

# Empty nouns in Bantu locatives<sup>1</sup>

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## Abstract

*This paper presents an analysis of Chichewa locatives and their theoretical implications. Locative phrases exhibit contradictory properties, distributing with DPs but seeming to have preposition-like heads (ku, pa, and mu). I argue that they are DPs whose head nouns are silent. ku, pa, and mu are Case-markers, projecting KP complements to the null nouns and agreeing with them in gender. Word order shows that each KP<sub>loc</sub> raises to Spec of its containing DP; I propose that null N is licensed thereby. I analyze gaps within Romance DPs as empty Ns also, licensed by agreeing material in Spec positions. Conditions on noun gaps closely resembling those on DP-level pro, I propose a unitary requirement for null [+interpretable] φ-features in terms of feature-checking relations (Chomsky 1995). This accounts for null nominal elements of all sizes and categories.*

## 1. Introduction

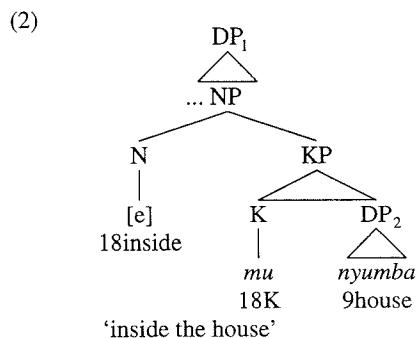
Locative constructions in many Bantu languages involve three pre-nominal morphemes traditionally identified as prefixes of three locative Noun Classes, hence *locative prefixes*. Each correlates with a distinctive pattern of agreement<sup>2</sup>

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1. Parts of this paper were presented at the Annual Conference on African Linguistics at Rutgers University, April 1994. Thanks to members of the audience for stimulating comments. Thanks also to Katherine Demuth for helpful discussion of Setswana and Sesotho data, and to David Odden and Lee Bickmore re: Bantu minimal word requirements. Special thanks to Vicky Lonje, of Rumphi in northern Malawi. All original data and judgements reported in this paper were supplied by her.
  2. The correlation of locative prefixes and locative agreement is partial, however; for example, while Chichewa has both, Swahili lacks the former, and Setswana the latter. See section 7.

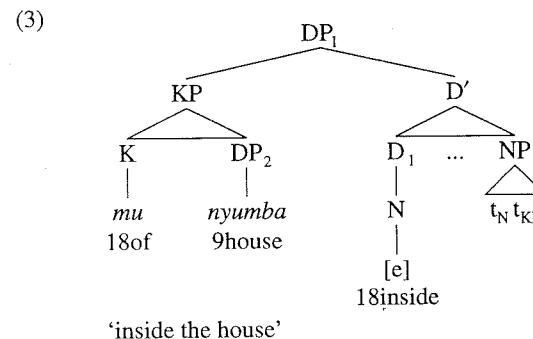
and a predictable range of interpretive possibilities. Examples in (1) are from Chichewa:<sup>3</sup>

- (1) a. *Mu-nyumba mu-ku-nunkh-a.*  
18-9house 18AGR-ASP-stink-FV  
'Inside the house stinks.'
- b. *Ku-nyumba 'ku ndi ku-tali.*  
17-9lake 17DEM COP 17AGR-far  
'That house and its environs are far away.'
- c. *Pa-nyumba pa-ku-on-ek-a ngati pa-ku-psa-a.*  
16-9house 16AGR-ASP-see-STAT-FV like 16AGR-ASP-burn-FV  
'The house and surrounding yard look like they're burning.'

I claim that the structure of the locative phrases in (1) is as shown in (2), where  $[_N e]$  is a covert "place" noun. Three such silent locative nouns exist, each with its own gender and meaning. Each selects a gender-specific prepositional Case-marker (K); in (1a)/(2), *mu*:



The locative KP moves to SpecDP<sub>1</sub> in overt syntax, as shown in (3) (noun-raising to D<sup>0</sup> in Chichewa is established in section 2.2.3).<sup>4</sup>



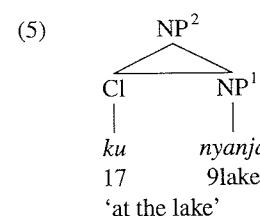
(3) makes available an explanation for the presence of the null locative nouns in Chichewa but not English: the "richly" agreeing KPs in Chichewa can identify the φ-features of  $[_N e]_{loc}$  in the Spec-head relation. I propose the condition in (4), where "empty" designates a φ-feature lacking association to overt lexical material:

(4) Condition on Empty φ-features

An empty [+interpretable] φ-feature must be checked by "rich" agreement.

Under (4), crucial properties of Chichewa locatives reduce to a general requirement that also determines the licitness of  $[_{DP} pro]$ , and of other nominal gaps common in Bantu and Romance languages.<sup>5</sup>

The analysis of Chichewa locatives sketched in (2) and (3) contrasts in important ways with prior treatments, most recently that of Bresnan and Mchombo (1995) and Bresnan (1995). In these works it is claimed that *ku*, *pa*, and *mu* are nominal classifiers heading their own NPs, the structure of a locative phrase being as in (5):



The motivation for adopting (2) lies in a mismatch between the properties of locative phrases, on the one hand, and those of the overt locative morphemes, on the other. The relevant facts are summarized in (i)–(vi).

- 3. Numbers in glosses indicate traditional Bantu Noun Class (but see section 2.2.1). Examples are tone-marked only if reproduced from other researchers' works, in which case I also reproduce each author's glosses, accounting for some inconsistencies in format. Otherwise, FV = final vowel (always -a in indicatives); ASP = aspect, PST = past tense, STAT = "stative" morpheme; DEM = demonstrative, COP = copula.
- 4. I consider this to be a matter of successive head-adjunctions, which will be represented as in (3) for convenience.

5. The spirit of this proposal is close to that of Lobeck (1993).

*Locative prefixes as syntactic Case-markers<sup>6</sup>*

- (i) Locative "prefixes" are independent words (cf. Bresnan and Mchombo 1995).
- (ii) Locative "prefixes" are structurally external to the DPs they introduce.
- (iii) Locative "prefixes" pattern with [-N] categories, in that a preposition does not intervene between them and the following DP.
- (iv) Locative "prefixes" pattern with non-lexical categories (including "of", the copula, complementizers, and conjunctions) in escaping a minimal word requirement of two syllables. All and only the lexical categories are subject to this requirement.

*Locative phrases as the projection of a locative noun*

- (v) Locative phrases may control Subject and Object Marking,<sup>7</sup> which generally reflect the  $\phi$ -features of argument DPs.
- (vi) Locative phrases may contain possessives and quantificational and adjectival modifiers, which bear locative agreement and are interpreted as arguments or modifiers of the locative notion.

(i) indicates that Chichewa locative morphemes differ from Noun Class prefixes in being morphologically free, and (ii) places them outside of the nominal constituent that follows them. Properties (iii) and (iv), (v) and (vi) seem to have contradictory implications: taken together (iii) and (iv) suggest that locative prefixes are [-N] functional elements, but (v) argues that the locative phrases which they appear to head have the features and distribution characteristics of [+N] categories. Unless the locative phrase is analyzed as the extended projection of a nominal (cf. Grimshaw 1991), (v) necessitates that a class of [-N] elements be attributed with intrinsic  $\phi$ -features — a circumstance which I believe to be without cross-linguistic parallel or precedent. (vi) provides further indication that the locative phrase has a nominal head, able to take modifiers and arguments and to control agreement on them. Assuming (2), all of these facts are accounted for. Word order facts motivate (3).

The next two sections of the paper flesh out the arguments for the structure in (2). In section 2.1 I review Bresnan and Mchombo's evidence that so-called locative prefixes are morphologically independent. I sketch out DP-structure and argue for N<sup>0</sup>-to-D<sup>0</sup> movement in Chichewa DPs, in 2.2. If N<sup>0</sup> is adjoined to D<sup>0</sup> and the locative marker preceding it is an independent word, it follows that the locative morpheme is external to DP2 in (2). In 2.3 and 2.4 I present the case for analyzing *ku*, *pa*, and *mu* as Case-markers.

6. Points (i)–(iv) are intended as a cumulative argument.

7. I consider that Subject Marking is grammatical agreement, while Object Marking is an incorporated pronoun (see Bresnan and Mchombo 1987).

Section 3 details the evidence for treating locative phrases as DPs with null heads. 3.1 shows that Chichewa locative phrases distribute with DPs, and control subject and object marking — factors indicating that a noun heads the locative construction. Since the evidence of section 2 argues against analysis of the overt locative elements *ku*, *pa* and *mu* as nouns, I conclude that the head noun of a locative phrase is silent. Section 3.2 shows how this explains some otherwise mysterious facts of modification and agreement within locative phrases.

In sections 4, 5, and 6 I explore the role of the Spec-head relation in the licensing of the silent nominals, in terms of the Minimalist Program of Chomsky (1995). In 4 I argue from word order evidence that the KPs headed by *ku*, *pa* and *mu* raise to Spec of the locative DP as in (3), and suggest that they do so to check a locative feature of D<sup>0</sup>. In section 5 I propose the Condition on Empty  $\phi$ -features given in (4), reducing the facts of Chichewa locatives and the distribution of *pro* to one general condition. I show in section 6 how Chomsky's checking theory applies symmetrically within DP to check number/gender agreement and license empty nominals simultaneously. The Spec-head relation checks [-interpretable]  $\phi$ -features of rich agreement on modifiers and arguments of nouns, and this agreement licenses the empty noun in turn.

In section 7 I analyze the locative constructions of Setswana and Swahili in terms of the proposals developed in preceding sections. These two languages are of interest because the former has locative prefixes and the semantics that typically accompany them, while lacking locative genders; the latter has the locative genders but no locative prefixes. I provide explicit argumentation against the proposal of Bresnan and Mchombo (1995) and Bresnan (1995) that *pa*, *ku*, and *mu* are nominal classifiers of the locativized noun, in section 8.

Section 9 concludes.

## 2. Locative prefixes are Case-markers

### 2.1. Locative prefixes are independent words

Bresnan and Mchombo (1995) present a convincing range of evidence that so-called locative prefixes in Chichewa are in fact syntactically independent words. They show that their complements may include conjoined NPs (6), and may be gapped (7) or pronominalized (8). Locative prefixes themselves may be conjoined (9):<sup>8,9</sup>

8. Examples (6)–(8), (10) = Bresnan and Mchombo's (44a,b); (34a-c); (9) = Bresnan and Mchombo's (47a). (11)–(14) are of my own devising, comparable in essence to Bresnan and Mchombo's (45), (49a), and (35).

- (6) *Mu-ku-pít-á*                    *ku [m-sika kapena m-zinda]?*  
 2PL/HON SB-PROG-go-IND 17 3-market or 3-city  
 'Are you going to the market or the city?'
- (7) *A-nyamata a-na-low-ets-a*                    *nkhosa m' khola*  
 2-boy 2SB-REC-PST-enter-cause-IND 10 sheep 18 5corral  
*la mfumu Kapanga kapena m- (khola) la mfumu Kapatuka.*  
 5ASC 9chief                    or 18 5corral 5ASC 9chief  
 'The boys drove the sheep either into chief Kapanga's corral or into  
 chief Kapatuka's (corral).'
- (8) a. *mu iyi*  
 18 9this  
 'in this (for example, house)'  
 b. *pa icho*  
 16 7that  
 'on that (for example, hat)'  
 c. *ku iwo*  
 17 6them  
 'to them (for example, pumpkins)'
- (9) *Ndi-na-jámbúl-a*                    *zithunzi [mu ndí pa] ma-dengu.*  
 1SG SB-REC.PST-draw-IND 8-picture 18 and 16 6-basket  
 'I drew pictures in and on baskets.'

True Noun Class prefixes differ in all of these respects. (10) shows that two nouns of a Class cannot be conjoined in the scope of a single prefix.

- (10) a. *m-nyamata ndi m-tsikana*  
 b. \**m-nyamata ndi tsikana*  
 1 boy                    and 1 girl  
 'a boy and a girl'

(11) illustrates that a Noun Class prefix cannot be stranded by gapping.

9. A caveat: In addition to Ms. Lonje of northern Malawi, I consulted Lucy Liumbe from Thyolo in southern Malawi, and wish to acknowledge the existence of strong, systematic differences between her Chichewa judgements and those of Ms. Lonje. Ms. Lonje agrees with the judgements cited by Bresnan and Mchombo (1995) in (6)–(9) as evidence that *ku*, *pa*, and *mu* are independent words, and is quite definite about differences in meaning correlating with the choice of locative vs. lexical Class agreement on modifiers and arguments (section 3.2). Ms. Liumbe disagrees consistently on both points. Her judgements on (6)–(9) indicate that in Ms. Liumbe's dialect *ku*, *pa* and *mu* are morphologically dependent. This and her judgements on semantic correlates of locative agreement are likely connected, but the question is beyond my paper's scope. I focus on Ms. Lonje's judgements and the data in Bresnan and Mchombo (1995). For approaches to variation in the status of *ku*, *pa*, and *mu* see section 7.

