Locatives in Shona and Luganda

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Abstract

At a general level, this paper is concerned by the categorization of expressions in natural languages. We approach this question with a relatively new tool in hand: phrasal spell out (Starke 2009). If phrasal spell out exists, a single item may correspond to several terminals, where each terminal has a distinct label. As a consequence, the approach predicts the existence of expressions whose behavior corresponds to a mixture of prototypical categorial properties. The current paper applies this relatively new analytical option to locative markers in Shona and Luganda. We contrast them with more familiar Indo-European adpositions, in order to show that their behavior is distinct from ordinary adpositions and other word classes. The behavior of the new class, however, is not explained by positing a new category in the decomposed projection, but by proposing that it corresponds to a combination of several existing categories.

Keywords: Bantu locatives, Nanosyntax, phrasal spell out, semi-lexical categories, silent PLACE

1 Introduction

In Shona, Luganda as well as in other Bantu languages, location in space is expressed by morphemes which are referred to as noun class markers. In their prototypical instantiations, noun class markers express two functions: class/gender (e.g., animate vs. inanimate) and number (singular vs. plural). A consequence of juxtaposing these two statements is the conclusion that location in Bantu is expressed by gender/number portmanteau markers. This is an unexpected state of affairs. We could compare this, for instance, to a situation where the grammar of Italian includes a statement such that the relation of spatial inclusion (‘IN’) is expressed by adding a neuter singular affix to the noun/noun phrase.

For Italian and other Indo-European languages, the descriptive grammars do not include such statements. In Bantu, such statements are very common. According to a large part of the literature (Myers 1987, Bresnan 1995, Bresnan and Mchombo 1995, Carstens 1997), the difference lies in the linguistic categorization of abstract meaning types. Location in most of Indo-European has a dedicated category, P, while location in most of Bantu has the category N. From this single difference, a whole set of contrasts between Bantu and average Indo-European (which we review below) is meant to follow.

We will, however, argue that such a view is oversimplified. We present old and new evidence which suggests that – while on the right track – the nominal analysis accounts

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only for half of the facts: those which show that the locative class markers share some properties with nouns. However, there is also evidence that they do not behave like nouns with respect to some other tests (Carstens 1997), and this is the part of the data which the nominal analysis captures only by stipulation.

The empirical evidence then suggests that we are looking at a category which is intermediate between prototypical nouns and prototypical adpositions. If that is so, the Bantu situation is in fact only a specific instance of a wider pattern. In particular, Svenonius (2006) discusses a whole range of languages with similar items that do not fit either a nominal or an adpositional category and proposes that we need to postulate “a syntactic category which is distinct from both N and P, which [he] call[s] AxPart for ‘Axial Part’.

Svenonius’ proposal is one out of two major responses to the existence of such expressions. The other one, inspired by Kayne’s (2004) work, proposes that the intermediate properties “stem from the fact that [locative markers] are modifiers [...] of a non-phonologically realised noun [...] Place [...] whose presence in the syntactic structure gives locatives a nominal flavor” (Terzi 2010, 197, see also Botwinik-Rotem 2008, Pantcheva 2008, Aboh 2010, Cinque 2010, Nchare and Terzi 2014, Dékány 2018). In the current volume, Munaro and Polletto (this volume) and Medeiros (this volume) make use of this structure.

Trying to decide between the two approaches is difficult, as they seem to have complementary strengths and weaknesses. The silent PLACE proposal has the advantage that it includes both an adposition-like marker (the overt morpheme) and an actual noun (the silent PLACE). This immediately yields the relevant mixture of nominal and adpositional characteristics. However, as the proposal stands, it is not immediately clear why the visible PLACE modifiers cannot modify non-silent nouns. Similarly, it is not clear why the silent PLACE cannot be modified by regular modifiers (as we will see).

Such facts are accounted for by Svenonius’ proposal, which has no (silent) noun. At the same time, it seems that under the AxPart analysis, the mixture of nominal and adpositional properties does not immediately follow from anything: AxPart is an independent category whose relationship to nominal or other properties is not a priori expected.¹

Against this background, our contribution is going to be twofold. First of all, we are going to present a new type of empirical evidence from Shona and Luganda that strengthens the idea of having a silent noun PLACE in the structural representation of locative markers. Second of all, we will present a new version of the silent PLACE proposal that relies on phrasal spell out (Starke 2009 and related work). More specifically, we are going to argue that some of the drawbacks associated to the original silent PLACE analysis may be removed if the actual lexical items spell out a whole phrasal projection that includes PLACE as well as the adpositional node. From this proposal, the restrictions on PLACE modification follow in a way that we make more precise in the main text.²

2 Shona

In this section, we highlight the relevant empirical facts concerning Shona locative markers. These basic observations carry over to Luganda, which we discuss later on against the shared background.

¹Svenonius (2006, 66) makes it explicit that in his theory, “[t]he relationship between N and AxPart [...] may be either historical or derivational.” His paper does not elaborate on this in any detail.

²The idea can be traced back to a suggestion by Klaus Abels at one of the seminars ran by Peter Svenonius in Tromsø in 2006. See www.hum.uit.no/mra/SemSumms/V06/Feb28.htm.
2.1 Noun class markers

Let us first introduce the notion of a class marker. Class markers are prefixes that encode nominal class (or gender) and number. A couple of examples are below, noun class markers are in boldface. Following the tradition, they are glossed by numbers where odd numbers usually correspond to the singular meaning, and even numbers to the plural meaning.

(1) a. **mu-nhu**                   c. **chi-nhu**
   1-NHU     7-NHU
   ‘a person’ ‘thing’

b. **va-nhu**                   d. **zvi-nhu**
   2-NHU     8-NHU
   ‘people’   ‘things’

As the contrast between (1-a,b) shows, the difference in the form of the class marker encodes the difference between singular and plural. The pair (1-c,d) shows the same thing. The contrast between (1-a,c) shows that the class marker also encodes the distinction in animacy. These facts lead to the conclusion that noun class markers are portmanteau morphemes for class/gender and number.

The root and the class marker often form a non-compositional semantic unit (an idiom), as well as a phonological unit. See, e.g., Taraldsen et al. (2018); Taraldsen (2010), Déchaine et al. (2014), Ferrari-Bridgers (2008) or Carstens (1997) for a recent discussion of these issues in generatively oriented frameworks. We tentatively adopt the proposal that on top of each NP, we find the projection of Class (coding distinctions related to animacy, size, shape and other things relevant for class membership). On top of Class, we find Number, see (2). A given class prefix may express features of both Class and Num (for two different ways of achieving this see, e.g., Taraldsen et al. 2018 and Déchaine et al. 2014).

