'s, no ini-
tial \[3\]'s and no rising contour pitches. Moreover, it should be noted that
some classes with a final contour pitch contain only inflected forms. The
classes in (4) are exemplified in (5), where the following suffixes have a
separate meaning as indicated in the translations: \(-e \sim -e\) 'his, her,
its', \(-a\) 'my', \(-i \sim -i\) 'our' (2S), \(-o \sim -o\) 'our' (1PIN),
\(-i \sim -i\) 'this, these'.\(^5,6\)

\[5\] [1-1]  kib-o 'boat'  bar-a 'heifer'
         pal-a 'ochre'  ciir-i 'whip'
[1-1E]  dhaanh-o 'person'  beey-o 'mosquito'
         jamm-i 'things'  pog-o 'bark'
[1-2]  dhaag-o 'woman'  baad-o 'lake'
         roomb-o 'sheep'  keed-o 'fish'
[1-E]  kwur-a 'ball'  keed-\(\)-e 'his thread'
        gub-a 'basket'  gumm-e 'his basket'
[2-1]  w\(\)-\(\)-o 'bird'  ceer-o 'star'
        reey-o 'fish'  naam-o 'river'
[2-12]  lakk-a 'my teeth'  pitt-i 'your children'
        ti\(\)-\(\)-a 'my legs'  boot-i 'your handles'

\(^5\)Pari has vowel harmony in terms of the feature [ATR] (= Advanced Tongue
Root). Thus, affix vowels agree with the stem vowel with respect to this
feature, except that affixal /a/, which is [-ATR], can cooccur with both
[-ATR] and [+ATR] stem vowels.

\(^6\)The following abbreviations are used in morpheme-by-morpheme transla-
tions:
1PEX/1PIN = first person plural exclusive/inclusive
1S/2S/3S  = first/second/third person singular
2P/3P     = second/third person plural
AG = antigenitive  LOC = locative
AP = antipassive   M = multiplicative
BEN = benefactive  P = plural
C = completive    PAS = passive
CP = centripetal  S = singular
ERG = ergative    SUF = suffix
FOC = focus
For words consisting of only a stem, at least the following eight pitches are possible:

\[
\begin{align*}
\text{(6)} & \quad 1 & \quad (13) & \quad 1E \\
2 & \quad (21) & \quad 2E & \quad (21E) & \quad (232)
\end{align*}
\]

However, words carrying one of the four pitches that are enclosed in parentheses in (6) must be analyzed as having a suffix underlyingly (cf. section 6 below). The other four classes are exemplified in (7).

\[
\begin{align*}
\text{(7)} & \quad [1] & \quad \text{ton} & \quad \text{spea} & \quad \text{laac} & \quad \text{urine} \\
& & \text{leep} & \quad \text{tongue} & \quad \text{nim} & \quad \text{face} \\
& \quad [1E] & \quad \text{keet} & \quad \text{thread} & \quad \text{jwaan} & \quad \text{small hut} \\
& & \text{cuk} & \quad \text{market} & \quad \text{m\ldots} & \quad \text{night} \\
& \quad [2] & \quad \text{guok} & \quad \text{dog} & \quad \text{bat} & \quad \text{arm} \\
& & \text{li\ldots} & \quad \text{elephant} & \quad \text{buul} & \quad \text{drum} \\
& \quad [2E] & \quad \text{kooj} & \quad \text{gourd} & \quad \text{gwan} & \quad \text{wild-cat} \\
& & \text{dak} & \quad \text{pot} & \quad \text{jow} & \quad \text{people}
\end{align*}
\]
Whenever I cite a word without indicating its context, its pitch pattern will be understood to be that of frame (3) or of a similar frame in which the word occurs in prepausal position after an utterance-initial monosyllabic word with pitch [2]. These pitch patterns will also be used for naming the tonal word classes.

3.3. Key lowering and pitch raising. The pitches that words carry in frame (3) above may undergo changes in other tonal contexts. The contextual variation can be examined by comparing the pitches of each of the 21 tonal word classes in each of the following four sentences used as tonal frames:

(8) I. นี่น็ยน 2 see 'look at __!' (= (3))
II. นี่น็ยน kapjo 1 2 see there 'look at __ there!'
III. a-นี่น็ยน a 1 1 1 1S-see+M-FOC 'I'm looking at __'
IV. a-นี่น็ยน kapjo 1 1 1 2 1S-see+M-FOC there 'I'm looking at __ there'

In Frames I and III, the word occurs in prepausal position after pitches [2] and [1], respectively. In Frames II and IV, the word is again preceded by pitch [2] or [1], but occurs in non-prepausal position before the word /kapjo/, which has the pitches [1-2] in isolation. Table 1 shows the pitch sequences carried by the four sentences when they contain a noun of each of the 21 tonal classes. From the pitch level values of /kapjo/, it can be inferred that some of the tonal word classes induce key lowering. Thus Pâri is a terraced-level tone language. Moreover, some of the classes that induce key lowering may be subjected to pitch raising, as can be seen by comparing Frames I-II with Frames III-IV.

In addition to the 17 tonal classes of disyllabic words mentioned already, there is one that cannot occur in the frames in (8). When not sub-
<table>
<thead>
<tr>
<th>Word</th>
<th>Tonal Word Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too</td>
<td>'spear'</td>
</tr>
<tr>
<td>Kib-o</td>
<td>'boat'</td>
</tr>
<tr>
<td>Dhaag-co</td>
<td>'woman'</td>
</tr>
<tr>
<td>Guok</td>
<td>'dog'</td>
</tr>
<tr>
<td>Winn-o</td>
<td>'bird'</td>
</tr>
<tr>
<td>Need-o</td>
<td>'rib'</td>
</tr>
<tr>
<td>Lakk-a</td>
<td>'my teeth'</td>
</tr>
<tr>
<td>Nuunn-o</td>
<td>'louse'</td>
</tr>
<tr>
<td>Keet</td>
<td>'thread'</td>
</tr>
<tr>
<td>Keed-a</td>
<td>'my thread'</td>
</tr>
<tr>
<td>Kuur-a</td>
<td>'ball'</td>
</tr>
<tr>
<td>Keett-a</td>
<td>'my threads'</td>
</tr>
<tr>
<td>Dhaanh-o</td>
<td>'person'</td>
</tr>
<tr>
<td>Tong-o</td>
<td>'our egg'</td>
</tr>
<tr>
<td>Roomm-o</td>
<td>'our sheep'</td>
</tr>
<tr>
<td>Keed-o</td>
<td>'our thread'</td>
</tr>
<tr>
<td>Kcooy</td>
<td>'gourd'</td>
</tr>
<tr>
<td>Bub-a</td>
<td>'waterbuck'</td>
</tr>
<tr>
<td>Pal-a</td>
<td>'knife'</td>
</tr>
<tr>
<td>Nn-he</td>
<td>'crocodiles'</td>
</tr>
<tr>
<td>Pall-o</td>
<td>'our knife'</td>
</tr>
<tr>
<td>Downton in Pari</td>
<td></td>
</tr>
</tbody>
</table>
jected to key lowering, it has pitches [12-12] as in the following example:  

(9) a-neen n\u101\u11d\u10d l-e 'the python saw him'
    1 2 12 12  
    C-see python-ERG

This class does not induce key lowering, nor can it undergo pitch raising.

In the two following sections, I propose and discuss two different analyses of the phonetic facts presented in this section. The analyses differ on the number of basic tone levels posited and on how key lowering is accounted for.

4. Three Tones and Automatic Downstep

In Frame I of (8), there is a binary pitch level contrast in some environments, for instance a contrast between [1] and [2] in words without a suffix:

(10) tɔŋ [1] 'spear'
    guok [2] 'dog'

or a contrast between [3] and [E] in the contour pitches [23] and [2E] of suffixes after stems with [23]:

(11) n\u101\u11d-e [23-23] 'crocodiles'
    pall-o [23-2E] 'our knife'

But there are also instances of a ternary contrast, viz. between [1], [2] and [E] in suffixes after stems with [1]:

(12) kib-o [1-1] 'boat'
    dhaag-o [1-2] 'woman'
    kuur-a [1-E] 'ball'

and after stems with [2]:

(13) wi-ŋ-o [2-1] 'bird'

---

7Pāri is an ergative language, hence the terms "ergative (case)", "absolutive (case)", and "antipassive", cf. Andersen [1988b].
In no environment are there more than three contrasting pitch levels. This might be taken to indicate that what we are dealing with is a three-tone system. In the following, I shall refer to the three tones of such a system as H(igh), M(id), and L(ow).

Let us assume that the register values of H, M and L are [1], [2] and [3], respectively. In this way, we can take [1] and [2] to represent H and M in words whose pitch patterns consist of only [1]'s and/or [2]'s when they occur in Frame I:

(14) a. τογ 'spear'  a'. ηεεν τογ καν\(\dot{\varphi}\)ο

\[
\begin{array}{c|cccc}
 & 1 & 1 & 1 & 2 \\
\hline
H & 2 & 1 & 1 & 2 \\
M & H & H & H & M \\
\end{array}
\]

b. guok 'dog'  b'. ηεεν guok καν\(\dot{\varphi}\)ο

\[
\begin{array}{c|cccc}
 & 2 & 1 & 1 & 2 \\
\hline
M & 2 & 2 & 1 & 2 \\
M & M & M & H & M \\
\end{array}
\]

c. kib-o 'boat'  c'. ηεεν kib-o καν\(\dot{\varphi}\)ο

\[
\begin{array}{c|cccc}
 & 1 & 1 & 2 & 1 \\
\hline
H & 2 & 1 & 1 & 1 \\
M & H & H & H & M \\
\end{array}
\]

d. dhaag-o 'woman'  d'. ηεεν dhaag-o καν\(\dot{\varphi}\)ο

\[
\begin{array}{c|cccc}
 & 1 & 2 & 1 & 2 \\
\hline
H & 2 & 1 & 2 & 1 \\
M & H & M & H & M \\
\end{array}
\]

e. w̱n-o 'bird'  e'. ηεεν w̱n-o καν\(\dot{\varphi}\)ο

\[
\begin{array}{c|cccc}
 & 2 & 1 & 1 & 2 \\
\hline
M & 2 & 2 & 1 & 2 \\
M & M & H & H & M \\
\end{array}
\]

f. lakk-a 'my teeth'  f'. ηεεν lakk-a καν\(\dot{\varphi}\)ο

\[
\begin{array}{c|cccc}
 & 2 & 12 & 1 & 2 \\
\hline
M & 2 & 2 & 12 & 1 \\
M & M & M & H & M \\
\end{array}
\]

g. need-o 'rib'  g'. ηεεν need-o καν\(\dot{\varphi}\)ο

\[
\begin{array}{c|cccc}
 & 2 & 1 & 2 & 1 \\
\hline
M & 2 & 2 & 1 & 2 \\
M & M & M & H & M \\
\end{array}
\]

h. nuunn-o 'louse'  h'. ηεεν nuunn-o καν\(\dot{\varphi}\)ο

\[
\begin{array}{c|cccc}
 & 12 & 1 & 1 & 2 \\
\hline
HM & 1 & 12 & 1 & 1 \\
M & HM & H & H & M \\
\end{array}
\]
The sentences in the right column of (14) show the same words in Frame II, /nee/ kapjo/ 'look at __ there!', where they have the same pitches.

In words that have the pitch patterns [2E], [1-E], and [2-E] in Frame I, [E] is replaced by [3] in non-prepausal position. Moreover, the key of what follows such words is lowered by one pitch level, as shown by the fact that /kapjo/ 'there' has pitches [2-3] instead of [1-2] in the sentences in (15).

(15) a. kooy 'gourd' a'. née kooy kapjo
   2E 2 23 2 3
   ME (L-lowering) M ML! H M (!-insertion)
   ML! (!-insertion) M ML H M
   ML

b. kuur-a 'ball' b'. née kuur-a kapjo
   1 E 2 1 3 2 3
   H E (L-lowering) M H L! H M (!-insertion)
   H L! (!-insertion) M H L H M
   H L

c. pal-a 'knife' c'. née pal-a kapjo
   2 E 2 2 3 2 3
   M E (L-lowering) M M L! H M (!-insertion)
   M L! (!-insertion) M M L H M
   M L

Given the assumption that L has the register value [3], these words can be analyzed as ending in L. Downstep (!) and [E] can then be accounted for by the following rules:\footnote{In tone rules, "[w]" and "w" are boundaries of the unit that includes a stem and a suffix (if there is any) but not a prefix. "||" is an utterance boundary, and "T" is any tone.}

(16) !-insertion
    \emptyset \rightarrow ! / L__

(17) L-lowering
    L! \rightarrow E / __||

Rule (16) inserts a downstep after a low tone, and rule (17) lowers a low tone to an extra low tone utterance-finally.
(Frame II), and the key of what follows is lowered by one level:

(18) a. kEEt 'thread' a'. nEE n kEEt kapjo
   1E            2 1 2 3
   HE (L-lowering) M H! H M (HL-simpl.)
   HL! (!-insertion) M HL! H M (!-insertion)
   HL

b. dhaanh-c 'person' b'. nEE n dhaanh-c kapjo
   1 1E
   H HE (L-lowering) M H H! H M (HL-simpl.)
   H HL! (!-insertion) M H HL! H M (!-insertion)
   H HL

c. t:>l)g-:> 'our egg' c'. nEE n t:>l)g-:> kapjo
   2 1E
   M HE (L-lowering) M M H! H M (HL-simpl.)
   M HL! (!-insertion) M M HL! H M (!-insertion)
   M HL

d. r:>:>mm-:> 'our sheep' d'. nEE n r:>:>mm-:> kapjo
   12 1E
   HM HE (L-lowering) M HM H! H M (HL-simpl.)
   HM HL! (!-insertion) M HM HL! H M (!-insertion)
   HM HL

Pitch [1E] of these words can be analyzed as the manifestation of HL, the rule of L-lowering accounting for the extra low pitch component. But in order to account for the non-prepausal variant of [1E], we have to posit a rule which simplifies HL to H subsequent to !-insertion:

(19) HL-simplification

\[ \hat{HL} + H / _{-1} \]

In words with the pitch patterns [23-2], [23-23] and [23-2E] in Frame I, the stem pitch [23] must be analyzed as ML. From the rule of !-insertion (16), it follows that there is downstep after the stem of these words. Hence pitch level value [2] of their suffixes must be a manifestation of H. This analysis is confirmed by the fact that a following word shows key lowering:
In (20c'), the key of /kapjo/ is lowered by two levels from [1-2] to [3-4]. This is due to the double downstep in the preceding word, where the underlying L in the suffix causes the second downstep.

Before analyzing the remaining three classes ([12-23], [13-3], and [13-3E]), let us consider the sentences in (21), which show five classes in Frame III, /a-neend-a __/ 'I am looking at __'. The sentences illustrate the fact that these five classes (and only these) change their pitch patterns after H:

(21) a. kooy 'gourd' a'. a-neend-a kooy
2E 1 1 1 1E
ME (L-lowering) H H H HE (L-lowering)
ML! (L-lowering) H H H HL! (L-lowering)
ML H H H ML

b. pal-a 'knife' b'. a-neend-a pal-a
2E 1 1 1 1E
ME (L-lowering) H H H HE (L-lowering)
ML! (L-lowering) H H H HL! (L-lowering)
ML H H H ML

In (20c'), the key of /kapjo/ is lowered by two levels from [1-2] to [3-4]. This is due to the double downstep in the preceding word, where the underlying L in the suffix causes the second downstep.
Common to the five classes in (21), and what distinguishes them from all other classes, is that they begin with a mid tone which is followed by a low tone. Common to the changes that occur is that the mid tone becomes a high tone. Hence we can formulate the following rule:

(22) M-raising

\[ M \rightarrow H / H \]

This rule accounts exhaustively for the change of [2E] to [1E] in (21a') and for the change of [2-E] to [1-E] in (21b'). In order to account for the change of [23-2] to [13-3] in (21c') and for the change of [23-2E] to [13-3E] in (21e'), we have to posit an additional rule which inserts an extra downstep before the suffix:

(23) Extra !-insertion

\[ \emptyset \rightarrow ! / \]

This rule can also be taken to apply to class [23-23], which ultimately surfaces with [12-23] when subjected to M-raising in (21d'). In that case we need one more additional rule, which changes L to M before a double downstep and removes one of the downsteps. If the other two classes that undergo Extra !-insertion are not utterance-final, such a rule also applies optionally to them, cf. the variants in Table 1 above. The rule can therefore be formulated as follows:
(24) L-raising  
\[ \hat{H}L! \rightarrow \hat{H}M / \begin{cases} [W \rightarrow !HM] \\ [W \rightarrow !H(!)] T, \text{ optionally} \end{cases} \]

Note that M-raising together with the subsequent rules has the side effect of neutralizing the contrast between the five classes in question and five other classes: [2E] merges with [1E], [2-E] with [1-E], [23-2] with [13-3], [23-23] with [12-23], and [23-2E] with [13-3E]. This fact solves the problem of how to analyze classes [13-3], [12-23] and [13-3E]. Their underlying representation must be identical with the representation of classes [23-2], [23-23] and [23-2E], respectively, after M-raising but before the application of subsequent rules:

(25) a. keed-a 'my thread' a'. neen keed-a kajo  
   13 3  
   HL!! H  (Extra !-ins.)  M HL!! H H M (Extra !-ins.)  
   HL! H  (!-insertion)  M HL! H H M (!-insertion)  
   HL H  

b. keett-a 'my threads' b'. neen keett-a kajo  
   12 23  
   HM! HM  (L-raising)  M HM! HM H M (L-raising)  
   HL!! HM  (Extra !-ins.)  M HL!! HM H M (Extra !-ins.)  
   HL! HM  (!-insertion)  M HL! HM H M (!-insertion)  
   HL HM  

c. keed-o 'our thread' c'. neen keed-o kajo  
   13 3E  
   HL!! HE  (L-lowering)  M HL!! H! H M (Extra !-ins.)  
   HL!! HL!  (Extra !-ins.)  M HL! H! H M (HL-simpl.)  
   HL! HL!  (!-insertion)  M HL! HL! H M (!-insertion)  
   HL HL  

In the three-tone analysis, downstep is predictable from the underlying representation. Basically, it occurs after Low before High or Mid, as exemplified by the following derivations:

(26) \(\text{wipo pondo a-nee-en-e} \) 'the bird saw the boy'  
Underlying  
   M H M L H M H  
M-raising  
   M H H L H M H  
!important-insertion  
   M H H L! H M H  
Pitches  
   2 1 1 3 2 3 2  
   bird boy C-see-3S
Thus we are dealing with "automatic downstep", which is also known as "down-drift".

Although the three-tone analysis works, it is not necessarily adequate. One problem is the defective distribution of Low, which can be observed in Table 2 (next page). While both High and Mid have a fairly unrestricted distribution, Low does not occur on stem vowels except as the second component of a composite tone. Low can occur on its own on a suffix vowel, but not after a composite tone on the stem vowel. Furthermore, a composite stem tone with Low is excluded before a suffix with Mid, and Low does not occur in a composite tone with Mid on suffix vowels. Thus the status of Low as an underlying tone would seem to be rather dubious.

5. Two Tones and Non-automatic Downstep

In view of the distributional oddities of the tones in the three-tone analysis, I shall now propose an alternative analysis. I shall demonstrate that the pitch value representations can be derived from a tonal level of representation which uses two tones and downstep. The two tones will be referred to as H(igh) and L(ow), and they will be assigned the register values [1] and [2], respectively. As in the three-tone analysis, a downstep lowers the key by one pitch level. The starting point will be the non-prepausal rather than the prepausal pitch value manifestations of the tonal word classes. Whenever possible, I shall be using the sentence /néeñ __ kajɔ/ 'look at __ there!' as a tonal frame.

5.1. Non-prepausal pitches. In words that do not induce key lowering, the pitches [1], [2] and [12] can straightforwardly be analyzed as High, Low, and High-Low, respectively:
<table>
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<tr>
<th></th>
<th>kib-o</th>
<th>dhaag-o</th>
<th>kuur-a</th>
<th>dhaanh-o</th>
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<td>1 1</td>
<td>'boat'</td>
<td>1 2</td>
<td>'woman'</td>
<td>1 1E</td>
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<td></td>
</tr>
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<td>'rib'</td>
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</tr>
<tr>
<td>13 3</td>
<td>'my thread'</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
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<th>lakk-o</th>
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<td>2 2</td>
<td>'knife'</td>
<td>2 1E</td>
</tr>
<tr>
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<td>'my teeth'</td>
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<td>'my thread'</td>
<td>12 12</td>
<td>'python'(ERG)</td>
<td>12 1E</td>
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<tbody>
<tr>
<td>23 2</td>
<td>'waterbuck'</td>
<td>23 23</td>
<td>'crocodiles'</td>
<td>23 2E</td>
</tr>
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<td>23</td>
<td></td>
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</table>
(28) a. ne:en tōn kantlr 'spear'
   2 1 1 2
   L H H L

   b. ne:en guok kantlr 'dog'
   2 2 1 2
   L L H L

   c. ne:en kib-o kantlr 'boat'
   2 1 1 1 2
   L H H H L

   d. ne:en dhaag-o kantlr 'woman'
   2 1 2 1 2
   L H L H L

   e. ne:en wu:n-o kantlr 'bird'
   2 2 1 1 2
   L L H H L

   f. ne:en lakk-a kantlr 'my teeth'
   2 2 12 1 2
   L L L H L

   g. ne:en need-o kantlr 'rib'
   2 2 2 1 2
   L L L H L

   h. ne:en puunn-o kantlr 'louse'
   2 12 1 1 2
   L HL H H L

This also applies to words with the pitch sequence [12-12]:

(29) a-ne:en n'abl-e 'the python saw him'
   1 2 12 12
   H L HL HL
   C-see python-ERG

The pitch sequence [2-3] can be accounted for by positing a downstep word-medially after Low:

(30) ne:en pal-a kantlr (30') pal-a 'knife'
   2 2 3 2 3
   L L! L H L

Similarly, the pitch sequences [23], [23-2] and [23-23] can be accounted for
by positing a downstep between the two components of the stem tone, both of
which are now analyzed as Low:

(31) a. neen kɔɔy kapjɔ a'. kɔɔy 'gourd'
    2 23 2 3
    L L!L H L

b. neen bub-a kapjɔ b'. bub-a 'waterbuck'
    2 23 2 2 3
    L L!L H H L

c. neen ṁŋ-e kapjɔ c'. ṃŋ-e 'crocodiles'
    2 23 23 2 3
    L L!L HL H L

The derivations in (32) illustrate how the pitch value representation of
(31a) is arrived at in different ways with the three-tone analysis and the
two-tone analysis:

(32) 3-tone analysis 2-tone analysis

| Underlying | M ML H M | L L!L H L |
| !-insertion |         | !         |
| Surface    | M ML H M | L L!L H L |
| Register values | 2 23 1 2 | 2 2!2 1 2 |
| Key lowering | _______ 1 1 | _______ 1 1 1 |
| Pitches    | 2 23 2 3 | 2 2 3 2 3 |

Downstep must also be posited after High in some tonal word classes, either
word-finally as in (33), or word-medially as in (34).