- (11) a. *mwana wa Lucy ndi mwana wa Sam.*  
 1child 1of                    and 1child 1of  
 'a child of Lucy's and a child of Sam's'  
 b. *mwana wa Lucy ndi \_\_ wa Sam*  
 1 child 1of                    and 1of  
 'a child of Lucy's and of Sam's'  
 c. \**mwana wa Lucy ndi m- wa Sam*

The examples in (12) and (13) demonstrate that these facts are not attributable to the status of the nouns above as unprefixed stems — diminutive nouns bear two Class prefixes, and nonetheless the same effects hold.

- (12) a. *ka-munda ndi ka-kasu*  
 12-3field and 12-5hoe  
 'a little field and a little hoe'  
 b. *ti-minda ndi ti-makasu*  
 13-4field and 13-6hoe  
 'little fields and little hoes'  
 c. *ka-munda ndi kasu*  
 12-3field and 5hoe  
 'a little field and a hoe'  
 \*'a little [field and hoe]'  
 d. *ti-minda ndi makasu*  
 13-4field and 6hoe  
 '[little fields] and [hoes]  
 \*'little [fields and hoes]'

- (13) a. *ka-munda ka Vicky ndi ka-munda ka Lucy*  
 12-3field 12of                    and 12-3field 12of  
 'a little field of Vicky's and a little field of Lucy's'  
 b. *ka-munda ka Vicky ndi (\*ka-) ka Lucy*

The examples in (14) show the impossibility of pronominalization in examples comparable to (8), but involving the prefixes of the diminutive Classes.

- |   |   |
|---|---|
| (14) a. <i>mundauwu</i><br>3field 3this<br>'this field' | b. * <i>ka-uwu</i><br>12-3this<br>'this little (one)' (i.e. field)    |
| c. <i>minda iyi</i><br>4field 4this<br>'these fields'   | d. * <i>ti-iyi</i><br>13-4this<br>'these little (ones)' (i.e. fields) |

Lastly, though diminutive and augmentative Class prefixes can precede virtually any noun, (15) shows that they cannot be conjoined like locative prefixes can ([15] = Bresnan and Mchombo's [47b]):

- (15) \**Ni-na-gúl-á*                    *ka-ndí chi- gálimoto.*  
     1SG SB-REC.PST-buy-IND 12 and 7 5car  
     'I bought a little and a big car.'

Bresnan and Mchombo (1995) conclude that while all other Noun Class prefixes are morphologically bound, locative "prefixes" are not. I will assume this to be correct. Henceforth I refer to *ku*, *pa*, and *mu* by the neutral label LOC.

## 2.2. LOCs are external to DP

2.2.1. *Class prefixes are number morphology.* Determining the location and function of *ku*, *pa*, and *mu* is the next task in the analysis of Chichewa locative phrases; this requires an understanding of Chichewa DP. I begin by sketching out a few background assumptions.

Following Carstens (1991, 1993), I assume that Bantu Noun Class is not a primitive but a composite of number and gender features. In glosses I indicate the traditional Class of each noun by means of a number preceding the noun stem, as in (16a-d) and prior examples. However, I consider each pair of Classes in reality to be the singular and plural forms of a particular gender, as in (17).

- |      |  |  |
|------|--|--|
| (16) | a. <i>mnyamata/anyamata</i><br>1boy/2boy<br>'boy/s'    | b. <i>mudzi/midzi</i><br>3village/4village<br>'village/s'        |
|      | c. <i>tsamba/matsamba</i><br>5leaf/6leaf<br>'leaf/ves' | d. <i>chithunzi/zithunzi</i><br>7picture/8picture<br>'picture/s' |

- |          |  |       |
|----------|--|-------|
| (17)     | Sample noun formation rules <sup>10</sup>    |       |
| Gender A | Singular: $N \rightarrow m\text{-}N$         | cf:   |
|          | Plural: $N \rightarrow a\text{-}N$           | (16a) |
| Gender B | Singular: $N \rightarrow mu\text{-}N$        | (16b) |
|          | Plural: $N \rightarrow mi\text{-}N$          |       |
| Gender C | Singular: $N \rightarrow \emptyset\text{-}N$ | (16c) |
|          | Plural: $N \rightarrow ma\text{-}N$          |       |
| Gender D | Singular: $N \rightarrow chi\text{-}N$       | (16d) |
|          | Plural: $N \rightarrow zi\text{-}N$          |       |

Singular/plural morphology thus matches its host in gender, in much the same way that agreement matches its antecedent in  $\phi$ -features.<sup>11</sup>

The internal structure of Chichewa nouns is as shown in (18).

- (18) Structure of Chichewa nouns
- a.  $\begin{array}{ccccc} & & N & [VILLAGE, Gender B, sg] \\ & & \triangle & & \\ & mu & & dzi & \\ & B \text{ SG} & & \text{village} & \\ & & & & \text{Gender B} \end{array}$
  - b.  $\begin{array}{ccccc} & & NP & [VILLAGES, Gender B, PL] \\ & & \triangle & & \\ & mi & & & \\ & B \text{ PL} & & & \\ & & & & \text{Gender B} \end{array}$

This constitutes a departure from previous treatments, both in its decomposition of Class, and in treating the gender part of Class as a lexical property of the noun stem. It is often assumed that a noun's Class information resides solely in its prefix, as shown in (19a, b). But the fact that each singular/plural prefix pair is constrained to appear on a particular set of noun stems (see [20]) indicates that the latter are grouped into genders, to which singular/plural prefixation is sensitive, as in (17).

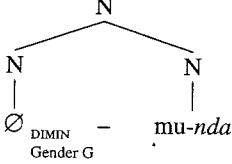
- (19)
- a.  $\begin{array}{ccccc} & & N & [VILLAGE, Class 3] \\ & & \triangle & & \\ & mu & & dzi & \\ & C3 & & \text{village} & \\ & & & & \text{cf. Sproat (1985)} \end{array}$
  - b.  $\begin{array}{ccccc} & & NP & [VILLAGES, Class 4] \\ & & \triangle & & \\ & mi & & dzi & \\ & C4 & & \text{village} & \\ & & & & \text{cf. Myers (1987)} \end{array}$

10. This rewrite notation is employed for succinctness; the proposal is framework-neutral.

11. Even this overstates the case, given the existence of animates which control Gender A agreement while bearing the singular/plural morphology typical of other genders (cf. *chiphadzuwa a-na-m-pha mkango* [7kill+sun 1AGR-ASP-3AGR-kill 3lion] 'the beauty queen killed the lion'). In Carstens (1991) I argue that in Swahili the choice of Gender A agreement is not a matter of synchronic pragmatics, since classes of systematic exceptions are generated by productive derivational processes. I propose there a historical shift of all animates into Gender A regardless of their singular/plural formation patterns. The general conclusion to be drawn is that how a noun marks singular/plural in Bantu does not determine its gender, although it usually reflects it. Bantu Noun Class prefixes thus resemble the word-marker suffixes to Spanish nouns (cf. Harris 1991).

- (20) a. \**chidzi/zidzi* (see [16b, d])  
C7–village/C8–village  
'village/s'  
b. \**muthunzi/mithunzi* (see [16b, d])  
C3–picture/C4–village  
'picture/s'

Analyses opting for the approach in (19) have argued for it based largely on such non-core phenomena as diminutive formation (see [12], [13], [21]), wherein particular prefixes attach to nouns of any Class, with fixed semantic correlates (for example, *ka/ti* + N = 'small' N). I adopt the analysis in Carstens (1991), (1993), under which the diminutive is a zero-morpheme of a particular gender, with particular singular/plural morphology.<sup>12</sup>

- (21) a. Sample diminutive: *ka-munda/ti-minda*  
12–3field/13–3field  
'little field/s'  
b. Structure of a diminutive noun:  
  
c. Noun formation rules, Gender G:  
Singular: N → *ka*-N  
Plural: N → *ti*-N

Not only does this approach permit a uniform treatment of Noun Class prefixes as number morphology; data from Swahili illustrate a significant advantage of it in accounting for the semantics of noun derivation. While derivation of diminutive, augmentative, abstract, and agentive nouns is typically accompanied by a change in Class prefix, neither the Class of the derived item nor the prefixes themselves can be coherently analyzed as bearers of the semantic features involved. To see why this is so, consider (22)–(24). While an abstract noun is necessarily a member of Class 14 (see [22b]) so is the word for 'plank' (23c), as a lexical property. Diminutives are all Class 7/8 nouns in Swahili, but

12. Only nouns already prefixed with the number morphemes of their inherent genders may be complements to the diminutive zero-affix, in Chichewa. Chichewa diminutives might warrant a syntactic analysis for this reason, as in Carstens (1991, 1993), but note also that inflectional morphology sometimes turns up word-internally (cf. Borer 1984); Chichewa diminutives may alternatively be such a case. Such a "lexical" analysis is not inconsistent with the hypothesis that number morphemes typically have a corresponding syntactic projection, despite Bresnan and Mchombo's (p. 247) claim to the contrary, any more than the existence of V–N compounding conflicts with syntactic theories of complementation (Carstens 1991: 59).

so are the words for 'English language', 'well', and scores of other non-diminutive nouns. (24) shows that Classes 5/6 include the words for 'eye' and 'building', among many others designating items of all sizes and shapes. These facts would be quite mysterious if the Classes and/or prefixes involved had the abstract, diminutive, and augmentative meanings.

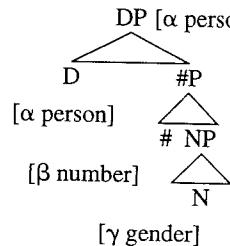
- (22) a. *mtoto* b. *utoto* c. *ubao*  
1child 14child 14plank  
'child' 'childhood' 'plank'  
(23) a. *kitoto/vitoto* b. *Kiingereza* c. *kisima/visima*  
7child/8child 7English 7well/8well  
'little child/children' 'English language' 'well/s'  
(24) a. *toto/matoto* b. *jicho/macho* c. *jengo/majengo*  
5child/6child 5eye/6eye 5building/6building  
'big child/ren' 'eye/s' 'building/s'

I follow Carstens (1991), (1993) in concluding that Noun Classes and Noun Class prefixes have no intrinsic semantics, synchronically (see also Guthrie 1948 and Givón 1969); where appearances suggest otherwise, a zero-derivation process has added semantic and gender features. The zero-morpheme analysis sketched out in (21) accomplishes this; derivational rules featuring gender-change are another possibility. In either case the Noun Class prefixes are uniformly analyzed as singular/plural morphology only.<sup>13</sup>

2.2.2. *DP-structure*. Let us turn to the syntax of nominal morphology. I adopt the universal base structure for noun phrases shown in (25), where #<sup>0</sup> represents a functional head, Number<sup>0</sup> (cf. Abney 1987 on DP; Ritter 1991 and Carstens 1991 on NumberP). Each Bantu number morpheme (also known as Noun Class prefix) must match the singular/plural features of #<sup>0</sup> in the syntactic tree to which it is inserted. We have established that gender is a lexical property of nouns (cf. section 2.2.1); I assume that person features are a property of the determiner D<sup>0</sup> (see Ritter 1991; Postal 1969; Abney 1987).

13. Gender A (Classes 1/2) is semantically coherent in being restricted to animates. This does not entail that the singular and plural morphemes found on most nouns of this gender carry animate features, however; see note 11. See also Carstens (1991) and Kinyalolo (1991) for treatments of synthetic compounds like *mchimba kisima* [1dig 7well] 'well-digger' along the same lines as the diminutive analysis sketched in this section.

- (25) DP [α person, β number, γ gender]



These three features (henceforth φ-features) may control agreement outside of DP, on auxiliaries and verbal heads. For this reason I assume that  $D^0$ ,  $#^0$ , and  $N^0$  percolate their φ-features to DP; I represent this in (25) by copying the features on the DP node. I assume that this is a morphological phenomenon, following from universal incorporation of  $N^0$ -to- $#^0$ -to- $D^0$  by LF<sup>14</sup> (cf. Lieber 1981 on percolation conventions, Chomsky 1995 on the checking domains of incorporated heads).

I follow Grimshaw (1991) in considering that the maximal projection of a lexical head  $X^0$  together with its surrounding functional projections constitute a syntactic unit, the *extended projection* of  $X^0$ . I will occasionally refer to a DP as being projected by a certain noun, with Grimshaw's system in mind. I will also continue to use the label *noun phrase* for theory-neutral or informal reference to the extended projection of N.

I present an analysis of agreement inside DP in section 6.

**2.2.3.  $N^0$ -to- $D^0$  raising in Chichewa.** Let us consider now the arrangement of constituents in Chichewa noun phrases, with an eye toward locating LOC's position in the structure.

Note first that while basic Chichewa word order is SVO (cf. [7]), in noun phrases the noun precedes all arguments (see [26]).

- (26) a. *chithunzi chabwino cha Lucy cha mzinda wa Lilongwe*  
7picture 7nice 7of Lucy 7of 3city 3of  
[N AP poss theme]<sup>15</sup>  
'Lucy's nice picture of the city of Lilongwe'  
b. *chithunzi changa chabwino cha mzinda wa Lilongwe*  
7picture 7my 7nice 7of 3city 3of  
[N poss prn AP theme]  
'my nice picture of the city of Lilongwe'

14. Assume morphological principles apply wherever a word is formed (Baker 1985). Note also Chomsky's (1995) observation that interpretable features are accessible throughout the derivation to LF.

