

NOMINAL RELATIONS IN SYSTEMIC DEPENDENCY GRAMMAR*

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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-possessor) 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 = ∫, ́ = 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.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.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

¹One 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.

²I 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],³ 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.

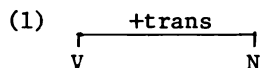
A terminological note is in order before proceeding. Dependency grammar generally recognizes no phrase-level units (Hudson [1984:211ff.] being exceptional). It does, however, describe a set of relations. In this paper I will be concerned with the nominal relations, relations between nominal items (where 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.



1.1. 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

<u>bisháan</u> ní d'uugame	'the water was drunk'
water fc drunk ps	

(3) Demonstrative

- | | |
|-------------------------------------|------------------------|
| a. inníi bishaan <u>xáná</u> d'uuge | 'he drank this water' |
| he water this drank | |
| b. inníi <u>xaná</u> d'uuge | 'he drank this' |
| this | |
| c. inníi <u>sun</u> húndá d'uuge | 'he drank all of that' |
| that all | |

(4) Possessive pronoun

- | | |
|---------------------------------|-----------------------------|
| a. kursii <u>té</u> fide | 'he took your chair' |
| chair f/your/sg took | |
| b. <u>té</u> fide | 'he took yours' |
| f/yours | |
| c. <u>teennya</u> tambiráa fide | 'he took the other of ours' |
| f/ours f/other took | |

(5) Possessive pronoun

- a. hiriyáa xeessan sun húndá hin-féed'u
 friends m/your/pl those all neg-like
 'I don't like any of those friends of yours'
- b. xeessan sun húndá hinféed'u
 'I don't like any of those of yours'

(6) "which?"

- a. k'ottoo támfi-n c'ap'se 'with which axe did he cut (it)?'
 axe f/which-inst cut
- b. támfi-n c'ap'se 'with which one did he cut?'
- c. guddoo támfi-n c'ap'se 'with which big one did he cut?'
 big/f f/which-inst cut

(7) Adjective

- a. intala 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 three bought cattle'
- b. sedí bitate 'he bought himself three'
- c. gabbataa 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 (relm) 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 (relm) man this-gen
'I don't know the four of this man'

(12) Genitive, inalienable

- a. k'únc'éen muxá (tan) namicca súnfi bobeese
bark tree (relm) 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. inníi 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 between the item named by the feature (noun, demonstrative, etc.) and any other nominal feature(s). The superscript "n" in (14) indicates that there

- (13) a. \pm noun $= \pm$ noun₁, \pm dem₁, \pm which₁ ... $= \pm$ noun_n ...
- b. \pm dem
- c. \pm which?
- d. \pm possessor pro
- $= \pm$ noun₂, \pm dem₂, \pm which₂ ...
- e. \pm adjective
- f. \pm numeral
- g. \pm universal
- h. \pm other

- (14) where +feature $f = f \begin{matrix} \square \\ \square \end{matrix} f_1^n$ ($f \neq f_1, f_1 =$ 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 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.

			$+N$		$+f_1$	
			└───┐		└───┐	
inníi	bishaan	xána		d'uuge		'he drank this water'
he	water	this		drank		

ii.

			$+dem$	
			└───┐	
	$+f_1$			
inníi	bishaan	xána		d'uuge

= iii.

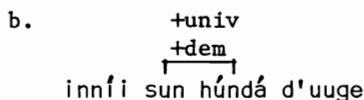
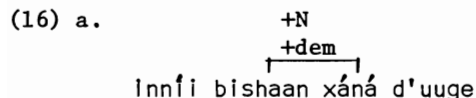
			$+dem$	
			└───┐	
			$+N$	
inníi	bishaan	xána		d'uuge

(15ai) contains a +noun relation between the noun bisháan (represented by the feature +noun) and a demonstrative (the arbitrarily chosen f_1). The demonstrative, in turn, has its feature name +dem, and is in a relation with the noun bisháan (= f_1 , relative to the +dem frame).