(33) a. neen keɛt kapjɔ a'. keɛt 'thread'
    2 1 2 3
    L H! H L

b. neen dhaan-h-ɔ kapjɔ b'. dhaan-h-ɔ 'person'
    2 1 1 2 3
    L H H! H L

c. neen tong-ɔ kapjɔ c'. tong-ɔ 'our egg'
    2 2 1 2 3
    L L H! H L
Two downsteps must be posited in words that have the pitch sequence [23-2E] in isolation, one word-medially and another word-finally:

(35) ne:en pall-o kaf'ljo (35') pall-o 'our knife'

As in developing the three-tone analysis, we are now left with the three tonal word classes that have the pitch patterns [13-3], [13-3E], and [12-23] in isolation. Using the elements H, L, and !, their pitch patterns could be analyzed in more than one way each. For instance, [13-3] could be analyzed as either H!L!L or H!!H-H. In order to make non-arbitrary choices among the possibilities, again we first have to consider the effects of pitch raising.

The five classes that can undergo pitch raising do so when they follow a high tone, and what distinguishes them from all other classes is that they begin with a low tone followed by downstep. The ultimate effect of pitch raising is not the same for all of the five classes, but common to the effect in all five classes is that the initial low tone is raised to a high tone. These generalizations are expressed by the following rule:

(36) L-raising

\[ L + H / H \]

The effect of L-raising (and subsequent rules to be introduced below) is shown by the derivations in (37), 'I am looking at ___ there' (Frame IV).

(37) a. a-ne:en-d-a koc-y kaf'ljo (37') koc-y 'gourd'

\[
\begin{array}{cccccc}
1 & 1 & 1 & 1 & 2 & 3 \\
H & H & H & H! & H & L \\
\end{array}
\]

(H!L-simpl.)

\[
\begin{array}{cccccc}
1 & 1 & 1 & 1 & 2 & 3 \\
H & H & H & H! & L & L \\
\end{array}
\]

(L-raising)
b. a-neend-ə pal-a kaŋjo  b'. pal-a 'our knife'
 1 1 1 1 3 2 3  
  H H H H! L H L (L-raising) 
  H H H L! L H L 

c. a-neend-ə bub-a kaŋjo  c'. bub-a 'waterbuck'
 1 1 1 13 3 3 4  
  H H H H!L! H H L (Extra !-ins.) 
  H H H H!L! H H L (L-raising) 
  H H H L!L H H L 

d. a-neend-ə ḏaŋ-ə kaŋjo  d'. ḏaŋ-ə 'crocodiles'
 1 1 1 12 23 2 3  
  H H H H!L! HL H L (H!L!-simpl.) 
  H H H H!L! HL H L (Extra !-ins.) 
  H H H H!L! HL H L (L-raising) 
  H H H L!L HL H L 

e. a-neend-ə pal-č kaŋjo  e'. pal-č 'our knife'
 1 1 1 13 3 4 5  
  H H H H!L! H! H L (Extra !-ins.) 
  H H H H!L! H! H L (L-raising) 
  H H H L!L H! H L 

When L-raising is applied to L!L in (37a), the result is H!L, whose pitch would be [13]. The actual pitch, however, is [1], so the surface tone must be H!. Therefore we have to posit a rule that simplifies H!L to H! non-prepausally subsequent to L-raising:

\[(38) \text{H!L-simplification} \]

\[\begin{array}{c}
\hline
\text{H!L} \\
\rightarrow \\
\text{H!} / \quad \text{L} \\
\end{array}\]

Another rule is needed to account for the ultimate effect of L-raising applied to the words with L!L-H and L!L-H! in (37c) and (37e), since these words surface [13-3] rather than [13-2]. Given that the suffix tones remain H and H!, respectively, we need a rule that inserts a downstep before a high suffix tone subsequent to L-raising:

\[(39) \text{Extra !-insertion} \]

\[\begin{array}{c}
\phi \\
\rightarrow \\
\text{!} / \quad \text{H!L} \\
\end{array}\]

This rule also accounts for L!L-HL in (37d), which surfaces [12-23], pro-
vided that its output is subjected to a rule that deletes the downstep in HIL:

(40) HIL!-simplification

\[ HIL! \rightarrow HIL / [W ____ HL] \]

Since the five L-raised classes merge with five other classes, we can infer that the underlying representation of the latter is identical with the representation of the former after L-raising but before subsequent rules:

(41) a. neen keet kanjo

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<tr>
<td>L</td>
<td>H!</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
<td>L</td>
<td>HIL</td>
<td>H</td>
<td>L</td>
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b. neen kuur-a kanjo

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<tbody>
<tr>
<td>L</td>
<td>H!</td>
<td>L</td>
<td>H</td>
<td>L</td>
</tr>
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</table>

c. neen keed-a kanjo

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<th>4</th>
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<tr>
<td>L</td>
<td>HIL!</td>
<td>H</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
<td>L</td>
<td>HIL</td>
<td>H</td>
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d. neen keett-a kanjo

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<th>3</th>
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<td>L</td>
<td>HL!</td>
<td>HL</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
<td>L</td>
<td>HIL!</td>
<td>HL</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
<td>L</td>
<td>HIL</td>
<td>HL</td>
<td>H</td>
<td>L</td>
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e. neen keed-o kanjo

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<th>4</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>L</td>
<td>HIL!</td>
<td>H!</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
<td>L</td>
<td>HIL</td>
<td>H!</td>
<td>H</td>
<td>L</td>
</tr>
</tbody>
</table>

Hence we have solved the above-mentioned problem of choosing among alternative surface representations of classes [13-3], [12-23] and [13-3E] in a non-arbitrary way. Their surface tone patterns are HIL!-H, HL!-HL and HIL!-H! , respectively, as shown by derivations (41c-e).

5.2. Prepausal pitches. By now, I have shown that it is possible to analyze all non-prepausal pitches in terms of the three elements H, L and !. What remains to be accounted for is the extra low pitch [E], which occurs prepaus-
ally only. Given the underlying representations arrived at so far, [E] could be described as the prepausal manifestation of two different tonal configurations: (i) a downstepped low tone, as in (42a), and (ii) a downstep, as in (42b).

(42) a. kuur-a $H!-L \rightarrow H-E$ [1-E] 'ball'
    b. dhaanha-o $H-H! \rightarrow H-HE$ [1-1E] 'person'

However, such an account would miss a possible generalization. Note that in the set of underlying tone patterns arrived at above, a word-final downstep occurs only after a suffixal high tone. But given the rule of H!L-simplification (38), which is independently motivated, suffixal H! can be conceived of as derived from H!L. Hence all instances of the extra low pitch level [E] can be derived from a downstepped low tone:

(43) L-lowering

$!L \rightarrow E / _{w}^\parallel$

5.3. Stems with downstep. In the set of underlying tone patterns arrived at so far, downstep occurs in four tonal configurations in stems: H!L, L!L, H!, L!. However, there is morphological evidence that these four configurations should be reduced to two underlyingly.

Consider for instance the tonal behaviour of antigenitive noun stems.9 Such stems are always followed by a suffix, for instance a possessive person-number suffix as in (44)-(48). There are five tonal classes of antigenitive stems: H-, L- and HL-stems, and what may be referred to as H!L- and L!L-stems. While HL-stems can only be singular, the others can be either singular or plural. In the following examples, the tone symbols indicate non-

9In Päri, the possessor of a possessive construction has the absolutive case and is thus morphologically unmarked while the possessed is morphologically marked (cf. section 6.1 below). For the case form of the possessed, I propose the term "antigenitive" on the analogy of "antipassive". The corresponding case form in other Western Nilotic languages has variously been referred to as "genitive" (Kohnen [1933:28], Okoth-Okombo [1982:32]), "apper-tentive" (Gregersen [1961:83]), and "status constructus" (Tucker and Bryan [1966:417]).
prepausal surface tones, while the pitch symbols indicate prepausal pitches of Frame I.

<table>
<thead>
<tr>
<th>(44) H-stems:</th>
<th>singular</th>
<th>plural</th>
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<tr>
<td>'stone'</td>
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<td>'fish'</td>
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</table>

<table>
<thead>
<tr>
<th>(45) L-stems:</th>
<th>singular</th>
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<tbody>
<tr>
<td>'buffalo'</td>
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<td>'teeth'</td>
</tr>
<tr>
<td>1S</td>
<td>joopp-a L-H [2-1]</td>
<td>lakk-a L-HL [2-12]</td>
</tr>
<tr>
<td>1PIN</td>
<td>joopp-o L-H! [2-1E]</td>
<td>lakk-o L-H! [2-1E]</td>
</tr>
</tbody>
</table>

| (46) HL-stems: | singular | |
| 'sheep'       |          |
| 1S           | roomm-a HL-H [12-1] |
| 3S           | roomm-e H-L [1-2] |
| 1PIN         | roomm-o HL-H! [12-1E] |
| 2P           | roomm-o HL-H [12-1] |

| (47) H!L-stems: | singular | plural |
| 'basket'       |          | 'guinea-fowls' |
| 1S           | gumm-a H!L-H [13-3] | a-weend-a L-HL-HL [2-12-23] |

| (48) L!L-stems: | singular | plural |
| 'knife'        |          | 'shields' |
As shown by (44)-(46), the tones of H-stems, L-stems, and HL-stems are invariably H, L, and HL, respectively, except that HL is simplified to H before L as argued in section 5.5 below. The tones of H!L-stems and L!L-stems, on the other hand, vary according to the tone of the suffix, as shown by (47)-(48). The tones of H!L-stems are H! before L, H!L! before H and H!, and HL! before HL. Similarly, the tones of L!L-stems are L! before L, and they are L!L before H, H!, and HL. Thus, clearly, H!, H!L!, and HL! are different surface manifestations of one underlying tonal configuration, and so are L! and L!L. The variation H!L! ~ HL! has already been accounted for by means of H!L!-simplification, which derives HL! from H!L!, which is in turn derived from H!L by Extra !-insertion. H! and L! can be accounted for by the following rule, whereby the final low component of a compound tone T!L is absorbed by a following low suffix tone:

\begin{equation}
T!L \rightarrow T! / [W \_L]
\end{equation}

5.4. Morphological evidence. There is morphological evidence that the two-tone analysis is more adequate than the three-tone analysis. In the three-tone analysis, the tone of some suffixes alternates between Mid and Low, but in the two-tone analysis these suffixes invariably have a low tone. One example is the third person singular possessive suffix /-ɛ/, which is added to a singular antigenitive noun stem:

\begin{tabular}{llll}
  & 3-tone analysis & 2-tone analysis  \\
  c. keed-ɛ & [1-E] H-L & H!L-L & 'his thread'  \\
\end{tabular}

What the three-tone analysis here describes as a difference in suffix tone (between M and L) is described by the two-tone analysis as a difference in stem

---

\footnote{The set of tone rules listed in Andersen [1988a:65] reflects an earlier version of the two-tone analysis, in which some of the generalizations captured here are missing.}
Downstep in Pāri

That the difference is actually in the stems rather than in the suffix can be seen by comparing the forms in (50) with the corresponding first person singular forms:

(51)

<table>
<thead>
<tr>
<th>3-tone analysis</th>
<th>2-tone analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 1eeb-a [1-2]</td>
<td>H-M</td>
<td>H-L</td>
</tr>
<tr>
<td>b. dhieη-a [2-1]</td>
<td>M-H</td>
<td>L-H</td>
</tr>
<tr>
<td>c. keėd-a [13-3]</td>
<td>HL-H</td>
<td>H!L-H</td>
</tr>
<tr>
<td>d. kɔɔɣ-y-a [23-2]</td>
<td>ML-H</td>
<td>L!L-H</td>
</tr>
</tbody>
</table>

In (51), the two analyses agree that the stem tones of /1eeb-/ and /dhieη-/ are different from those of /keėd-/ and /kɔɔɣ-y-/, respectively. Thus the two-tone analysis captures a regularity (the tonal invariance of the suffix /-ɛ/) that cannot be expressed by the three-tone analysis.

Another example is the ergative suffix /-L/, which is used in nouns whose abso1utive form has no suffix:

(52)

<table>
<thead>
<tr>
<th>3-tone analysis</th>
<th>2-tone analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>c. keɛt-i [1-E]</td>
<td>H-L</td>
<td>H!L-L</td>
</tr>
</tbody>
</table>

The situation in (52) is exactly like that in (50) above. The two analyses disagree on where to locate the tonal difference, but again they agree on locating it in the stem when the corresponding abso1utive forms are analyzed:

(53)

<table>
<thead>
<tr>
<th>3-tone analysis</th>
<th>2-tone analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 1eep</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>b. dhieŋ</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>c. keɛt</td>
<td>HL</td>
<td>H!L</td>
</tr>
<tr>
<td>d. kɔɔy</td>
<td>ML</td>
<td>L!L</td>
</tr>
</tbody>
</table>

In the two-tone analysis, the ergative forms differ tonally from the abso1utive forms simply by having an L-suffix. In the three-tone analysis, on the other hand, the ergative forms have either an M-suffix or an L-suffix, and in the latter case, moreover, the tones of the ergative stems differ from
<table>
<thead>
<tr>
<th></th>
<th>ton</th>
<th>kib-o</th>
<th>dhaag-o</th>
<th>dhaan-o</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>'spear'</td>
<td>'boat'</td>
<td>'woman'</td>
<td>(- H-L)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>guok</th>
<th>win-o</th>
<th>need-o</th>
<th>lakk-a</th>
<th>tong-o</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>'dog'</td>
<td>'bird'</td>
<td>'rib'</td>
<td>'my teeth'</td>
<td>'our egg'</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Ṣuun-o</th>
<th>Ṣuun-o</th>
<th>Ṣuun-o</th>
<th>Ṣuun-o</th>
</tr>
</thead>
<tbody>
<tr>
<td>HL</td>
<td>HL</td>
<td>HL</td>
<td>HL</td>
<td>HL</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>'louse'</td>
<td>(H-L)</td>
<td>(H-L)</td>
<td>(H-L)</td>
<td>(H-L)</td>
</tr>
<tr>
<td></td>
<td>'python'(ERG)</td>
<td>'my teeth'</td>
<td>'my threads'</td>
<td>'our thread'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>keet</th>
<th>keed-a</th>
<th>kuur-a</th>
<th>keet-a</th>
<th>keed-o</th>
</tr>
</thead>
<tbody>
<tr>
<td>H!L</td>
<td>H!L!</td>
<td>H!</td>
<td>H!</td>
<td>H!</td>
<td>H!L!</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>'thread'</td>
<td>'my thread'</td>
<td>'ball'</td>
<td>'my threads'</td>
<td>'our thread'</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>kọọy</th>
<th>bub-a</th>
<th>pal-a</th>
<th>Ṣaị-e</th>
<th>pail-o</th>
</tr>
</thead>
<tbody>
<tr>
<td>2E</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>'gourd'</td>
<td>'waterbuck'</td>
<td>'knife'</td>
<td>'crocodiles'</td>
<td>'our knife'</td>
<td></td>
</tr>
</tbody>
</table>
the tones of the corresponding absolutive stems. The two-tone analysis thus allows a much simpler formulation of morphological rules than does the three-tone analysis.

5.5. Distribution of tones. The two-tone analysis of the 22 tonal word classes is summarized in Table 3, which shows the possible combinations of underlying stem tones and suffix tones as well as the non-prepausal surface tones of these combinations and their prepausal pitch patterns. Clearly, the distribution of underlying tones is less defective here than in the three-tone analysis. Apart from three gaps, each of the five simple or compound stem tones combines with each of the four simple or compound suffix tones. Given the superiority of the two-tone analysis, the absence of words with the tone patterns HL, H-HL and HL-L is striking. In fact, however, there is morphological evidence that two of them do exist as underlying forms.

Consider for instance the formation of the ergative form of nouns that have a non-high vowel suffix in the absolutive form. With such nouns, the ergative is formed by replacing the suffix vowel of the absolutive with the mid front vowel /ɛ/ ~ /e/ while retaining the tone of the replaced vowel and adding a low tone. The application of this rule is shown by the following examples, in the last of which the rule applies vacuously:

(54) absolutive       ergative
    luub-o  HL-H [12-1] luub-e  HL-HL [12-12] 'word'

Apparent exceptions are words with H-H in the absolutive, their ergative forms having H-L:

(55) absolutive       ergative

However, the exception can be eliminated by assuming that the ergative forms of such words have the tones H-HL in the underlying representation. The realization of this underlying tone sequence can be handled in a natural way by a phonological rule to the effect that the H component of the suffixal HL is absorbed by the H of the stem:
(56) H-absorption
\[ \hat{HL} \rightarrow L / [w H_] \]

Consider next the first and third person singular possessive forms of singular nouns. The tone of the first person singular suffix /-a/ is determined by a morphophonological rule: It is High if the stem ends in Low and Low if the stem ends in High. The third person singular suffix /-e/ \( \sim /-e/ \), on the other hand, always has a low tone. These distributional facts are illustrated by the following examples:

(57) 1S 3S
a. \( w_i\eta j-a \) L-H [2-1] \( w_i\eta j-e \) L-L [2-2] 'my/his bird'
b. \( iwe\eta tt-a \) H-L [1-2] \( iwe\eta tt-e \) H-L [1-2] 'my/his finger'
c. \( \eta\eta\eta mm-a \) HL-H [12-1] \( \eta\eta\eta mm-e \) H-L [1-2] 'my/his sheep'

In example (57c), the stem tone alternates between HL and H. If one of these alternants is to be conceived of as underlying both, it must be HL, since HL contrasts with H before the first person suffix. The alternation can then be accounted for in purely phonological, rather than morphophonological, terms by assuming that the L component of the stem tone HL is absorbed by the L of the suffix:

(58) L-absorption
\[ \hat{HL} \rightarrow H / [w L] \]

This rule is similar to the independently motivated rule of L-absorption in (49), which can be revised so that it subsumes (58):

(59) L-absorption (revised)
\[ T(!)L \rightarrow T(!) / [w L] \]

6. Empty Vowels

6.1. Vowel deletion and tone reassociation. Several suffixes vary segmentally between /i/ \( \sim /i/ \) and zero. The zero variant occurs after stems that end in a single consonant which is either a sonorant or a voiceless ob-
struent, while /u/ \( \sim \) /i/ occurs after all other stems, i.e. after stems ending in a voiced obstruent or in a consonant cluster or in a zero conso­
nant (cf. Andersen [1988a]). Although these suffixes may thus have no seg­
mental manifestation, their tones can in most cases be shown to be present underlyingly.

Consider for instance the antigenitive suffix of singular nouns. When
this suffix is followed by a possessor noun phrase, it has a low tone if the
possessor is singular and a high tone if the possessor is plural. This is
shown by the antigenitive forms in the left column of (60)-(64), which exem­
plify the five tonal classes of singular antigenitive stems. Thus the tone
of the antigenitive suffix vowel /u/ \( \sim \) /i/ is Low before the singular
noun /dhaago/ H-L 'woman' in the (b)-phrases, and High before the plural
noun /m\(\text{\AA}\)an/ H 'women' in the (c)-phrases. The tone symbols indicate the
surface tones of the antigenitive forms and of the corresponding absolutive
form (in (a)) of each of the five singular nouns in question. (As shown by
the forms in (60), an antigenitive stem does not necessarily belong to the
same tonal class as the corresponding absolutive stem).

### (60) H-stems

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a.</td>
<td>L-H</td>
<td>kid-i</td>
<td>'stone'</td>
<td>a'.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 1</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>b.</td>
<td>H-L</td>
<td>k(\text{\AA})t-i dhaago</td>
<td>b'.</td>
<td>HL</td>
<td>bur dhaago</td>
</tr>
<tr>
<td></td>
<td>1 2 1 2</td>
<td></td>
<td>12 1 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>H-H</td>
<td>k(\text{\AA})t-i m(\text{\AA})an</td>
<td>c'.</td>
<td>HH</td>
<td>bur m(\text{\AA})an</td>
</tr>
<tr>
<td></td>
<td>1 1 1</td>
<td></td>
<td>1 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (61) L-stems

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a.</td>
<td>L</td>
<td>deel</td>
<td>'skin'</td>
<td>a'.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>L-L</td>
<td>deend-i dhaago</td>
<td>b'.</td>
<td>LL</td>
<td>kw(\text{\AA})an dhaago</td>
</tr>
<tr>
<td></td>
<td>2 2 1 2</td>
<td></td>
<td>2 1 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>L-H</td>
<td>deend-i m(\text{\AA})an</td>
<td>c'.</td>
<td>LH</td>
<td>kw(\text{\AA})an m(\text{\AA})an</td>
</tr>
<tr>
<td></td>
<td>2 1 1</td>
<td></td>
<td>21 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(62) HL-stem
   a. HL-H luub-o 'word'
      12 1
   b. H-L luummi dhaago
      1 2 1 2
   c. HL-H luummi m\=an
      12 1 1

(63) H!L-stems
   a. HE ke\=et 'thread'
      a'. HE jwaan 'small hut'
      1E
   b. H!-L ke\=ed-i dhaago
      b'. H!L jwaan dhaago
      1 3 2 3 1 3 2 3
   c. H!L!-H ke\=ed-i m\=aan
      c'. H!L!H jwaan m\=aan
      13 3 3 13 3

(64) L!L-stems
   a. L-E pal-a 'knife'
      a'. LE k\=ocy 'gourd'
      2 E
   b. L!-L pall-i dhaago
      b'. L!L k\=ocy dhaago
      2 3 2 3 23 2 3
   c. L!L!H pall-i m\=aan
      C'. L!L!H k\=ocy m\=aan
      23 2 2 23 2 2

The right column of (60)-(64) shows the corresponding forms of nouns whose antigenitive stem ends in a non-geminate sonorant and whose antigenitive forms therefore have no suffix vowel. (I have not encountered any such stems that belong to the tonal class HL). By comparing corresponding antigenitive forms with and without the vowel of the antigenitive suffix in (60)-(64), it can be inferred that even forms without a suffix vowel have a suffix tone, which is manifested as an additional tonal component on the stem. This additional component can be perceived directly whenever the pitch level of the suffix tone is different from the pitch level of (the last component of) the stem tone:

    L-H [2-1]       LH [21]       (cf. (61c'))
In words with H!L!-H, the pitch of the high suffix tone is identical to the pitch of the preceding low component of the stem tone: [13-3]. Hence the last H component of antigenitive forms with H!L!H as in (63c') cannot be perceived directly, the pitch of such forms being [13]. However, as shown below, the presence of a final H in such words is evidenced by the fact that they cause L-raising to apply to a following L!L-stem. The additional H and L in the antigenitive forms with HH and LL, as in (60c') and (61b'), have no phonetic effect at all, and the evidence for their presence is thus only circumstantial.

In the following, I will assume that the suffix tone is carried by a suffix vowel underlingly, but that this vowel is deleted and that at the same time, its tone is reassociated to the stem vowel. The interaction of V-deletion and T-reassociation with other rules is illustrated by the derivations in (66)-(67).