15. Reordering among arguments and APs is often acceptable. I assume arguments and APs raise to outer Specs of NP in arbitrary order; see section 6.

Following Chomsky (1970) I assume that complements to nouns and verbs are base-generated as their sisters. Surface separation in (26) of the noun *chithunzi* and its complement *cha mzinda wa Lilongwe* indicates that one of these constituents has moved.

The structure in (25) contains two head positions to the left of NP that might serve as the surface position of a raised  $N^0$  in Chichewa: Number<sup>0</sup> and  $D^0$ . I will present both cross-linguistic and language-internal evidence for N-raising to  $D^0$ .<sup>16</sup>

Valois (1991) proposes that English DPs exhibit the base arrangement of constituents (see [27a]). In French (27b), he claims that nouns precede adjectives because they raise to  $#^0$ , much as French verbs raise across adverbs to  $I^0$ . In a language like Italian (27c), which permits the co-occurrence of determiners and genitive pronouns, we can see that the latter may appear in a position between  $D^0$  and  $#^0$ , which I take to be Spec#P.

- (27) a. [DP *the* [#P [NP *complete* [NP *invasion of Jupiter*]]]]  
b. [DP *l'* [#P *invasion* [NP *complète* [NP *t<sub>N</sub> de Jupiter*]]]] (Valois 1991)  
c. [DP *la* [#P *mia<sub>i</sub>* [#P *casa* [NP *bella* [NP *t<sub>i</sub> t<sub>N</sub>*]]]]]]

Ritter (1988), (1991) observes that word order in Hebrew Construct State nominals is Noun–Subject–Adjective–Object. She argues that this order results from noun-raising to  $D^0$ .

- (28) a. *axilat dan ha-menumeset et ha-uga*  
eating Dan the-polite ACC the-cake  
'Dan's polite eating of the cake'  
(Hebrew Construct State, Ritter 1991)
- b. [DP D+N+#[#P Sub *t<sub>#</sub>* [NP (AP) [NP *t<sub>N</sub> Obj*]]]]]

Chichewa lacks overt articles and has noun-initial order, like Hebrew. These factors are suggestive of N-to-D raising, as shown in (29), which should be compared to (26b) (I follow Chomsky 1995 in locating the AP within a Specifier of NP).

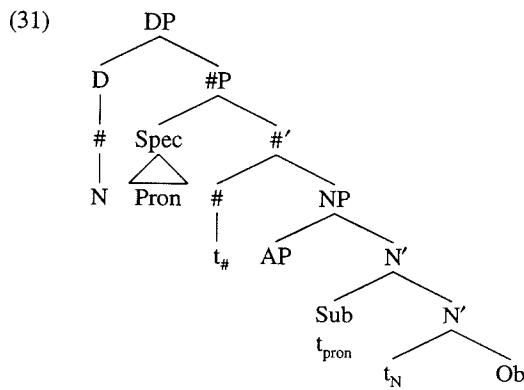
- (29) [DP *chitunzi* [#P *changa<sub>i</sub>* *t<sub>#</sub>* [NP *chabwino* [N' *t<sub>i</sub>* [N' *t<sub>N</sub> cha mzinda*]]]]]  
7picture 7my 7nice 7of 3city  
'my nice picture of the city'

16. The argumentation in this section is of necessity quite abbreviated. I do not argue explicitly against rightwards movement of constituents other than N as the source of neutral word order, and I forego discussion of demonstratives, which seem to be adjoined XPs like adjectives, rather than  $D^0$ s; I omit tests demonstrating that genitive pronouns are not clitics, and others indicating that pronominalization adheres to a thematic hierarchy, supporting the arrangement of arguments in the tree in (31) (cf. Cinque 1980 and related work). See Carstens (1991) for fuller treatment of comparable facts in Swahili.

I have located the genitive pronoun in Spec#P in (29), binding a trace within NP, as in example (27c) from Italian. Chichewa genitive pronouns are limited to one (30a), and must precede the AP (30b), unlike lexical possessors and agents ([26a] vs. [26b]). Both facts follow from the assumption that genitive pronouns raise to a Spec#P which I assume to be associated with a unique structural Case (cf. Carstens 1991).

- (30) a. \**chitunzi changa chakhe*  
7picture 7my 7this/hers/its  
'my picture of him/her/it'  
b. \**chitunzi chabwino changa*  
7picture 7nice 7my  
'my nice picture' (contrast with [26b])

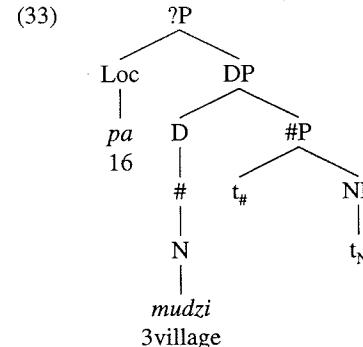
To sum up, I analyze the Chichewa DP as shown in (31), where Sub = agent or possessor and Ob = theme; multiple specifiers are permitted, and APs occupy outer Specs of NP (cf. Chomsky 1995 on the location of modifiers and the option of multiple Specs).<sup>17</sup>



2.2.4. *The position of ku, pa, and mu.* Let us return to the question of LOC's relationship to DP architecture. (32) shows that noun-initial order is preserved following LOC. This indicates that LOC and N do not compete for a common position. I propose the representation in (33):

17. Chomsky (1995:319) proposes that Specifiers are iterable, and that both modifiers and the surface positions of arguments are Specifiers. I adopt this view for the sake of concreteness; alternatively, modifiers are adjoined and checking domains defined to include them (Chomsky 1995: 177). Their inclusion in the checking domain is what matters for purposes of this paper, as it is relevant to the analysis of agreement in DP and null nominal licensing (see section 6).

- (32) *mu chithunzi changa cha mzinda wa Lilongwe*  
18 7picture 7my 7of 3city 3of  
'in my picture of Lilongwe'

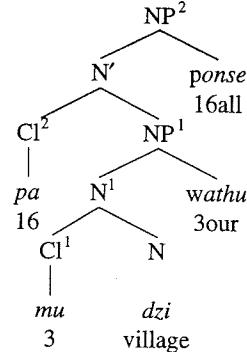


It remains to establish the categorial features of LOC, and thereby the identity of ?P. Bresnan and Mchombo (1995) argue that LOCS and Noun Class prefixes are both nominal, classifier-like elements, comparable save for their degree of "morphologization": LOCS retain a syntactic freedom that the others have lost. Bresnan and Mchombo's analysis would assign to (34a) the structure (34b), where Cl<sup>2</sup> heads NP<sup>2</sup>, and Cl<sup>1</sup> heads morphologically complex N<sup>1</sup>, which in turn projects NP<sup>1</sup>.

- (34) a. *pa-mu-dzi*  
16-3-village  
'at the village'
- b.
- 

The nominal status of LOC is an important part of Bresnan and Mchombo's account, particularly with respect to locative agreement in the noun phrase, demonstrated in (35). For Bresnan and Mchombo (1995), the option of Class 16 agreement on nominal modifiers in (35a, b) follows from the fact that Cl<sup>2</sup> (=LOC) in (34b) is an independent noun in its own right, which can license modifiers and arguments within its maximal projection, NP<sup>2</sup>. Items bearing Class 3 agreement in (35b, c), on the other hand, are simply modifiers of N<sup>1</sup>.

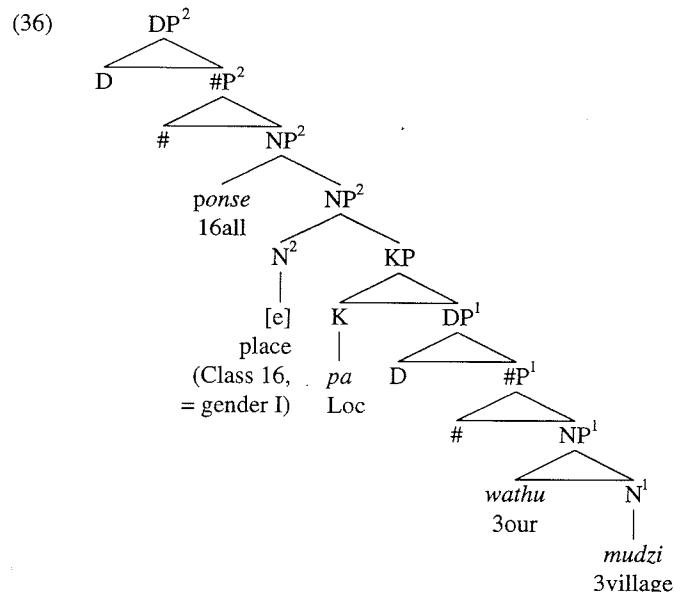
- (35) a. *pa-mu-dzi p-athu p-onse*  
16-3-village 16-our 16-all  
'at all of our village'
- (Chichewa, Bresnan and Mchombo 1995)
- b. *pa-mu-dzi w-athu p-onse/\*p-athu w-onse*  
16-3-village 3-our 16-all 16-our 3-all  
'at all of our village'
- c. *pa-mu-dzi w-athu w-onse*  
16-3-village 3-our 3-all  
'at all of our village'
- d. (rough rendering of Bresnan and Mchombo's analysis of [35b])



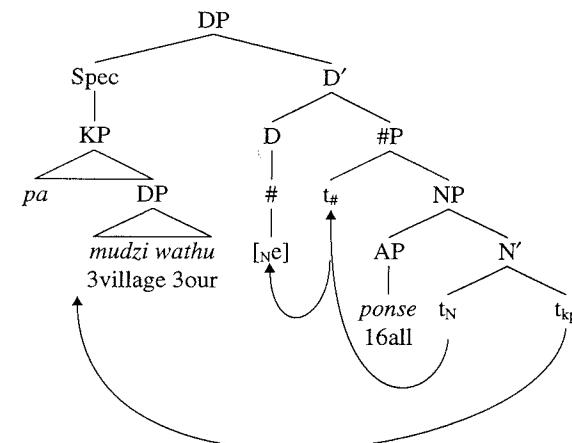
I will critique the analysis of LOC as a classifier in section 8. For the moment, I wish to point out that if any functional resemblance can be claimed to exist between LOCS and other Noun Class prefixes, it is considerably less than this proposal suggests. While a standard Noun Class prefix matches the noun stem it attaches to in gender features (cf. section 2.2.1), LOC must be assumed to introduce distinct and independent gender features, under Bresnan and Mchombo's approach. The presence of LOC has semantic correlates in the different "place" meanings that accompany its three instantiations, which Bresnan and Mchombo's analysis must attribute to LOC itself; these have no counterparts in standard Noun Class prefixes (see section 2.2.1, discussion of [21]–[24]). Noun Class prefixes differentiate singular and plural, while no number distinctions correlate with choice of LOC (see [54] below, and section 2.2.1). Like Bresnan and Mchombo, I consider that anything sufficiently nominal as to have independent gender and meaning, an optional possessive argument, and adjectival modifiers is a noun heading an NP. But if these are taken to be properties of LOC, as in Bresnan and Mchombo's proposal, then LOC clearly differs from Class prefixes in much more than free vs. bound status.

In the next two sections I will argue that LOC is a Case-marker, rather than a noun. The evidence that locatives have a nominal head is extremely convincing,

however, and LOC is the only overt candidate. I will accordingly argue that locative agreement on nominal modifiers follows from their base-generation inside the extended projection of a silent locative noun [<sub>N</sub>e], as in (36); this is the bearer of locative meanings and gender features.



An account of word order and agreement in (35a-c) follows in section 4. I argue there that the locative KP raises to SpecDP, yielding the representation in (37).



2.3. *LOC* is [-N]: No of-insertion

DP complements to Bantu nouns are always introduced by either a contentful preposition or so-called "relational-á" (see [38a]). This is never true of the DP following LOC, as (38b) shows.

- (38) a. *ugwetselo* \*(wá) *tauni*  
14destruction 14of 9town  
'the destruction of the town'  
b. *mu* (\*mwá) *mudzi wethu*  
18 18of 3village 3our  
'in our village'
- (Chichewa)

Cross-linguistically, the requirement that complements to nouns and adjectives be introduced by a preposition or semantically empty Case-marker is widespread, accounting for the pattern in (39) (see Chomsky 1970; Giorgi and Longobardi 1991, and others).

- (39) a. [<sub>V</sub> *fear*] (\**of*) *heights*  
b. *the* [<sub>N</sub> *fear*] (\**of*) *heights*  
c. [<sub>A</sub> *fearful*] (\**of*) *heights*  
d. *worrying* [<sub>P</sub> *about*] (\**of*) *heights*

Under standard assumptions, this is attributed to an inability of [+N] elements to assign/check Case (Chomsky 1981, 1995). Verbs and prepositions are Case-assigners, so their DP complements are bare.