(2)

\[
\begin{array}{c}
\text{NumP} \\
\text{Num} \quad \text{ClassP} \\
\text{Class} \quad \text{NP} \\
\end{array}
\]

Noun class markers enter into a rich set of concord relations. This is illustrated in (3-a,b).

(3) a. **Mu-komana mu-kuru uyu u-ri mu-mota.**
   1-boy   1-big  1-that 1-is in-car
   ‘That big boy is in the car.’

b. **Va-komana va-kuru ava va-ri mu-mota.**
   2-boy   2-big  2-that 2-is in-car
   ‘Those big boys are in the car.’

The examples differ in the number of the initial head noun, marked by *mu* (SG) and *va* (PL). The difference is further reflected on the adjective, the demonstrative and the verb.

2.2 Locative markers

The examples in (4) show one way of expressing location in Shona. What we can see is that there are three distinct markers (*pa, ku, mu*) that precede the class-marked noun, and yield the meaning of ON, BY and IN respectively. These morphemes are called locative noun
classes in the descriptive literature. Because of this, they are also glossed by the relevant class number assigned to them in the traditional classification.

    10-fly 10-be 16-6-pots
    ‘The flies are on the pots.’

   b. Nhunzi dzi-ri ku-ma-poto.
    10-fly 10-be 17-6-pots
    ‘The flies are there by the pots (flying around, pots further away).’

   c. Nhunzi dzi-ri mu-ma-poto
    10-fly 10-be 18-6-pots
    ‘The flies are in the pots.’

Despite their name, which suggests a relation to ordinary non-locative classes, locative markers look like prepositions at the first blush. First of all, it can be shown that they attach to the whole extended NP that includes the demonstrative and other modifiers.

This is illustrated below in (5). The starting point is the observation that demonstratives in Shona (as well as Luganda) can either precede (less common) or follow the noun (more common). When the demonstrative precedes the noun, it comes in between the locative marker and the noun, see (5-b). It cannot occur to the left of the locative class marker, see (5-c). This shows that the syntactic position of the locative markers is identical to the location of prototypical prepositions: they take a whole DP as a complement, and turn it into a location. The analysis is depicted at the first line of (5).

(5) [ LOC [ DP ] ]
   a. pa-mu-komana uyu
      16-1-boy 1.this
   b. pa-uyu mu-komana
      16-1.this 1-boy
      both: ‘on this boy’
   c. *uyu pa-mu-komana
      1.this 16-1-boy

The phrasal analysis straightforwardly explains also the distribution of possessors in such examples. Just like demonstratives, possessors in Shona (and in Luganda) may follow (6-a) or precede the noun. When they precede, they come in between the locative marker and the noun, as in (6-b). They cannot precede the locative marker, see (6-c).

(6) a. pa-mu-komana w-angu
    16-1-boy 1-my

   b. pa-w-angu mu-komana
      16-1-my 1-boy
      both: ‘on my boy’

   c. *w-angu pa-mu-komana
      1-my 16-1-boy

All facts summed up, the syntactic distribution of the locative markers seems unremarkable in comparison to familiar adpositions. For some Bantu languages (siSwati, see Marten 2010), these properties have served as the basis for the claim that the original locative noun class markers have been reanalyzed as regular prepositions.
3 Nominal properties of Shona locatives

However, in Shona, Luganda as well as other Bantu languages, the traditional grammars establish additional properties which differentiate these morphemes from familiar Indo-European prepositions (and Marten 2010 shows that these do not carry over to siSwati). These additional properties are the cause of the fact that – as Ashton et al. (1954, 56) put it – “in the opinion of the writers and most Bantuists, these adverbia l formatives should not be looked upon as prepositions, for this is to view a Bantu language through the medium of European grammatical concepts. Their behavior is most un-preposition-like [...].” What is this behavior? And is it true that such a behavior indeed shows that these markers cannot be adpositions?

3.1 Locatives can be used as ordinary class markers

The first property that distinguishes Shona locative markers from Indo-European adpositions is that these markers may attach directly to the root, in which case they function as regular class markers. One example is in (7-a); but perhaps the most striking fact is that the root *nhu*, seen in (1), and repeated in (7-b), can be embedded directly under the locative markers, and yield the meaning of ‘place’ (with vulgar connotations); see (7-c,d).

\[(7)\]
\[
a. \text{mu-kati} \\
18-KATI \\
‘(the) inside’
\]
\[
b. \text{mu-nhu} \\
1-NHU \\
‘person’
\]
\[
c. \text{pa-nhu} \\
16-NHU 
\]
\[
d. \text{ku-nhu} \\
17-NHU \\
both: ‘place’
\]

This can be analyzed in two ways. Either as an instance of homophony (the markers have two distinct functions), or as a straightforward underlying identity. Most approaches (including the traditional grammars) propose the latter (see, a.o., Myers 1987, Bresnan 1995 and Bresnan and Mchombo 1995). The claim is that in both cases we are looking at a single function — that of nominal classification. From that, it follows that locatives in Bantu are radically different from locatives in standard average Indo-European, and that the two language groups have radically different structures for locatives.

For instance, Bresnan and Mchombo (1995) would propose the structure (8) for our string *mu-ma-poto* from (4-c) ‘in the pots.’ The crucial thing here is the label N of the node that hosts the locative marker *mu* ‘in,’ which is the crucial ingredient intended to explain the differences between Bantu and standard Indo-European.

\[(8)\]
\[
\text{NP}_1 \quad \text{NP}_2
\]
\[
| \quad \text{mu} \quad \text{ma-poto}
\]

However, looking at the facts in (7) from the second conceivable perspective — namely as an instance of two distinct functions that are expressed by the same marker — the conclusion is less dramatic. We keep locatives (adpositions) and nominal classifiers as separate functions (corresponding to different categories in the tree), and the question really is how come they can be expressed the same. This question is in turn similar to a question that also arises for some spatial markers in the more familiar Indo-European languages. For instance, expressions such as *front* or *inside* are ambiguous between nominal and locative expressions, as argued for instance in Svenonius (2006).
The reason why majority of researchers believe that locatives in Bantu really are instances of nominal classification structures has to do with the fact that the apparent nominal characteristics of Bantu locatives do not stop here.