(66) a. นี้้น โค้ย คันจ้อง
L L!L H L Underlying and Surface
2 23 2 3
see gourd there
'look at the gourd there!'

b. นี้้น โค้ย ด้วย
L L!L -L H L Underlying
L L! -L H L L-absorption
L L!L H L V-deletion & T-reassociation
2 23 2 3
see gourd-AG+S woman
'look at the woman's gourd!'

c. นี้้น โค้ย แม้
L L!L -H H Underlying
L L!LH H V-deletion & T-reassociation
2 23 2
see gourd-AG+P women
'look at the women's gourd!'
In the surface representation, the singular antigenitive form of an L!L-stem which is not followed by a suffix vowel may be identical to its absolutive form in non-prepausal position after a low tone. Thus, both the absolutive form in (66a) and the singular antigenitive form in (66b) of the word for 'gourd' have the surface tones L!L, while its plural antigenitive form in (66c) has the surface tones L!LH. However, the underlying difference between the absolutive and the singular antigenitive shows up in the surface representation when the forms are subjected to L-raising:

(67) a. a-njeend-a kooy kapi
   H H H L!L H L Underlying
   H H H H!L H L L-raising
   H H H H! H L H!L-simplification
   1 1 1 1 2 3
   1S-see+M-FOC gourd there
   'I am looking at the gourd there'

b. a-njeend-a kooy dhaagc
   H H H L!L -L H L Underlying
   H H H H!L -L H L L-raising
   H H H H! -L H L L-absorption
   H H H H!L H L V-deletion & T-reassociation
   1 1 1 13 2 3
   1S-see+M-FOC gourd-AG+S woman
   'I am looking at the woman's gourd'

c. a-njeend-a kooy maan
   H H H L!L -H H Underlying
   H H H H!L -H H L-raising
   H H H H!L!-H H Extra !-insertion
   H H H H!L!H H V-deletion & T-reassociation
   1 1 1 13 3
   1S-see+M-FOC gourd-AG+P women
   'I am looking at the women's gourd'

Thus, in the sentences in (67), which parallel those in (66), the absolutive form has the surface tone H!, while the singular antigenitive has H!L. On the other hand, the two antigenitive forms are now identical in pitch, but their surface tones are different, as shown by the fact that the word following the singular antigenitive form in (67b) is downstepped by one level
while the word following the plural antigenitive form in (67c) is downstepped by two levels.

One verbal /i/-suffix that behaves like the antigenitive suffix has a high tone and is used as an alternative to the high-toned third person singular subject suffix /-ε/ when the verb is followed by an obligatory non-subject constituent. Thus, it is used, for instance, with a transitive locative verb stem, which is obligatorily followed by an adverbial referring to the goal of the movement:

(68) a. a-ŋoog-ι kundo 'he returned it to that place'
   H L H H L
   1 2 1 1 2
   C-return+LOC-3S there

   b. a-ŋoŋ-ι πιŋ 'he cut it down'
   H H!L! H H
   1 13 3 3
   C-cut+LOC-3S down

When the suffix vowel is deleted and the suffix tone is reassigned, an L-stem gets the surface tones LH, corresponding to L-H in (68a):

(69) a-ɨʊər wʊk 'he rolled it away'
   H LH HE
   1 21 1E
   C-roll+LOC+3S away

Similarly, an L!L-stem which has been subjected to L-raising gets the surface tones H!L!H, corresponding to H!L!-H in (68b):

(70) a-ɨɛɛ! kundo 'he pulled it to that place'
   H H!L!H H L
   1 13 3 4
   C-pull+LOC+3S there

As noted above, the last H-component of H!L!H is not directly perceptible, since H!L! without it would result in the same pitch. But the presence of this H is shown by the fact that it provokes L-raising of a following L!L-stem. In (71a) L-raising has thus applied to the adverb /wʊŋɔ/ , which has the surface tones L!L-H when not preceded by a high tone as shown by (71b).
(71) a. a-tEEI wog -ɔ 'he pulled it away'
   H HL!H H!L! H
   1 12 24 4
   C-pull+LOC-3S away

b. a-r̃ung-Ɂ wog-ɔ 'he ran away'
   H H! L L!L H
   1 1 3 34 3
   C-run+LOC-SUF away

The surface tones of (71a) are derived in the following way:

(72) a-tEEI wog -ɔ
   H L!L -H L!L H Underlying
   H H!L -H H!L H L-raising
   H H!L!-H H!L! H Extra !-insertion
   H HL! -H H!L! H H!L!-simplification
   H HL!H H!L! H V-deletion & T-reassociation
   1 12 24 4

There are other verbal /-suffixes that vary with zero. One of them has a low tone and is used if the verb is followed by a subject noun phrase, as in (73)-(74). Another one is tonally H!L and indicates that the subject is unspecified, as in (75).

(73) a. a-yap dhaag-ɛ
   H L H L
   1 2 1 2
   C-open woman-ERG

b. a-yaamb-Ɂ dhaag-ɛ 'the woman opened it (repeatedly)'
   H H! L H L
   1 1 3 2 3
   C-open+M-SUF woman-ERG

c. a-yAb-i dhaag-ɛ 'the woman opened it (in this direction)'
   H H! L H L
   1 1 3 2 3
   C-open+CP-SUF woman-ERG

d. a-yAp-pɁ dhaag-ɛ rWɁth 'the woman opened it for the chief'
   H H! L H L L
   1 1 3 2 3 3
   C-open+BEN-SUF woman-ERG chief
e. a-yaam-i dhaag-e 'the woman opened for him'

H L L H L
1 2 2 1 2
C-open+BEN+AP-SUF woman-ERG

(74) a. root maan-n- i rood-o 'the women will grind it'

HL H L L L
1 2 2 2
grind women-ERG grind-SUF

b. rott-i maan-n-i rott-o 'the women will grind it (repeatedly)'

L L H L L L
2 2 1 2 2 2
grind+M-SUF women-ERG grind+M-SUF

(75) a. a-yaap

H HE
1 1E
C-insult+PAS

b. a-yaap-t

H H HE
1 1 1E
C-insult+M-PAS

The distribution of /i/ ~ /i/ and zero of these two suffixes almost coincides with the morphological status of the transitive verb stem that they combine with. Simple verb stems end in either a single voiceless obstruent or a single sonorant and thus always take the zero variant (cf. the (a) sentences in (73)-(75)). Derived verb stems, on the other hand, cannot end in a single voiceless obstruent, and only centripetal stems can end in a single sonorant. Hence most derived stems take the segmental variant (cf. the other sentences in (73)-(75)).

There is an apparent exception to the rule that the tone of the deleted suffix vowel is reassigned to the stem vowel. When the verbal L-suffix

11In Andersen [1988a], I analyzed intervocalic stem-final voiceless obstruents as being phonemically single rather than geminate, although I argued that in derived verb stems, they had developed from geminates historically. The present analysis presupposes that even synchronically, they are geminates in derived verb stems and in antigenitive noun stems, as indeed they are phonetically after a short vowel (at least).
exemplified in (73)-(74) above occurs after an H!L-stem (which is in fact an L!L-stem subjected to L-raising), the suffix tone is lost, whether the verb stem is simple, as in (76a), or derived, as in (76b).

(76) a. a-thaal dhaag-ε  'the woman cooked it'
   H  H! H L
   1 1 2 3
   C-cook woman-ERG

   b. a-teel dhaag-ε  'the woman pulled it (hither)'
   H  H! H L
   1 1 2 3
   C-pull+CP woman-ERG

Note, however, that the suffix tone reappears if the verb is followed by an enclitic subject pronoun instead of by a noun:

(77) a. a-teel g·L 'they pulled it (hither)'
   H H!L LE
   1 13 3E
   C-pull+CP 3P+ERG

   b. a-ŋud-i gL 'they cut it (in this direction)'
   H H! L LE
   1 1 3 3E
   C-cut+CP-SUF 3P+ERG

The exception can be eliminated by ordering H!L-simplification after V-deletion and T-reassociation and by refining its structural description. In section 5.1, H!L-simplification was said to delete L of H!L in word-final position before another word. As such, the rule accounts for the missing L in (76). But since L is not deleted before an enclitic, as in (77a), nor before a possessor noun phrase, as in (63b') and (67b) above, H!L-simplification must be restricted to applying in phrase-final position only.

6.2. Unspecified tone bearing vowels. The question to be asked now is: what is the underlying representation of suffixes that alternate segmentally between /i/ and zero? Clearly, the two alternants of each of the suffixes must have identical underlying representations since their distribution is phonologically predictable. An obvious suggestion would thus be that the underlying suffix vowel is /i/. However, although /i/ is the only vowel
that regularly alternates with zero, not all instances of /i/ in suffix position are deleted in the specified environment. For instance, /i/ is not deleted if it is the segmental part of a plural suffix, of a second person singular possessive or subject suffix, or of a demonstrative suffix:

(78) \( \text{tɔɔŋ-} \) L-E [2-E] 'spears'
    \( \text{tɔŋ-} \) H-L [1-2] 'your spear'
    a-\( \text{wɔɔl-} \) H-H-E [1-1-E] 'you called him' (C-call-2S)
    \( \text{tɔŋ-} \) H-HE [1-1E] 'this spear'

V-deletion would thus have to be formulated as a morphologically conditioned rule.

Instead of an /i/-deletion rule, I propose the following analysis of suffixes that vary segmentally between /i/ and zero. Underlyingly, such suffixes consist of a tone (or a sequence of tones) and an "empty" vowel /V/, i.e. a tone bearing unit without any phonetic specification. Assuming an autosegmental framework, the suffix tone gets associated to the empty vowel in exactly the same way as it would get associated to a full vowel (cf. section 7.3 below). Then, if /V/ is preceded by a single sonorant or by a single voiceless obstruent, it is deleted and its tone is reassociated to the stem vowel. Otherwise /V/ gets the phonetic specification /i/ ~ /i/.¹²

This analysis has several advantages. Firstly, it explains why not all /i/-suffixes have a zero variant: only underlingly empty vowels vary between /i/ and zero. Secondly, it explains why /i/ is the only vowel that varies with zero: /i/ is a default value. Thirdly, it explains why /i/ varies with zero at all: /V/ gets a phonetic specification if and only if an impermissible syllable structure would otherwise arise, i.e. a syllable ending in a consonant cluster or in a voiced obstruent.

There is independent evidence that the suffix vowel in question (the empty vowel) differs underlingly from other vowels (full vowels). Full vowels

¹²Before the enclitic pronoun /wa/ 'we', /V/ surfaces as /o/ ~ /u/, cf. /pall-o wa/ L!L-H H [23-2 2] 'our knife' (knife-AG+P 1PEx) and /a-tuud-u wa/ H-H!-L LE [1-1-3 3E] 'we pulled it (hither)' (C-pull+CP-SUP 1PEx+ERG).
can undergo assimilation across a word boundary, the result being one phonetically long vowel. For instance, the completive prefix /a-/ is optionally assimilated to the final vowel of a preceding word (cf. section 7.1 below), as in the following example, where points indicate syllable boundaries:

(79) rɔɔmbs-a a-neen-a → [rɔɔm.bɔɔ.nεε.na]

H L H L H H L! L H
1 2 1 2 1 1 2 3 2
sheep C-see-1S

'I saw the sheep'

An empty vowel, by contrast, never assimilates a following vowel. On the contrary, a following vowel "replaces" the empty vowel in the sense that it acts as if it were a suffix vowel (cf. (80) and (81b)).

(80) rɔɔmm-V a-neen-a → [rɔɔm.mɛɛ.nɛɛ.na]

HL H H L H H L H
sheep-AG C-see-1S 12 1 2 1

'the sheep which I saw'

(81) a. a-ŋud-V dхааг-ɛ → [a.ŋu.dи.gaa.gɛ]

H H! L H L H H! L H L
C-cut+CP-SUF woman-ERG 1 1 3 2 3

'the woman cut it'

b. a-ŋud-V uburr-i → [a.ŋu.dу.bur.и]

H H! L L H L H H! L H L
C-cut+CP-SUF Ubur-ERG 1 1 3 2 3

'Ubur cut it'

Example (81a) shows that if there is no vowel with which the empty vowel can be replaced, then the latter gets the default specification /i/ ~ /i/.

From (80) and (81b), it cannot be determined whether during V-replacement, the suffix tone is lost or whether it is reassigned to the immediately following vowel, since the latter carries the same tone as the suffix vowel. In (82), however, where the suffix is H and the following tone is L, we see that the suffix tone is in fact reassigned to the following vowel. The example in (82) illustrates another fact as well. Note that even if the empty suffix vowel of /kɔɔy-V/ were not followed by another vowel, it would be deleted,
since the stem ends in a single sonorant (cf. (64b'-c') above), and in that
case its tone would be associated to the stem vowel.

\[(82) \text{kɔɔy-v} \quad \text{a-bɔɔ关键是-e} \quad + \quad \text{[kɔɔ.ya.bɔɔ.re]} \]
\text{gourd-
L!L H L H E L!L HL H E}
\text{tall=women 23 23 2 E}
\text{'the tall women's gourd'}

Since in (82) its tone is associated to the following vowel, we can infer
that V-replacement is ordered before V-deletion.

6.3. **Additional tonal word classes.** As mentioned in section 3.2, there are
at least eight possible pitch patterns for a suffixless word in prepausal po-
sition. Four of them have been dealt with already. The others, which seem
to be either rare or non-occurring in nouns, must be analyzed as having the
surface tones indicated in (83).

\[(83) \text{a. [21] LH e.g. beet 'all'} \]
\text{b. [2-13] L-H!L!H e.g. u-cuul 'mongoose'}
\text{c. [232] L!LH e.g. baaal 'dangling'}
\text{d. [21E] LHE e.g. thuuth 'very deep'}

These stem tone patterns are identical to otherwise attested sequences of
stem tones plus suffix tones:

\[(84) \text{a. [2-1] L-H e.g. ʨiɛ-ɔ 'bird'} \]
\text{b. [2-13-3] L-H!L!-H e.g. a-bɛɛl-a 'stick'}
\text{c. [23-2] L!L-H e.g. bub-a 'waterbuck'}
\text{d. [2-1E] L-HE e.g. tɔŋg-ɔ 'our egg'}

Hence the words in (83) can readily be analyzed as having an underlying su-
fix with an empty but tone-bearing vowel.

7. **Downstep as a Floating High Tone**

The simplifications resulting from analyzing Päri as having two rather
than three basic tone levels have been achieved at the expense of the predic-
tability of downstep. However, as I intend to demonstrate in this section,
there is evidence that downstep is in turn the manifestation of a floating
high tone. First I will show that there is independent evidence for floating high tones and that these are in some cases manifested as downstep. Then I will show that although analyzing all downsteps as floating high tones results in violations of the Obligatory Contour Principle, such violations only exceptionally occur in the underlying representation.

7.1. Floating high tones. Consider first the tonal effects of vowel assimilation across a word boundary in (85), and compare the tones with those in (86).

(85) a. mando a muur → [man.doo.muur] 'that is a duiker'
   H L H L L
   1 2 1 2 1

b. mando a kic → [man.doo.kic] 'that is a bee'
   H L H H H
   1 2 1 1 2

c. mando a dak → [man.doo.dak] 'that is a pot'
   H L H HE
   1 2 1 2 1E

(86) a. neen muur 'look at the duiker!'
   L L
   2 2

b. neen kic 'look at the bee!'
   L H
   2 1

c. neen dak 'look at the pot!'
   L LE
   2 2E

In (85), the vowel of the copula /a/ is optionally assimilated to the final vowel of the preceding word /mando/ 'that'. When vowel assimilation takes place, the assimilated vowel is dissociated from its high tone and reassociated to the low tone of the preceding vowel. Its high tone, which has now been set afloat, is manifested as a downstep before the low tone of /muur/ 'duiker' in (85a), while it is deleted (by "H-deletion") before the high tones of /kic/ 'bee' and /dak/ 'pot' in (85b–c). As shown by (86c), however, /dak/
is underlingly an L!L-stem, whose high tone in (85c) has been brought about by L-raising conditioned by the high tone of the copula. Thus, although the high tone of the assimilated vowel is deleted in (85c), it leaves an effect there, too.

Similar evidence for floating high tones can be found in derived nouns with the prefix /ə-/ ~ /u-/ . This prefix is used productively for forming male names from simple nouns which refer to a salient feature of the situation in which the named child was born. As exemplified in (87), names derived from nouns with L!L-stems have H!L-stems.

(87) uŋar L-HE [2-1E] ŋar LE [2E] 'path'

The alternation between L!L and H!L can be accounted for in purely phonological terms by hypothesizing that the underlying tones of the prefix are L̄̄ rather than just L. The final floating high tone (̄̄) of the prefix causes L-raising to apply and is subsequently deleted, just like in (85c) above. The hypothesis that the prefix is L̄̄ also predicts that names derived from simple nouns with L-stems surface with a downstep after the prefix when they occur after a low tone (cf. (85a) above). In fact, this is exactly what happens when such nouns occur after an antigenitive noun. Thus the name /ɔ-koθ/ , which is derived from /koθ/ L [2] 'rain', has the tones L!-L in the following examples, where the prefix vowel has replaced the underlying low toned antigenitive suffix vowel (cf. section 6 above):

(88) a. kwɔŋ- u-koθh  'Ukoθ's food'
     L  L!  L
     2  2  3

b. kɔɔŋ- o-koθ  'Ukoθ's gourd'
     L!  L!  L
     2  3  4

c. kwɔŋk- u-koθ  'Ukoθ's stone'
     H  L!  L
     1  2  3
In other syntactic contexts, there are two possibilities for a noun like /o-koth/ after a low tone: either there is downstep after the prefix just as in (88), or the prefix surfaces with a high tone. Thus we find free variants like the following:

(89) a. neen o-koth
    L L! L
    2 2 3

    see Ukoth

(90) a. a-neen o-kotth-ì
    H L! L L L
    1 2 2 3 3

    C-see Ukoth-ERG

After a high tone, the prefix always surfaces with a high tone:

(91) a-neend-a o-koth
    H H H H L
    1 1 1 1 2

    1S-see+M-FOC Ukoth

Names derived from nouns with a H-stem always surface with a low tone on the prefix, and they show no trace of the floating high tone, but again, this is what is predicted (cf. (85b) above). The following example contains /u-bur/ , which is derived from /bur/ H [1] 'ashes':

(92) kwan- u-bur
    L L H
    2 2 1

    food+AG+S Ubur

Since we need a rule that interprets a floating high tone as a downstep phonetically, we can simply take all downsteps to be floating high tones.\footnote{In Andersen [1988a,b], I assumed downsteps to reflect floating low tones rather than floating high tones.}

Assuming an autosegmental framework, where tones and tone bearing units con-
stitute separate tiers, we thus have surface representations like the follow­
ing:

(93) a. \( \text{p\text{	extgreek{a}}t\text{	extgreek{e}}} \) 'crocodiles'  
\[ \text{LHL-HL} = \text{L!L-HL} \ [23-23] \]

b. \( \text{k\varepsilon e\text{\textgreek{d}-a}} \) 'my thread'
\[ \text{HHLH-H} = \text{H!L!-H} \ [13-3] \]

c. \( \text{p\text{	extgreek{a}}ll-\text{c}} \) 'our knife'  
\[ \text{LHL-HHL} = \text{L!L-H!L} \ [23-22E] \]

d. \( \text{\textgreek{c}-\text{k\text{\textgreek{c}}\text{c}\text{\textgreek{c}}-\text{c}} \) 'Ukongo'
\[ \text{L- HH -L} = \text{L-H!-L} \ [2-1-E] \]

The previously established tone rules will have to be reformulated accord­
gingly. In most of these rules, we can simply substitute a floating high tone
(\( \text{H} \)) for downstep (\( \text{!} \)). However, two rules need revision: L-raising and L­
lowering.

L-raising can be reformulated as follows:

(94) L-raising
\[ \text{V} \]
\[ \text{H L H L} \rightarrow \text{H H H L} \]

According to this rule, an associated L is changed to H if (i) it is pre­
ceded by H, which may be associated or free and (ii) if it is followed by
a free H which (iii) is itself followed by a L which is associated to
the same vowel as the first L. When formulated in this way, L-raising
does not apply to the L of LH-prefixes. Although this L can indeed
change to H as seen in (89)-(91) above, this change is a different phenom­
emon, since no preceding H is needed and since the floating H is simul­
taneously deleted.

L-lowering can be reformulated as follows:

(95) L-lowering
\[ L \rightarrow E / \left[ _{\text{W}} \text{T}_{n} \text{H} \right] \]

When formulated in this way, L-lowering will correctly apply to (96a-b) and
correctly fail to apply to (96c-d).
(96) a. pal-a 'knife' b. kooqy 'gourd'
\[
\begin{array}{c}
\text{\LH-L} \\
[2 \ E]
\end{array}
\quad \begin{array}{c}
\text{LHL} \\
[2 \ E]
\end{array}
\]
c. o-koth 'Ukoth' d. dhaanh-o dook 'the person will return'
\[
\begin{array}{c}
\text{\LH-L} \\
[2 \ 3]
\end{array}
\quad \begin{array}{c}
\text{H HH L} \\
[1 \ 1 \ 3]
\end{array}
\]

In the following, I use diacritics to indicate tones: "/" = High, "/\ = Low, "/\ = High-Low, "/\ = Low-High. When placed after the segment symbols of a morpheme, "/" indicates a floating High, while "/\" indicates a floating High followed by an associated Low.

7.2. L-raising and the Obligatory Contour Principle. In the examples of surface representations given in (93) above, the tonal tier of some morphemes contains the sequence \H\H, i.e. a sequence of two identical tones. Thus those morphemes violate what has come to be known as the Obligatory Contour Principle (cf. Goldsmith [1979]). Notice, however, that \H\H in (93d) derives from the sequence LH\L, which does not violate the Obligatory Contour Principle. Moreover, there is evidence that many morphemes which appear to have the sequence \H\H\H underlyingly do in fact have the sequence LH\L.

Note first that all nouns with a derivative L-prefix and an \H\H\H-stem are derived from words with LH\L-stems. In addition to names like those in (87) above, there are other nouns such as those in (97a), which are morphologically related to the words in (97b).

(97) a. \(\text{\acute{a}-b\dot{\text{a}}\dot{\text{a}}^\text{\H}^\text{-}\dot{\text{a}}} [2-1-\text{E}] \) 'tall woman'
\(\text{\acute{a}-?\dot{\text{i}}\text{dh}^\text{\H}^\text{-}\dot{\text{a}}} [2-13-3] \) 'squirrel'
\(\text{\acute{\d}}\text{-c\dot{\text{a}}\dot{\text{a}}\dot{\text{n}}^\text{\H}^\text{-}\dot{\text{\d}}} [2-13-3] \) 'old thing'
\(\text{\acute{a}-c\dot{\text{a}}\dot{\text{m}}^\text{\H}^\text{-}\dot{\text{\d}}} [2-12-23] \) 'left-handed females'

b. \(\text{b\dot{\text{a}}\dot{\text{a}}\dot{\text{a}}^\text{\H}^\text{-\d}} [2\text{E}] \) 'he is tall'
\(\text{?\dot{\text{i}}\text{dh}^\text{\H}^\text{-\d}} [2-\text{E}] \) 'he will climb'
\(\text{c\dot{\text{a}}\dot{\text{a}}\dot{\text{n}}^\text{\H}^\text{-\d}} [23-2] \) 'early'
\(\text{c\dot{\text{a}}\dot{\text{m}}^\text{\H}^\text{-\d}} [23-23] \) 'left-hand sides'
For such words, there is no problem in positing an LHₖ-prefix and an LH₁L-stem. This analysis can be extended to nouns which have a similar prefix but for which no morphologically related word has been attested, e.g.