In this respect, LOC patterns with the [-N] categories, contrary to what Bresnan and Mchombo's proposal would lead one to expect.

According to Bresnan (1995), the presence of -á is not necessary because "...the relationship an NP bears to its sister locative marker is NOT one of complementation, but classification" (p. 18). Under the standard assumption that the YP sister to any X<sup>0</sup> is its complement (Chomsky 1970), this statement seems at odds with the structural representation that Bresnan and Mchombo propose (cf. [32d]). Bresnan's comment might be interpreted to mean that *pa*, *ku* and *mu* are functional heads within the extended projection of the locativized nouns. I will provide evidence in 3.3 that the locativized noun is not the locative construction's semantic head, as this analysis claims it to be. The availability of locative agreement also presents a non-trivial problem for this view. See sections 3.2 and 8 for further discussion.

2.4. *LOC* is a functional category: Minimal word effects

Kanerva (1990) argues that Chichewa words must have two syllables,<sup>18</sup> based on systematic asymmetries in the verbal and nominal systems. (40) represents this claim.

- (40) Chichewa Minimal Word: [σσ]

Kanerva points out effects of (40) in the forms of Class 5 nouns. These are generally prefixless, as (41) shows. But the few monosyllabic Class 5 stems bear what are apparently vestigial Class prefixes, as shown in (42) (cf. Kanerva 1990).

## (41) Singular/plural prefixes on bimoraic stem: Ø/ma

- |                       |                           |
|-----------------------|---------------------------|
| a. <i>udzu/maudzu</i> | b. <i>tsamba/matsamba</i> |
| 5grass/6grass         | 5leaf/6leaf               |
| 'grass/es'            | 'leaf/ves'                |

(42) Singular/plural prefixes on monomoraic stem: *d(z)i* or *li/ma*

- |                     |                      |                   |
|---------------------|----------------------|-------------------|
| a. <i>diso/maso</i> | b. <i>dzino/mano</i> | c. <i>liu/mau</i> |
| 5eye/6eye           | 5tooth/6tooth        | 5word/6word       |
| 'eye/s'             | 'tooth/teeth'        | 'word/s'          |

Example (42) illustrates a strategy specific to Class 5. A more general means of meeting the requirement in (40) is Kanerva's (43).

- (43) Mora Default: Ø → i / \_  
|  
μ
- (Kanerva 1990)

An asymmetry in the formation of imperatives illustrates the combined effects of (40) and (43). Kanerva points out that imperatives of polysyllabic verbs are bare forms, as (44a,b) demonstrate. However, imperatives of monosyllabic verb stems begin with the vowel *i*- (see [45]).

- |         |                              |  |
|---------|------------------------------|--|
|         | infinitival                  | imperative   |
| (44) a. | <i>ku-yankula</i> 'to speak' | <i>yankula!</i> 'speak!'<br>(polymoraic stems)       |
|         | <i>ku-khala</i> 'to sit'     | <i>khala!</i> 'sit!'                                 |
| (45) a. | <i>ku-fa</i> 'to die'        | <i>ifa!</i> 'die!'<br>(CV stems)                     |
|         | <i>ku-dya</i> 'to eat'       | <i>idya!</i> 'eat!'<br>* <i>fal!</i> ; * <i>dya!</i> |

18. In Chichewa every mora is a syllable, according to Kanerva (1990). Thanks to an anonymous reviewer for *The Linguistic Review* and to Lee Bickmore and David Odden for helpful discussion on 2 syllable vs. 2 mora requirements in Bantu.

Kanerva also observes that in Class 9, where native stems begin with prenasalized consonants, epenthetic *i*- attaches to CV stems. Compare members of the two columns in (46) (Kanerva 1990: 40).

- |      |                                |             |                             |          |
|------|--------------------------------|-------------|-----------------------------|----------|
| (46) | a. <i>"fuuti</i>               | 'rifle'     | b. <i>i<sup>m</sup>fa</i>   | 'death'  |
|      | c. <i>"pheez<sup>n</sup>zi</i> | 'lightning' | d. <i>i<sup>m</sup>psyo</i> | 'kidney' |
|      | e. <i>"saa<sup>n</sup>je</i>   | 'jealousy'  | f. <i>i<sup>n</sup>sa</i>   | 'deer'   |

Kanerva claims that the nasal Class prefix does not constitute a syllable, so its presence on the nouns in (46b, d, f) does not suffice to satisfy (40). Kanerva's (43) provides the means for repair.

This minimal word requirement is common in Bantu (see Downing 1994, Kiyomi and Davis 1992 on Swati; Mutaka and Hyman 1990 on Kinande; Myers 1985 on Shona; Njogu 1994, Park 1994, Carstens 1991 on Swahili). Elements not of the major categories N, A, V, and P are consistent exceptions, however. (38a) (reproduced below) illustrates the well-formedness of the Case-marker *-á*, despite its deviance vis-à-vis (40).

- (38) a. *ugwetselo \*(wá) tauni*  
14destruction 14of 9town  
'the destruction of the town'

The Chichewa conjunct *ndi* 'and' also escapes (40), as (10a) shows (repeated below). So does the homophonous copula *ndi* (see [47]).

- (10) a. *m-nyamata ndi m-tsikana*  
1 boy and 1 girl  
'a boy and a girl'

- (47) *Lilumbe ndi mzinda.*  
Lilumbe COP 3city  
'Lilumbe is a city.'

Kanerva accounts for this by restricting the minimal word requirement to N, V, and A in Chichewa, but this grouping does not constitute a natural class. Chichewa data is inconclusive with respect to P: apart from *ku*, *pa*, and *mu* constructions, locative meanings seem to be expressed through compound nouns (see [84]). In Swahili, however, there are semantically contentful prepositions and these are polysyllabic just like nouns, adjectives, and verbs (cf. Swahili *katika* 'in', *baina* 'between'). Carstens (1991) accordingly argues that only the lexical categories of Swahili are subject to the minimal word requirement. I suggest that this is true in Chichewa also, and perhaps throughout Bantu. Chichewa copulas, conjuncts, and "dummy" *-á* 'of' all escape (40) because they are functional elements.

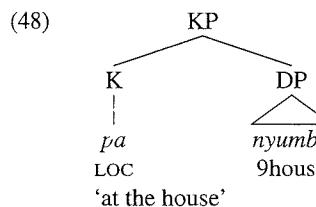
Since *ku*, *pa*, and *mu* are licit monosyllabic forms, I conclude that they are functional categories as well.

As an alternative consistent with her position that *ku*, *pa*, and *mu* are nouns, Bresnan (1995) proposes that they can violate (40) because they are proclitics. Bresnan provides no evidence to support this claim, nor does she address its relationship to Bresnan and Mchombo's arguments that the locative morphemes are independent words. The proposal has the curious entailment that Class 18 *mu* and its reduced form *m* (see [7]) do not differ in morphological status. Most importantly, though, it is not clear that clitic status is an option compatible with nominal status for *ku*, *pa*, and *mu*, since items that cliticize are typically pronouns or functional heads (cf. Spencer 1991: 350). I will not consider further the question of whether *pa*, *ku*, and *mu* are clitics, as this state of affairs would be quite compatible with the analysis I am proposing. I present arguments against the classifier analysis in section 8.

### 3. Locative phrases are nominal projections

#### 3.1. Locative phrases control agreement

The facts of the previous three sections support the analysis in (48).



Yet we saw in (35) that modifiers within the locative phrase may bear locative agreement — a strong indicator that a nominal is present. In addition, locative phrases pattern with DPs in that they have corresponding Subject and Object prefixes (cf. Bresnan and Kanerva 1989). Locative subjects, controlling subject agreement, appear in (1), repeated below. (49a) shows locative object marking. OM is restricted to subcategorized complements, as (49b-d) illustrate.

- (1) a. *Mu-nyumba mu-ku-nunkh-a.*  
18-9house 18AGR-ASP-stink-FV  
'Inside the house stinks.'
- b. *Ku-nyumba 'ku ndi ku-tali.*  
17-9lake 17DEM COP 17AGR-far  
'That house and its environs are far away.'
- c. *Pa-nyumba pa-ku-on-ek-a ngati pa-ku-psya-a.*  
16-9house 16AGR-ASP-see-STAT-FV like 16AGR-ASP-burn-FV  
'The house and surrounding yard look like they're burning.'

- (49) a. *Ndi-ma-pa-konda* (*apa/pamudzi*).  
1SG-ASP-16OM-like 16dem/16-3village  
\*'I like there (at the village).'  
cf. *Ndi-ma-wu-konda* (*mudzi*).  
'I like it (the village).'  
b. \**Ndi-ma-pa-konda anthu* (*apa*).  
1SGS-ASP-16OM-like 2person 16dem  
'I like people there.'  
c. \**Ndi-ma-pa-dya* (*pano*).  
1SG-ASP-16OM-eat 16dem  
'I eat here.'  
d. \**Ndi-na-pa-gona* (*apa*).  
1SG-PST-16OM-sleep 16dem  
'I slept there.'

Apart from locative phrases, *konda* 'like' selects only DP and CP complements, like verbs of this meaning in more familiar languages. Subject and object marking otherwise reflect the φ-features of DPs in Chichewa, as elsewhere — the gender of nouns, the singular or plural features of #<sup>0</sup>, and the person features of D<sup>0</sup>. Independent evidence for attributing φ-features to non-nominal categories is limited and controversial, at best.<sup>19</sup>

These facts are unproblematic if a silent "place" noun heads each locative phrase, and selects the KP headed by LOC, as in (2) and (36). While *ku*, *pa*, and *mu* do not parse morphologically into a single stem with three agreement prefixes, they are gender-specific forms; I will treat them as agreeing with the null nouns.

A question that arises with respect to this analysis is how the locative DP meets the Case filter when occupying a [-Case] position, as in (50).<sup>20</sup>

- (50) *Ndi-na-gona pa-mushá*.  
I-PST-sleep 16-3home  
'I slept at home.'

The issue arises also with respect to English adverbial modifiers like *yesterday* and *this way*. Larson (1985) suggests that such "bare NP adverbs" have an intrinsic Case feature, which I will assume to be a kind of inherent Case. I propose that Chichewa locatives share this property. Their inherent Case

specification does not bar locatives from bearing and checking the structural Cases nominal and accusative,<sup>21</sup> as in (1) and (49).<sup>22</sup>

### 3.2. Locative agreement in DP: Modification of a silent noun

Let us look more closely at locative agreement on nominal modifiers, in light of the [n̩e] hypothesis.

Myers (1987) shows that within Shona locative phrases, both locative agreement and agreement in the overt noun's lexical Class are possible, providing categories bearing the latter are relatively closer to the noun (see [51]). Bresnan and Mchombo report similar effects in Chichewa (see [35], repeated below).

- (51) a. *pa-mushá apo p-ósé p-a-ká-chén-a* (Shona, Myers 1987)  
16-3-home that(16) 16-all 16-white  
'at that whole white home'  
b. *pa-mushá uyo p-ósé p-a-ká-chén-a*  
16-3-home that(3) 16-all 16-white  
'at that whole white home'  
c. *pa-mushá uyo w-ósé p-a-ká-chén-a*  
16-3-home that(3) 3-all 16-white  
'at that whole white home'  
d. \**pa-mushá apo w-ósé p-a-ká-chén-a*  
16-3-home that(16) 3-all 16-white
- (35) a. *pa-mu-dzi p-athu p-onse*  
16-3-village 16-our 16-all  
'at all of our village'  
(Chichewa, Bresnan and Mchombo 1995)  
b. *pa-mu-dzi w-athu p-onse/\*p-athu w-onse*  
16-3-village 3-our 16-all 16-our 3-all  
'at all of our village'  
c. *pa-mu-dzi w-athu w-onse*  
16-3-village 3-our 3-all  
'at all of our village'

21. This is a minor modification to Larson's account, from Carstens (1991).

22. Myers and Bresnan and Mchombo note that locative phrases functioning as modifiers to nouns trigger 'of'-insertion, a fact which supports the analysis of them as DPs, but which also indicates that my account is not complete. The same question arises in English with respect to, for example, *the city \*(of) tomorrow*. 'Of' often marks a structural Case (cf. Carstens 1991); that it is required in Chichewa to introduce locative adjuncts in NP raises a special problem, under the intrinsic Case account. I have nothing to say about this presently.

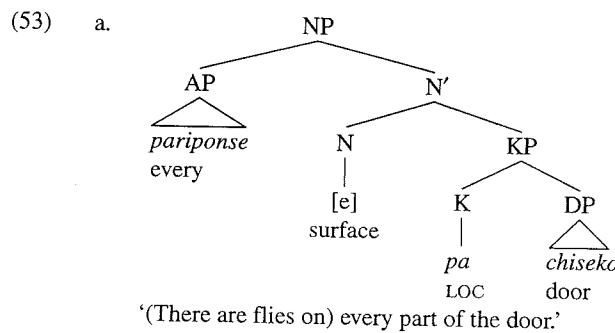
19. Agreement with sentential subjects is Class 10, perhaps a default in Chichewa. See Carstens (1991) for discussion of *ku*-agreement with Bantu infinitives and gerunds (homophonous in proto-Bantu with expletive agreement, and in many of its existing descendants as well (cf. Guthrie 1948, 1967). Other exceptions are discussed in Iatridou and Embick (1993), who point out that certain CPs may control true number agreement. These CPs have special properties, as they show; I have nothing to add.