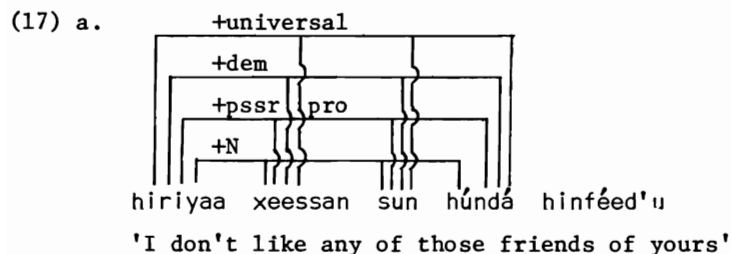
Similarly with (15b = 3c), where sun and húndá each are in a relation.

			$+univ$		
			└───┐		
			$+dem$		
			└───┐		
(15) b.	inníi	sun	húndá	d'uuge	'he drank all of them'
		that	all		

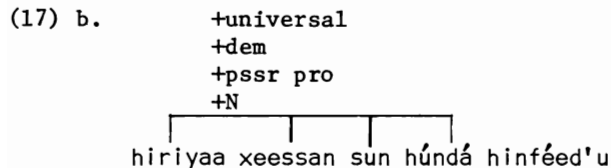
The representation of the relations can be further collapsed as follows.



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).



In this case the f_1 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).



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. $\begin{array}{c} +f \\ \hline \text{item} \quad - \end{array}$ b. (= 2) $\begin{array}{c} +N \\ \hline \text{innii bisháan} \quad - \quad \text{d'uuge} \end{array}$

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) manníi (xan) isáan 0 jaaran d'eeráamihi
 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

$\begin{array}{c} +f \\ \hline \text{if } x \quad y \end{array}$ and $\begin{array}{c} +f \\ \hline y \quad z \end{array}$ then $\begin{array}{c} +f \\ \hline x \quad z \end{array}$
 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) $\begin{array}{c} +N \quad +pssr \quad +dem \quad +univ \\ \hline \text{hiri yaa} \quad \text{xeessan} \quad \text{pro} \quad \text{sun} \quad \text{hunda} \quad - \end{array}$

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, hiriýáa, is related to +pssr pro, xeessan, and xeessan 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.⁴

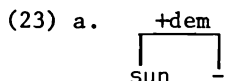
1.3.5. Symmetry or asymmetry. At this point I would like to address one basic question that pertains to the formalism and the claims made about working without the asymmetric notions of head and dependent. In particular, it may appear that I am letting the notion of head in via the back door in that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

(22)
$$\begin{array}{c} \text{+N} \\ \hline \text{bishaan} \quad \text{sun (+dem, } f_1) \end{array} \quad \text{'that water'}$$

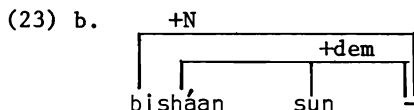
there is in fact a head item, namely the one named by the feature, i.e. the noun bisháan.

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 f_1 is selected it will (either via the free choice of its f_1 value, or via the transitivity convention) be related in turn to +N. Assuming for instance that the feature +dem has for its f_1 values all "-" choices,

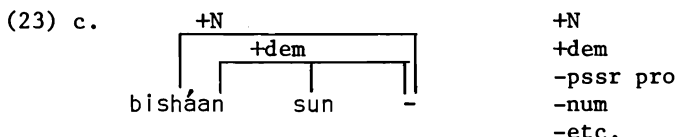
⁴A different way of defining the interrelationship of items, with the same results, is to require that as soon as a feature is chosen, then it must be related as "+" or "-" to all other features in the system (which might be termed the "exhaustion principle").



then via the transitivity convention (20) +N also becomes related to the "-" feature.



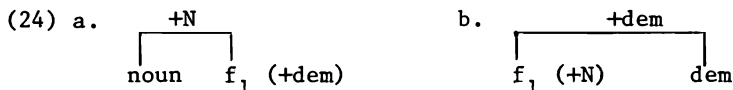
and now since +dem is related to "-" and +N to "-", +dem is also related to +N giving



(Note that the f_1 value associated with +dem cannot be -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 +dem can lead to the establishment of a relation with +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:

	near		far		"other"
	sg		pl		
	nom	acc			
m	xuni	xana	xannéen		xáani
				suní	
f	ṭuni	ṭana	tannéen		táani