(98) à-dëël [2-1E] 'antelope'
à-pi:j'À [2-1-E] 'mouse'
à-bëël'-à [2-13-3] 'stick'
à-wëënt'ê [2-12-23] 'guinea-fowls'

Proof that such nouns have an LHₖ-prefix and an LH₁L-stem will be given in the following.

Nouns which have a prefix and an L-stem but which, again, cannot be proved to be derived nouns fall into two types. One type behaves like /û'-kòth/ in (88)-(91) and must therefore have an underlying LHₖ-prefix:

(99) à'-cùth [2-3] 'vulture'
û'-diek [2-3] 'hyena'
à'-dàal-ò [2-3-3] 'type of gourd'
à'-wëëth'-à [2-3-2] 'pipe'

In nouns of the other type, both the prefix and the stem surface with a low tone in all environments. In such nouns, the underlying prefix tone must be L:

(100) û-böw [2-2] 'lung'
à-tòr [2-2] 'dust'
à-thës-rò [2-2-2] 'arrow'
à-lòol-à [2-2-1] 'path'

Nouns with an underlying L-prefix also occur among non-derived nouns with an LH₁L-stem:

(101) à-t láññ [2-2E] 'god'
û-kòond'ò [2-2-E] 'feather'
û-còomb'-ò [2-23-2] 'snail'
à-mànd'ê [2-2-E] 'type of disc'
Unlike the nouns in (97)-(98), these do not undergo L-raising, and hence their prefix cannot be L\_L. Thus, clearly, there is a contrast between L-prefixes and L\_L-prefixes.

Now consider a few facts about number inflection of nouns. The singular stem and the plural stem often have different tones. What is of relevance here is that prefixless nouns with an L-stem in the singular may have an L\_L-stem in the plural and that they cannot have an H\_L-stem in the plural:

(102) Singular Plural

<table>
<thead>
<tr>
<th>Noun</th>
<th>Tone</th>
<th>Plural</th>
<th>Tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>bùul</td>
<td>[2]</td>
<td>bùnd^e</td>
<td>[2-E]</td>
</tr>
<tr>
<td>kùl</td>
<td>[2]</td>
<td>kùl^e</td>
<td>[2-E]</td>
</tr>
<tr>
<td>nàaŋ</td>
<td>[2]</td>
<td>nàŋ^e</td>
<td>[23-23]</td>
</tr>
<tr>
<td>gòol^e</td>
<td>[2-2]</td>
<td>gòol^e</td>
<td>[23-23]</td>
</tr>
</tbody>
</table>

In nouns with a prefix, by contrast, a singular L-stem may correspond either to a plural L\_L-stem, as in (103), or to a plural H\_L-stem, as in (104).

(103) Singular Plural

<table>
<thead>
<tr>
<th>Noun</th>
<th>Tone</th>
<th>Plural</th>
<th>Tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>à-gwàal</td>
<td>[2-2]</td>
<td>ù-gwàl^e</td>
<td>[23-23]</td>
</tr>
<tr>
<td>à-kàar-ô</td>
<td>[2-2-2]</td>
<td>ù-kàr^e</td>
<td>[23-23]</td>
</tr>
<tr>
<td>à-rít</td>
<td>[2-2]</td>
<td>à-rít^e</td>
<td>[2-2-E]</td>
</tr>
<tr>
<td>à-thèèr-ô</td>
<td>[2-2-2]</td>
<td>à-thèèr^e</td>
<td>[23-23]</td>
</tr>
</tbody>
</table>

(104) Singular Plural

<table>
<thead>
<tr>
<th>Noun</th>
<th>Tone</th>
<th>Plural</th>
<th>Tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>à’-cùth</td>
<td>[2-3]</td>
<td>à’-cùth^e</td>
<td>[2-1-E]</td>
</tr>
<tr>
<td>à’-yòom</td>
<td>[2-3]</td>
<td>à’-yòom^e</td>
<td>[2-1-E]</td>
</tr>
<tr>
<td>à’-càam</td>
<td>[2-3]</td>
<td>à’-càam^e</td>
<td>[2-12-23]</td>
</tr>
<tr>
<td>à’-dùund^e</td>
<td>[2-3-3]</td>
<td>à’-dùund^e</td>
<td>[2-12-23]</td>
</tr>
</tbody>
</table>

However, the two classes of plural stems are in complementary distribution. The plural stem is L\_L when the prefix of the singular form is L, and the plural stem is H\_L when the prefix of the singular form is LH. These facts can be explained by assuming that the tone of the prefix is the same in the plural as in the singular and hence that plural H\_L-stems are derived from underlying LH\_L-stems by L-raising conditioned by the preceding floating high tone.
Words with an HHL-stem and without a prefix seem to be far less frequent than those with an HHL-stem and a prefix. Most of them appear to be recent loanwords from Arabic (cf. the examples in (105)).

(105) kúur^-
^a [1-E] 'ball' Arabic kuura
gúb^-
^a [1-E] 'basket' Arabic guffa
klic^ [1E] 'sack' Arabic klis
cúk^ [1E] 'market' Arabic suug

In suffix position, there is no contrast between H~L and L~L, since the latter sequence does not occur at all. Hence it is possible to derive H~L from underlying L~L. After H-stems, as in (106), the change from L~L to H~L can readily be seen as the effect of L-raising.

(106) dháanh-5^ + dháanh-5^ [1-1E] 'person'

After stems ending in L, on the other hand, it might seem that an ad hoc rule is needed (cf. the examples in (107)).

(107) ?òon-î [2-1E] 'we' (1PIN)
   bùorr^-
^a [23-2E] 'type of yard'

However, there is evidence that even in some of these cases the suffix is preceded by H underlyingly and hence that L-raising applies.

Two nominal suffixes with a separate meaning have HHL, the first person plural inclusive possessive suffix /-5^/ 'our' and the demonstrative suffix /-î^/ 'this, these'. Both of these suffixes are preceded by an anti-genitive stem (cf. (108a-b)).

(108) a. làkk-5^ [2-1E] 'our teeth'
b. làkk-î^ [2-1E] 'these teeth'
c. làkk-å [2-12] 'my teeth'
d. làkk-î dháag-5 [2-1 1-2] 'the woman's teeth'
e. làkk-î mànn [2-1 1] 'the women's teeth'

14 The Arabic data are from Persson and Persson [1980].
In section 6, I showed that an antigenitive stem is followed by an empty suffix vowel /I/ before a possessor noun phrase, that this vowel may be replaced by a following vowel, and that in that case the tone of the empty vowel is reassigned to the following vowel. Examples (108d-e) show that the tone of the antigenitive suffix vowel is High when the antigenitive stem is plural. The first person singular form in (108c) provides evidence that the empty suffix vowel is underlyingly present even before possessive suffixes. While the first person singular suffix /-a/ has a single tone after a singular stem, it has the sequence HL after a plural stem (cf. (44)-(48) above). This alternation can be explained by taking H to be the tone of the antigenitive suffix and L to be the tone of the possessive suffix underlyingly:

(109) lâkk̂-â → lâkk-â [2-12] 'my teeth'

Since /-c/ 'our' indicates a plural possessor, the antigenitive suffix preceding it has a high tone after both singular and plural stems, and this high tone causes L-raising of /-c/:

(110) pâl-c'â → lâkk-â

The surface tones of the demonstrative suffix /-č/ can be explained in the same way, since it also follows an antigenitive stem. What we are left with, then, are morphologically simple (i.e. absolutive) nouns with HÇL after a non-H stem such as those in (107). Such nouns appear to be rare.

7.3. Lexical representation and tone association. Note that there are no stems or suffixes with underlying LH or HH. Hence the last low tone in LHL-morphemes and HHL-morphemes is predictable. In order to avoid redundancy in the lexical representation of morphemes, this low tone should therefore be
accounted for by a rule which inserts it after TH in any morpheme which is not a prefix:

(111) **L-insertion**

\[ \emptyset \rightarrow L / [Q \ TH \_\_] \]

where Q is a stem or a suffix.

The association of tones to vowels can be accounted for by means of the following rule, which follows L-insertion and precedes L-raising and whose domain is the morpheme, i.e. a stem, a suffix, or a prefix:

(112) **Tone Association**

(i) Associate the first tone to the (first and only) vowel.

(ii) Associate any remaining free low tone to the vowel.

Note, finally, that the first tone of an empty suffix vowel cannot be a floating tone at any stage of the derivation after the application of Tone Association. If a morpheme-initial high tone were set afloat by V-deletion, it would incorrectly be manifested as a downstep:

(113) a. \( \text{bu}_\text{r} - \text{v} \) \( \text{m}_\text{a} \text{n} \) \( \rightarrow \) \( \text{bu}_\text{r}' \) \( \text{m}_\text{a} \text{n} \) *[1 2] 'the women's ashes'

ash-AG+P women

b. \( \text{kwa}_\text{n} - \text{v} \) \( \text{m}_\text{a} \text{n} \) \( \rightarrow \) \( \text{kwa}_\text{n}' \) \( \text{m}_\text{a} \text{n} \) *[2 2] 'the women's food'

food-AG+P women

Only by being reassigned simultaneously with V-deletion will the suffix tone be manifested correctly:

(114) a. \( \text{bu}_\text{r} - \text{v} \) \( \text{m}_\text{a} \text{n} \) \( \rightarrow \) \( \text{bu}_\text{r} \) \( \text{m}_\text{a} \text{n} \) [1 1]

b. \( \text{kwa}_\text{n} - \text{v} \) \( \text{m}_\text{a} \text{n} \) \( \rightarrow \) \( \text{kwa}_\text{n} \) \( \text{m}_\text{a} \text{n} \) [2 1]

8. **Comparative Outlook**

The tonal system of Pári, as analyzed in this article, has a number of typologically unusual features: (i) downstep without downdrift, (ii) total rather than partial downstep, (iii) downstep between low tones (among others), (iv) downstep as the manifestation of a floating high tone rather than of a floating low tone, and (v) segmentally unspecified tone-bearing vowels. Interestingly, Pári shares none of these features with Luo, a closely related
language, which is spoken in Kenya. Like Päri, Luo has two tones, but as shown explicitly or implicitly by Tucker and Creider [1975] and Creider [1986], (i) Luo has downdrift as well as downstep, and (ii) downstep is partial, (iii) occurs only after a high tone, and (iv) is the manifestation of a floating low tone. Luo is thus a typologically more normal tone language.

The tonal information about Luo in Creider et al. [ms.] makes it possible to establish a set of regular tonal correspondences between this language and Päri. Note first that H-stems in Luo correspond to H-stems in Päri and vice versa (cf. the pairs of cognates in (115)-(116) and in (126)-(127) below). The same applies to H-suffixes, as in (116)-(117) and (123)-(125).

(115) Päri: H

<table>
<thead>
<tr>
<th>Word</th>
<th>Tone</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>lēp</td>
<td>[1] H</td>
<td>'tongue'</td>
</tr>
<tr>
<td>mān</td>
<td>[1] H</td>
<td>'women'</td>
</tr>
<tr>
<td>tōn</td>
<td>[1]</td>
<td>'spear'</td>
</tr>
</tbody>
</table>

Luo: H

<table>
<thead>
<tr>
<th>Word</th>
<th>Tone</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>lēp</td>
<td>[1]</td>
<td>'ochre'</td>
</tr>
<tr>
<td>mān</td>
<td>[1]</td>
<td>'type of pot'</td>
</tr>
<tr>
<td>tōn</td>
<td>[1]</td>
<td>'type of gourd'</td>
</tr>
</tbody>
</table>

In all other cases, either the two languages have different surface manifestations of the same underlying tones, or there is no one-to-one correspondence between their underlying tones.

The low tone of HL-stems, which is manifested as a low tone in Päri, is manifested as a downstep in Luo:

(117) Underlying: HL-H

<table>
<thead>
<tr>
<th>Word</th>
<th>Tone</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>nâll-ó</td>
<td>[12-1]</td>
<td>'python'</td>
</tr>
<tr>
<td>gēed-ó</td>
<td>[12-1]</td>
<td>'to build' (build+AP-SUF)</td>
</tr>
<tr>
<td>kwânn-ó</td>
<td>[12-1]</td>
<td>'to count' (count+AP-SUF)</td>
</tr>
</tbody>
</table>

Conversely, underlying prefixal high tones which are manifested as downstep in Päri are manifested as high tones on the stem in Luo:
On the other hand, the floating high tones that exist in stems and suffixes in Pari have been lost in Luo. In this way, LH-stems have merged with L-stems in Luo. That is the case whether there is no suffix, as in (119)-(120), or whether the suffix tone is L, as in (121)-(122), or H, as in (123)-(124).

(119) Pari:  L  Luo:  L
bēt  [2]  bēt  'arm'
guōk  [2]  guōk  'dog'
dēel  [2]  dēl  'skin'

(120) Pari:  LH  Luo:  L
dāk'  [2E]  dāk  'pot'
kōc'y  [2E]  kō  'gourd'
cīēth'  [2E]  cīēth  'excrements'

(121) Pari:  L-L  Luo:  L-L
jōob-₁  [2-2]  jōw-₁  'buffalo'
tiēl-ō  [2-2]  tiēl-ō  'foot'
yōm-ō  [2-2]  yōm-ō  'wind'

(122) Pari:  LH-L  Luo:  L-L
dēer'-ō  [2-E]  dēr-ō  'granary'
kōc'n'-ō  [2-E]  kōc'n-ō  'beer'
pāl'-ā  [2-E]  pāl-ā  'knife'

(123) Pari:  L-H  Luo:  L-H
wīn-ō  [2-1]  wīn-ō  'bird'

15In words without a stem-final consonant, the tones of the stem and of the suffix are manifested as one continuous pitch.
This merger has also taken place in stems preceded by an LH-prefix (cf. (118) above and (125)).

A similar merger has occurred in suffixes:

Creider [1986:141] shows that the surface tone pattern H-HL in Luo derives from H-L by a rule of High Spreading, which spreads the high stem tone to the low toned suffix. Thus the underlying suffix tone in Luo to which both L and LH in Päri correspond is L.

In conclusion, although there are many differences between Päri and Luo with respect to the manifestation of tones, the tones of their underlying representations of cognate lexical items are the same, except that one single change has taken place in Luo stems and suffixes, viz. LH > L.
REFERENCES


Traditionally dependency grammar recognizes heads and dependents as primitive elements [Tesnière 1959, Robinson 1970, Hudson 1984]. I have suggested [Owens 1984b, 1985a] that these notions are dispensable ones and in this paper support this point with data from nominal relations (NP relations) in Oromo. In the first part of the paper I describe the basic theoretical model, and in the second I consider two phenomena that have often been assumed to require the recognition of the notion 'head' (e.g. Zwicky [1985], namely agreement and case marking. I argue that no such notion is needed to describe them.

0. Introduction

It is generally assumed in dependency grammar [Tesnière 1959; Hays 1964; Robinson 1970; Hudson 1976, 1984; Matthews 1981] that the notions of head and dependent are theoretical primitives, and in similar fashion within constituency theory, e.g. Jackendoff [1977:30], the notion of head is often taken as a basic theoretical construct. In most versions of both models, within a noun phrase the (non-possession) noun is taken as the head of the phrase, and within a dependency framework other modifiers, such as demonstratives, numerals and adjectives are dependents. Against this view, I have argued in Owens [1984a:33ff] that given the basic notion of "relation" (morphological, selectional, etc.) the notion of head and dependent can be

*I would like to thank Ibrahim Abdella of Dirree Dawa for his excellent help and insights, as well as the Studies in African Linguistics editorial board for a number of very useful criticisms. The following symbols and abbreviations are used: d' = implosive, C' otherwise = ejective, ny = n, sh = ʃ, ʰ = high tone, low tone unmarked, relm = relational marker, NR = nominal relation, ps = passive, a/b in glosses = complex morpheme. An earlier version of this paper was presented at Yarmouk University's fifth linguistics conference, April 1986.
syntactically defined on a derivative basis.\textsuperscript{1}

If it is the case that head and dependent need not be recognized as syntactic primitives then the question arises as to how, within a dependency framework, syntactic relations are to be represented. At first sight it might appear that in rejecting the central role of head and dependent one would be calling into question the very basis of dependency grammar, though this in fact is not the case. The essential basis of a dependency grammar is not the notion of head and dependent, but rather the recognition that there are no syntactic relations except those between words, i.e. that all relations are lexical, that there are no higher-level constructs like noun phrases.\textsuperscript{2}

In this paper I would like to explore the implications of working within a dependency grammar that does not use the notions of head and dependent for its basic rules, using in particular data from nominal relations of Oromo of

\textsuperscript{1}One motivation behind this is that it is better to write a grammar that does not rely on a prioristic notions like "head" (a prioristic in the sense that it is customarily defined within a particular theory of grammar rather than following from universal principles of identification) than one that does not.

\textsuperscript{2}I think the significance of this for syntactic theory has been insufficiently appreciated. As syntactic structures become "flatter" and simpler, which has been the trend in recent years, they also get closer to dependency representations, which can be viewed as the ultimate degree of simplification: no non-lexical hierarchical structure at all. The observation that dependency and constituency models are inter-convertible [Robinson 1970, Zwicky 1985:14] does not mean that there are no interesting linguistic conceptualizations differentiating them. As Hudson [1984:72ff.] has argued, one cannot always say one thing in one model and state it equivalently in the other without the risk of distorting the statement. For example, Zwicky [1985:5] wants to establish a principle by which the notion of subcategorisand can be identified and concludes that in a relation between a lexical and phrasal category, e.g. V + NP, the lexical category is the subcategorisand. Such a statement is impossible to make in dependency terms, since it has no access to the lexical/phrasal distinction, all relations being lexical.
eastern Ethiopia [Owens 1985b], a language whose verb-noun relations I have described elsewhere [Owens 1985a] within the present model. Following Mitchell [1975:147], what will emerge is a picture of nominal relations forming a much richer system of interdependencies than has usually been assumed. In the course of this exposition I will make the further point that agreement does not need to refer to the notion of "head" or determiner of morphological form, and I will also suggest that co-occurrence restrictions should be limited to lexical relations.

In section 1, I describe the framework used and summarize nominal relations in Oromo. In section 2, I discuss the representation of agreement, and in section 3, some of the advantages of the proposed framework.

A terminological note is in order before proceeding. Dependency grammar generally recognizes no phrase-level units (Hudson [1984:211ff.] being exceptional). It does, however, describe a set of relations. In this paper I will be concerned with the nominal relations, relations between nominal items (where nominal is a lexical category introduced in (13) below). The term "nominal relation" (NR for short) is used ambiguously as one relation between nominal items or the total set of such relations (as defined in (13) below). Also, I will argue against the use of the notions "head", "dependent", "modifier", and others, though since these terms are well-established and accessible to most readers I will continue to use them as informal terms, noting what the equivalents to them would be (if assumed) within the present framework.

1. Nominal Relations in Systemic Dependency Grammar

The basic framework is that of systemic dependency grammar [Owens 1984b, 1985a] which utilizes a feature system as in systemic grammar with each feature representing a relation between two or more grammatical items. The feature can be thought of as the name of a syntactic frame containing items in a given relation. In this frame there is no head or dependent.

3In certain respects the data discussed here supersedes that in Owens [1985b, chapter 5].
A feature like +transitive, for example, might represent a relation between a verb and an object noun.

(1) \[
\begin{array}{c}
V \\
+\text{trans} \\
N
\end{array}
\]

1.1. Examples. The nominal elements that I consider are the following: noun, demonstrative, "which?", possessive pronouns, adjectives, numerals, universal quantifier, "other", and non-pronominal possessives. I leave out only a few quantifiers and pre- and post-positional phrases, and I do not consider nominalizations or relative clauses.

One significant aspect of the relations between these items is that (1) all of them can occur as self-standing items and (2) with a few exceptions, some of which I discuss below, all can co-occur with or without a head noun. I illustrate these points with three types of examples (2-11). The (a) examples give an item with a noun, the (b) an item self-standing, and the (c) examples give the item with one other non-head noun item. The item being exemplified in each set of examples is underlined.

(2) Noun

bishaan ni d'uugame 'the water was drunk'
water fc drunk ps

(3) Demonstrative

a. inni bishaan xaná d'uuge 'he drank this water'
   he water this drank

b. inni xaná d'uuge 'he drank this'
   this

c. inni sun hündá d'uuge 'he drank all of that'
   that all

(4) Possessive pronoun

a. kursii té fide 'he took your chair'
   chair f/your/sg took

b. té fide 'he took yours'
   f/yours

c. teenny tambiràa fide 'he took the other of ours'
   f/ours f/other took
Nominal Relations in Systemic Dependency Grammar

(5) Possessive pronoun
a. hiriyáa xeessan sun hundá hin-féed'u
   friends m/your/pl those all neg-like
   'I don't like any of those friends of yours'

b. xeessan sun hundá hinféed'u
   'I don't like any of those of yours'

(6) "which?"

   a. k'ottoo támíi-n c'ap' se
      'with which axe did he cut (it),'
      axe f/which-inst cut

   b. támíi-n c'ap' se
      'with which one did he cut?'

   c. guddoo támíi-n c'ap' se
      'with which big one did he cut?'
      big/f f/which-inst cut

(7) Adjective

   a. inta la baréed-dúu arkan
      'they saw a beautiful girl'
      girl pretty-f saw pl

   b. baréeddúu arkan
      'they saw a beautiful one'

   c. baréeddúu ta ati féettú arkan
      pretty f f/relm you like saw
      'they saw the pretty one whom you like'

(8) Numeral

   a. loon sedí bitate
      'he bought himself three head of cattle'
      cattle three bought

   b. sedí bitate
      'he bought himself three'

   c. qabbataa sedí bitate
      'he bought himself three fat ones'
      fat three

(9) "all"

   a. binensíi hundíi ní c'ahan
      'all the animals are running'
      animals all fc run pl

   b. hundíi ní c'ahan
      'all are running'

   c. sun hundíi ní c'ahan
      'all those are running'
      those

(10) "other"

a. k'ottoo tambiráa gurgure 'he sold another axe'
   axe f/another sold

b. tambiráa gurgure 'he sold another'

c. guddoo tambiráa gurgure 'he sold another big one'
   big f f/another

(11) Genitive, alienable

a. obbolesa (xan) namicca sún-íi him-béexu
   brother (reim) man that-gen neg-know
   'I don't know the brother of that man'

b. xan namicca sún-íi himbéexu
   relm man that-gen
   'I don't know (something/someone) of that man'

c. afur (xan) namicca xán-áa himbéexu
   four (reim) man this-gen
   'I don't know the four of this man'

(12) Genitive, inalienable

a. k'únc'éen muxá (tan) namicca súníi bobeeese
   bark tree (reim) man that burned
   'this man's share of the tree bark burned'

b. eegéen fardáa tiyya báddé
   tail horse gen my lost
   'my horse's tail got lost'

c. iinníi tan muxa sun-íi te na bobee-ssise
   he relm tree that-gen your me burn-cs
   'he made me burn your share of that tree (bark)'

1.2. The systemic system. The systemic system I propose in (13) and (14)
   to account for the nominal relations is quite simple. Any feature can be
   arbitrarily chosen from the system and each feature has the same value, as
   summarized in the schema in (14). Each feature represents a relation be-
   tween the item named by the feature (noun, demonstrative, etc.) and any oth-
   er nominal feature(s). The superscript "n" in (14) indicates that there
(13) a. \( +\text{noun} = +\text{noun}_1, +\text{dem}_1, +\text{which}_1 \ldots = +\text{noun}_n \ldots \)

b. \( +\text{dem} \)

c. \( +\text{which?} \)

d. \( +\text{possessor pro} \)

\( = +\text{noun}_2, +\text{dem}_2, +\text{which}_2 \ldots \)

e. \( +\text{adjective} \)

f. \( +\text{numeral} \)

g. \( +\text{universal} \)

h. \( +\text{other} \)

(14) where \( +\text{feature } f = f f_1^n (f \neq f_1, f_1 = \text{any other nominal feature(s)}) \)

can be any number of features in the relation, with the proviso that a feature can be chosen only once (coordination not being dealt with), and only a feature's "+" or "-" value can be chosen, not both simultaneously. In some cases a "+" choice from one feature is linked to a "-" choice from another (and vice versa). Such a restriction is represented with a box linking the "+" of one feature with the "-" of another. The choice of +which, for instance, is linked to the choice of -demonstrative. By convention, the choice of +demonstrative is linked to -which, since the choice of +which is preempted by -demonstrative.