20. The Class 18 locative that I argue to be adjoined to NP in (59c) raises the same question.

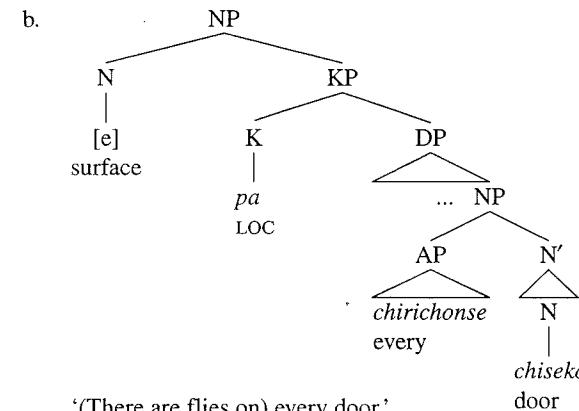
Examples like (51) lead Myers to claim that the variation in agreement has no semantic import. Additional examples show that this is not always the case, however. In the judgement of my consultant from northern Malawi, arguments and modifiers bearing locative agreement are necessarily semantically linked to the locative content of the phrase. (52) demonstrates this point for the Chichewa quantifier *-ri -onse* 'every/each'.

- (52) a. *Pa-li nchenche pa-chiseko chirichonse.*  
     16-be 10fly 16-7door 7every  
     'There are flies on every door.'  
     b. *Pa-li nchenche pa-chiseko pariponse.*  
     16-be 10fly 16-7door 16every  
     'There are flies all over the door.'

The meaning of (52b) is inconsistent with an analysis which treats the locativized noun as the lexical (thus semantic) head of the locative phrase. On the other hand, (52) is easily accounted for if there is a silent locative nominal which may have its own arguments and modifiers. Abstracting away from word order and functional structure, the two readings have the representations in (53).<sup>23</sup>



23. Sometimes the preferred meaning associated with Class 16 appears to be "top", while a more general "place" meaning is also available. I compromise on 'surface' where possible.



The null hypothesis regarding functional structure is that locative NPs have the extended projections of other nouns. They are usually definite, but indefinite readings seem possible (see [55]). I conclude that the locative NP is complement to a phonologically null D<sup>0</sup>, like other Chichewa NPs. Locatives are unambiguously singular:

- (54) \**pa tebulu*<sup>24</sup> *patatu*  
     16 9/10table 16three  
     'three (places on the) table(s)'

I will assume that a singular #(P) is present in locative DPs. The availability of a possessive pronoun, bearing locative agreement and preceding APs, provides a supporting argument for the presence of the #(P) projection (see [35a], and section 2.2.3).

Examples (55) illustrate another correlation between the choice of agreement on an AP and its scope interpretation. The AP with locative agreement in (55a) is most readily interpreted as a modifier of an implicit location noun. (55a) is not consistent with a situation in which it is the underside or legs of the table which are wet, unless perhaps they are also what is clean. In (55b), on the other hand, *loyela* 'clean' modifies *tebulu* 'table' itself. (55b) would be a true statement if there were water anywhere on a clean table.

- (55) a. *Pa tebulu poyela pali madzi.*  
     16 9table 16clean 16be 6water  
     'The clean top of the table is wet.'  
     'b. *Pa tebulu poyela*

24. Singular and plural nouns of Classes 9/10 do not differ in overt morphology; thus *tebulu* 'table' could in principle be either.

- b. *pa tebulu loyela pali madzi.*  
 16 9table 9clean 16be 6 water  
 '(Somewhere) on the clean table there is water.'

The full representations of the locative phrases in (55) are as shown in (56) (again, deferring discussion of movements which derive surface word order).

- (56) a.
- 
- 'A/the surface is clean, and this wet.'
- b.
- 
- 'The table is clean, and a/the surface of it is wet.'

It is not surprising that locative concord on a noun's logical complement is not felicitous, assuming this analysis. Since many modifiers are nominal, however, and introduced by -á 'of', complements and adjuncts to N may be homophonous. The availability of modification to either the null or overt nominal in a locative phrase further complicates this state of affairs. The available readings for (57) and (58) illustrate that four syntactic structures may correspond to one string differing only in the form of agreement on -á 'of'. While (57) may be used in reference to a calabash which either currently or typically contains beer, (58) concerns only a beer calabash — one which is habitually used for beer fermentation, and therefore has a beery interior which would impart its flavor and odor to other contents. In (58b) the interior is the topic of discussion.

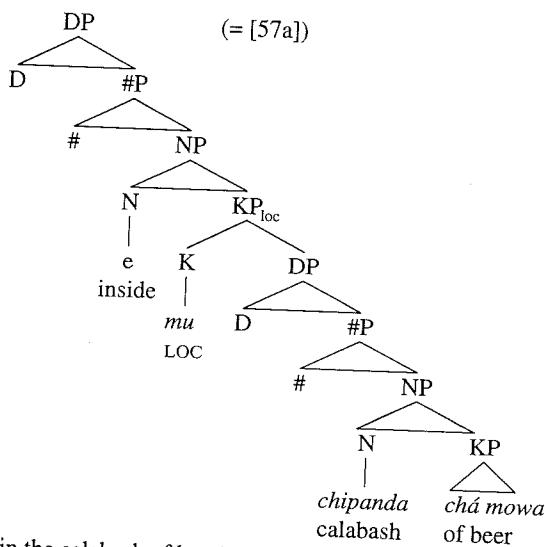
- (57) *mu chipanda chá mowa*  
 18 7calabash 7of 3beer  
 a. 'in the calabash of beer'  
 b. 'in the beer calabash'

- (58) *mu chipanda mwá mowa*  
 18 7calabash 18of 3beer  
 a. 'in the beer calabash'  
 b. 'the beery inside of the calabash'

(57a) is the only reading in which the phrase -á *mowa* 'of beer' is complement to the noun *chipanda* 'calabash'. It can be straightforwardly represented as in (59a), under my proposal. Readings (57b) and (58a) appear to be nearly synonymous, although they differ in the agreement on -á 'of'. In each, -á *mowa* 'of beer' functions as a nominal modifier. In (57b) it modifies *chipanda* 'calabash' as shown in (59b). I propose that in (58a) -á *mowa* 'of beer' modifies a null 'inside' nominal, which itself is a modifier of *chipanda* 'calabash'. There are thus two null 'inside' nominals in (58a), as shown in (60a).<sup>25</sup> In (58b) *mwá mowa* 'of beer' modifies the silent noun 'inside' as shown in (60b).

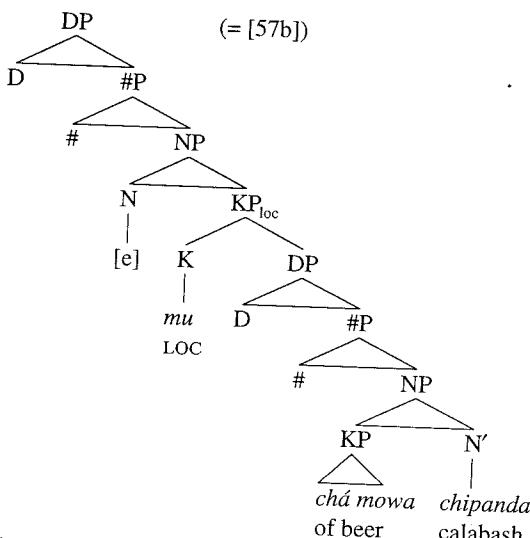
25. ... but only one *mu*, the second silent noun having no complement. Anticipating the conclusions of sections 4 and 5, the phrase *mwá mowa* 'of beer' must license this empty noun.

(59) a. (=[57a])



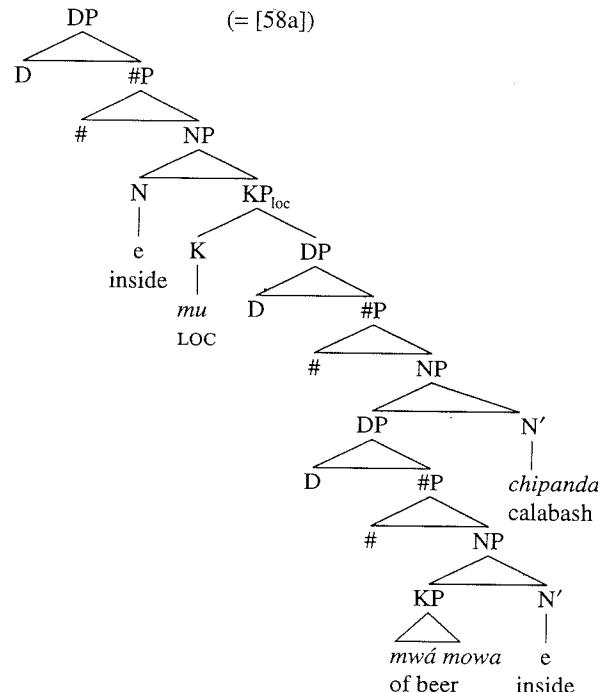
'in the calabash of beer'

b. (=[57b])

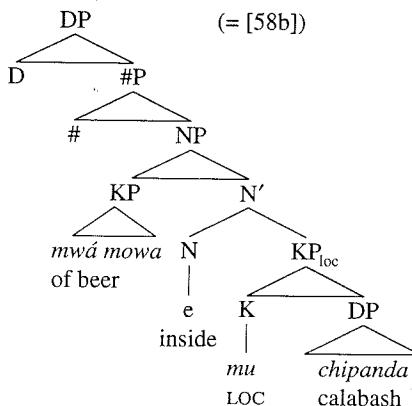


'in the beer calabash'

(60) a. (=[58a])

'in the beer calabash'  
i.e., 'inside of the [[beery inside] calabash]'

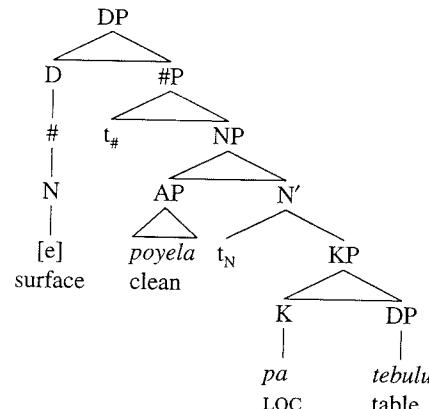
b. (=[58b])

'the beery inside of the calabash'  
i.e., 'soiled with beer'

#### 4. $KP_{loc}$ raises to SpecDP

The structures I've proposed reflect the semantic correlates of locative agreement, but they do not yet account for surface word order within locative phrases. Combining the analysis of locatives in section 3.2 with the N-to-D analysis of Chichewa DPs developed in section 2.2.3 yields the tree in (61) for (62a). But this cannot be correct, because (60) predicts LOC and its complement *pa tebulu* to follow the adjective *poyela*, contrary to the facts. (62) demonstrates that LOC and its complement can only be initial.

(61)



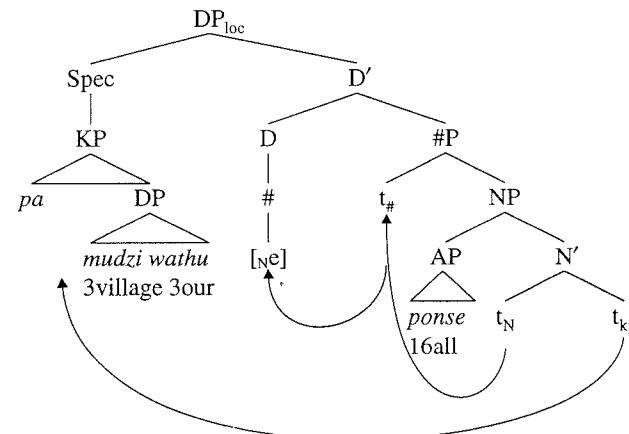
- (62) a. *pa tebulu poyela*  
LOC 9table 16clean  
'the clean surface of the table'  
b. \**poyela pa tebulu*  
c. \**pa poyela tebulu*

Moreover, continuing to assume that the DP headed by  $[_N e]$  (henceforth  $DP_{loc}$ ) is constructed comparably to other DPs, then modifiers of  $[_N e]$ , identifiable by their locative agreement morphology, should precede modifiers of the overt noun in the base order. Yet it is clear from (35) and (51) that they obligatorily follow.

I propose that the entire locative KP raises to  $SpecDP_{loc}$ . The representation of a locative DP is thus (63) in overt syntax.<sup>26</sup>

26. There is perhaps a resemblance to English gapping constructions under this proposal (cf. Vanden Wyngaerd 1993). The absence of an antecedent and the obligatory emptiness of the locative head noun are important areas of contrast, however. Resemblance to VP ellipsis constructions is similarly partial, and the XP status of the licenser is a marked difference.