## 3.2 Locatives have the distribution of nouns

Another fact that has been noted in the literature is that locatives in Bantu have the distribution of NPs. For example, there is a large body of literature (going back at least to Bresnan and Kanerva 1989) that quite convincingly argues for the claim that locatives in Bantu may become subjects. An example from Shona is given in (9). The remarkable thing is the absence of a formal subject (it), required in English, as well as other subject-like characteristics, including verbal agreement.

(9) a. **Mu-ki-koro m-aka-zara.**
18-7-school 18-past-full
‘It was full in the school.’

b. **ku-mberi Kw-e-chi-koro kw-aka-zara.**
17-front 17-of-7-school 17-past-full
‘It was full in front of the school.’

As the proponents of the nominal analysis of locative class markers point out, analyzing locatives as NPs also immediately explains the external distribution of such phrases, specifically the fact that they may behave like subjects. On the other hand – the argument goes – if they were PPs, their subject-like properties would be inexplicable.

Note, however, that the argument starts from the unquestioned assumption that only NPs may be subjects. In principle, we could also start from the assumption that locatives are PPs, and conclude from the data that PPs may be subjects. What is the right way to go?

We do not have much to say here, and only want to draw a parallel between this analytical issue and the much more discussed issue of dative (‘quirky’) subjects in Icelandic. The situation is almost identical: in Icelandic, dative marked NPs can serve as subjects of various verbs (see Zaenen et al. 1985 for a seminal discussion). If we start from the assumption that only nominatives may be subjects, then these datives must be syntactically (abstractly) nominative (as some propose). On the other hand, others conclude that datives may be subjects, and that the notion of subject must be dissociated from case.3

Be that as it may – our point is that pending an ultimate solution to a tricky theoretical issue, the facts themselves (as given in (9)) are not to be taken as a strong argument against a PP status of the locative. It may simply be the case that PPs can be subjects in some languages, just like datives behave as subjects in Icelandic but not elsewhere.

In a similar spirit, the literature discusses data which show that locatives inside complex NPs behave somewhat differently than in English. In order to see that, let us start from an ordinary bi-nominal structure. It is shown in (10-a). The dependent noun here is **mu-komana** ‘boy.’ Its dependent status (its genitive case) is signaled by the marker e, which precedes the whole noun-phrase. Sometimes, we will call this e also a linker. The e is analogous to the English of, and it is glossed as such. The last ingredient of the bi-nominal structure is a concord marker w- which precedes the linker e and tracks the class of the head noun.

(10) a. **mu-fananidzo w-e-mu-komana**
3-picture 3-of-1-boy
‘a picture of the boy’

3See Bobaljik and Wurmbrand (2009) for an overview of the literature on both sides of the spectrum.
When it comes to locatives, they are integrated in the complex NP in the same way as NPs. Taking a phrase like \textit{mu-bhuku} ‘in the book’ (with \textit{mu} a locative class marker), what we can observe is that this phrase must also be preceded by \textit{e}, see (10-b). Literally, one thus have to say ‘a picture of in the book.’ Starting from there, Bresnan (1995) develops an argument for the nominal status of the locative. The argument goes as follows.

The Shona \textit{e} is the analogue of the English \textit{of}. The presence of \textit{of} has been previously explained by the reference to the so-called Case Filter (Chomsky 1981): since nouns cannot assign Case, \textit{of} appears in the structure to assign case to the nominal dependent. English \textit{of} does not appear with PPs (\textit{a picture (\textit{of}) in the book}), because PPs do not need case. However, since \\textit{e} appears with locatives in Shona, it looks as if PPs in Shona did need case, which is unexpected. However, if locatives really are NPs, then there is no mystery: \textit{e} appears exactly where we would expect it.

The reasoning clearly relies on the correctness of the Case Filter, which is an issue we cannot go into here. Note however that Romanian — similarly to Bantu — must have an \textit{of}-like marker before some NP-internal PPs as well. The example in (11) illustrates this (see Giurgea 2014, where the example comes from). We are not aware that such data would be taken as evidence for the nominal status of \textit{pe}, which in other respects acts as a run-of-the-mill preposition.

\begin{enumerate}
\item[(11)] cartea \textit{*(de)} pe masa
\item book.def \textit{of} on table.def
\item ‘the book on the table’
\end{enumerate}

To sum up: it has been argued that PPs in Bantu have the distribution of NPs, and that this independently supports the conclusion that they are indeed exactly that. However, the argument relies on the assumption that the distribution of NPs and PPs is the same in Bantu as it is in English. This assumption is, we think, too simplistic. Across various languages (Icelandic, Romanian), we see that the material in positions which we take to be hallmark of (nominative) NPs on the basis of English may in fact differ in its category from language to language. If that is so, the arguments in this section simply evaporate.

However, there are additional arguments for the NP status of locatives. These appear to us more reliable.

### 3.3 Locatives enter into concord

No matter whether we analyze locative class markers as adpositions that lead a second life as class markers, or as dedicated class markers, it comes as no surprise that when the morphemes \textit{mu}, \textit{ku} and \textit{pa} are used as regular noun class markers, they trigger concords. The reasoning is this: grammatical behavior is defined by the underlying category, and so when these markers express the class marker function (sit in the Class head), they are expected to behave exactly like other class markers (which lexicalize the same head). The example (12) illustrates this. \textit{Mu-kati} ‘inside’ has a nominal use in this example, denoting a part of an object (which can be white or dirty). It does not denote a set of vectors like locatives do (Zwarts 1997). Vectors can be straight or diagonal, but not white or dirty.

\begin{enumerate}
\item[(12)] Mu-kati m-e-mba mu-chena m-aka-sviba.
\item 18-inside 18-of-9.house 18-white 18-past-dirty
\item The white inside of the house was dirty
\end{enumerate}
What is more telling is that we observe concord also when the same markers are used in their adpositional function. This is true first of all for verbal agreement. In the so-called locative inversion construction, the location comes before the verb, and in such cases, the verbal marking reflects the class of the locative, as shown in (13).

(13) Mu-mu-nda m-a-gara ma-kudo.
    18-3-field 18-PST-live 6-baboon
    ‘There are baboons living in the field.’