In the following subparts of this section I will first discuss general problems that relate to the interpretation of (13, 14) and then will briefly run through the features individually, giving attention to special issues that arise. The "=" sign and the second and third columns of features will be explained in 1.4.7.

1.3. Interpretation of (13) and (14)

1.3.1. Superordinate features. Normally in systemic systems, e.g. Halliday [1976], there is a superordinate feature which controls the entry into the various subsystems, a feature like \( \pm\text{NP} \) for example representing all nom-
inal relations. As I do not deal with relations outside the nominal ones, except briefly in 2.5, it will not be necessary to propose any such cover symbol, if indeed one should be necessary (2.5).

The only abbreviation I use is to refer to "(13)", which means "all the features listed in (13)". This is not to be taken as meaning that "(13)" has the value of a constituency symbol (cf. 1.4.7); it is simply easier to refer to it than to list each individual feature when referring to the set of features in (13).

1.3.2. **Symmetry.** Each feature represents a relation between the item named in the feature and another feature, $f_1$. However, the feature $f_1$ represents the same thing: a relation between the item it names and another item. Each relation then has two aspects, two feature names, derived from each item in the relation. For example, (3a) would be "derived" as follows:

(15) a. i. $\overset{+N}{\overset{f_1}{\text{inni}}} \overset{+\text{pron}}{\text{bishaan xana}} \overset{\text{d'uuge}}{\text{he drank this water}}$

\hspace{1cm} he water this drank

ii. $\overset{+\text{pron}}{\overset{f_1}{\text{inni}}} \overset{+\text{pron}}{\text{bishaan xana}} \overset{\text{d'uuge}}{\text{he drank this water}}$

=iii. $\overset{+\text{pron}}{\overset{+\text{pron}}{\text{inni}}} \overset{+\text{pron}}{\text{bishaan xana}} \overset{\text{d'uuge}}{\text{he drank this water}}$

(15ai) contains a $+\text{noun}$ relation between the noun bishaan (represented by the feature $+\text{noun}$) and a demonstrative (the arbitrarily chosen $f_1$). The demonstrative, in turn, has its feature name $+\text{pron}$, and is in a relation with the noun bishaan ($= f_1$, relative to the $+\text{pron}$ frame).

Similarly with (15b = 3c), where sun and húndá each are in a relation.

(15) b. inni $\overset{+\text{pron}}{\text{sun}} \overset{+\text{pron}}{\text{húndá}} \overset{d'uuge}{\text{he drank all of them}}$

\hspace{1cm} that all
The representation of the relations can be further collapsed as follows.

(16) a. 

    +N  
    +dem  

    Innifi bishaan xaná d'uuge

b. 

    +univ  
    +dem  

    Innifi sun húndá d'uuge

The line connecting the items in a relation will bear as many names as there are items in the relation(s). There is no limit to the number of items that can be in a relation, up to the limit of relations that are specified in (13). For instance, (5a) has the representation in (17a).

(17) a. 

    +universal  
    +dem  
    +pssr pro  
    +N  

    hiriyaaxeessansunhúndáhinféed'u

'I don't like any of those friends of yours'

In this case the $f_i$ value of the +N relation is represented by three features, +pssr pro, +dem, and +univ, and similarly, since the relations are symmetrical within this framework, each of these features has a relation to each of the other items. (17a) collapses by convention to (17b).

(17) b. 

    +universal  
    +dem  
    +pssr pro  
    +N  

    hiriyaaxeessansunhúndáhinféed'u

This system gives a higher degree of interconnectedness among nominal relations than is usually recognized, though I will forego defense of this position until after I have described the data in greater detail.

1.3.3. "-" features. The "-" choice represents the lack of a relation. In (17 = 5a) "+" choices were made for +noun, +pssr pro, +dem, and +universal,
and "-" for the rest (adjective, numeral, possessor noun). The choice of these features is free, within limits described below, so for example, one could add an adjective or numeral relation to (17). In representing structures I will follow the convention of only representing actually occurring relations, which means that usually only "+" features will be marked on the structural diagrams. If it is necessary to represent "-" choices, they will be marked as follows:

(18) a. +f
     item -

b. (= 2) +N
     innii bishaan - d'uuge

In passing it can be noted that if all "-" choices are made in (13) the system will generate nothing. It might thus be necessary to add a stipulation that at least one "+" value be chosen, though it could also be that in some contexts it may be necessary to specify a NR with no overt realization, i.e. where only "-" choices are made. For instance, relative clauses have an obligatory nominal gap in them, signaling the extraction site.

(19) mannii (xan) isaan 0 jaaran d'eeraamih
    house (relm) they 0 built tall neg
    'the house which they built is not tall'

A fuller treatment of such constructions is outside the scope of the present study, however.

1.3.4. Transitivity convention. One important formal convention needs to be added. I call it the transitivity convention.

(20) Transitivity convention

\[
\text{if } x \rightarrow y \text{ and } y \rightarrow z \text{ then } x \rightarrow z
\]

If x is related to y and y to z, then z is related to z.

As currently described, (17a) could be accounted for as follows.

(21) +N +pssr +dem +univ
    hiriyaa xeessan sun hunda -
The feature +noun introduces a noun and a relation to another feature, arbitrarily chosen as +pssr pro; this in turn introduces a possessor and a relation to another arbitrary feature, +dem, which introduces a demonstrative and another feature, +universal, which is related to "-" choices.

What I claim, however, is that all of the items in (21) are related to each other (cf. 17), and to ensure this formally I assume the transitivity convention. In (21), if +noun, hiriya\text{\textquoteright}a, is related to +pssr pro, xeesaan, and xeesaan to +dem sun, then +noun and +dem must also be directly related. Recall that an item can contract relations with as many items in the network as exist, the transitivity convention working to ensure that structures like (17) rather than (21) are produced.\footnote{A different way of defining the interrelationship of items, with the same results, is to require that as soon as a feature is chosen, then it must be related as "+" or "-" to all other features in the system (which might be termed the "exhaustion principle").}

1.3.5. Symmetry or asymmetry. At this point I would like to address one basic question that pertains to the formalism and the claims made about working without the asymmetric notions of head and dependent. In particular, it may appear that I am letting the notion of head in via the back door in that each feature represents a relation between a lexical category and another feature. It may seem for instance, that in the relation,

\[
(22) \begin{array}{c}
\text{+N} \\
\text{bishaan sun (+dem, f}_1\text{)}
\end{array} \quad \text{'that water'}
\]

there is in fact a head item, namely the one named by the feature, i.e. the noun bish\text{\textacute{a}a}.

This can be answered in two ways. First, given the conventions for generating structures, it would be a special kind of asymmetry, since (22), for example, is an incomplete structure. As soon as +dem as \text{f}_1 is selected it will (either via the free choice of its \text{f}_1 value, or via the transitivity convention) be related in turn to +N. Assuming for instance that the feature +dem has for its \text{f}_1 values all "-" choices,
then via the transitivity convention (20) \(+\text{N}\) also becomes related to the ",-" feature.

and now since \(+\text{dem}\) is related to "-" and \(+\text{N}\) to "-", \(+\text{dem}\) is also related to \(+\text{N}\) giving

(Note that the \(f_1\) value associated with \(+\text{dem}\) cannot be \(-\text{N}\) since a "+" and "-" choice cannot both be selected.)

In the final structure there is no obvious way to identify a single head, or at best one has to say that each item is head to the other which is tantamount to not recognizing a head at all.

To put this first point differently, the schema in (14) represents a relation between a lexical item, the one named by the feature, and another feature, \(f_1\). This other feature also represents a lexical item plus a relation with another feature, \(f_1\).

As a second point, in (13) one can begin generating a structure by choosing a feature anywhere in the system. The choice of \(+\text{dem}\) can lead to the establishment of a relation with \(+\text{N}\) and vice versa. The notion of temporal (and logical) order here is irrelevant and is introduced only because exemplification in a written text requires that one feature be explained before another.
This contrasts with standard dependency grammar, e.g. Robinson [1970], where the generation of a structure begins with the specification of the head, with the dependent necessarily following.

1.4. **Individual features**

1.4.1. +Noun, e.g. (2). This represents the choice of a noun (cf. 18b).

1.4.2. +dem, +which?, e.g. (3, 6). The complete paradigm for demonstratives is the following:

<table>
<thead>
<tr>
<th>gender</th>
<th>number</th>
<th>case</th>
<th>demonstrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>m</td>
<td>sg</td>
<td>nom</td>
<td>xuni</td>
</tr>
<tr>
<td>m</td>
<td>sg</td>
<td>acc</td>
<td>xana</td>
</tr>
<tr>
<td>m</td>
<td>pl</td>
<td></td>
<td>xanneen</td>
</tr>
<tr>
<td>f</td>
<td>sg</td>
<td></td>
<td>suni</td>
</tr>
<tr>
<td>f</td>
<td>pl</td>
<td></td>
<td>tana</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tanneen</td>
</tr>
</tbody>
</table>

Demonstratives do not co-occur with xâmi/tâmi (m/f) 'which', and this fact is represented directly in (13) by linking the choice of +which? with -dem.

1.4.3. +possessive pro, e.g. (4, 5). The paradigm for possessive pronouns is the following:

<table>
<thead>
<tr>
<th>gender</th>
<th>number</th>
<th>pronominal form</th>
</tr>
</thead>
<tbody>
<tr>
<td>m</td>
<td>1</td>
<td>xiyya</td>
</tr>
<tr>
<td>m</td>
<td>2</td>
<td>xan isâa</td>
</tr>
<tr>
<td>m</td>
<td>3</td>
<td>xeennya</td>
</tr>
<tr>
<td>f</td>
<td>1</td>
<td>tiyya</td>
</tr>
<tr>
<td>f</td>
<td>2</td>
<td>tan is‘i</td>
</tr>
<tr>
<td>f</td>
<td>3</td>
<td>teennya</td>
</tr>
</tbody>
</table>

The third person pronouns are marked by the relational marker xan/tan under conditions discussed in 2.7.

1.4.4. +adjective, e.g. (7). Adjectives fall into five classes according to their gender form.

(25) a. invariable: gaarîi 'good', guutuu 'full', fagôô 'far'

   b. m ’-âa, f ’-tûu: gabbât-âa/gabbât-tûu 'fat',
   jâb-âa/jâb-dûu 'strong'
c. m '¬-āa, f '¬-ōo: gûdd-āa/gûdd-ōo 'big',
dīkk'-āa/dīkk'-ōo 'small'
d. m -cca, f '¬-ttī: gurraa-ccā/gurrāa-ttī 'black'
e. m -esa, f '¬-ttī: duresā/durēttī 'rich',
hiyysā/hiyyēttī 'poor'

Note that self-standing adjectives can have human or non-human referents.

f. d'eereaa sūn arke 'he saw that tall (man/building etc.)'

1.4.5. +numeral, e.g. (8). Numerals occur with and without a suffix ending in -ānī/-ēenī, which would appear to indicate some sort of collectivity, or a more intimate, definite connection between the entities than numerals not so marked.

(26) lam nī d'ufan 'two are coming'
two fc come pl
lam-ēen nī d'ufan 'the two are coming'

Other members of this paradigm (though not taking the -Vnī suffix) include heddūu 'many' and laccūu 'both'.

1.4.6. +universal, +other, e.g. (9, 10). The words hundā/c'ufá 'all' and the words xambirāa/tambirāa (m/f) 'other' do not co-occur. Hence, the choice of +other is linked to -universal. The words hundā/c'ufá mean a collection of individuals rather than the whole of a single entity (like a door).

1.4.7. Possessors. The final features specify non-pronominal possessive relations. A noun can have up to two possessors, as in (12a = 27a).

(27) a. k'únc'ée muxā (tan) namicca sūn-īi 'that man's tree bark'
bark (f) tree relm (f) man than-gen

These possessors are introduced by the features to the left of the "=" sign in (13). The "=" sign thus represents a possessive (genitive) relation.
The two possessors, _noun₁, _noun₂, etc. in the second column correspond to some degree with inalienable and alienable possessors, though these two categories are too complicated to be treated in any formal detail here. They allow the same features specified on the left of the "=" sign to be re-introduced, as is necessary for nominal possessors. Within a constituency these would have the structure of (28a), and in a dependency one, (28b).

Neither of these two representations are feasible here because neither constituents nor heads are recognized. Instead, what is claimed is that between a possessed NR and a possessor NR all of the items in each are related to each other. Example (11a) for instance has a schematic representation as in (29a), conventionally represented as in (29b):

'a +N +N +N = +N +N
+N = +dem
-x = -x

obbolesa namicca sün-fi
brother man that-gen
'the brother of that man'
The word obbolesa is in the +noun= relation with namicca and sünфи; namicca is in the =+noun relation with obbolesa, sunфи in the =+dem relation with obbolesa, and namicca and sünфи are related as +noun and +dem with each other. Formally the demonstrative relation between sunфи and obbolesa is distinguished from the demonstrative relation between namicca and sünфи by the fact that the former includes the "=" symbol in its specification while the latter does not and similarly with other relations. The "=" symbol serves to keep the two types of relations apart and is a notational device that will be used later. Its status as a constituency marker is discussed at the end of this section.\(^5\) The following terminology is employed: items to the left of the "=" sign are 'superordinate' to those on the right, which are 'subordinate'. The symbol "x" stands for any of the features to the right or left of the "=" sign.

The fact that all items in each NR are related to each other follows in this system from the choice not to give heads a special status, so, for instance, in (29) namicca has no special priority over the demonstrative sünфи to forming a relation with obbolesa. One advantage of this representation concerns headless possessors, like that in (30):

---

\(^5\)In an example like Ibon leméen sun-фи 'the cattle of those two' the possessed noun contracts two relations, one with leméen, one with sunфи. On the diagrams I will not represent each individual relation. (i) is thus conventionally represented as (ii).

(i)  
+ N = + num
+ N = + dem

(ii)  
+N
= + num
= + dem

\[\text{cattle} \quad \text{two} \quad \text{those-gen}\]

\[\text{Ibon} \quad \text{leméen} \quad \text{sun-фи} \quad \text{Ibon} \quad \text{leméen} \quad \text{sunфи}\]

Note that there are as many "=" symbols joining different NR's as there are items in each relation. That is, there is no single "=" sign that represents the subordinate NR here because each item in the subordinate NR has its own direct relation to the +noun relation in the superordinate NR. What the = sign does is to allow the system in (13) to be related to another such system.
Since all elements of the two NR's are in a direct relation, if the lexical noun should not occur, the other elements of its NR still form direct links with the possessed NR. No special mechanism is needed to maintain the relation between the two sets of NR's as it is where heads are given a special status. I argue this point further in 3.1.

This approach to the representation of NR-NR relations may appear less unorthodox when the following two points are considered. First, there certainly is no objection, within the dependency tradition, to postulating a direct link between possessed and possessor lexical nouns, as in obbolesa namicca 'the brother of a man'. Secondly, it has been suggested (cf. discussion in section 3.1) that in non-headed constructions one of the dependents assumes the status of derived head. Thus, (30) might be represented as (31):

(31) lemeen H
     |      
     sun'ì dep

If (31) is accepted, then there is in principle no objection to allowing items normally regarded as dependents of different nouns as having direct links to each other. My representation carries the process only one step further in allowing 'dependents' to have direct links to each other even when lexical nouns are present.

An exhaustive treatment of possession in Oromo is beyond the scope of this paper, though there are six points that I would like to mention:

(a) The rules are recursive, since \(=+_x\) (\(x = \text{arbitrary feature in (13)}\) occurs on both sides of the "=\" sign. This gives examples like the following.\(^6\)

\(^6\)By the transitivity convention (cf. 20) obbolesa and namicca in
(32) obbolesa hiriya namicca sün-fi... 'the brother of the friend of that brother friend man that-gen man...'

(33) a.  
\[ \begin{array}{c}
+\text{N} \\
=+\text{N} \\
=+\text{N} \\
=+\text{dem} \\
\end{array} \]
\[
\text{obbolesa hiriya namicca sün-fi}
\]

(b) The relational marker xan/tan (m/f) obligatorily marks an initial possessor, e.g. (11b), and optionally a non-initial one (11a, c), though in the latter case it is rather rare (cf. 2.7). Example (11b) has the following representation:

(33) b.  
\[ \begin{array}{c}
-x \\
=+\text{N} \\
=+\text{N} \\
=+\text{dem} \\
\end{array} \]
\[
\text{xan obbolesa namicca sün-fi}
\]

'(the thing) of the brother of that man'

(c) The possessor is marked by a high tone and lengthening of a final short vowel (if there is one) on the last item in the last possessive relation. In (33a), for instance, this last item is sün-fi (\(<\) sün-i). The placement of the possessive suffix can be stated quite simply: it occurs on the last item of the nominal relation which realizes the =+x relation without itself being specified for the =+x relation (i.e. is =-x). The identification of the "last item" is a matter for sequencing rules (cf. 1.5). The stipulation that the nominal realizing the =+x relation is not itself further specified as =+x is needed to ensure that in a series of possessives only the last bears the possessive mark.

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(32) would be linked to each other. Whether this is necessary or whether there are limits to the scope of the transitivity convention are questions which are of no immediate concern in the present paper.
Nominal Relations in Systemic Dependency Grammar

(33) (c) +N
    = +N
    = +N
    = +adj
    = +dem

    obbolesa jaalá niitii duréettif sun-fi
    brother friend woman rich that-gen

    'the brother of the friend of that rich woman'

The non-final possessor jaalá does not have its final vowel lengthened.

(d) In possessive chains with two or more possessive NR's it is apparently possible only to form a further relation with the first and last nominal, with certain exceptions. One can have (34a) and (34b), but not (34c).

(34) a. +N
    = +N
    = +N
    = +dem

    hulaa mana namicca sun-fi
    door house man that-gen

    'the door of that man's house'

b. +N
    +dem

    = +N
    = +N

    = -x

    hiriyyaa obboleyn niitii - xana
    friend brothers women - this

    'this friend of the woman's brothers'

c. +N

    = +N
    *=+dem

    = +N

    *hiriyyaa obboleyan niitii - xanneen
    friends brothers woman these
Examples with a numeral occurring with a medial noun were accepted, however.

(35) ilmáan daléeddúu leméen namicca suñí
    children workers two man that-gen
    'the children of that man's two workers'

Possessive pronouns, demonstratives (and relative clauses) do not occur as medial modifiers, however.

The restriction on medial possessive NR's in fact appears to require that only a lexical noun (+noun) be selected.

(36) *meeshaa xana namicca sunii
    things this man that-gen
    *'the things of this (one) of that man'

Technically this can be stated by stipulating that medial possessive NR's require +noun (with free choice for numeral) to be selected. A medial possessor is defined as one occurring to the right of "=" and being further specified for "=". Formally (13) would be amended along the following lines.

(37) \[
    x = +\text{noun} = +x
    = +\text{num}
    = -x
\]

The link around the +noun and +x shows that if -x is chosen (any feature from the set), then +noun must be chosen, while the link between +noun and -x stipulates that (except for +num) other features in the network must be "-". The basis of the restriction requires further investigation.

(e) An item from the possessor NR must occur immediately adjacent to a noun (or numeral if it occurs) from the superordinate. This means that if the superordinate NR has more than a possessive relation selected, further items must occur last.
Nominal Relations in Systemic Dependency Grammar

(38)  
\[ +N \]
\[ +\text{dem} \]

\[ = +N \]
\[ = +N \]
\[ = +\text{dem} \]

\begin{tabular}{llllll}
\text{obbolesa} & \text{hiriyaa} & \text{namicca} & \text{sùn-ìi} & \text{xana} \\
\text{brother} & \text{friend} & \text{man} & \text{that-gen} & \text{this} \\
\end{tabular}

'this brother of the friend of that man'

One has (38) rather than

(39)  
\[ *\text{obbolesa xana hiriyaa namicca sùnìi} \]

In (38) both hiriyaa (= +N) and xana (+dem) form a relation with obbolesa, and it is hiriyaa which is the adjacent item.

I will not attempt a formal delimitation of this construction, though note that it is rare for any but the final NR to occur with a modifier.

(f) Inalienable possessor. There are up to two possessor NR's allowed for in (13), distinguished with subscripts (cf. (12), for example).

(40)  
\[ +\text{noun} \quad +\text{noun}_1 \quad = \ldots \]
\[ \ldots \]
\[ \text{pro} \quad +\text{noun}_2 \]

The order ...xana sunii... in (38) would be prevented by a constraint formulated by Robinson [1970:265] which prohibits an item c from occurring between two items, a and b, when c itself is not directly related to a or b. Her formulation is phrased in terms of heads and dependents, though it can equally be made to apply within the present framework: no relation +c can intervene between +a and +b where +a and +b are on the same side of the "=" sign and +c is on a different side, unless +c is subordinate to +a or +b. In (38) xana (+c) cannot intervene between namicca and sunii (+a/b) because the items occur on different sides of the "=" sign and xana is not subordinate to namicca/sunii. The "unless" clause needs to be added to allow subordinate NR's to occur between items in a superordinate NR, as when in (38) hiriyaa namicca sunii separates obbolesa from xana, which are on the same side of the "=" sign.
I tentatively equate these with alienable and inalienable (noun1) possession. The alienable possessor cannot co-occur with the possessive pronoun, a restriction stated in the stipulation that one of the possessor NR's (the alienable) occurs only if -pssr pro is chosen.

The identification of one of the nominals with inalienability is not without formal and descriptive problems, however. I will mention only one here. With an inalienable possessor it appears that the superordinate lexical noun cannot be ellipted.