(63)



In the Minimalist program of Chomsky (1995), movement is driven by the necessity of checking meaningless (henceforth [-interpretable]) features, so that they can be eliminated from LF representations. Much of feature-checking in overt syntax is accomplished through Spec-head relations, in Chomsky's system.<sup>27</sup> I propose that the covert determiner of a locative phrase has some feature which must be checked with a feature of  $KP_{loc}$ .<sup>28</sup> Since  $SpecDP$  is typically unoccupied in non-locative nominals of Chichewa,<sup>29</sup> it seems that the feature is a locative one. Consistency of word order in locatives indicates that  $KP$ -raising is necessarily overt in  $DP_{loc}$ ; in Chomsky's system this means that the locative feature is always "strong".

27. See Chomsky (1995) on checking domains, and much previous work on Spec-head agreement (Koopman 1992; Kinyalolo 1991, and others).

28. Anticipating the conclusions of the next section vis-à-vis checking of agreement features in DP, the converse is equally likely. In fact, [location] might be a feature-category of  $D^0$  as [person] is, such that  $D^0$  bears the [+interpretable] meanings [inside], [surface/place] and [vicinity] analogous to person features [1st] and [2nd]. Analogising one step further, Class 17 [vicinity] might correspond to the absence of D-features, as [3rd] is the absence of person (cf. Bonet 1991). If so, the empty locative nouns introduce only gender features, not semantic content; an attractive result. This would mean that [-interpretable] features on  $KP_{loc}$  need checking against  $D^0$ . I leave this possibility for future study.

29. To be precise,  $SpecDP$  is empty in overt syntax unless a demonstrative or the quantifier *-onse* 'all' moves there. See Myers (1987) and Carstens (1991) for discussion of this in other Bantu languages.

### 5. The Condition on Empty φ-features

Let us turn now to consideration of the null nominals themselves. My account of Chichewa locatives cannot be complete without attention to two related questions: (i) what makes null nominals possible in these constructions; and (ii) why are they not possible in analogous contexts, in a language like English?

Since empty categories are generally subject to tight recoverability requirements, we can expect the distribution of empty nouns to correlate with the availability of some licensing factor(s). The existence of locative agreement within Chichewa DP is a likely candidate, making licensing of empty locative nouns potentially comparable to licensing of the empty DP *pro* by “rich” agreement. Chichewa agreement does in fact license *pro* subjects, including locative *pros*. Compare null N to null DP in (64a), (64b–d):

- |         |   |                              |
|---------|---|------------------------------|
| (64) a. | <i>pa chiseko</i> [ <sub>N</sub> e]<br>16 7door<br>'on the door'                                    | [locative [ <sub>N</sub> e]] |
| b.      | [ <sub>DPe</sub> ] <i>mu-li nchenche</i><br>18AGR-be 10fly<br>'There are flies (inside location).'  | [locative <i>pro</i> ]       |
| c.      | [ <sub>DPe</sub> ] <i>pa-li nchenche</i><br>16AGR-be 10fly<br>'There are flies (on/at location).'   | [locative <i>pro</i> ]       |
| d.      | [ <sub>DPe</sub> ] <i>ku-li nchenche</i><br>17AGR-be 10fly<br>'There are flies (general location).' | [locative <i>pro</i> ]       |

The “rich” agreement on *-li* ‘be’ licenses *pro* subjects in (64b–d), by assumption (cf. Rizzi 1986). Similarly, the gender-specific KPs seem to permit  $N_{loc}$  to be null. Pursuing the comparison, let us assume the informal statement in (65).

- (65) Licensing requirement for null locatives  
An empty locative nominal is licensed by “rich” agreement.

In (64b–d), *-li* ‘be’ is in  $I^0$  and *pro* is in SpecI (cf. Carstens and Kinyalolo 1989 on Bantu sentence structure), allowing subject agreement to be checked. Subject agreement being “rich”, it in turn makes possible the presence of *pro*. The Spec-head relation underlies *pro*-licensing in this way (Chomsky 1995: 176). We have established already that the locative KP raises to SpecDP. I suggest that Spec-head feature-checking allows the KP in (64a) to license [<sub>N</sub>e], the empty locative nominal.

Given the similarity between these two phenomena, a unitary account is to be desired. I suggest the general licensing requirement in (66), with “empty”

defined as in (67). (66) is a PF condition,<sup>30</sup> accounting in principle for the distribution of any  $N^0$ ,  $NP$ ,  $\#^0$ ,  $\#P$ ,  $D^0$ , or  $DP$  which is silent.

- (66) Condition on Empty φ-features  
An empty [+interpretable] φ-feature must be checked by “rich” inflection.  
(67) φ-features are “empty” iff introduced by merger of phonologically empty material.<sup>31</sup>

I adopt (66), and assume that the checking relation with “richly” inflected  $KP_{loc}$  makes the empty locative nouns of Chichewa possible.

In the following section I argue that the Condition on Empty φ-Features correctly predicts the distribution of empty nouns in non-locative DPs in both Bantu and Romance languages.

### 6. Looking beyond locatives

#### 6.1. Preview

In this section I illustrate the application of the Condition on Empty φ-features within non-locative DPs of Bantu and Romance. I first sketch out Checking Theory in relation to number and gender agreement inside DPs. I then argue that while [<sub>N</sub>e] checks gender agreement on lexical arguments and APs through Spec-head relations in NP, this agreement in turn, being “rich”, permits the [+interpretable] gender feature to be empty. Rich number agreement on APs and arguments licenses the number feature of an empty N simultaneously. However the [−interpretable] number feature is “weak” in Chomsky’s sense; number features of adjectives and arguments are therefore checked against  $\#^0$  by raising and adjoining to it at LF. Thus a morphologically “rich” but abstractly “weak” number feature licenses its covert [+interpretable] counterpart prior to being checked by  $\#^0$ . Agreement features on genitive pronouns in Spec#P can be checked by the complex empty head [<sub>#</sub>  $\#N$ ], whose [+interpretable] counterpart

30. Thus *pro* always raises overtly. See (73) and note 39 for evidence of that the Condition on Empty φ-features is relevant at PF. Alternatively, empty [+interpretable] φ-features are by definition “strong”, unlike other [+interpretable] features. Assuming this, (66) is a local condition in the sense of Collins (1995). Intermediate stops by KP to check features locally is consistent with the analysis in all respects.

31. Apart from the semantic distinctions among locations that I attribute to the empty locative nouns (“inside”, “surface”, “general area”) the empty material consists entirely of φ-features, in fact; if the suggestion in note 27 were adopted, this would be true of locative N-gaps also, but not locative *pro*. Sharpening of (67) thus awaits further study of the status of location in feature-theory.

features are licensed at the same time.

Only “rich” agreement on determiners fails to license nominal gaps inside DP, as Spanish data will show. This makes sense, as nominal categories do not enter checking relations with  $D^0$  until LF.

## 6.2. Checking Theory and gender/number agreement in DP

I assume with Chomsky (1995) that Logical Form cannot include features which lack interpretations, and that checking against a matching feature is crucial to the elimination of such a feature. In contrast, interpretable features cannot be eliminated, and it is therefore of no consequence whether they are checked or not. One result of this is that in the course of a derivation they may enter into multiple checking relations with [-interpretable] features.

Feature-checking relations are intrinsically symmetrical (Chomsky 1995: 259), although often vacuous in one direction. Taking both IPs and DPs into consideration it is clear that the symmetry is crucial: while [-interpretable] agreement features are associated with heads in IP, within Chichewa DP they are borne by XPs and checked by heads. This is true in many languages having grammatical gender.<sup>32</sup>

As mentioned in section 5, much of feature-checking in overt syntax is accomplished through Spec-head relations. In IP-level syntax, the nominative Case features of a subject DP and its “assigner”  $I^0$  must be deleted through checking; if the DP appears in  $\text{Spec}I^0$  position, this is accomplished. Recall that multiple specifiers are possible (on a language- and category-particular basis), allowing a given head to check the features of more than one XP. It follows that Chichewa  $N^0$  can check the gender features of modifiers and arguments in DP through multiple Spec-head relations.<sup>33</sup>

Features of a head  $a$  can enter checking relations with a head  $b$  to which  $a$  is adjoined. In a familiar case, if an  $I^0$  has a V-feature (identifying it as an affix to V) this is checked by V-raising and adjunction to  $I^0$ , which places the category feature of the verb in a checking relation with  $I^0$ .  $N^0$ -to-#<sup>0</sup>-to- $D^0$  raising can be analyzed in these terms: #<sup>0</sup> has an N-feature, causing  $N^0$ -to-#<sup>0</sup> movement, and  $D^0$  has a #-feature motivating [N+#] to #<sup>0</sup>.

Items in  $b$ 's checking domain can be checked by  $a$ , when it is adjoined to  $b$ . Thus subject agreement on a verb is checked against the subject in  $\text{Spec}I^0$ , when that verb raises and adjoins to  $I^0$ . Similarly, number and gender agreement on

32. Agreement in DP is subject to parametric variation, correlating with the presence or absence of gender. Specs check heads in the DPs of certain languages including Hungarian and Yupic (Abney 1987; Carstens 1991).

33. Chomsky argues that agreement, for example on  $I^0$  with a subject is checked only by one specifier (the innermost). There is no correlate within DP in languages with grammatical gender, but see the references in note 32.

$KP_{loc}$  are checked in  $\text{SpecDP}$  against  $D^0$ , which inherits these features from incorporated #<sup>0</sup>+ $N^0$ .

Finally, feature-checking is postponed until LF, if the [-interpretable] feature is “weak” rather than “strong”. In this case abstract features themselves raise and adjoin to heads at LF, without having to carry their associated lexical items along. This happens in English, where  $V^0$  remains *in situ* in overt syntax: at LF, the features of  $V^0$  raise to  $T^0$  to check  $T^0$ 's V-feature and its own subject agreement. We will see that number agreement is often checked at LF; I suggest that number and gender agreement visible on determiners in Romance languages is also checked by LF-raising of the features of #<sup>0</sup> and  $N^0$ .

I conclude that multiple Spec-head relations, plus incorporation of  $N^0$ -to-#<sup>0</sup>-to- $D^0$ , suffice to check agreement on arguments and modifiers throughout DP. The facts do not support Chomsky's view that relevant features of the target of movement are always [-interpretable] (Chomsky 1995: 278, 282), the correlation apparently being IP-specific. Given this, I suggest that movement is motivated by the need to check [-interpretable] features of either the target or the item which moves.<sup>34</sup>

## 6.3. Non-locative $N$ -gaps in Romance and Bantu

Consider the nominal gaps in (68) and (69). These are licit in Chichewa and Swahili, but unacceptable in English:<sup>35</sup>

- (68) a. *Ndi-ma-konda changa* [e]. (Chichewa)  
     1SG-ASP-like 7my  
     \*I like my (for example, picture).'  
 b. *Ndi-ma-konda zanga* [e].  
     1SG-ASP-like 8my  
     \*I like my (for example, pictures).'

34. In other words the *Attract* principle of Chomsky (1995) is incorrect. The conclusion might be avoided if gender and number agreement within DPs were always checked as “free riders”, in Chomsky's terms, the true motivation for movement being perhaps to check category features. For example, #<sup>0</sup> might have strong [-interpretable] N-features analogous to the D-/N-feature of  $T^0$ , which happen not to erase after checking, and thus attract all arguments and APs. A technical question arises with respect to differentiating this N-feature from that which drives  $N$ -to-# raising, but I leave this aside. The approach seems to me an inferior one, recommended only by its consistency with (a principle based on) a partial generalization. See Collins (1996) for further arguments against *Attract*.

35. Contreras (1989) reports that in Spanish, the inflecting genitive pronouns *nuestra/o* and *vuestra/o* may not be followed by an empty noun; nor can French *mon/ma*. Both these sets of pronouns appear to be clitics (\**ton et mon livre*, \**nuestra y vuestra madre*).

- (69) a. *Kiti hiki ki-me-haribika; ni-pe chako [e].* (Swahili)  
     7chair 7this 7AGR-perf-break me-give-subj 7your  
     \*'My chair is broken, give me your.'  
     b. *Watoto wangu wa-ko, na wenu [e] je?*  
     2child 2my 2AGR-LOC and 2your Q  
     \*'My children are here, and your (PL)?'

Like the locative KPs, genitive pronouns move overtly from their base positions to a Spec position to the left of other NP contents (see [27]–[31]); I've analyzed this as Spec#P (section 2.2.2). Given raising of N<sup>0</sup> to #<sup>0</sup> in Chichewa, pronouns can check both number and gender features at their landing site, under Chomsky's assumptions.

Chichewa lexical arguments also appear to license N<sup>0</sup>-gaps. Consider (70), in which only a lexical argument is local to the gapped noun *chithunzi* 'picture'.

- (70) *a-ma-konda chithunzi changa kapena [e] chá Nuru?* (Chichewa)  
     s/he-ASP-want 7picture 7my or 7of  
     \*'Does s/he want my picture or of Nuru?'  
     (Nuru = agent, possessor or theme)

I argued in section 2.2.2 that lexical arguments remain in the NP projection, based on the contrast between their positions and that of genitive pronouns. Chomsky (1995) suggests that features are checked only in derived positions, entailing that lexical arguments must raise. I suggest that there is string vacuous movement of lexical arguments to outer SpecNP positions.<sup>36,37</sup> Their "rich" agreement checks the empty gender feature and is checked by it, satisfying the Condition on Empty φ-features, and then deletes.