To our mind, however, the strongest concord-based argument for the nominal status of Bantu locatives is based on NP internal concord. As a starting point, recall the fact that nominal dependents agree with the head noun. An example where the dependent denotes a whole of which the head noun is a part is shown in (14-a). Here the dependent ‘my’ (angu) agrees with the head noun ‘hand.’ What is remarkable is that when such structures are embedded under a locative prefix, the whole may optionally also exhibit concord with the locative, see (14-b).

(14) a. N-hunzi i-ri pa-[ru-okokwangu].
    9-fly 9-is 16-11-hand 11-my
    ‘The fly is on my hand.’

    9-fly 9-is 16-11-hand 16-my
    ‘The fly is on my hand.’

A possible argument for the nominal status of the locative class prefix says that since it is copied by concord, it has to be formally a nominal classifier and not an adposition, because adpositions cannot be copied by concord.

How strong an argument for the nominal status of locatives is this? So far, not very strong, because there in fact are languages, e.g., Finnish, where undisputed locative markers are copied by concord; see the examples in (15).

(15) a. iso auto
    big car
    ‘a/the big car’

b. iso-ssa auto-ssa
    big-in car-in
    ‘in a/the big car’

Whatever the status of the Finnish affixes is (they are called locative cases in traditional grammar), they have never been analyzed as headed a syntactic node of the category N. There is no independent reason to think that they are nominal classifiers. Hence, NP-internal locative concord on its own is not a strong sign of nominal categorial status.

What is more relevant is that in Shona (as well as Luganda), the locative and non-locative marker are in a complementary distribution on the modifier. This is shown in (16-a), where the combination of the locative (pa) and the class/number marker (rw) on the possessor leads to ungrammaticality. In Finnish, this is not so; the number marker (i) and the case marker (ssa) are both copied by concord, and happily co-occur, see (16-b).

    9-fly 9-is 16-5-hand 16-5-my
    The fly is on my hand

b. iso-i-ssa auto-i-ssa
    big-PL-IN car-PL-IN
    ‘in (the) big cars’

\[4\]The part-whole nature of the relationship is crucial, since ordinary possessive structures cannot show locative concord on the possessor. The example cannot be understood along the lines of a paraphrase like ‘the fly is on me, on the hand,’ because pangu does not mean ‘on me’.

8
What does this contrast mean? Let us start with Finnish. We will call the category of *ssa* ‘Case,’ and the category of *i* ‘Number’. The particular labels are not important, but it is important that they are distinct. We can now state the rule of concord by saying that the modifier agrees for ‘Number’ and ‘Case.’ Perhaps the best way to analyze this theoretically is to say that concord consists in reproducing a part of the nominal functional sequence on top of the adjective, an approach pioneered for Bantu in Taraldsen (2010).

The situation is different in Shona. If we assume (on analogy to Finnish) that *pa* and *ru* are different categories (let us say that *pa* is a preposition (P) and *ru* a Class marker), we must say that concord targets either P or Class, but never both at the same time. This is a suspicious rule of concord.

Complementary distribution has always been taken as evidence for proposing that two expressions compete for the same slot. In order for that to be so, they must belong in the same category. If we then assume that locative and non-locative classes are both instances of the same category (one which the tradition calls Class), then we can easily state the facts: modifiers in Shona agree in Class with the modifi-ee. The complementary distribution of the markers *pa* and *ru* on the modifier falls out of this statement. When they stack on the noun, we need a recursive structure like the one in (8).

This approach gains support from additional facts. In order to show that, let us turn to the question of what determines which concord is chosen. The answer is that this depends on the syntactic position of the modifier. Modifiers with locative concord are higher than the locative class marker; modifiers with non-locative concord are lower than the locative class marker. The facts leading to that conclusion are in (17), repeated from (6): when a pre-nominal possessor bears the non-locative concord, it comes in between the locative class prefix and the noun. It cannot precede the locative prefix.

\[(17) \quad \text{pa-rw-angu ru-oko} \quad \text{‘on my hand’} \]
\[
\begin{align*}
16-11-my & \quad 11-hand \\
& \quad \text{b. *rw-angu pa-ru-oko} \\
& \quad 11-my \quad 16-11-hand
\end{align*}
\]

Structurally, this means that the possessor with non-locative concord is contained inside the DP which is embedded under the locative marker, see (18). It cannot be higher than *pa*, since that would incorrectly allow it to be to the left of *pa*.

\[(18) \quad [ \text{pa [ rw-angu [ ru oko ] ]}] \]

On the other hand, when the possessor shows locative concord, the facts are the exact opposite: a pre-nominal possessor has to precede the locative marker (as shown in (19-a)), and cannot follow it (as shown in (19-b)).

\[(19) \quad \text{a. p-angu pa-ru-oko} \quad \text{‘on my hand’} \]
\[
\begin{align*}
16-my & \quad 16-11-hand \\
& \quad \text{b. *pa-p-angu ru-oko} \\
& \quad 16-16-my \quad 11-hand
\end{align*}
\]

This means that the possessor with the locative concord must be higher than *pa*, and cannot be lower than *pa*:

\[(20) \quad [\text{p-angu [ pa [ ru oko ] ]}] \]

In sum, we conclude two things. The first one is that possessors in Bantu may occur higher than locative markers. As we will see later, this is not without parallels cross-linguistically.

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5 An anonymous reviewer suggests that perhaps it is the portmanteau nature of the class markers what is the source of the difference between Finnish and Shona. Our understanding is that it should not matter how many features/heads the morphemes express; what matters is that the markers are in complementary distribution on the modifier, while they are not in complementary distribution on the noun.
The second and most important thing is that when they appear higher than the locative marker, they must copy it by concord, and this blocks agreement with the nominal class marker under pa. This looks like a clear relativized minimality effect: the possessor agrees with the closest class marker lower down. But this analysis is only available if pa is a class marker after all.

3.4 Summary

In this section, we have seen several remarkable properties of Shona locatives, all of which have been cited as evidence for their nominal status. However, under scrutiny, the evidence in favor of the label N (or Class) is not completely unequivocal; the strongest piece of evidence so far appears to be the way DP internal concord works. In the following section, we turn to some properties of the locative markers that sets them apart from nouns, and then turn to the analysis.