(41) k'únc'ée mux-áa tana 'this tree bark'
    bark (f) tree-gen (m) this (f)

(42) *tana mux-áa
    this tree-gen

An inalienably possessed noun can be modified by elements independently of the possessor ( tana f modifies k'únc'ée ; muxáa = m ) but the noun modifier ( tana in this example) cannot take the place of the inalienably possessed noun, as in (42). One can have

(43) tana tan muxáa 'this (bark) of the tree'
    this as tree-gen

though here the meaning would appear to be different: inalienable relations tend to represent generic meanings whereas in (43) the meaning is a particular piece of bark from a tree. The relational marker tan is obligatory in this case.

One stipulation for inalienable possession is thus that +noun be chosen in the superordinate NR. I will not attempt to formalize this point, for there are a good many other facts relating to possession in Oromo which need discussion before an adequate account can be given.

Before proceeding it is relevant to ask whether with the "=" sign one is introducing the idea of constituency into the representation. This question can be answered in notational and conceptual terms. Notationally one could indeed define an NP with a statement like "elements on the same side of the "=" side are a NP". While such a statement does capture the equivalence of NP to the comparable unit in the present system, the fact remains
that "NP" is defined relative to the systemic system under consideration here, not vice versa (cf. fn. 5). The primary formal unit remains the network of systemic relations.

More importantly, searching for an equivalence defined as in the previous paragraph misses the basis on which the syntactic features rest. Each feature represents a different sort of relation; +demonstrative, the demonstrative relation, for example, represents the fact that one demonstrative can form a syntactic relation with other items in (13). In similar fashion =±noun, =±demonstrative, etc., the possessive nominal relations, are simply another sort of relation representing the fact that, with local restrictions, any item can be possessed by another one. That the set of items on either side of the "=" sign correspond to NP's is entirely incidental to their value within the present systemic network.

1.5. Sequencing. Traditionally in dependency grammar sequencing rules are considered separately from those that specify structure [Tesnière 1959:22]. In this section I would like to outline briefly how sequencing might be handled within the current framework.

1.5.1. Head-dependent and universal sequence tendencies. In universal grammar it has been found useful to specify sequence in terms of the categories head and dependent (also known as operand/operator, head/modifier). While not recognizing the categories head and dependent as grammatical primitives, I have argued elsewhere [Owens 1984a:39] that they can be defined operationally on a derivative basis, and accordingly sequencing generalizations can still be made in these terms.

On the other hand, it is not clear how universal sequence generalizations are to be integrated with the grammars of particular languages, not to mention their relation to universal grammar [Coopmans 1984, Hawkins 1985]. For example, Oromo is somewhat unusual in having Dep-H order for the N-V relations and x-positional phrases (obj-postposition), but H-Dep in the noun phrases (N-modifier), a rather rare patterning among world languages [Hawkins 1983:133ff]. In Hawkins' terms one would say that Oromo is cross-categorically not harmonic, though the significance of such a statement for a
grammar of Oromo is not obvious.  

1.5.2. **Pragmatic and semantic factors.** Attention has been given to the factor of length (heaviness) in determining sequence, and this in turn has been related to processing and production strategies by hearers and speakers. Hawkins [1983:98ff.], for example, discusses the role relative clause length plays in determining its position relative to the noun it modifies.  

Less attention, however, has been given to other pragmatic and semantic factors in explaining sequence among nominal items (as opposed to those at the sentence level). Among nominal relations, the categories head and dependent at best only specify the relation between one nominal category, the lexical head noun, and a whole host of dependents. Nothing, however, is predicted about the sequence relations between the dependents themselves [Hawkins 1983:116].  

I think here it will be fruitful to look at the semantic and pragmatic factors in explaining sequence tendencies, factors which obtain independently to a large degree from the categorization of an item as head or dependent (as traditionally conceived; also, I would add, independent of constituency relations). I will give three examples.  

First, with regard to alienable and inalienable possessors, Haiman [1983:793], following a suggestion by Greenberg, suggests that  

"In no language will the linguistic distance between X and Y be greater in signaling inalienable possession, in expressions X's Y, than it is in signaling alienable possession."  

Haiman's generalization pertains to morphological form, though I would suggest it also applies to sequence: inalienable possessors occur closer to the possessed than do the alienable, when they co-occur.  

(44) a. k'unc'ee muxá (tan) namicca sú'n-í 'that man's tree bark' bark tree (f) man that-gen  

b. *k'unc'ee (tan) namicca sunii muxá  

The deviance of (44b) is due to the fact that the alienable possessor (underlined) occurs closer to the possessed than does the inalienable.
Note that the basis of this sequence restriction rests on the notions of (in)alienable possession, not on head and dependent, the more intimate semantic bond between inalienable possessor and possessed being reflected iconically in the sequence.

Secondly, the universal quantifier *hundá* 'all' (cf. 1.4.6) occurs finally among nominal items, and in fact in many, if not most languages [Owens 1984a:32] the lexeme realizing this meaning occurs at the periphery of nominal items. This position surely has a semantic (and iconic) basis: the meaning of 'all' is mirrored in its sequential position, enclosing as it were all the items it quantifies.

Finally, Oromo demonstratives tend to occur at the end of the NR (though before 'all'). This point involves the relation between intonation and pragmatics. The type of sentence unmarked for the introduction of new information is modally unmarked, i.e. non-negative, non-emphatic, lacking verb emphasizers [Givon 1979, Owens 1985b: chapter 1]. In such sentences, new information tends to be introduced pre-verbally. Question words, for example, typically occur pre-verb.

(45) *innfí namicca yòom arke* 'when did he see the man?'

The pre-verbal item must end in a high tone, which it can be assumed indicates information prominence.\(^8\)

One important function of demonstratives is to pick out a certain item, usually new, from a context and to focus attention on it. In this function it is more prominent if it can take high tone, and within the structure of the Oromo sentence, certain items, including demonstratives, take high tone when they occur immediately pre-verb. In other positions, however, they can take low. It thus follows that final position in the NR is appropriate for the demonstrative, since it is here that it can occur pre-verb. Such pragmatic factors thus favor (46a) over (46b) as the unmarked order between de-

\(^8\)Cf. Sasse [1981:261] for a similar situation in Boni, a related Cushitic language.
monstrative and adjective (for example).

(46) a. inni niitii guddoo sün arke 'he saw that big woman'
   he woman big that saw

   b. inni niitii sun gûddôo arke

(46b) is not strictly incorrect, though to make it natural a special context needs to be built up for it, such as in (46c i-iii).

(46) c. i. niitii sün arke 'he saw that woman'
   ii. niitii t'am arke 'which woman did he see?'
   iii. niitii sun gûddôo arke

For (46b) rather than (46a) to be used, the demonstrative sun must already be established as old information (46c i).

Looking at the adj-dem order on a broader comparative basis, there is evidence that in very many languages [Hawkins 1983:119], some Bantu languages being a significant exception, an adjective occurs closer to the lexical noun than does the demonstrative. A pragmatic explanation would appear to be at least partly relevant: the descriptive adjective adds an inherent quality to a noun, changing the essence of the referent itself. The demonstrative on the other hand relates the nominal relations to an external item, either in the pragmatic or linguistic context. Its relatively peripheral position thus iconically reflects its function of mediating between an NR and the wider context. Its position may further tie in with suprasegmental marking of new information, as I sketched above for Oromo.

In all three examples sequence is determined by factors independent of an item's status as "head" or "dependent".

1.6. The relational value of features. One final aspect of the present analysis should be discussed. This is the decision to regard features like +noun, +dem, etc. as inherently relational. This runs counter to a by now well-established tradition in which such features, if used at all, represent individual entities rather than relations.

The inspiration for using features to represent syntactic items most
probably came from segmental phonology, where features like +nasal represent individual segments. This occurred at a time when phonologists were generally working within a segmental framework. As features were introduced into syntax they similarly came to represent the syntactic analogue of individual segments: +noun = a noun, +dem = a demonstrative, and so on.

However, the notion that individual segments exist in syntax is a fiction. Syntax by definition involves relations between items and a unit like "noun" exists only relative to one grammatical structure or another (cf. 2.5.2). This point of course is accommodated in all theories of syntax. In constituency terms for example nouns and other nominals are necessarily related to other items through branching tree structures. In dependency grammar, Hudson's [1976] version for instance, items are related to others through sister dependency rules, and so on.

In the present grammar the relation of one nominal to another is encoded directly in the feature that represents it. The feature +noun for example represents not only the unit "noun", but also its relation to some other item(s). I do not say that the present grammar is better than others because of this representation. What I would emphasize, though, is that it is not a legitimate objection to the present analysis to say that a feature like +noun is not relational. It may or may not be, depending on the overall construction of the grammar.

2. Agreement and Governance

This completes the basic exposition of Oromo nominal relations treated in systemic dependency terms. One notable aspect of it is the treatment of "headless" relations (= NR's with no lexical noun, where -noun is selected), which in this grammar are generated directly without there ever having been a syntactic "head" (+noun) present.

Contrasts such as the following might appear to argue against this approach.

(47) a. tîyya tûn gâarii f/my f/this good 'this of mine is nice' (f)

b. xîyya xûn gâarii m m 'this of mine is nice' (m)
The difference between the two is that the first refers to a feminine noun, the second a masculine. If these nouns are not in some sense present in the structure, how is agreement to be accounted for? Rather than answer this question directly, I will discuss what is understood by the term "agreement" and what the notion of "determinant" of agreement means. I will suggest that agreement phenomena simply indicate that certain items are in a relation to each other, without requiring us to confer a special status ("headship"/"determinant of agreement") on one of them.

2.1. Agreement. Agreement is often assumed to require the recognition of a syntactic primitive, a determinant which assigns the agreement categories to the items it is in concord with (cf. Zwicky [1985:7-9,15]). The determinant, a noun (argument), carries inherent properties like gender which may also be manifested in other parts of a NR [Lyons 1969:241]. In this view the Oromo noun would assign gender and perhaps nominative case (cf. 2.5) to its modifiers.

(48) niiitfi-n bareed-duu-n tan bëettu tun n̄ d'uf-ti
woman-n pretty-f-nom f/relm know f/this fC come-f
'this pretty woman whom you know is coming'

2.1.1. What is meant by determination? First it is relevant to clarify what it means to "determine" concord. It could, for instance, be taken in a fairly literal sense that the determining item (head/determinant) actually assigns certain morphological forms to others in the manner of feature copying rules [Postal 1970].

However, if this were the case one would expect that every item in a relation should exhibit the agreement in question, since the determinant requires a particular form in the categories it is related to. This, though, could not be correct since there are a number of dependent items in Oromo, i.e. any items other than +noun, which show no gender agreement, e.g. gender invariant adjectives (25a), even in paradigms which generally do exhibit agreement. If a determinant literally assigned a form, then it would do so to all relevant items. That it does not indicates that agreement is, as the name suggests, a two-way street where all members of the relation must be
morphologically capable of agreeing. In this sense agreement is a symmetrical relation.

2.1.2. Arguments, functors, and morphological form. Keenan [1974], summarized in Gazdar and Pullum [1982:30], argues (1) that arguments (nouns) are opposed to functors in being referentially central and that it follows from this that (2) they determine the morphological form of the functors. While I agree with the first part of this statement, I do not think the second part follows. Gazdar and Pullum [1982:30] express the link between the two parts of the statement as follows: "The morphological form of functors may vary with the form of an argument, but not vice versa" (similarly, cf. Hudson [1984:78]). For Oromo this generalization is disputable from two perspectives. On the one hand, starting with surface morphological forms one finds noun pairs like obbolesa/obbolëttii 'brother/sister' with m/f pairs of exactly the same form as adjectives like dur-esa/durëttii (cf. 25e). More generally, there is a consistent correlation between vowel height and length on the one hand and gender on the other [Owens 1985b:95, 224]: the final non-low long vowels /e:, i:, u:, o:/ nearly always signal feminine nouns; low vowels /a:, a/ and the short final vowel /i/ nearly always signal masculine.9 With this predictability the following types of statement can be made: given the masculine adjective form jabåå 'brave', the noun will end in a low vowel or /i/; given the feminine adjective jabdûu it will be non-low. Of course, one can also make the reverse type of prediction. For example, given a masculine noun a proximate demonstrative will begin with x-; given a feminine noun it will begin with t- (cf. 1.4.2).

It might be objected in the above examples that the predictions deriving from a given adjective form are less precise than those from a noun. Given a feminine adjective all one can say is that the final vowel on the noun will be long and non-low, without being able to specify its exact quality. To do

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9 A consistent exception concerns nouns denoting feminine humans, where gender is determined naturally, e.g. intala 'girl' (f), adaadâa 'father's sister' (f).
this one needs lexical information provided by the root itself. However, one has precisely the same problem in using a noun to predict the form of an adjective. Given a feminine noun one cannot know the exact form an adjective will take without referring to the lexical class of the adjective (cf. 25).

It is true that there are languages such as French or German where this mutual predictability does not work so well, though even in these it is not strictly the case that gender and morphological form of the nouns are arbitrarily related (cf. Zubin and Koepke [1981]).

In any case, the fact that in some languages, like Oromo, gender in nouns and certain modifiers co-vary is enough to cast doubt on a syntactic theory which relies on this assumption to justify the recognition of a category like "head" (= head noun, argument) to account for syntactic agreement.

Secondly, it might be more interesting to re-phrase the matter in terms of roots, rather than surface morphological forms. In Oromo there are some roots which occur in a wide range of syntactic classes, generally in different morphological form for each class, and there are others which are restricted to one class.

(49) a. d'eer 'TALL' d'éer-áa 'tall m adj' d'éer-túu 'tall-f'
   d'éer-at 'become tall' d'éer-es 'make tall'
   d'éer-enýá 'tallness' d'éer-áccúu 'becoming tall'
b. obbo I 'SIB' obbol-ësá 'brother'
   obbol-éettíi 'sister'
c. d'ax 'ROCK' d'ax-áa 'rock'

Here it turns out that roots which are restricted to a single class tend to be nouns (arguments), whereas those which exhibit a range of possible forms typically include adjectives. The generalization, which I have not statistically verified, might then follow that roots which can have a wide range of morphosyntactic forms are those which typically occur as modifiers, as with d'éer. Conversely, those which have a single form are typically nouns (arguments), as with d'ax.

However, this approach takes one afield from Gazdar and Pullum's gener-
alization in two ways. First, it is only a tendency at best, since there are roots which are realized only as nouns, yet which vary in form (obbo\-). The question becomes one of statistical inclination rather than of categorical definition.

Secondly, even the roots which have a wide range of forms have at least one noun form, e.g. d'eerenyà, so these would provide no direct link to Gazdar and Pullum's approach, which rather would appear to rely on an a priori alignment of the argument/functor distinction with morphological form.

2.3. **A rule for agreement in systemic dependency grammar.** At this point it is appropriate to introduce the gender agreement rule for systemic dependency grammar.

\[(50)\text{ Agreement rule: Items on the same side of "=" agree in gender (m/f).}\]

The following points are relevant:

(a) The condition "the same side of "=" guarantees that between two NR's separated by "=" there is no agreement. Items in a possessor phrase have agreement defined according to their internal makeup, for example.\(^{10}\)

(b) **Agreement** is to be taken as an instruction to the morphological component to provide appropriate forms. The content of this is beyond the scope of this paper, though I would note that there would be provision to capture generalizations relating to form, e.g. vowel height and consonant quality (cf. 2.1.2). Further, **Agreement** as a general condition can be overridden by the particular exigencies of certain forms, like morphologically invariant ones.

(c) **Agreement** is a reflex of a more general principle, namely that items in a relation may mark that relation morphologically. An interesting question to ask (here it is left unanswered) is why this is manifested sometimes by agreement (sharing of features) and at other times by government (case marking on a single member of the relation). A number of relevant points suggest themselves, e.g. agreement often occurs between items with the same referent, as in a NR, whereas government involves items with different referents, V + noun, noun + possessor noun. One point I would make, however, is that I see no reason at this point to accept the notion of "determiner of agreement/government" as a primitive notion.

\(^{10}\)Oromo also has number agreement, though this is mainly restricted to
(d) Items in a relation in systemic dependency grammar are directly related to each other, and thus can be considered sisters. Agreement rules will thus always be between sisters.

At first sight this last point recalls Gazdar and Pullum's [1982:31] stipulation that within a constituency framework agreement should be restricted to sisters, items introduced by the same rule. There are two points to note here.

First, this stipulation counts as a restriction on the form of agreement rules only within a constituency grammar, where, for instance, it would rule out agreement between "great aunts" and "great nieces". In dependency grammar, however, sisterhood would appear to be the only realistic way of stating the scope of agreement, since any other dependency lines (except sisters) would not connect the agreeing items.

Secondly, a closer look at the domain of Gazdar and Pullum's agreement rule shows that effectively it collapses agreement in two different contexts: that between phrasal categories as in $[\text{NP} - \text{VP}]_S$ (subject-verb agreement), and that between lexical categories, as in $[\text{det} - \text{adj} - \text{N}]_{\text{NP}}$ [Gazdar and Pullum 1982:32]. This does not contradict their Control Agreement Principle (CAP), though it can be asked whether some sort of finer distinctions shouldn't be drawn here. Note that the two rules given in this example have different morphological exponents.

In the NP relation all the constituents of the NP, e.g. det, adj, and N, can share a morphological category like "plural" or "gender", as in Oromo. However, I believe that one never finds comparable agreement among the $[\text{NP} - \text{VP}]_S$ constituents because in the VP part of the relation it is only the verb that is morphologically marked for agreement with the subject. Other VP constituents, like objects and adverbs, never show agreement with the subject NP. In Oromo, for instance, there is gender agreement between determiner, adjective, and noun in the subject on the one hand and between subject and verb on the other, but this does not extend to the object. The contrasts can be illustrated as follows.

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lexical co-occurrence choices. Its nominal elements have only a rudimentary morphological number system, which I will not deal with here (cf. Owens [1985b:93ff.] and Andrzejewski [1960] for an identical situation in the Booran dialect).
(51) subject - verb gender (and number) agreement

object does not participate in this agreement

case + gender agreement

[[[niit'fin] [bareed-důu-n] [tun]]NP [[[namicca xáná]NP arki-te]VP]X
woman-nom pretty-f-nom f/this man m/this saw-f

'this beautiful woman saw this man'

The noun shares agreement categories (gender, case) with all other members of the NP (adjective and demonstrative) whereas in the VP only the verb agrees morphologically with the subject NP, and other VP constituents are excluded from agreement with the subject.¹¹

The point of this observation is to suggest that it is misleading to speak of NP-VP agreement, when in fact only one VP constituent, the verb, can participate in the agreement. On the other hand, it is legitimate to speak of agreement in the NP since all NP categories can (potentially) agree. This suggests that a sharpening of the Category Agreement Principle is in order. I suggest the following.¹²

(52) Agreement occurs only between lexical sisters.

This would allow agreement to be defined between det-adj-N, since they are sister lexical categories, but not between NP-VP since neither are lexical categories.

What (52) leads to is the adoption of a dependency account of agreement, where the verb, not VP, is related to the subject noun (or nominals, cf. 2.5). Verb, being a lexical category, can agree with the subject noun, whereas since the object bears no direct relation to the subject noun, no agreement

¹¹One may find V-Obj agreement as well, e.g. in Hungarian and various Bantu languages, but this does not carry over to the subject. Predicate nominals present special technical difficulties, though I do not think they constitute fundamental problems for the present treatment.

¹²Roughly, in Gazdar and Pullum's terminology, it might be stated as follows: if $B_i$ controls $B_j$, then $\text{Agr}_i = \text{Agr}_j$, where $B_{i/j}$ are lexical categories.
between these categories is predicted.

I think (52) allows a more subtle characterization of the linguistic facts than does Gazdar and Pullum's version of CAP, allowing for example a more precise specification of which VP constituents actually agree with the subject NP. Adopting it though leads to a revision in the way syntactic relations are represented.

2.4. Interpretation of referents. It might be maintained that in an example such as

\[(53) \begin{array}{c}
+\text{pssr \ pro} \\
+\text{dem} \\
\text{tiyya} \quad \text{tənə} \\
\text{f/my} \quad \text{f/this}
\end{array}\]

'this thing of mine'

a feminine head noun would need to be referred to in the agreement rule to get the feminine agreement correct, e.g. ablēe tiyya tənə 'this knife of mine'. As the rule is formulated, however, this is not necessary. Rule (50) says that demonstrative and possessor pronoun (among other items) agree in gender. In (53) both items are feminine and therefore are accounted for correctly according to (50). What (50) disallows syntactically is an example like

\[(54) \begin{array}{c}
\text{*tiyya xana} \\
\text{f/my m/this}
\end{array}\]

If one uttered (53) when in fact one was referring to k'ubə 'toe', which is masculine, the mistake would not be one of grammar but rather of pragmatics, since the referent does not match the item it is referred to by. That is, the syntactic rules freely generate structures like (53), but not (54), and leave it to the rules of reference to ensure that (53) is associated with an object classified as feminine.

It might be objected that classifying an item as feminine is an arbitrary grammatical device, and hence the agreement rule, even with an ellipted head noun as in (53), must be a grammatical one. However, it is hard to see how this could be the case within the terms of the present grammar,
which represents all relations on a single surface syntactic level. There could be no syntactic level at which a noun like ablée 'knife (f)' could be 'present' to determine the agreement. In other words, if there is only one level of syntax, then ellipsis must be dealt with some other way.

2.5. **Government and case marking.** I think there is one phenomenon which provides indirect support for the treatment of heads (or rather, neglect of heads) which I advocate here. This is case marking, as understood in more traditional terms, e.g. Lyons [1969:241]. This is an agreement category which cannot be said to be an inherent category of a head noun at all.

In Oromo nominals are marked as nominative if subject, otherwise they are accusative (also termed absolutive).

(55) intal-tǎi d'ēer-túu-n tun nǐ d'uf-tì
girl-f/nom tall-f-nom f/nom/this f/come-f
'this tall girl is coming'

intala d'ēer-tuu tānā arke
girl (acc) tall-f-(acc) f/(acc)this saw
'he saw this tall girl'

Clearly the head noun has nothing to do with determining case assignment: case does not inhere in the noun but rather in the relation of the nominal to the verb. This being so, the role of a head noun in determining morphological form, if assumed, would be diminished.\(^{13}\)

\(^{13}\)It is this fact that probably led the medieval Arabic grammarians to assume that verb-nominal case assignment applied to all members of the nominal relations simultaneously (Owens [1984c], also Blake on Kalkatungu, reported in Hudson [1984:82]).

```
V
  nom nom nom (nom = nominative)
   |
  N adj dem...
```

The present model forces this conception of nominative agreement. Without a head, and assuming an interdependence among nominal relations, any relations contracted with items outside the nominal relation must apply to all simultaneously.
The present treatment is a plus in the account of case marking in "headless" constructions.

(56) xiyya xun hund-fi d'ufan 'all these of mine came'
    my these/nom all-nom came-pl

If case agreement is held to be mediated through a head noun then the head must somehow be reconstructed or a new head must be found, points which are problematic as I will show in 3.1. Such problems do not arise in the present case.