Lexical arguments appear to license empty nouns in Romance languages, as well as in Bantu. The Case marker that introduces lexical arguments is invariant in Romance, however. I demonstrate with Spanish data:

- (71) *Me gusta ella [e] de Juan.*  
     \*I like the of Juan<sup>38</sup>

36. Overt raising and adjunction to a single category may account for the fact that the relative positions of multiple lexical arguments, and of arguments vs. adjectives, is not fixed. See also discussion of (73) and note 40 for evidence that LF-raising cannot fulfill the Condition on Empty φ-features.

37. My analysis here resembles Chomsky's treatment of agreement on predicate adjectives (Chomsky 1995: 354). It is plausible that there is a projection nP corresponding to vp, given the existence of nominals selecting both agent and theme arguments. If so then checking of N's features may be carried out in Spec,n positions. I leave this aside.

38. I thus disagree with Contreras (1989), who treats such cases as licensing of empty N' under government by the inflected determiner. Contreras explains the impossibility of \*el/la [e] by means of the assumption that the determiners are clitics, needing something overt inside DP to cliticize to. See discussion of (73), and (74). On a related point, Contreras points out that (i) is grammatical:

Since the counterparts to *de* inflect for the gender and number of the selecting noun in all Bantu and some Afro-Asiatic languages, and since they appear to function alike in all respects,<sup>39</sup> I will assume that *de* also inflects abstractly.

N-gaps are possible with inflected adjectives, as shown in (72). The account of licensing by lexical arguments extends straightforwardly:

- (72) a. Q: *A-ma-konda chithunzi chachikhulu kapena chabwino?*  
     s/he-ASP-want 7picture 7big or 7good  
     'Does s/he want the big picture or the good[one]?'  
     (Chichewa)
- A: *A-ma-konda chabwino.*  
       s/he-ASP-want 7big  
       'S/he wants the big [one].'
- b. Q: *Wa-taka kiti kidogo au kikubwa?* (Swahili)  
     you+PRES-want 7chair 7small or 7big  
     'Do you want the large or small chair?'
- A: *Na-taka kikubwa.*  
       I+PRES-want 7big  
       'I want the large [one].'
- c. Q: *Qué libroquieres?* (Spanish)  
     'Which book do you want?'  
     A: *El grande.*  
     'The big [one].'

In Chomsky's terms, the fact that APs and lexical arguments do not raise to #P means that [-interpretable] #-features are "weak". The raising of genitive pronouns is not inconsistent with this, as it is known that pronouns raise for special reasons, peculiar to them as a class (see among others Picallo 1994; Diesing and Jelinek 1995; Cardinaletti and Starke, to appear). I assume that the #-feature of a constituent in SpecNP is checked by raising and adjunction to #<sup>0</sup> at LF. Since number agreement on APs and of-Ps is "rich", it can nonetheless

(i) *los estudiantes que conozco y los [e] que no conozco*  
     the students that know-1SG and the that not know-1SG  
     'the students that I know and the [e] that I do not know'

As in the case of *de*, I propose to assimilate the data to a general account well-motivated by Bantu facts. C<sup>0</sup> inflects overtly for the number and gender of the head of a relative clause, as (ii) shows (R= relative, RA= relative agreement). I suggest that the Spanish relative complementizer does so covertly also.

(ii) *... amba-o ni-na-wa-fahamu* (Swahili)  
     RCOMP-2RA I-pres-2OA-know  
     '(those, Class 2) whom I know'

39. See Georgi and Longobardi for details on the syntactic behavior of Italian *di* 'of'; my impression is that facts are comparable in at least Spanish, Swahili, and Chichewa. "Of" arguments appear to remain *in situ* in all these languages as well.

check the # feature of empty  $N^0$  from a SpecNP position, fulfilling the Condition on Empty φ-features.

One agreement bearer fails to license nominal gaps: the determiner. While overt determiners are absent in Chichewa and Bantu generally, Spanish data illustrates the point. (73) shows that omission of the noun is not possible despite the presence of an agreement-bearing determiner.

- (73) Q: *Te gusta el gato o las palomas?* (Spanish)  
 'Do you like the cat or the doves?'  
 A: \**las* [e]/\**el* [e]

Assuming that the Condition on Empty φ-features is a PF condition, this is exactly what we expect, since the determiner is not in a checking relation with empty  $N^0$  or  $#^0$ .<sup>40</sup>

Lobeck (1991) claims that inflected  $D^0$  does license an empty category in such a configuration, based on the German (74) (her [59]):

- (74) *Er liest den/seinen/einen Artiken heute und ich lese he reads the/his/an article today and I read den/seinen/einen [e] morgen.*  
 the/his/a tomorrow  
 'He reads the/his/an article today and I read the/his/a [e] tomorrow.'

On close examination the facts of German seem to support the opposite view, however. Harbert and Diesing (personal communication) report that *den* in this example is not the definite determiner, but a homophonous demonstrative. The paradigms for demonstratives and determiners are partially overlapping, yet diverge in a few telling forms, among them the dative. From (75) it is apparent that while a nominal gap is possible with demonstratives — *den* in (74) and *denen* in (75) — it is not possible with the determiner *den*. If government by an inflected determiner licensed gaps in DP as Lobeck claims, the contrast in (75) would be unexpected.

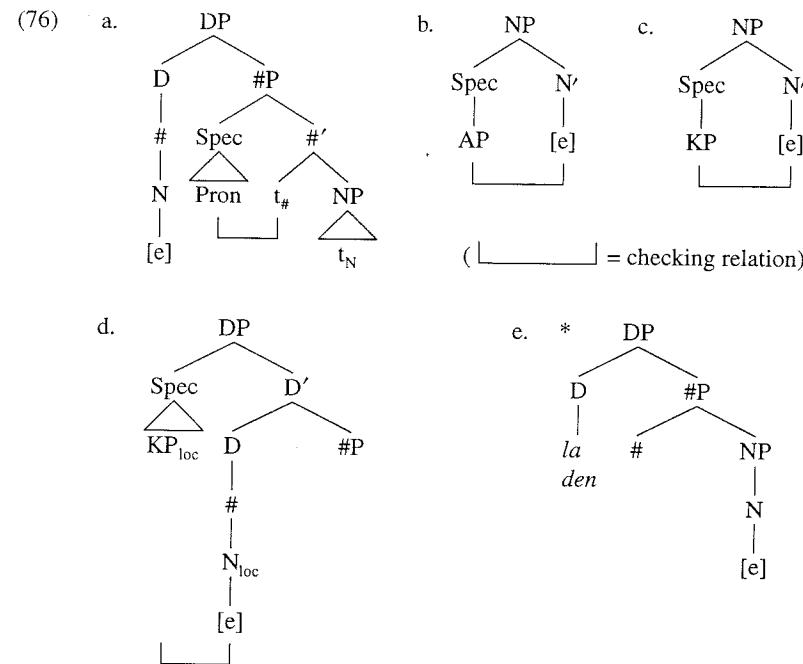
- (75) *Ich helfe keinen Kindern aber er hilft \*den [e]/✓denen.*  
 I help no children but he helps the those

Harbert (personal communication) suggests that the demonstratives are discrete XP modifiers to the nouns they appear with, analyzable perhaps as intransitive, pronominal D(P)s. In support of this view Diesing (personal communication) points out that they function as relative pronouns. As for *einen*,

0. A logical possibility would be for the features of empty  $N^0\#$  to raise to D covertly, establishing a checking relation; in fact this is independently motivated for checking of D's agreement features (section 6.2). That (73A) is unacceptable (and see [75]) demonstrates that LF raising does not license the empty nominal. See also note 36.

given its connection to the homophonous numeral I conclude that it is not in fact a  $D^0$  but rather an XP.

By way of summary, I diagram the licensing generalizations in (76). KP in (76c) represents licensing the features of [e] in NP by a lexical argument ('of' DP).



All the facts suggest that a nominal gap inside DP is possible under the same conditions as *pro*: that is, in a Spec-head relation with "rich" agreement.

## 7. Cross-Bantu variation in locative constructions: Setswana and Swahili

A final aspect of Bantu locative constructions is relevant to this study: the nature of attested variation. Under the [<sub>N</sub>e] analysis locative nominal features are not properties of the overt locative morphemes, as we have seen. It should therefore come as no surprise that the correlation between these elements is partial, cross-linguistically: locative gender features are evident in one language which lacks cognates to *ku*, *pa*, and *mu*, but absent in another, which has such cognates. Setswana and Swahili are the two languages in question. Both provide strong support for the crucial distinction I've drawn between locative nominal

content and locative morphemes. Certain aspects of the phenomena present challenges for the theory I've developed, however, which I wish to address.

Demuth and Mmusi (1997) show that while Setswana has cognates to *ku*, *pa*, and *mu*, it lacks true locative agreement. Only Class 17 agreement occurs with locative subjects (see [77]), and it is expletive in function (Demuth and Mmusi 1997). Adjective agreement is either expletive or reflects the lexical class of the locativized noun, as shown in (78).

- (77) a. *Fa-se-tlháre-ng gó-émé ba-símané.* (Setswana)

16-7-tree-LOC 17SM-stand/PRF 2-boys

'By the tree stand the boys.'

- b. *Kó-Maúng gó-tlá-ya roná maríga.*

17-Maung 17SM-FUT-go 1PL-DM winter

'To Maung we shall go in winter.'

- c. *Mó-le-fátshé-ng gó-fúla di-kgomo.*

18-5-country-LOC 17SM-graze 10cattle

'In the country are grazing the cattle.'

- (78) a. *Fá-se-tlháre-ng sé-se-léelé* (lexical Class concord)

16-7-tree-LOC 7-7-tall

'by the tall tree'

- b. *Fá-se-tlháre-ng gó-go-léelé.* (expletive Cl. 17 concord)

16-7-tree-LOC 17-17-tall

'By the tree it is tall.'

- c. \**Fá-se-tlháre-ng fá-fa-léelé.* (\*true locative concord)

16-7-tree-LOC 16-16-tall

'By the tree it is tall/by the tall tree.'

Swahili, on the other hand, exhibits locative agreement but lacks locative "prefixes", as (79) shows.

- (79) a. *Nyumba-ni kwangu ni kuzuri.* (Swahili)

9house-LOC 17my COP 17good

'My place is nice.'

- b. *Nyumba-ni mwangu m-na-nukia.*

9house-LOC 18my 18AGR-pres-smell good

'Inside my house smells good.'

- c. *Nyumba-ni pangu pana watu wengi.*<sup>41</sup>

9house-LOC 16my 16be 2people 2many

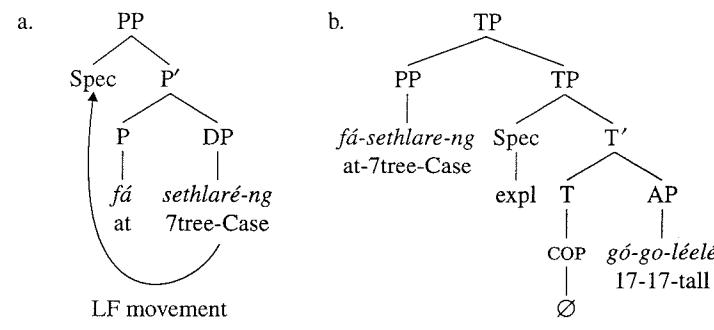
'There are many people at my house.'

41. *Pa* and *ku* agreement in Swahili are said to correlate with greater and lesser specificity of location.

The question raised by the Setswana data is with respect to the locative construction's semantics, which I have argued to belong to null nouns in Chicewa. Examples (77) and (78) show that the meanings are present although true locative gender is absent: why?

I propose that *fá-*, *kó-* and *mó-* are clitic prepositions in modern Setswana: the null nouns' semantics have been reanalyzed as belonging to *fá-*, *kó-* and *mó-*, and the nouns themselves have been dropped from the lexicon. This explains why modifiers local to *fá-*, *kó-* and *mó-* cannot bear locative concord (cf. [78c]) — there is no 'place' noun present for them to modify or agree with. Since the NP projection of the locativized noun is their only possible adjunction site, they must agree with the lexical class of this noun. Adjectives bearing expletive agreement can only be predicational, as shown in (80b). I suggest also that locativized nouns bear *-ng* as Case morphology, which may be checked in SpecPP at LF (cf. Chomsky 1991, 1995, and [80a]).

(80) Setswana locatives



'By the tree it is tall.'