4 How locatives differ from nouns

The properties reviewed in the preceding section motivate the traditional analysis of locative class markers as items which are essentially identical to ordinary class markers. Under this approach, it becomes tempting to propose that just like ordinary class markers attach to nouns, the locative class markers do too. However, since they represent a second instance of a class marker, it must be the case that there are two nouns rather than one. This leads to the consequence that locatives really are bi-nominal structures with a silent PLACE, which is the second noun the locative classifier belongs to. However, there are also differences between locatives and regular bi-nominal structures.

4.1 The absence of a ‘linker’

The first distinction is that in ordinary bi-nominal structures, the linker e is present between the two nouns, see (10-a), repeated in (21-a).

(21) a. mu-fananidzo w-e-mu-komana
   3-picture 3-of-1-boy
   ‘a picture of the boy’
   b. *mu-PLACE m-e-ma-poto
   18-place 18-of-6-pot
   intended: ‘in the pots’
   c. mu-ma-poto
   18-6-pots
   ‘in the pots’

If we try to construct an example along the lines of the bi-nominal example, just substituting the noun ‘picture’ by the hypothesized silent noun PLACE (with an overt modifier/class marker mu), we end up with an ungrammatical string, see (21-b). The comparison with (21-c) reveals that the problem is the presence of the e with the accompanying concord marker. Put simply, one cannot say in of the pots in Shona, one has to say in the pots.

A couple more words need to be added here. The lack of the linker is an argument against the particular structure (8) proposed by Bresnan and Mchombo (1995), and the observation has been around at least since Carstens (1997). Aware of the issue, Carstens proposed a version of the bi-nominal analysis which avoids the problem. Her structure is shown in (22):
The crucial move in (22) is the placement of the overt locative marker mu. It is not under NP (or under Class above the silent PLACE), but under K (below the silent PLACE). In slightly less technical terms, what Carstens proposes is that despite appearances, there is a linker in locative structures. The only twist is that it is not the regular and expected e (plus agreement), but a special linker mu that exceptionally appears under the silent PLACE.

To our mind, this account feels stipulative: it analyzes mu as a case marker (linker) which is specific for a particular lexical item, the silent PLACE. To see that, consider how overt nouns of class 18 behave. This is shown in (23), and we see that the regular linker e shows up.

(23) mu-kati m-e-poto
18-side 18-of-5.pot
‘inside the pot’

In addition, there are reasons to think that even silent PLACE takes the regular linker -e when it combines with a second noun. The evidence for this comes from Luganda. The relevant example is below in (24).

(24) N-jagala 1-love PLACE
18-of-Ssembatya.
omw-a-Ssembatya.
‘I like it at Ssembatya’s place.’

As indicated in the translation, the meaning of the sentence involves the noun ‘place,’ but there is no morpheme meaning ‘place’ and it is impossible to add one; ‘place’ in Luganda is in class 16, not 18. Further, the overt material following the verb looks exactly as a remnant after an ellipsis (non-pronunciation) of a head-noun. This is formally reflected in the shape of the possessor, which would normally lack the initial vowel o, a marker that only appears on possessors when the ellipsis of the head takes place.

The gloss under the example thus assumes that there is a silent PLACE, since the interpretation and the elliptical form jointly imply its presence. If this analysis is right, the example shows that the silent noun PLACE too takes the regular linker, which is a in Luganda, glossed again as ‘of.’

In sum, we think that there is indeed no linker with locative class markers, and that purely descriptively, this distinguishes constructions with locative class markers from regular bi-nominal constructions. At the same time, the sheer absence of a linker should not be overestimated. As recently pointed out in Haspelmath (2008) (c.f. Den Dikken 2015), the absence of a linker is also characteristic for a class of bi-nominal constructions that usually go under the name of ‘inalienable possession.’ An example from Abun (Papuan, Haspelmath 2008) is provided in (25). In (25-a), we see a regular possessive structure with an overt linker bi. The linker is absent with a class of nouns that can be characterized as inalienably possessed, see (25-b).

(25) a. ji bi nggwe
   I of garden
   ‘my garden’

   b. ji syim
   I arm
   ‘my arm’
Given that languages exhibit contrasts such as those in (25), it may simply be the case that the relevant silent noun exhibits inalienable morphology analogous to (25-b).

4.2 Restrictions on modifiers: possessors

In (14), we have seen that it is possible for certain modifiers to bear locative concord. We repeat the relevant example below:

\[(26) \text{N-hunzi i-ri pa-ru-oko p-angu.}\]
\[9\text{-fly 9-is 16-11-hand 16-my}\]
\`The fly is on my hand."

Bresnan and Mchombo (1995, 196) have proposed that if the locative marker heads a regular nominal projection, it is expected that there is also syntactic space for such modifiers, see (27). Carstens’ (1997) structure also faces no trouble here.

\[(27) \text{NP}_2 \]
\[\text{N}_2' \]
\[\text{NP}_1 \]
\[\text{XP} \]
\[\text{modifiers} \]
\[\text{pa \ ru-oko (p-angu)} \]

Note, however, that possessors may occur higher than a preposition in other languages. In Bulgarian, for instance, we find possessors in exactly the same positions as in Bantu. They may either precede the noun or follow it; when they precede, they occur either lower than a preposition, see (28-a), or higher than a preposition, see (28-b). For the example (28-b), it is further possible to show that the possessor is an integral part of the PP, because the whole phrase (28-b) can be positioned to the left of the second position clitic -li.

\[(28) \]
\[a. \text{v na Misha stajata} \]
\[\text{in of Misha room.the} \]
\`in Misha’s room’
\[b. \text{na Misha v stajata} \]
\[\text{of Misha in room.the} \]
\`in Misha’s room’

Relevantly, the Bulgarian v ‘in’ shows no surprising nominal properties. Therefore, it seems to be the case that in some languages, possessors may be adjoined to a PP, rather than more narrowly to the noun contained inside it. If that is so, no NP structure is in fact required to accommodate these possessors.

This conclusion is strengthened by the observation that providing a full nominal projection for modifiers with locative concord over-generates. That is because nothing else said, a regular bi-nominal analysis expects a full range of nominal modifiers with locative concord to be available, but that is not the case. The set of such modifiers is restricted, a fact that has not been noted before, as far as we are aware.