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

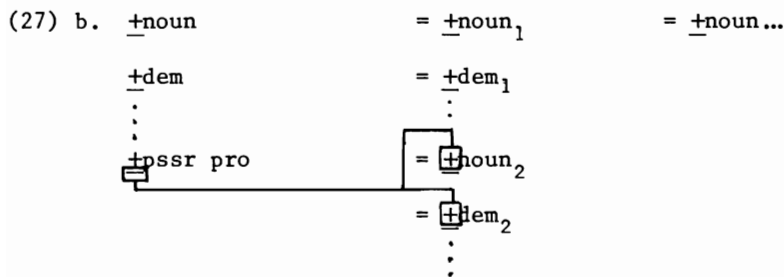
1.4.3. +possessive pro, e.g. (4, 5). The paradigm for possessive pronouns is the following:

	sg			pl		
	1	2	3	1	2	3
m	xiyya	xe	xan isáa/ xa' isáa	xeennya	xeessani	xan (xa') isaaníi
f	tiyya	te	tan isíi/ ta' isíi	teennya	teessani	xan (xa') isaaníi

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.

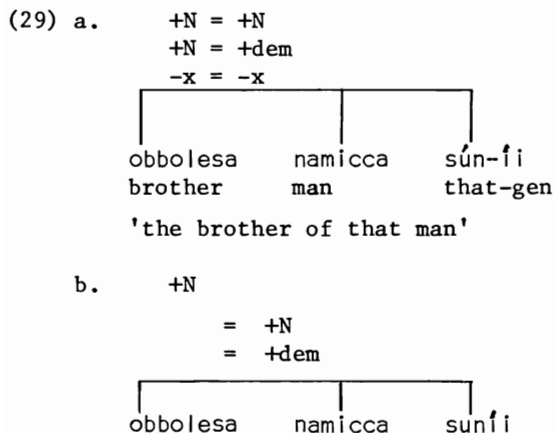
- (25) a. invariable: *gaaríi* 'good', *guutúu* 'full', *fagóo* 'far'
 b. m '-áa, f '-túu: *gabbát-áa/gabbát-túu* 'fat',
jáb-áa/jáb-dúu 'strong'



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).



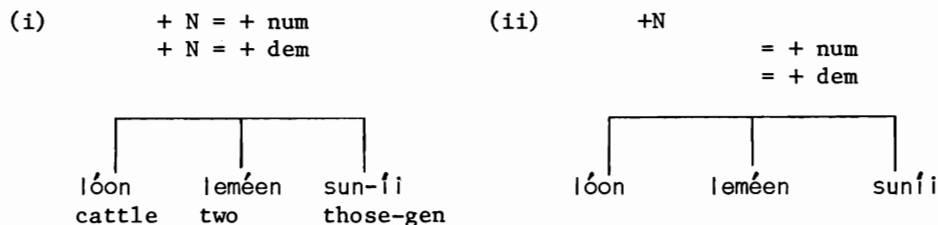
Neither of these two representations are feasible here because neither constituents nor heads are recognized. Instead, what is claimed is that between a possessed NR and a possessor NR all of the items in each are related to each other. Example (11a) for instance has a schematic representation as in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



The word *obbolesa* is in the $+noun =$ relation with *namicca* and *súníi*; *namicca* is in the $=+noun$ relation with *obbolesa*, *suníi* in the $=+dem$ relation with *obbolesa*, and *namicca* and *súníi* are related as $+noun$ and $+dem$ with each other. Formally the demonstrative relation between *suníi* and *obbolesa* is distinguished from the demonstrative relation between *namicca* and *súníi* 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 *súníi* to forming a relation with *obbolesa*. One advantage of this representation concerns headless possessors, like that in (30):

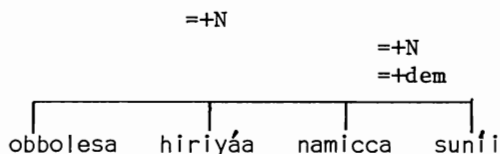
⁵In an example like *lóon leméen sun-íi* 'the cattle of those two' the possessed noun contracts two relations, one with *leméen*, one with *suníi*. On the diagrams I will not represent each individual relation. (i) is thus conventionally represented as (ii).



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.

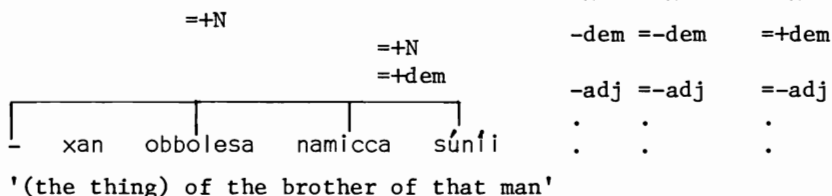
- (32) obbolesa hiriyáa namicca sún-fi... 'the brother of the friend of that
 brother friend man that-gen man...'