Since they are not DPs, Setswana locatives cannot check Nominative Case (cf. Stowell's 1981 CRP, Machobane 1994); thus in (77) and (78b, c). In the licit representation the structural subject is a nominative expletive *pro*, and the locative PP is an adjunct to TP (see [80b]). The predicate AP can bear only expletive concord.<sup>42</sup>

42. Demuth and Mmusi consider and reject such an analysis on grounds that the locative phrase can undergo subject-to-subject raising, and because [LocP Agent V...] is less felicitous than [LocP V XP], arguing against a covert topicalization analysis in their view. But the same observations hold of CP subjects, for which an aversion to structural subject position is well-established (cf. Koster 1978). Comparable constructions are [[that Mary left] seems [t to have upset John]]; \*[[that Mary left] John said t]. The facts Demuth and Mmusi cite as indicators that Setswana locatives are in structural subject position are thus not in fact decisive. The absence of true

It is believed that proto-Bantu included locative prefixes and locative agreement, like modern Chichewa (cf. Guthrie 1967, among others). From this I conclude that the null nominals existed in proto-Bantu. Setswana exemplifies one kind of loss in the evolution of Bantu locatives — that of the null nouns.

In Swahili, loss appears to have proceeded in the other direction: the facts in (79) suggest that the null nouns are present, but the three locative Case-markers have been dropped in favor of the single suffix *-ni*, cognate to Sesotho *-ng*.<sup>43</sup> This is unremarkable under my analysis, apart from its implications for the licensing of the empty nominal's φ-features: how does this come about? Sometimes an agreeing argument or modifier is present to check them (cf. [79]), but in the absence of this, subject agreement with a locative phrase provides evidence that the null noun is nonetheless present (see [81]).

- (81) *nyumbani ku-/pa-/m-na watu wengi*  
 9house-LOC 17-/16-/18-be 2person 2many  
 'At/in the house are many people.'

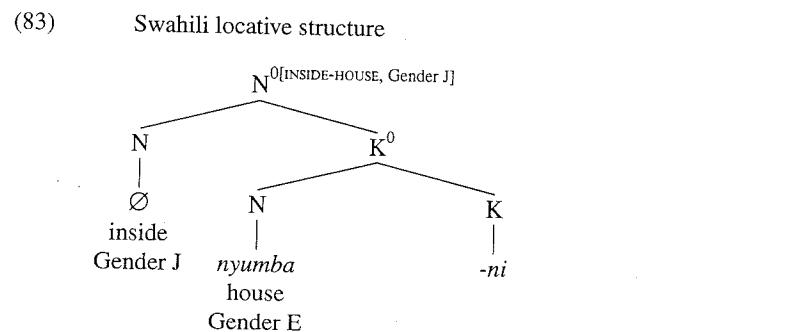
A peculiarity of the syntax of Swahili locatives is suggestive, in this connection: so-called "inner concord", in the overt noun's lexical Class, is not possible. Compare (82) to the Chichewa (35).

- (82) *nyumbani mwangu mzuri/pangu pazuri/kwangu kuzuri/\*yangu \*nzuri*  
 9house-LOC 18my 18good/16my 16good/17my 17good/9my 9good  
 'in/at my good house'

(82) suggests that a locativized noun does not head a syntactic projection distinct from that of locative morphology, in Swahili: it enters the syntax as a subpart of a complex locative word, so cannot have modifiers of its own. I propose that Swahili locatives are compounds, as shown in (83); we will see in section 8 that Chichewa has a few compound locative nouns with the same structure and characteristics (84)/(85). The locativized noun *nyumba* 'house' cannot percolate its gender features to the derived word *nyumbani*, since they clash with those of the head (cf. Lieber 1981); "inner concord" on modifiers of the complex noun is thus blocked. As a zero-morpheme, the null nominal is always licensed word-internally in (83) (cf. Pesetsky 1995 and Carstens 1991 for proposals on how this is accomplished). The absent *pa*, *ku* and *mu* are thus not needed to identify the null nouns' features.

subject agreement is strong evidence against their position (see also Bresnan's 1994b use of +/- subject agreement as a diagnostic for the subjecthood of locatives, including obligatory agreement in Chichewa vs. its impossibility in the English *\*In dry open country and along the roadside are found the turkey vulture*).

<sup>43</sup> -*Ni* and -*ng* are reconstructed as Proto-Bantu \**iní* in Guthrie (1948, 1967), and the locative prefixes as \**pa-*, \**ku-*, \**mu-*.



To sum up, comparison of Chichewa, Swahili, and Setswana shows that, with or without locative "prefixes", the locative constructions of a Bantu language may be bare PPs or intrinsically Cased DPs. This fact is simply accommodated under my approach; related syntactic phenomena which follow from the analysis include asymmetries in locative applicative constructions, discussed at length in Baker (1992), Marantz (1993) (omitted here for reasons of length). The data remain mysterious if the nominal properties of locatives are attributed to the overt locative morphemes, as in Bresnan and Mchombo's proposal.

## 8. Why LOC is not a classifier: A reply to Bresnan (1995); Bresnan and Mchombo (1995)

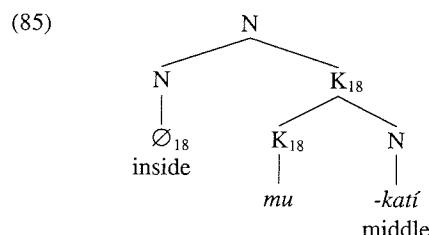
Bresnan (1995) argues against the idea that Chichewa locatives have empty place-noun heads, on the grounds that the hypothesized nominals have no overt counterparts. She observes that there are a few overt place nouns in Chichewa, consisting of *pa*, *ku*, or *mu* and a bound place word with which "inner concord" (cf. section 2.2) is not possible. Complements to these nouns are introduced by -á 'of' rather than by *pa*, *ku*, and *mu* (see [84], = Bresnan's [33], [34]). Bresnan argues that if null place nouns existed in Chichewa they would be expected to pattern with the overt ones in (84) in this respect.

- (84) a. *pa-katí p-á mí-têngó* 16-middle 16-ASC 4-tree  
 'between or in the middle of the trees'  
 b. *m-katí mw-á mí-têngó* 18-middle 18-ASC 4-tree  
 'inside or in the midst of the trees'  
 c. *ku-njá kw-á nyúmba* 17-outside 17-ASC 9house  
 'the yard or outside of the house'
- a'. \**pa-katí pa mí-têngó*  
 b'. \**m-katí mu mí-têngó*  
 c'. \**ku-njá ku nyúmba*

- d. *pa-njá p-á nyúmba*  
16outside 16-ASC 9house  
'the yard or outside of the house (closer proximity)'

From the absence of inner concord Bresnan concludes that *ku*, *pa* and *mu* have [<sub>N</sub> -*kati*] and [<sub>N</sub> -*njá*] incorporated into them in (84). Under this assumption it is in no way obvious that the derived forms should select complements headed by *ku*, *pa* or *mu*.

Suppose -*kati* and *njá* incorporate into LOC at the X<sup>0</sup> level, like locativized nouns in Swahili. As usual LOC appears courtesy of selection by the appropriate null noun:



Each null locative noun selects a unique *pa*, *ku* or *mu* complement. Thus the Class 18 noun in (84)/(85), having expended this selectional feature on the K<sup>0</sup> headed by *mu*, does not pass this feature on to the derived form. The resulting compound inherits only the meanings 'inside' and 'middle', the unsaturated θ-roles of these nouns, and the Class 18 gender feature. Arguments of [<sub>N</sub> Ø[mu[kati]]] are accordingly introduced by the default Case-marker for the nominal domain, -á 'of', just like arguments to other nouns. In short, the problem raised by Bresnan dissolves on close scrutiny of the data.

Bresnan proposes that LOC is a classifier of the noun which follows it. The proposal is difficult to assess because it is unaccompanied by any definition or diagnostics for classifier status. Bresnan cites arguments in Greenberg (1978) that Bantu gender markers have evolved from classifiers in the general case (see also Bresnan and Mchombo 1995: 212). However Greenberg himself suggests that locative prefixes differ from the others in having evolved from prepositions (Greenberg 1978: 70).<sup>44</sup>

Allan (1977) treats *pa*, *ku*, and *mu* as classifiers, but acknowledges that they

44. Greenberg hypothesizes that their reanalysis as Noun Class prefixes gives rise to the development of agreement in the ex-prepositions' shapes. We've seen that locative agreement is available when LOC is clearly morphologically free, in Chichewa; I showed in section 7 that such agreement may be unavailable when LOC is morphologically bound, as in Setswana. Both facts disconfirm this part of Greenberg's locative hypothesis.

violate his own definition thereof, formulated on the basis of extensive comparative work. Allan explains:

- (86) ... a distinguishing feature of classifying languages is *the classification of nouns according to the inherent characteristics of the entities to which they refer...* locative classifiers are an insignificant exception to this otherwise universal principle... (Allan 1977: 304) [italics mine]

The classifier–noun relationship on which Allan's remarks are based is exemplified by the Thai numeral classifiers in (87) (Allan 1977: 286).<sup>45</sup>

- (87) a. *khru· lā:j khon*  
teacher three person  
'three teachers'  
b. *mă· sì· tua*  
dog four body  
'four dogs'

Subsequent research on the topic has concurred with Allan's insight on how classifiers' relations to classified nouns should be defined. Tai (1992) characterizes classifiers as picking out "some salient perceptual properties, either physically or functionally based, which are permanently associated with the entities named by the class of nouns" (see also Wiebusch 1995).

*Ku*, *pa*, and *mu* differ significantly from the classifiers that Allan and Tai consider. They do not partition nouns through reference to their distinctive properties. It is clear that the locativized noun is not interpreted as semantic head of locative phrases, in many cases. The locativized notion may be modified independently of the locativized noun, as in (55a) (reproduced below). (87b) interpreted comparably to (55a) would refer to the four bodies of a dog with this unfortunate birth defect; this reading is unavailable.

- (55) a. *pa tebulu poyela pali madzi*.  
16 9table 16clean 16be 6water  
'The clean top of the table is wet.'  
'A clean place on the table is wet.'

45. Allan treats the words for 'pack' and 'dozen' in (iii) as classifiers also, despite their deviance with respect to the generalization he argues for in (86). In the more recent work of Tai (1992, 1994), these are analyzed as belonging to the distinct category of "measure words", owing to their divergent semantic properties (Allan 1977):

- (iii) a. *būrī· so:n so:n*  
cigarette two pack  
'two packs of cigarettes'  
b. *būrī· so:n lo*  
cigarette two dozen  
'two dozen cigarettes'

The interpretive possibilities in (55a) are unsurprising if the DP projected by the locativized noun is contained within a larger DP headed by a silent place noun. They are anomalous under analysis of LOC as a classifier.

Another major difference between LOC and classifiers has to do with function. Wiebusch (1995) defines the function of classifiers as "individualization" of the nouns they introduce, for purposes of enumeration. Assuming with Tai (1992), (1994) and Allan (1977) that classifiers partition nouns according to qualities of their referents, Wiebusch claims: "... the quantifying function clearly determines the qualifying categories of the numeral classifiers" (Wiebusch 1995: 1). Similarly, Greenberg (1972: 10) describes classifiers as "unit counters", or "merely so many ways of saying 'one', or, more accurately 'times one'".

Recall that Bantu locatives cannot be quantified (see (54), reproduced below). This contrast between locatives and classifier constructions argues strongly against Bresnan's proposal.

- (54) \**pa tebulu patatu*  
 16 9/10table 16three  
 'three (places on the) table(s)',

Based on Chinese data, Tai (1992), (1994) identifies the major semantic domains of classification as: material (including a subcategory of animacy), shape, size, consistency, and part of object. Wiebusch (1995) simplifies this list and refines its subclasses. Tai and Wiebusch observe that location is not among the characteristics to which Chinese classifiers may refer. Taking all of the above factors into account, I suggest that location is not a property to which classifiers refer at all.

To sum up, the proposal that locative *ku*, *pa* and *mu* are classifiers is motivated neither by their meanings nor by their functions.

## 9. Conclusion

Seemingly contradictory properties of Chichewa locative phrases argue that they include null "place" nouns. The content of these silent nominals is recoverable from feature-matching Case-markers that they select.

Many apparent idiosyncrasies of a class of Bantu-specific constructions reduce to familiar aspects of Universal Grammar, under this analysis. There is no need to attribute φ-features to non-nominal categories, to add special Bantu numbers to the typology of classifiers, or to invoke a notion like categorial ambiguity (cf. Baker 1992), to account for locatives.

Licensing of the empty DP *pro* has received considerably more attention heretofore than that of the heads contained within DP. This study suggests that

*pro* is simply the largest of several empty nominal elements, all of which share its dependency on rich φ-feature inflection.

In the Minimalist Program it is features which need checking, rather than the items which bear them. Taking this approach to nominal gaps renders irrelevant the differences of category and distribution among null N(P), #P, and D(P).

The analysis has implications for several aspects of feature-checking theory (Chomsky 1995). I've argued that in the Spec-head relation it is sometimes the occupant of Spec which bears [-interpretable] features, rather than the head; that [-interpretable] features on XPs can motivate XP to raise to a target head with relevant [+interpretable] features, to check features; and that symmetrical checking (Chomsky 1995: 259) allows *pro* and [N<sub>e</sub>] to license agreement while at the same time this agreement licenses them.

This paper includes only a partial and preliminary exploration of DPs in relation to Minimalist notions. Much remains to be done.

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