To begin with, we found out that ordinary possessors can only appear with non-locative concord, see (29). The difference with (26) (where either concord is fine) is that in (26), the genitive expresses a part-whole relation.

\[(29) \]
\[a. \text{N-hunzi i-ri pa-mu-komana w-angu.} \]
\[9\text{-fly 9-be on-1-boy 1-my} \]
\`The fly is on my boy.’
\[b. \text{*N-hunzi i-ri pa-mu-komana p-angu.} \]
\[9\text{-fly 9-be on-1-boy 16-my} \]
Regardless of how these facts are to be accounted for, the fact to note is that there is a tension between the expectations based on a full fledged bi-nominal structure and the impossibility to have (alienable) possessors in the structure of the higher nominal.

4.3 Restrictions on modifiers: adjectives

In addition to possessors, adjectives may not bear locative concord either. The examples in (30) illustrate that. In (30-a), we give the simple phrase ‘the white village;’ there is no locative marker here. When this phrase is embedded under the locative pa, the original non-locative concord can still occur on the adjective, see (30-b). But the locative concord is impossible, see (30-c). Once again, the question for a bi-nominal structure is why adjectives are not available in the projection line of the higher (locative) noun.

(30) a. mu-sha mu-chenaf
  3-white 3-village
  ‘the white village’
  b. pa-mu-sha mu-chenaf
     16-3-village 1-white
     ‘in the white village’
  c. *pa-mu-sha pa-chenaf
     16-3-village 16-white

Commenting on a slightly different example from a previous draft, an anonymous reviewer suggests that perhaps semantics/pragmatics may be blamed here. Perhaps ‘white’ is a strange meaning to go along with the assumed silent ‘place.’ While it is hard to exclude this option, there are two reasons for thinking that this explanation is not the only factor responsible for the unacceptability of (30-c).

The first reason is related to an independent fact about adjectives in Shona (and Bantu more generally): there are very few of them by Indo-European standards. Most adjectival meanings are expressed by relative clauses. For example, there is no adjective for ‘clean,’ and so in Shona one literally says ‘a village which is-clean:’

(31) mu-sha w-aka-chenaf
    3-village 3-tense-clean
    ‘the clean village’

The concord marker w- in (31) is a regular subject marker, so w-aka-chenaf also means ‘something of class 3 is clean.’ However, the tones are different between the indicative and the relative clause, so one is able to tell that (31) is a noun with a relative clause when pronounced in the right way.

Even though parallel to adjectives in meaning, relative clauses pattern differently when it comes to the possibility of having locative concord. Specifically, relative clauses can have both the non-locative (32-a) and the locative concord (32-b).

(32) a. pa-mu-sha w-aka-chenaf
    16-3-village 3-tense-clean
    ‘in the clean village,’ lit. ‘in the village which is clean’
  b. pa-mu-sha p-aka-chenaf
    16-3-village 16-tense-clean
    ‘in the clean village,’ lit. ‘in the village where it is clean’

The point is that it seems to be the formal properties of the expression — and not semantic-pragmatic effects — what determines whether a particular modifier can or cannot bear the locative concord. Adjectives can’t, relative clauses can.

The second relevant fact is that when locative class markers are used as ordinary noun classifiers (see section 3.1), adjectival modification becomes possible, see (33). The example does not feel quite natural, and interpreting ‘the white inside’ requires a stretch of
imagination. But our informant feels confident that there is a contrast between such examples and (30-c).

(33) **Mu**-kati **m-e-mba** **mu**-chena **m-aka-sviba.**
18-inside 18-of-9.house 18-white 18-past-dirty
‘The white inside of the house was dirty.’

These facts taken together are problematic for the proposal that locatives project a second fully regular nominal projection where nominal modifiers may freely be added. Clearly, something more is going on in here, since there seems to be no space for adjectives or possessives in the projection of the hypothesized silent PLACE (while relative clauses and part-whole genitives are fine).

Let us point out that the facts concerning locatives and their options for adjectival modification are highly reminiscent of Svenonius’ (2006) discussion of English *front* and other AxParts. He points out that the item *front* has two uses, a nominal one and a spatial one. As he further reports, “[a] distinction between the [non-spatial] use and the [spatial] use of *front* is adjectival modification, which is only acceptable with [non-spatial use].”

(34) a. There was a kangaroo in the smashed-up front of the car.
   b. *There was a kangaroo in smashed-up front of the car.

For Shona (and Luganda), we may adopt the same conclusion, only replacing ‘front’ in Svenonius’ quote by ‘class markers’: a distinction between the non-spatial use and the spatial use of class markers is adjectival modification, which is only acceptable with non-spatial use (like in (33)).

Hence, a potential conclusion to be drawn here is that the Bantu locatives fall into the large set of expressions found across various languages that Svenonius calls AxParts; expressions that have some — but not all — nominal characteristics.

## 4.4 Luganda locative classes lack the initial vowel

Another difference between locative and non-locative classes shows up in Luganda only. To show the relevant facts, let us start from the observation that noun class markers in Luganda are generally of the shape VCV (while they are only CV in Shona). There are reasons to think that the initial vowel of the VCV class marker corresponds to a morpheme, variously called the pre-prefix, the augment, or simply the initial vowel.

(35) a. **o**-mu-ntu
1-1-NTU ‘a person’
   b. **a**-ba-ntu
2-2-NTU ‘people’
   c. **e**-ki-ntu
7-7-NTU ‘thing’
   d. **e**-bi-ntu
8-8-NTU ‘things’

The shape of the pre-prefix is determined by the prefix; the pre-prefix corresponds to the coalescence of A with the vowel of the prefix (u+a=o, i+a=e, a+a=a).

Why is the initial vowel considered a separate morpheme? The main reason is that the vowel is not always present on the noun. The factors which control its appearance are notoriously complex (see, e.g., Hyman and Katamba 1993). However, the intuition many follow is that the initial vowel is similar to a determiner (see, e.g., Taraldsen 2010). For example, it must be absent when the noun is to be interpreted as a predicate. Consider (36-a). Here, only the adjective is interpreted as a predicate, because the noun has an initial vowel. Therefore, the noun is interpreted as the subject of the sentence. When the initial
vowel is absent from the noun, as in (36-b), the noun is interpreted as a predicate, and the adjective is interpreted as modifying the predicate. (The subject is pro-dropped.)

(36)  
   a.  E-ki-kopo 7-7-cup ki-nene.  
       ‘The cup is big.’  
   b.  Ki-kopo 7-cup ki-nene.  
       ‘It’s a big cup.’

Hence, we will proceed under the assumption that the initial vowel corresponds to a separate head in the syntactic tree, and resides somewhere around the place in the functional sequence where predicates turn to individuals.