2.6. Two objections to the analysis. The present analysis may appear odd, if only because government is so commonly held to follow from the verb (cf. 2.5). I hope the following remarks will serve at least to establish the plausibility of regarding government as inhering in the relation between verb and nominals rather than as deriving exclusively from one of them.

Semantically I think it is the case that meanings are derived from the combination of V + nouns rather than in the addition of individual parts. In the branch fell off the tree/the branch closed down, different situations, actors and so on are dependent on the total choice of lexical items.\textsuperscript{14}

Grammatically, however, there may appear to be cogent grounds for considering the verb to be the source of government. I will mention two obvious reasons here. First, a verb is related to a constant set of nominal dependents (its actants), whereas a noun is not similarly restricted. Given a verb, we can say how many and what types of nouns can be present with it, but the reverse does not hold [Potts 1978:420]. For example, d'eerat 'become long, tall' will occur with a nominative noun, like xaråa 'road' or

\textsuperscript{14}Hawkins [1983:125], citing work by Keenan, suggests that objects (realized linguistically as arguments) can exist independently of the states and actions they are predicated of. He cites examples like 'the water ran' vs. 'the boy ran' to show that it is the argument which is constant in meaning. Examples like those in 2.6 suggest just the opposite, the argument varying its meaning with the different verbs. Moreover, in an example, suggested by R. Schuh, like the man/*ram contemplated the statue one could as well hold the verb to be out of place relative to ram as vice versa, ram requiring the "-contemplative" verb. Clearly both arguments and functions can be seen as varying relative to each other.
namicca 'man', and ark 'see' occurs with nominative and accusative nominals. Given xarā however, no predictions follow about which verb will occur.

Secondly, since one and the same noun can change according to whether it is, say, subject (nominative) or object (accusative), it might appear that something, i.e. the verb, is effecting this change. Verbs, on the other hand, remain constant vis-à-vis these nominal alternations.

I will discuss the second point first. Abraham [1978:702] suggests that one of the reasons for the development of case inflection was the need for speakers to distinguish the function of different nouns in a sentence. From this viewpoint nominative and accusative are explicable in terms free from the idea of one item determining a case form of another. The determination is rather to be stated as follows: since there are many nominals in a sentence, but only one verb, it is the nouns which have to be formally distinguished.

Logically, of course, these different functions could be distinguished on the verb rather than on the noun. Potts [1978:421ff.] in fact discusses a hypothetical language (Inglish) in which the function of nouns is shown by a combination of verb inflection and word order, with no case marking on the noun, and concludes (p. 429) that the system is not used simply because as more and more nominal complements are added in the clause the whole system becomes too complex to process.

In short, the reason why nominals change form according to their sentential function follows simply from the need for speakers to distinguish members of the same lexical category performing different functions, and it is most convenient for these markings to appear on nominals.

The first point I believe rests on mistaken assumptions about how nominals are conceived. Verbs are often viewed as inherently having a relation to nominals [Potts 1978], but nominals are treated as self-contained entities as it were [Hawkins 1983:125, cf. n. 14]. However, as soon as nominals are equally thought of as occurring in a relation to some other item, hardly an unreasonable assumption given that nominals, like all other linguistic
items, are only used relative to one grammatical structure or another, this point loses its force.

In a language like Oromo nominals in grammatical structures are marked for one case form or another, so rather than think of xaräa 'road' as an isolated form, it should be conceived of as marked for a case (xaräa-n nom, xaräa accusative). When so marked, however, nominals take on predicative force, albeit in a more limited way than verbs. The nominal namiccfi 'man-nom' for example implies a verb like d'eerät 'lengthen, become tall', as well as the occurrence of a verb like ark 'see'; xaräa 'road-acc' implies the non-choice of d'eerät (being intransitive it requires a nominative noun), though it is compatible with ark (which takes accusative object).

This in fact is essentially the system Chomsky [1965:94] uses when he subcategorizes verbs according to the nouns they co-occur with. One may, with Potts, of course hold that it is a less convenient system than locating the locus of choice in the verb, but this is another question.

The system I advocate here in fact avoids the entire issue, and I would argue captures the facts in the most direct way possible: if the choice of noun complements can be conceived of as depending on the choice of the verb, and if equally, verbs can be conceived of as being delimited by the presence of certain nouns, then the obvious conclusion is that neither one really determines or governs the other and that they are in a relation of interdependence.

2.7. Relational marker. Finally in this section I would like to return to the realization of the relational morpheme that marks possessors (cf. 1.4.7), third person pronouns, and relative clauses, i.e. xā(ni)/ta(ni) m/f. These exhibit the same gender agreement as do other nominal elements, though they have not been formally accounted for. Examples of the morphemes are as follows. The first three examples are relative clauses, which I include here only to illustrate the distribution of the morpheme.
Nominal Relations in Systemic Dependency Grammar

Various constructions are marked by grammatical morphemes of different types, for example the genitive case marker discussed in 1.4.7 (c), and in systemic dependency grammar these are specified by the features which characterize the construction they are associated with. The relational marker is one such item.

I have mentioned a basic context for the relational marker in 1.4.7 (b); it occurs optionally unless initial. "Initial" remains formally undefined, as I do not specify sequence (though cf. 1.5). It is to be understood as the very first item in the first NR. The rule for introducing the morpheme is as follows:

(58) a. = +x: relational marker

b. +pssr pro: relational marker

+3

Condition: optional except if initial

The rule has two main parts: (58a) says that the relational marker is intro-
duced in the context of a possessor noun, where it will be recalled (cf. 1.4.7) that possessors are formally defined as items occurring to the right of "="; (58b) says the marker is introduced with a third person pronoun. Conceivably one could state the features in such a way that possessive pronouns are brought together with nominal possessors, e.g. via the category "3 person", though this would take us beyond the scope of the present paper.

These rules apply optionally unless the items are initial (cf. (11b, 56a ii, 56b, 56c i)). Note that the condition in (57) is different from stating the context as a headless NR, where headless is understood as lacking a lexical noun (as somewhat erroneously implied in Owens [1985b:89, 141]). The following examples confirm this:

(59) a. xan lemeen-īi hinfēed'u
    relm two-gen neg like
    'I don't like (the things) of the two'

b. *lemeen-īi hinfēed'u

c. sun (xan) lemeen-īi hinfēed'u
    those (relm) two-gen
    'I don't like those (things) of the two'

In (59a) the possessor, which lacks a lexical noun, is initial and hence requires the relational marker (cf. (59b, 56a ii/iii, 56b, 56c i)). In (59c) the possessor is not initial and the relational marker is optional (also (11a/c, 56c ii)). Note that in (59c) no lexical noun occurs.

These facts I think further tend to diminish the syntactic significance of the lexical "head" noun in that no special mention needs to be made of it in this headless construction.

Rule (58) will link up with the agreement rule (50) by introducing the relational marker into the NR's, i.e. the feature which specifies, for example the possessor, also introduces the relational marker.
(60)  

\[ \text{+dem} \]

\[ = \text{+N} \]

inserted  
\[ = \text{+dem} \]

by (58)  
\[ \text{tan namicca sun-f} \text{tana} \]
\[ f/\text{relm man that-gen f/this} \]
\[ 'this (f) (thing) of that man' \]

3. Advantages

Having established the technical feasibility of having a dependency representation of nominal relations without recourse to the notions of head and dependent and having (I hope) shown that agreement relations need not refer to these notions, I would now like to outline three advantages that accrue to the system. All of the following pertain specifically to advantages vis à vis dependency grammars which recognize heads and dependents, while some also pertain to constituency grammars which utilize the notion of head.

3.1. "Headless" constructions. I think that one of the big advantages is that headless constructions, i.e. constructions lacking a +noun, are immediately accounted for without recourse to any extra apparatus. All constructions, "headed" and otherwise, are generated directly by (13). This point takes on special significance in examples like the following. The possessor NR's are underlined.

(61)  

a. sun (xan) dureya lemeen-\text{i} hin\text{f\'ed'u}  
that (relm) rich pl two-gen neg like  
'I don't like that (thing) of the two rich (people)'

= b. sun (xan) le\text{\'een} durey-\text{\'a} hin\text{f\'ed'u}  
that (relm) two rich-gen  
'I don't like that (thing) of the two rich (people)'

c. = (60a) schematically  

\[ \text{+dem} \]
\[ = \text{+adj} \]
\[ = \text{+num} \]

sun (xan) dureya lemeeni
The "head" noun is ellipted in the possessor, which consists of two nominals, an adjective and a numeral. The structure in (61a) is perhaps the more unmarked sequence, though (61b) is also possible (cf. 1.5.2 for pragmatic factors in sequence).

It is not clear how a grammar which recognizes heads and dependents would deal with the variable order of adjective and numeral (61). In particular, which of the two here should be recognized as head? Robinson [1970:279] (cf. also Tesnière [1959:411]) allows new heads to be created transformationally; but which item should be deemed head in (61)? Robinson gives no criteria for determining this when two or more dependents of the same deleted "head" remain. Hudson [1984:90 ff.] simply allows the first item to be considered head, so that in (61a) presumably dureya would be head, while in (61b) lemēen would be. However, it is hard to see what is gained by this treatment, except to meet the condition that all phrases have heads. Moreover, if one resorts to this one loses the predictive advantage of sequence that presumably derives from the recognition of heads and dependents [Hudson 1984:79, 89], (cf. 1.5.1). If "head" by definition is what comes first, then one can no longer use the notion of head to make predictions about sequence because "head" itself would be sequentially defined.

The present solution not to give theoretical primacy to the notions of head and dependent makes the search for the head in such phrases unnecessary.

3.2. Coherency of relations. The present treatment sees nominal relations as much more coherent than a dependency analysis which recognizes the central role of heads. This is important in particular for "headless" NR's. Generally speaking, the properties of headed and headless NR's are the same—sequence is the same, as is the integrity of an NR as a unit vis à vis other sentential items. I would suggest that this is because the nominal relations form such a closely-knit web of relations that no single item is necessary to hold the unit together.

3.3. Co-occurrence. I might first point out in passing that the present framework offers a distinctive way of representing paradigmatic choices. This can be illustrated with the treatment of xāmī/sun, +which/+demonstra-
tive, which do not co-occur.

(62) *nadd'oo tám sun arki-te
      women which those saw-you

The restriction is stated by making the choice of +which assume the choice of -dem (or +dem assume -which) through the linking convention (cf. 1.2). The co-occurrence is stated directly between the dependents with no reference to the head noun. An admittedly more familiar alternative is to include the mutually exclusive members within a single category, say +determiner. I will not attempt to consider the relative merits of each representation, though I would point out that the present system is convenient in a case like (37) above.15

One instance of co-occurrence restrictions presents certain problems. It appears that if both the first and last NR in a possessive relation occur with a modifier, i.e. are specified as more than +N = +x, then the last NR will contain a demonstrative. The following examples illustrate this:

(63) a. i. ?k'unc'éen muxa d'ééräa guráat-tfí-n ibiddaa-f gáarii
       black-nom tree tall/m black-f-nom fire-dat good

       ii. k'unc'ee muxa d'éeräa xan-åa guráat-tfí-n ibiddaåf gáarii
           tree tall this-gen
           'the black bark of this tall tree is good for the fire'

       b. i. ?mana hiriyaa xiyy-åa xana jaare
             house friend my-gen this built
             '?he built this house of my friend'

       ii. mana hiriyåa xiyya sùn-í xåná jaare
           house friend my that-gen this built
           'he built this house of that friend of mine'

The basis of the restrictions would appear to include the following:

15 The co-occurrence of feature values has a direct formal link to the notions of syntagmatic and paradigmatic. The choice of two (or more) "+" values defines a syntagmatic relation; the obligatory linking of a "+" with a "-" value defines a paradigmatic relation. I think the use of linked features to represent paradigmatic relations has consequences for the feature system of (13) which deserve fuller discussion than the brief mention here.
(a) An alienable possessive NR tends to imply definiteness and hence often occurs with a demonstrative, one of whose main functions is to mark definiteness.

(b) Generally demonstratives occur towards the end of a NR as their unmarked position (cf. 1.5.2), hence their occurrence can signal a break between what precedes and what follows. In (63b ii) for example ṣunή signals that the possessive pronoun and demonstrative on either side of it pertain to different NR's. Given the constraints on possessive word order in Oromo, modifiers can tend to pile up at the end, where the end of one NR may also be the end of another (cf. 1.4.7 (c-e)). The boundary-marking function of the demonstratives thus becomes significant.

The restriction can be stated as follows:

(64) \[ +\text{noun} \]
\[ ... +\text{dem} = -x \]
\[ +x \]

\[(x = \text{any other feature from (13))}\]

This says that if a possessed NR has a modifier, i.e. any item in addition to the +noun, then the last NR (cf. 1.4.7 (c) for notation) must have +dem (a demonstrative). The "..." indicates that the related NR's need not be adjacent, as in (65) where the constraint holds between the first and third NR's.

(65) mana hiriya'ä obboleétți tiyya tán-āa sūn jaaran

'house friend sister my this-gen that built'

As Hudson [1976:46, 48] has noted, it is this sort of co-occurrence restriction that is difficult to state in a constituency framework. There are two (or more) constituents embedded one in the other, identical except that the presence of a certain item(s) in one implies the presence or absence of those in the other. The items are not sisters so the rules cannot be constrained to hold between sister categories, thus, (66a) is a possible structure but not (66b) (cf. discussion in 2.3).
The restriction can be stated fairly simply within the present framework, however.

4. Conclusion

The most important aim of this paper has been to show that all co-occurrence relations obtaining among the nominal relations in Oromo can be described as holding between two or more lexical items. This applies to co-occurrence of morphological form (2.3) as much as to lexical class (1, 3.3). A further claim implicit throughout is that no other types of constructs, e.g. phrase level constituents, excepting sequencing rules, are needed to specify nominal relations in Oromo. This is the basis of a dependency conception of grammar.
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This paper attempts to describe focused structures in Oromo in light of the generative framework of Chomsky [1976, 1981, 1986] and Williams [1977]. The framework recognizes two levels of grammar: sentence and discourse. Focus is believed to be part of the latter. Three types of focus have been identified in relation to the four major syntactic categories of the language. In NP's the feature is realized as /-tu/, in V(P)'s as /hin-/ , and in PP's as /-da/. These elements are not part of the inflectional or derivational morphology of the language. Adjectives use prosodic or structural devices when focused. The structural device is clefting, which the other categories also employ in addition to the elements mentioned above.

0. Introduction

In this paper, I shall attempt to give a formal account of focused structures in Oromo, a Cushitic language spoken in Ethiopia and Kenya, in the generative framework of Chomsky [1976, 1981, 1986] and Williams [1977]. The framework recognizes grammar as a composite of two subparts. These are sentence and discourse grammar. Each is believed to have its own rules and levels of application.

The rules of sentence grammar are factored out of an idealized body of data and make no reference to contexts, spatial, temporal, or cultural. Such rules define the form and meaning of sentences structurally. On the
other hand, the rules of discourse grammar do refer to such contexts, as their relevant terms may not be contained within a single utterance. Such rules may take a set of utterances as their domain of application. They also operate at the level of LF (logical form), where pronominal and anaphoric references and the scopes of quantified NP's are determined in configurational terms. This is in contrast to the rules of sentence grammar, which are believed to operate at the syntactic levels of deep and surface structures (s-structures).

The two rules are sequential in nature. The rules of discourse grammar take as an input structures derived from the application of sentence grammar rules. Williams [1977:106] has assigned this sequential nature the status of a principle which he calls the "strict utterance principle". This principle states that all rules of discourse grammar apply after all rules of sentence grammar.

Focus, like other pragmatic functions such as topic or comment, is a property of discourse grammar in contrast to such grammatical functions as agent, patient, goal, etc., which fall within the domain of sentence grammar. The rules which assign the feature "focus" are therefore part of the rules of discourse grammar and hence operate at the level of LF in accordance with the principle stated above.

In what follows, I shall attempt to show how such rules operate in Oromo and also how the feature is realized in surface structures. The discussion will be as follows: in section 1, I shall discuss types of focus; in section 2, I shall consider the categories which can be assigned the feature; in section 3, I shall deal with the realizations of the feature; and finally, in section 4, I shall examine the assignment of the feature itself.

1. Types of Focus

Before dwelling on types, it is necessary to give a working definition for the term focus, as much of the discussion that follows depends on what is meant by this term. Functional grammarians like Dik [1978:149] define it as "the pragmatic function which represents the relatively most impor-
tant or salient information with respect to the pragmatic information of the speaker and the addressee." Among generative grammarians, it is used in relation to the semantic (structural) representation of a sentence. Such a representation is divided into focus and presupposition. The focus is the part which carries the information which the speaker believes to be new to his addressee. The presupposition constitutes the part which he assumes to be shared both by him and the addressee, and on which they agree as to its truth or falsity (cf. Jackendoff [1972]). What is common to both definitions is the fact that the term is used in relation to information which a speaker believes to be important, and what is important from this point of view of information structure is that which is new. Focus is, thus, a pragmatic/semantic realization of constituents carrying such new information.

With this brief definition, we may now move on to the classification. According to Rochemont [1980] and Culicover and Rochemont [1983], there are at least three types of focus in any natural language. These are the following:

1.1. **Presentational focus.** This type of focus is associated with individuals\(^1\) which are introduced into discourse and of which are made predications of their attributes or properties. This is demonstrated by structures like (1) below where the NP /aannan/ 'milk' is introduced as new information, and a predication is made of its attribute designated by the adjective /adii/ 'white' and the copula /qä/ 'be'.

(1) aannän-i adii -qä
  milk-nom white be

'milk is white'

Here, the presupposition that "something is white" must be taken for granted by both parties of the discourse, as part of their shared knowledge (cf. Epstein [1977]). In other words, this type of focus is not context construable in the sense of Culicover and Rochemont [1983], since it assumes that both parties know the issue involved in the discourse. In view

\(^1\)By "individuals" is meant terms (constituents) that are introduced into discourse as carrying new information.
of this, in the structure above, the subject /aannan/ 'milk' is introduced into discourse as new information and as such is assigned presentational focus, indicated phonologically by the placement of the stress. Such constituents appear in surface structures with phonetic content. In cases where they are not focused, they may be missing from the structures given that they can be recovered from the shared context, grammatical or pragmatic. Hence (2), with a phonologically empty subject:

(2) e hóolaa bit-an-i
    e sheep buy-3pl-pf

    'they bought a sheep'

In (1), it is only the subject NP which is focused. In (3), we have both the subject and the predicate focused.

(3) Túlluu-n hin-duf-a
    T-nom foc-come-3ms²-impf

    'Tulluu will come'

Such structures, where both categories are associated with the feature, constitute what Rochemont and Culicover [1983:154] call dual presentational focus. In such structures, the subject is shown as focused by the stress and the V(P) by the element /hin-/ , which is attached to the verb. This element is a V(P) focus marker and is distributionally restricted to main declarative clauses only. Hence, interrogative, imperative, and all types of complement clauses would be unacceptable if they contained it. Observe the following:

2³ms is the unmarked form. Note also the following abbreviations:

- ncm. nominative
- cs. causative
- pf. perfective
- impf. imperfective
- imp. imperative
- rfl. reflexive
- comp. complementizer
- neg. negative
- foc. focus
- TNS. tense
- AGR. agreement
- f. feminine
- sgl. singulative
(4) a. i. eeňku guf-e 'who came?' who come-3ms-pf
   ii. *eeňku hin-guf-e 'who came?' who foc-come-3ms-pf

b. i. ũaad-u 'eat!' eat-imp
   ii. *hin-ũaad-u 'eat!' foc-eat-imp

c. i. Tulluu-n[ akka ꔷaaluu-n hoolaa bit-t-e] hin-beek-a T-nom that ꔷ-nom sheep buy-f-pf foc-know-3ms-impf
   'Tulluu knows that ꔷaaluu bought a sheep'
   ii. *Tulluu-n[ akka ꔷaaluu-n hoolaa hin-bit-t-e] hin-beek-a T-nom that ꔷ-nom sheep foc-buy-f-pf foc-know-3ms-impf
   'Tulluu knows that ꔷaaluu bought a sheep'

In negatives, there is a homophonous element /hin-/ which forms a discontinuous\(^3\) morpheme with the suffix /-n/ . This /hin-/ is different from the focus marking /hin-/ phonologically, morphologically, and syntactically. Phonologically, the focus marking /hin-/ is characterized by a relatively high pitch, whereas the negative marking /hin-/ is not (cf. Owens [1985]; Gragg [1976]). In the case of the latter, it is the initial syllable of the verb stem to which it is prefixed that gets high pitch [Andrzejewski 1970], as in the examples below:

(5) a. hîn-bit-e 'bought'
   b. hin-bîn-n-e 'did not buy'

Morphologically, the negative marking /hin-/ is part of the word formation processes of the language, whereas the focus marking /hin-/ is not, since focus is a discourse, as opposed to a grammatical category. In other words, the focus marking /hin-/ is not part of the derivational

\(^3\)This is in perfect negatives only. In imperfect negatives, the form of the verb is /hin-stem-u/ as in:

Tulluu-n hin-duf-u 'Tulluu will not come'
T-nom neg-come-impf
morphology of the language. It is not part of the inflectional morphology either, since it is not a realization of such grammatical features as person, number, gender, case, tense/aspect, mood, etc., for which verbs are inflected. The fact that it belongs to neither of the morphological processes of the language supports the argument that it is a discourse rather than a grammatical formative.

Syntactically, the focus marking /hin-/ is restricted to main declarative clauses, whereas the negative marking /hin-/ is not. Consider the following examples:

(6)  a.  hin-ñaad-u  'don't eat!'
    neg-eat-imp

    b.  Tulluu-n [akkā ḋaaltuu-n hoolaa hin-bin-n-e]  hin-beek-a
        T-nom that ḋ-nom sheep neg-buy-neg-pf foc-know-impf
        'Tulluu knows that ḋalltuu did not buy a sheep'

    c.  eeňňũ hin-ʤuf-n-e  'who did not come?'
        who neg-come-neg-pf

These are structures from which the focus marking /hin-/ is excluded as shown in (4) above. Such distributional differences suggest that the two elements belong to different levels of the grammar.

1.2. Informative focus. This type of focus is associated with bare wh-NP's and their responses. The following is an example of the former.

(7)  eeňňũ ḡuf-e  'who came?'
    who come-3ms-pf

Here, the wh-NP /eeňňũ/ 'who' is focused by virtue of its being a question constituent, asking for new information in the discourse in which it forms a part. This is indicated by the stress placed on it. The presupposition on which the question is based is that "someone came". The response to such questions is also characterized by the same feature. Hence, a natural response to (7) above would be (8):

(8)  Tūlluu (ʤuf-e)  'Tulluu came'
    Tulluu come-3ms-pf
In both (7) and (8), the focused constituents do not have the nominative marker /-n/. The structures would be unacceptable if the constituents showed up this element. The reason for this seems to be connected with the fact that the constituents are associated with the pragmatic feature of focus. Such constituents do not seem to be able to show the grammatical feature of case at the same time.