- (33) a. +N



(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. -x



(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 súnfi (< suni). 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.

(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.

(33) c. +N

= +N

= +N

= +adj

= +dem

= -x

obbolesa	jaalá	niitfi	duréettfi	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

hiriya	obboleyán	niitii	-	xana
friend	brothers	women	-	this

'this friend of the woman's brothers'

c.

+N

=+N

*+=dem

=+N

*hiriya	obboleyan	niitii	-	xanneen
friends	brothers	woman		these

Examples with a numeral occurring with a medial noun were accepted, however.

- (35) ilmaán daléedduú leméen namicca súnfi
 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 = $\begin{array}{|l} \boxed{+} \text{noun} \\ \boxed{+} \text{num} \\ \boxed{-} \end{array}$ = $\boxed{+} \text{x}$

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.

- (38) +N
 +dem
 = +N
 = +dem
- | | | | | |
|----------|---------|---------|----------|------|
| obbolesa | hiriyáa | namicca | sún-fi | xana |
| brother | friend | man | that-gen | this |
- 'this brother of the friend of that man'⁷

One has (38) rather than

- (39) *obbolesa xana hiriyaa namicca súnfi

In (38) both hiriyáa (= +N) and xana (+dem) form a relation with obbolesa, and it is hiriyáa 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) $\underline{+noun}$ $\underline{+noun}_1$ = ...
- .
- .
- | | |
|-----------|--------------------|
| -pssr pro | +noun ₂ |
|-----------|--------------------|

⁷The 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 sún-íi 'that man's tree bark'
 bark tree (f) man that-gen
- b. *k'unc'ee (tan) namicca sunii muxa

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 emphasisers [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) *inníi namicca yóom arke* 'when did he see the man?'
 he man when saw

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-

⁸Cf. Sasse [1981:261] for a similar situation in Boni, a related Cushitic language.

monstrative and adjective (for example).

(46) a. inníi niitii guddoo sún arke 'he saw that big woman'
 he woman big that saw

b. inníi niitii sun gúddóo 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 sún arke 'he saw that woman'

ii. niitii tám arke 'which woman did he see?'

iii. niitii sun gúddóo 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. tiyya tún gáarii 'this of mine is nice' (f)
 f/my f/this good
- b. xiyya xún gáarii 'this of mine is nice' (m)
 m 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) niitíi-n baréed-dúu-n tan béettu tun ní 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/obbol-éettíi* 'brother/sister' with m/f pairs of exactly the same form as adjectives like *dur-esa/duréettíi* (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 *jabáa* 'brave', the noun will end in a low vowel or /i/; given the feminine adjective *jabdúu* 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

⁹A consistent exception concerns nouns denoting feminine humans, where gender is determined naturally, e.g. *intala* 'girl' (f), *adaadáa* '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'eer-at | 'become tall' | d'eer-es | 'make tall' |
| | | | d'eer-enyá | 'tallness' | d'eer-áccúu | 'becoming tall' |
| b. | obbol | 'SIB' | obbol-esá | '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'eer. 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'eerenyá, 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) *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.

¹⁰Oromo 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 $[NP - VP]_S$ (subject-verb agreement), and that between lexical categories, as in $[det - adj - N]_{NP}$ [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 $[NP - VP]_S$ 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.

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 | | |
| [[[niitíin] [baréed-dúu-n] [tun]]] | NP | [[[namicca xáná] 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 $\text{Agr}_{\alpha i} = \text{Agr}_{\alpha j}$, 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)
- | | |
|--|----------------------|
| +psr pro
+dem
┌───────────┐
tiyya táná
f/my f/this | '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. *ablée tiyya táná* '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) **tiyya xana*
 f/my m/this

If one uttered (53) when in fact one was referring to *k'ubá* '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.