This rough characterization can be further refined when we consider the behavior of objects under negation. When the object is non-specific, the initial vowel is missing, as in (37-a). When the object is interpreted as specific, the initial vowel is present, see (37-b).

(37)  
   a.  Ss-a-yas-izza neg.1-past-break-perf 7-cup  
       ‘I didn’t break any cup.’  
       ‘I didn’t break the cup.’

We will then proceed under the assumption that the initial vowel in Luganda is a separate head in the tree, and resides somewhere in the region where specificity and/or definiteness is determined.

With the background in place, consider now the fact that the locative classes in Luganda lack the initial vowel, even in contexts where other classes must have it. For instance, in (38-a), a locative phrase appears in the subject position. In this position, the initial vowel is expected to appear (it does so for non-locative classes). However, (38-a) has only mu; the inclusion of the expected initial vowel o (a+u) leads to ungrammaticality, see (38-b).

(38)  
   a.  Mu-ki-kopo mu-ddugala.  
       18-7-cup 18-dirty  
       ‘It is dirty inside the cup.’ (literally in the cup is dirty)  
   b.  *O-mu-ki-kopo mu-ddugala.  
       18-18-7-cup 18-dirty

The absence of the initial vowel is characteristic for the locative classes. In informant sessions, we have tested locatives in all contexts where a regular noun would have to have an initial vowel, and the locative phrase is not allowed to have it. In fact, sequences where the locative class marker appears with an initial vowel (such as the one given in (39)) are judged unacceptable in any context:

(39)  
   *o-mu-ki-kopo  
       18-18-7-cup

Given the plausible analysis of initial vowels as members of the determiner system, the fact that locative class prefixes lack the initial vowel can be reformulated as: locatives do not accept determiners, and in doing so, they contrast with regular noun class markers.

If the description in terms of a missing determiner is correct, it is tempting to understand it as a consequence of the hypothesis that locative class markers are similar to members of the AxPart category. To see that, consider the example (40), taken from Svenonius (2006). As Svenonius convincingly argues, only the example without the determiner (i.e., (40-a)) is a spatial (AxPart) construction, while (40-b) features an ordinary nominal use of *front.
(40)  a. There was a kangaroo in front of the car.
    b. There was a kangaroo in the front of the car.

Once again, then, it seems that to the extent that there is a silent locative noun PLACE in the structure, its functional structure must be rather restricted: no determiners are allowed.

4.5 Modifiers: Completing the picture

To complete the picture, let us mention that even though determiners (i.e., initial vowels) are not allowed in locatives, locative forms of demonstratives and quantifiers are known to be possible. The example (41) shows that.

(41) Nhunzi dziri pa-mu-sha apo p-ose.
    flies are 16-3-village 16.that 16-all
    ‘The flies are everywhere in that village/home (there).’

Let us first say something about the demonstrative apo. It is a class 16 form of the distal demonstrative ‘that.’ In order to understand the theoretical meaning of its availability in locatives, let us mention that apo on its own actually means ‘there.’ From that perspective, the fact that such an expression appears in a complex locative pa-mu-sha apo is not surprising at all; all the classical work on PPs (Koopman 2000, den Dikken 2010, Svenonius 2010) tells us that in PPs, there is a projection for such modifiers, see (42). The labels are as in den Dikken (2010, 104).

(42) DeixP
    there
      P_{loc}P
        P_{loc} DP
          ...

Given that (42) is a structure which most researchers would agree on, the fact that ‘there’ can be present in Bantu PPs tells us little about the assumed bi-nominal nature of Shona/Luganda locative classes. The conclusion is that what is interesting is not the presence, but only the form of ‘there,’ which corresponds to a regular class 16 demonstrative ‘that.’ However, this form can be explained without postulating a bi-nominal structure of the simple locative pa. One possible explanation follows.

As perhaps first proposed by Katz and Postal (1964) and recently by Kayne (2004) and others, there are reasons to believe that ‘there’ actually corresponds to a complex phrase, minimally as shown in (43) (but perhaps even more complex, as Kayne suggests).

(43) there = [ AT [ THAT PLACE ] ]

Given that ‘place’ in Shona belongs to class 16, recall (7), the expected form of ‘that’ in (43) would indeed be apo. We also know that head nouns in Shona may be elided, leaving behind modifiers with the appropriate concord, and so the form of ‘there’ in Shona nicely fits with the proposal in (43). Supposing that (43) is the structure underlying the meaning of apo ‘there,’ the natural move is to say that apo is not a head, but rather a part (or an elliptical remnant) of a complex phrase residing in the Spec of the Deix head, as in (44).
The same story can be told for *p-ose*, the class 16 form of the quantifier ‘all.’ In isolation, *p-ose* means ‘everywhere.’ This fits well with the idea that such a meaning is syntactically represented as a complex phrase [ AT [ ALL PLACES ] ], where ‘all’ agrees with ‘places.’\(^6\) But once again, the presence of *p-ose* does not speak in favor of a bi-nominal structure of ordinary locatives; the noun is present in the relevant Spec.

### 4.6 Summing up

All summed up, the tradition has argued that we need a bi-nominal structure for Shona locatives, see (45). An important piece of evidence has been the claim that the projection of the locative noun \(N_2\) provides syntactic space for prototypical nominal modifiers:

\[
(45) \quad \text{NP}_2 \quad \text{NP}_1 \quad \text{XP}
\]

This section has put that claim under scrutiny. First of all we have seen that even in languages like Bulgarian, a possessor may appear in a position outside of the constituent containing a preposition and its complement. Given that Bulgarian adpositions do not look nominal at all, it is not clear what this fact actually means. More importantly, a full bi-nominal structure was found to over-generate, because adjectives, possessors and determiners are disallowed inside the hypothesized projection of the locative noun.

Turning now to the modifiers which are allowed beyond the part-whole expressions, i.e., demonstratives, quantifiers and relative clauses, it is not clear that the higher nominal projection is needed in order to explain their presence — at least no more than in other languages, because expressions parallel to Bantu ‘noun modifiers’ such as *there, everywhere* or *where*-relatives can also modify English PPs. Even though in Bantu, the morphological make up of such expressions does show evidence for the presence of the silent PLACE, the silent noun may be present in the Specifier of a regular projection inside the extended PP, as depicted in (44), and not in the main projection line of the locative.