In structures like (7) and (8), the V(P) cannot be focused since structures like (9) are unacceptable:

(9) *eeنىو hin-ቸቬ-ቹ 'who came?'
    who foc-come-3ms-pf

This situation is different from the one observed in connection with presentational focus, where both subject and predicate constituents were associated with the feature without this leading to any problem. The situation here might suggest the intrinsic difference that exists between the two types of focus.

1.3. Contrastive focus. Unlike presentational focus, contrastive focus is context construable. The context may be one of disputation where, for example, a participant in a discourse believes that the information contained in a constituent uttered by his interlocutor is not true, but that something else is. Negative structures and non-bare wh-constituents and their responses contain examples of this type. Consider the following structures:

(10) a. T<ul><i>lluu-n hin-ቸቬ-n-e</i> 'Tulluu did not come'
    T-nom neg-come-neg-pf

b. i. eeنىو-tu ṣ uf-e 'who is it that came?'
    who-foc come-pf

ii. Fayyisaa-tu ṣ uf-e 'it is Fayyisaa who came'
    F-foc come-pf

In (10a), the focused constituent is the subject, Tulluu, as shown by the placement of the stress. The presupposition which constitutes the context to which the focused constituent is related, is the assertion,

<sup>4</sup>These are wh-NP's with the particle /-tu/.
/Tulluu ḍuf-e/ 'Tulluu came', and it is this assertion of Tulluu's coming which is negated and, hence, focused (cf. Givón [1979]).

Example (10bi) is a wh-question put forward in response to (10a). The wh-NP has the suffix /-tu/. This suffix is a contrastive focus marker. The question is based on the wide scope interpretation of (10a) where the negated, and hence focused, constituent is 'Tulluu', rather than the V(P). Based on this interpretation, (10bi) asks the question, 'who is it then that came if it is not Tulluu?.' The response constituent like the questioned

5Eshetu [1989] has assumed that /-tu/ is one of the variants of the copula /ďa/ 'be'. I believe that it is not; it is a focus marker associated with (wh-)NP's which are assigned contrastive focus. The copula can occur as a predicate in both neutral and cleft constructions but /-tu/ cannot. Hence the following:

(i) a. Tulluu-n ḍeerā -ďa
T-nom    tall    be
'b Tulluu is tall'

b. *Tulluu-n ḍeerā -tu
T-nom    tall    ?

(ii) a. Tulluu -ďa hoolāa kan bit-e
be sheep comp buy-3ms-pf
'it is Tulluu who bought a sheep'

b. *Tulluu -tu hoolāa kan bit-e
    ? sheep comp buy-3ms-pf

(iii) a. Tulluu-tu hoolāa bit-e
T-foc    sheep    buy-pf
'it is Tulluu who bought a sheep'

b. *Tulluu -ďa hoolāa bit-e
    be sheep buy-3ms-pf

Furthermore, whereas there is agreement neutralization in clauses where the subject NP has the element /-tu/, as shown in the text, there is no such neutralization in structures where /ďa/ is used. Observe the following:

(iv) a. Čaaltuu -ďa hoolāa kan bit-t-e
be sheep comp buy-f-pf   sheep'

b. *Čaaltuu -ďa hoolāa kan bit-Ø-e
    be sheep comp buy-Ø-pf

Such distributional restrictions suggest that /-tu/ and /-ďa/ are different elements.
The distribution of /-tu/ as a focus marker is restricted to contrastively focused subject (wh-)NP's. This restriction is contrary to Gragg's [1976] claim that it occurs virtually with any constituent. The fact that structures like the following are unacceptable puts his claim into question.

(11)  

a. *Tulluu-n eeňňu-tu arg-e  
       T-nom who-foc see-3ms-pf  
       'who is it that Tulluu saw?'  

b. *Tulluu-n adii-tu barbaad-a  
       T-nom white-foc want-3ms-impf  
       'it is white that Tulluu wants'  

c. *Tulluu-n eeboo-n-tu leenča ajjee-s-e  
       T-nom spear-with-foc lion  
       kill-cs-3ms-pf  
       'it is with a spear that Tulluu killed a lion'  

d. *Tulluu-n hoolaa bit-e-tu  
       T-nom sheep buy-3ms-pf-foc  

Excepting (11d) which employs /hín-/ when the V(P) is focused, all the other constituents with /-tu/ do undergo the process of clefting when focused. For example, corresponding to (11a) above, we have (12) below with the wh-NP clefted.

(12)  

eeňňu -da[_Tulluu-n kan arg-e]  
     who be T-nom comp see-3ms-pf  
     'who is it that Tulluu saw?'  

Unlike /hín-/ which, as we have seen, is restricted to main declarative clauses, /-tu/ can occur with subject (wh-)NP's of complement clauses of all types and also with negative structures as shown in (13) and (14) respectively.

(13)  

a. Tulluu-n [ _akka[ eeňňu-tu hoolaa bit-e ]](hín-)beek-a  
     T-nom that who-foc sheep buy-pf foc-know-3ms-impf  
     'who is it (that) Tulluu knows bought a sheep?'
b. Tulluu-n [ _ akka[ Fayyisaa-tu hoolaa bit-e ]](hin-)_beek-a
   T-nom that F-nom sheep buy-pf foc-know-3ms-impf
   ?'it is Fayyisa that Tulluu knows bought a sheep'

(14) a. maal-tu hin-duf-n-e
   what-foc neg-come-neg-pf
   'who is it that did not come?'

   b. fard-ičča-tu hin-duf-n-e
   horse-sgl-foc neg-come-neg-pf
   'it is the horse which did not come'

From the foregoing discussion, it seems that contrastive focus is shown
by the element /-tu/ with subject (wh-)NP's, and by the process of cleft­
ing with non-subject constituents.

1.2. Categories. In the description of the types of focus, it has been
shown that NP's and V(P)'s are indicated as focused by the elements /-tu/
and /hin-/ respectively and also by phonological means. A question that
may arise from this is whether or not other syntactic categories such as
AP's (adjectival phrases), PP's, and S's can also be focused and if so,
whether or not they employ the above same device to show the feature.

According to Nomi Erteschik-Shir [1986], any category can be focused if
(i) the information contained in it can be denied,
(ii) it can be extracted (dislocated) as in topicalization,
(iii) it can be used to answer a wh-question.

According to these criteria, AP's, PP's, and infinitival clauses can
qualify for focus assignment in this language since they can be denied, ex­
tacted, and used in response to wh-quesitons. Observe the following in
connection with the PP /eeboo-n/ 'with a spear' in (15) and the AP
/bay?e guddaa/ 'very big' in (16).

(15) Tulluu-n [eeboo-n] leenča ajjee-s-e
   T-nom spear-with lion kill-cs-3ms-pf
   'Tulluu killed a lion with a spear'
Focus in Oromo

a. [eeboo-n miti] Tulluu-n leenča aʃʃee-s-e
   spear-with not-be T-nom lion kill-cs-3ms-pf
   'it is not with a spear that Tulluu killed a lion'

b. eeboo-ni [s Tulluu t-leenča aʃʃee-s-e] ]
   spear-with T-nom lion kill-cs-3ms-pf
   'with a spear, Tulluu killed a lion'

c. Tulluu-n [maal-in] leenča aʃʃee-s-e
   T-nom what-with lion kill-cs-3ms-pf
   'with what did Tulluu kill a lion?'

d. eebb-n 'with a spear'
   spear-with

(16) man-ni kun-(i) [bay?e guddaa] -da
     house-nom this-nom very big be
   'this house is very big'

a. bay?e guddaa miti ... šaggaa -da malee
     very big not -be ... nice be but
   'it is not very big ... but (it is) nice'

b. [s man-ni kun(-ni) t-da → Ø] bay?e guddaa
   house-nom this-nom be very big
   lit. 'very big, this house (is)'

c. i. man-ni kun(-ni) [maal] fakkaat-a
     house-nom this-nom what looks-3ms-impf
     'what does this house look like?'

   ii. bay?e guddaa
       very big

If it is the case that PP's and AP's are subject to focus assignment, then the next question to ask is how they show the feature. In contrastive focus, PP's employ the element /da/ . This is demonstrated by the examples in (17).
(17) a. Tuluu-n ulee-әә-n nama rukkut-e
   T-nom stick-foc-with man hit-3ms-pf
   'it is with a stick that Tulluu hit a man'

   b. Tuluu-n әәwee-әә-n leenә aүүee-s-e
   T-nom gun-foc-with lion kill-cs-3ms-pf
   'it is with a gun that Tulluu killed a lion'

In these structures, the element /әә/ is incorporated into the PP's /ulee-n/ 'with a stick' and /әәwee-n/ 'with a gun' to show that these categories are focused. When they are not focused, such categories can appear without /әә/ as in the corresponding (18).

(18) a. Tuluu-n ulee-n nama rukkut-e
   T-nom stick-with man hit-3ms-pf
   'Tulluu hit a man with a stick'

   b. Tuluu-n әәwee-n leenә aүүee-s-e
   T-nom gun-with lion kill-cs-3ms-pf
   'Tulluu killed a lion with a gun'

Focused PP's like /ulee-әә-n/ 'it is with a stick' in (17a) can also undergo the process of clefting when they are emphatically focused. This happens in contexts where the information contained in a focused category such as /ulee-әә-n/ is denied. In such cases, (17a) would appear as in (19).

(19) әә-n-i
    [ Tulluu-n nama kan rukkut-e ]
   stick-foc-with-be T-nom man comp hit-3ms-pf
   'it is certainly with a stick that Tulluu hit a man'
   lit. 'it is, it is with a stick that Tulluu hit a man'

As stated above and also in footnote 5, the element /әә/ 'be' is a

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6 In an earlier version, I argued that /әә/ was a part of the post-positional element /әәn/. A closer examination of more data has now revealed that it is a copula incorporated into PP's to show that they are focused (see also Temesgen [1988]).

7 /i/ is a variant of /әә/ and occurs following stems ending in consonants.
copula in the syntax, because it can occur heading a predicate structure of the type in (20).

(20) Tulluu-n deeraa -da
    T-nom tall be

'Tulluu is tall'

Its incorporation into focused PP's seems to suggest that it has both syntactic and pragmatic functions. In other words, it is an element which belongs to both levels of the grammar.

AP's differ from all categories with respect to the manner in which they show focus. Unlike all the rest, which, as we have observed, employ certain elements to show the feature, they use either the phonological device of stress as in (21a) or undergo the process of clefting as in (21b).

(21) a. Tulluu-n adîi barbaad-a
    T-nom white want-3ms-impf

'Tulluu wants white'

    b. adîi -da [Tulluu-n kan barbaad-u]
       white be T-nom comp want-3ms-impf

,it is white which Tulluu wants'

Regarding clauses, it seems that only infinitivals can be focused by undergoing the process of clefting. Hence (22a) but not (22b) is acceptable.

(22) a. buddeena _PLL-uu -da [Tulluu-n kan barbaad-u]
    bread eat-rfl-ing be T-nom comp want-3ms-impf

,'it is eating bread that Tulluu wants'

    b. ? akka ÇÃOaltuu-n buddeena _PLLat-t-e -da [Tulluu-n kan barbaad-u]
       that _PLL-nom bread eat-f-pf be T-nom comp want-3ms-impf
     lit. 'that ÇÃOaltuu ate bread is (the thing) Tulluu wants'

The questionableness of (22b) suggests that finite clauses cannot be clefted. The asymmetry between such clauses and infinitivals seems to be connected with the nature of infinitivals in Oromo. Such clauses are nominal, i.e. they are NP's categorially though they are sentential structurally.

For example, in /buddeena _PLL-uu/ 'eating bread' in (22a) /_PLL-PLL-uu/ 'eating', which is the head of the clause, is a nominal, lexically derived
from the corresponding verbal /ñaa-t-/ 'eat'. As a nominal, it can occur in syntactic positions associated with bare NP's and, like other such NP's, it displays the appropriate case affix, as in the examples below.

(23) a. [buddeena ːnaa-ːː-ː-ːuu-n] gaarii -ːa
   bread eat-rfl-ing-nom good be
   'eating bread is good'

   b. Tulluu-n [buddeena ːnaa-ːː-ː-ːuu] barbaad-a
   T-nom bread eat-rfl-ing want-3ms-impf
   'Tulluu wants eating bread'

The infinitival clause is in subject position, nominatively marked, in (23a), and in object position in (23b).

On the other hand, finite clauses are headed by (INFL)ection, a non-lexical category, according to Chomsky [1981]. Hence, only infinitivals allow clefting because they are headed by nominals, which are lexical categories.

From what has been observed in this section, it appears that the phrasal categories of the four major lexical categories, namely, nominals, verbals, adjectivals, and pre-/post-positionals are subject to focus assignment. In what follows, we shall consider the realizations of the feature in surface structures.

3. Realizations

As Dik [1978:19] has pointed out, languages may vary in the ways in which they show focus. Some have special markers, others use special orderings, and probably all use phonological means for marking the feature. It seems that Oromo uses all of these devices.

3.1. Particles. It has been observed in the preceding section that the distribution of affixal particles such as /-tu/, /hin-/, and /-ːa/ is restricted to focused NP's, V(P)'s, and PP's respectively. For purposes of illustration, let us compare the following pairs of structures again.

(24) a. i. Tulluu-n hoolaa bit-e       'Tulluu bought a sheep'
    T-nom sheep buy-3ms-pf

    ii. Tulluu-tu hoolaa bit-e      'it is Tulluu who bought a sheep'
      T-foc sheep buy-pf
b. i. Tulluu-n nama ruKKut-a 'Tulluu hits a man'
   T-nom man hit-3ms-impf

ii. (Tullun-n) nama hin-rukkan-3ms-impf
   T-nom man foc-hit-3ms-impf

c. i. (Tulluu-n) eeboo-7a lee'nxa ajjlee-s-e
   T-nom spear-with lion kill-cs-3ms-pf
   'Tulluu killed a lion with a spear'

ii. (Tulluu-n) eeboo-a-n lee'nxa ajjlee-s-e
   T-nom spear-foc-with lion kill-cs-3ms-pf
   'it is with a spear that Tulluu killed a lion'

As stated earlier on in connection with /hin-/ , such elements are not
a part of the nominal or verbal morphology of the language, in the sense
that they are not realizations of such grammatical features as person, num­
ber, gender, tense/aspect/mood, etc. They have, therefore, been recog­
nized as discourse elements (as opposed to grammatical elements) designating
the pragmatic feature of focus.

3.2. Special ordering. By this is meant changing the syntactically derived
patterns of sentences for various communicative effects. The rules which
change such basic patterns are different from those rules which convert D­
structure into S-structure because the latter are syntactic, motivated by
independent principles of UG (universal grammar) [Chomsky 1981]. In fact,
it is on such syntactically derived structures that the former type of rules
operate for the reasons mentioned. Among such rules are dislocation and
clefting. The former is associated with topicalization, whereas the latter
is related to focus.

As shown in the preceding section, all the major categories, with the
exception of verbals, undergo the process of clefting when focused, as il­
ustrated in (25).

(25) a. Tulluu -da[ hoolaa kan bit-e] (NP,s)
   Tulluu-be sheep comp buy-3ms-pf
   'it is Tulluu who bought a sheep'
b. hoolaa -da[ Tulluu-n kan bit-e]  (NP, VP)
sheep-be S\text{Nom} comp buy-3ms-pf
'it is Tulluu who bought a sheep'

c. adii -da[ Tulluu-n kan barbaad-u]  (AP)
white-be S\text{Nom} comp want-3ms-impf
'it is white which Tulluu wants'

d. ulee-n -i [ Tulluu-n kan nama rukkut-e]  (PP)
stick-with-be S\text{Nom} comp man hit-3ms-pf
'it is with a stick that Tulluu hit a man'

e. *buddeena \text{\_aat-e} -da[ Tulluu-n kan goq-e]  (VP)
bread eat-3ms-pf be S\text{Nom} comp do-3ms-pf
? 'it is ate bread that Tulluu did'

The ill-formedness of (25e) might appear to be related to the fact that verbals show the feature \textit{in situ} by employing the element /hin-/ . But this observation is not strong, particularly when considered with the fact that other categories, which also show the feature \textit{in situ}, do undergo the process of clefting without this causing any problem. It seems that the reason for the ungrammaticality of structures like (25e) has to do with the feature [+TENSE], which only verbals are characterized by. The other categories are [-TENSE], and it seems that only they are subject to the process of clefting.

3.3. Prosodic features. Other than the two devices already considered, prosodic features like stress are used to show focus. This is the situation, for example, in presentational focus where the subject of a clause is associated with the feature. In such cases, the VP is assigned a low level stress, as in the following:

(26) nam-\text{\_oon-ni hoolaa bit-an-i} \ 'the man bought a sheep'
man-pl-nom sheep buy-3pl-pf

As stated earlier on, such focused NP's appear in surface structures with phonetic content only when focused. If the focused constituent is a

\footnote{This is the unmarked one in this study.}
complement as in (27) below, the subject may either be missing or associated with a low level stress.

(27) \((\text{name}-\text{on}-\text{ni})\) ḥoolaa bit-\text{an}-\text{ni} \quad \text{'the men bought a sheep'}
    \text{man-pl-nom sheep buy-3pl-pf}

In such structures, the verb also occurs either without /hin-/ or with its reduced form /-n/, which gets encliticized onto a preceding constituent. Hence, (27) above may have the alternative realization shown in (28) below.

(28) \((\text{name}-\text{on}-\text{ni})\) ḥoolaa-n / -hin-/ bit-\text{an}-i
    \text{man-pl-nom sheep-foc buy-3pl-pf}
    \quad \text{'the men bought a sheep'}

4. Assignment

In the preceding section, we have observed the various realizations of focus. In this section, we shall consider the assignment of the feature itself.

Structures with the focus particles /-tu/, /hin-/ , or /-da/ can be treated as having the following S-structure representation.

(29)

At the level of LF, where the assignment is believed to take place, (29) would have the representation shown in (30) below, with the feature assigned to the subject NP Tulluu, for example:

'Tulluu killed a lion with a spear'
The feature [FOC] then manifests itself as /-tu/ in the case of contrastive focus, and as ('') in the case of presentational focus, the latter assigned at the level of PF (phonetic form). The resulting structures would then look like those in (31).

(31) a. Tulluu-tu eeboo-n leenɡa ajjee-s-e
    T-foc spear-with lion kill-cs-3f
    'it is Tulluu who killed a lion with a spear'

    b. Tullu-n eeboo-n leenɡa ajjee-s-e
    T-nom spear-with lion kill-cs-3ms-pf
    'Tulluu killed a lion with a spear'

As in bare-wh-questions and their responses (1.2), there is a process of partial agreement and case neutralization taking place when the focus marker /-tu/ is attached to Tulluu in (31a). This is further demonstrated by the following structures.

(32) a. i. Ḣẹe-n hoolaa bit-t-e
    she-nom sheep buy-f-pf
    'she bought a sheep'

    ii. Ḣẹe-tu hoolaa bit-Ø-e
    she-foc sheep buy-Ø-pf
    'it is she who bought a sheep'

    b. i. Ḫan-i hoolaa bit-an-i
    they-nom sheep buy-3p1-pf
    'they bought a sheep'

    ii. Ḫan-tu hoolaa bit-Ø-e
    they-foc sheep buy-Ø-pf
    'it is they who bought a sheep'

A question which is likely to arise here concerns the reasons why such neutralizations take place. The question is crucial in the sense that the phenomenon is not apparent in the derivation of structures at the syntactic levels. The reason might be related to the level at which focused structures are derived. As stated earlier on, such structures are derived at a post-syntactic level. At the syntactic levels of D- and S-structures, sub-
Subject NP's have to be identified as such by the agreement relation holding between them and verbs. It is this relation which, in fact, licenses them to occur in their positions. At the post-syntactic level, where focus is assigned, that is, after they have been identified in the syntax by agreement elements, the agreement elements may cease to appear since, at this level, the identification of the subject NP's is taken over by the pragmatic feature of focus. In other words, grammatical features seem to get suppressed at the level where pragmatic features prevail.

5. Conclusion

In summing up, we have followed Williams [1977] in treating focus as a property of discourse grammar. We have identified three types of focus and also established the categories to which the feature is assigned. These include projections of all major lexical categories. The realization of the feature has also been described. In NP's, it manifests itself as /-tu/ and as (') in presentational and contrastive focus. In V(P)'s, it is shown by the prefix /hin-/ and in PP's by the element /da/.

Structurally, focus is expressed in the form of cleft constructions. All but verbals undergo this process. The difference between, say, a focused NP with /-tu/ and a similar NP which undergoes the process of clefting is that the former is limited to subject (wh-)NP's whereas the latter is not. In both, the type of focus is contrastive.

It has also been observed that in cleft structures and in others in which the subject NP is contrastively focused, indicated by the element /-tu/, there is a process of case and agreement neutralization taking place. Verbals lose all features of agreement just as in the same way nominals lose their case endings. This we have tried to explain in terms of the levels at which syntactic and pragmatic features operate. It has been suggested that at the discourse level of grammar, syntactic features get suppressed and pragmatic features take off. In other words, constituents which have been identified by syntactic (grammatical) features at the level of sentence grammar get identified by pragmatic features at the level of discourse grammar. Such neutralizations of grammatical features may indi-
cate the level of grammar a particular structure is in.

REFERENCES


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Das Somali ist eine der wichtigsten Sprachen Ostafrikas. Als die offizielle und Nationalsprache der Demokratischen Republik Somalia wird das Somali von mehr als vier Millionen Menschen (die meisten von ihnen Nomaden) gesprochen. Somalisprachige Minderheiten sind auch in Dschibuti (mehr als 40% der Bevölkerung), in Äthiopien (in der Ogaadeen-Region) und in Kenya zu finden.

Das Somali ist eine kuschitische Sprache und gehört als solche zur afroasiatischen (hamito-semitischen) Sprachfamilie.


The Ba’iso makes up one of the many ethnic minorities of Ethiopia. They live on Gidiccho Island and in some villages on the shores of Lake Abaya (former Lake Marguerita) in Southern Ethiopia. The Ba’iso are called “Gidiccho” by the (Guji) Oromo and the Gide’o, the neighbours with whom they are in closest contact. The Ba’iso were originally agriculturists and cattle-breeders, but recently they increasingly participated in trade across the lake with their characteristic boats (wolaabo).

They speak a language belonging to the Lowland Cushitic phylum and forming a unity together with Somali and its dialects and which is also very close to Oromo.

This study is an attempt to establish the kind of relationship existing between Kuliak and Cushitic. The Kuliak languages are spoken in the Karamoja District of Uganda. They were classified in the past as a part of the Eastern Sudanic sub-family of the Chari-Nile branch within the Nilo-Saharan family (cf. Greenberg 1963: 85–86). The Cushitic languages, instead, are prevalently spoken in Ethiopia and traditionally belong to the Afro-Asiatic or Hamito-Semitic language phylum.

The author shows and tries to interpret the fact that Kuliak and Cushitic share a not irrelevant part of their lexicon (mainly basic vocabulary), recurrent sound correspondences and a conspicuous number of morphemes of common origin. The confirmation of these findings could lead to the upsetting of the established classification of the two language families in question. The author tries to give an answer to this problem.