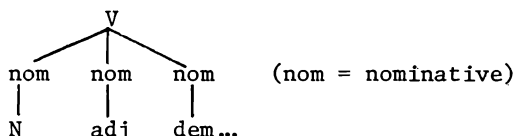
2.5. Government and case marking. I think there is one phenomenon which provides indirect support for the treatment of heads (or rather, neglect of heads) which I advocate here. This is case marking, as understood in more traditional terms, e.g. Lyons [1969:241]. This is an agreement category which cannot 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-tíi d'éer-túu-n tun ní d'uf-ti*
 girl-f/nom tall-f-nom f/nom/this fc come-f
 'this tall girl is coming'
- intala d'eer-tuu táná 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

¹³It 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]).



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-íi 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.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'eerať 'become long, tall' will occur with a nominative noun, like xaráa 'road' or

¹⁴Hawkins [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 xarâa 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 (English) 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 *xaráa* 'road' as an isolated form, it should be conceived of as marked for a case (*xaráa*-n nom, *xaráa* accusative). When so marked, however, nominals take on predicative force, albeit in a more limited way than verbs. The nominal *namiccíi* 'man-nom' for example implies a verb like *d'eerat* 'lengthen, become tall', as well as the occurrence of a verb like *ark* 'see'; *xaráa* 'road-acc' implies the non-choice of *d'eerat* (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. *xa(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.

- (57) a. i. k'óttóo taní-n dámée c'áp'sée-n hink'ábu
 axe relm-I branch cut-inst neg have
 'I don't have the axe which I cut the branch with'
- ii. tan dámée c'áp'si-tée-n hink'ábu
 relm branch cut-you
 'I don't have (the thing) you cut the branch with'
- iii. xan xan at árki-tée hinféed'u
 relm relm you saw-you neg like
 'I don't like (the thing) of (the one) whom you saw'
- b. xan isáa hinféed'u
 as his neg like
 'I don't like his (thing)'
- c. i. xan namicca sún-íi hinféed u
 relm man that-gen
 'I don't like that man's (thing)'
- ii. meesháa (xan) namicca sún-íi hinféed'u
 things (relm) man that-gen
 'I don't like that man's thing'

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-fi hinféed'u
 relm two-gen neg like
 'I don't like (the things) of the two'
- b. *leemeen-fi hinféed'u
- c. sun (xan) lemeen-fi hinféed'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)
- | | | | | |
|----------|--------------------------------|---------|----------|--------|
| | +dem | | | |
| | | | = +N | |
| inserted | | | = +dem | |
| by (58) | | | | |
| | tan | namiccá | sun-íi | tana |
| | f/relm | man | that-gen | f/this |
| | 'this (f) (thing) of that man' | | | |

3. Advantages

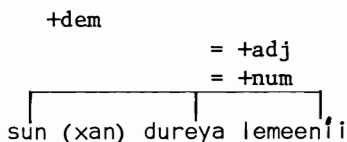
Having established the technical feasibility of having a dependency representation of nominal relations without recourse to the notions of head and dependent and having (I hope) shown that agreement relations need not refer to these notions, I would now like to outline three advantages that accrue to 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-íi hinféed'u
 that (relm) rich pl two-gen neg like
 'I don't like that (thing) of the two rich (people)'

- = b. sun (xan) leméen durey-áa hinféed'u
 that (relm) two rich-gen
 'I don't like that (thing) of the two rich (people)'

- c. = (60a) schematically



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) *leméen* 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 *xámi/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'únc'éen muxa déeráa guráat-tíi-n ibiddaa-f gáarii
 black-nom tree tall/m black-f-nom fire-dat good
 ii. k'unc'ée muxa d'éeráa xan-áa guráat-tíi-n ibiddaaf gáarii
 tree tall this-gen
 'the black bark of this tall tree is good for the fire'
 b. i. ?mana hiriyaá xiyy-áa xana jaare
 house friend my-gen this built
 ?'he built this house of my friend'
 ii. mana hiriyaá xiyya sún-íi xáná 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:

¹⁵The 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 *súníi* 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:

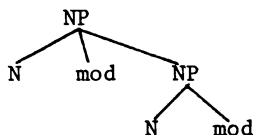
- (64) $\boxed{+noun} \quad \text{---} \quad = \dots \boxed{+}dem \quad = -x$
 $+x$
 (x = any other feature from (13))

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.

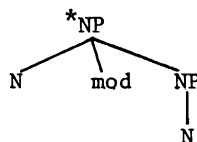
- (65) *mana hiriyáa obboléettíi tiyya tán-áa sún jaaran*
 house friend sister my this-gen that built
 'they built that house of the friend of this sister of mine'

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).

(66) a.



b.



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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