In sum, it appears that the modification pattern is compatible with traditional approaches to PP structure in Koopman (2000), Svenonius (2010) or den Dikken (2010), where no PLACE is postulated in the main projection line of a regular PP. In fact, the unavailability of adjectives and determiners speaks in favor of this traditional analysis.

\(^6\)Class 16 is ambiguous between singular and plural.
But then again, we cannot fall back on the traditional analysis completely, because of the behavior of concord discussed in section 3.3.

5 Class markers as a part of a complex Spec

What we would like to propose is first a small extension of the standard silent PLACE analysis. The extension takes seriously the observations summarized recently in Kayne (2016), who analyzes numerous examples to show that what we usually think of as heads may in fact be parts or remnants of complex phrases residing in the Spec of a head that is silent (c.f., Koopman 1996, Starke 2004). In our paper, we have already seen a concrete example of how such structures look like in (44).

On analogy to such structures, we propose that locative class markers reside in a complex Spec. A preliminary version of the proposal can be seen in (46), which depicts the structure of the phrase mu-ma-poto ‘in the pots,’ first introduced in (4-c).

In (46), the content of the $P_{\text{loc}}$ head (which c-commands ‘the pots’) is specified by a complex $P_{\text{loc}}P$ meaning something like ‘at the in-place,’ where the only overt part of this phrase is the class marker of the unpronounced noun ‘place,’ notated as PLACE. Literally, the structure reads ‘at the pots, at the interior.’ Other locative markers would receive analogous treatment. So in pa-ma-poto ‘on the pots,’ seen in (4-a), pa would be a class marker, which, when it modifies PLACE, yields the meaning ‘surface’ (literally on-place).

This proposal achieves four things. Most importantly, mu ‘in’ occupies the Class head. As a consequence, in contexts where there is just a single Class head (e.g., on the modifiers), it is in complementary distribution with other Class markers. Secondly, the structure delivers the result that in locative constructions, mu ‘in’ has the exact distribution of a preposition (it lacks the linker, and takes a DP complement). Thirdly, the proposal explains why mu ‘in’ leads a second life as an ordinary noun class marker. And finally, it can explain the difference between the English in and the Shona mu. If English in is a $P_{\text{loc}}$ head, we easily see that Bantu adpositional phrases have an extra nominal element; at the same time, we do not overstate the difference by claiming that Bantu locatives are NPs.

As it stands, however, the structure has a drawback in that the intuitively perceived possessive relation between the ‘interior’ (the IN-PLACE) and ‘pots’ is not structurally represented. In order to achieve this, we will now propose that the structure in (46) is in fact a result of a more complex derivation, where the Ground ma-poto starts as a possessor of PLACE, and its surface position in (46) is a result of its movement out of the $P_{\text{loc}(2)}P$. 

\[ (46) \]
6 The Ground as an extracted possessor

Following the analysis by Den Dikken (2006, 2015), we place the possessor into the Spec of a relator head R, see (47). We generate the possessor as a bare DP (without a linker), which is irregular, since possessors in Shona and Luganda are generally preceded by the linker e/a. We will have more to say about this later. Generating the possessor as a Spec higher up in the functional structure of PLACE is quite standard in the literature on locatives (see Cinque 2010 and the references there). However, unlike in standard silent PLACE approaches (Terzi 2010, Botwinik-Rotem 2008, Pantcheva 2008, Aboh 2010, Cinque 2010, Nchare and Terzi 2014, Dekány 2018), where overt PLACE modifiers like mu tend to be located above the possessor, we place it below the possessor. The reason for this is that the Bantu Class markers are (on independent grounds) very low in the functional spine: it is impossible to place anything between the nominal root and the Class marker. Therefore, the Class marker mu—to the extent that it spells out Class, because it is in complementary distribution with standard Class markers under concord—must be below the possessor. For this reason, the base generated structure cannot be the final structure, since on the surface, mu precedes ma-poto ‘pots.’ The way we will achieve the correct word order is first of all by extracting the possessor ma-poto out of the PlocP, and then by moving the remnant Ploc across the extracted possessor. This type of derivation is standardly referred to as ‘extraposition,’ and it has been used to account for the postnominal position of possessors also in Cinque (2005).

(47)

What this structure adds to the one in (46) is that the Ground argument ma-poto does not originate in the position where it is found, but it moves out of the PlocP, which then moves back across it. We consider the structure in (47) to be a structure that is very similar to traditional silent PLACE proposals (Terzi 2010, Botwinik-Rotem 2008, Pantcheva 2008, Aboh 2010, Cinque 2010, Nchare and Terzi 2014), with the Luganda/Shona-specific feature that the possessor is (i) generated above the silent PLACE modifier and (ii) moves out of PlocP. The latter property is not unique to Shona/Luganda, since similar proposal has been put forth, e.g., for Hungarian, see Dékány (2018) for a recent discussion of these issues.

Treating the Shona/Luganda data in this way leads to some potential issues, which are shared with the standard silent PLACE proposals. In particular, something needs to be said about the ungrammaticality of the potential silent-PLACE modifiers which are disallowed. For example, it seems that the proposed structure should provide space for adjectives inside the projection of the silent noun. Similarly, for Luganda, it seems that there is sufficient space in PlocP to generate examples which include the initial vowel. Finally, it is not clear
why the possessor has no linker.

A standard account of these *apriori* unexpected properties of the silent PLACE involves the proposal that PLACE is a light noun, devoid of certain functional projections due to its need of licensing (Nchare and Terzi 2014, Dékány 2018). This need restricts the occurrence of silent PLACE to a particular type of impoverished structure, such that if certain functional projections are added, this leads to a failed licensing later on. We shall use here a similar approach and we will also claim that there is something lexically special about silent PLACE. However, we shall differ from the standard approach in the specific implementation.

In particular, there seems to be a tension between the licensing approach and current ‘constructionist’ approaches, where nouns come to have the properties they do not because these properties are lexically coded on the noun, but because nominal roots combine (or not) with functional projections, which are freely added to the nominal root (or not). Silent PLACE is special in that its insertion restricts further choices in a way that clashes with the (in principle) free addition of functional material. We will try to improve on this particular aspect of the traditional silent PLACE proposal.

### 7 Class markers as phrasal lexical items

To achieve this, we will adopt a relatively new approach to lexicalization that has emerged under the label of Nanosyntax (Starke 2009, 2018, Caha 2009; Caha et al. in press). In a Nanosyntactic approach, lexical items may occupy the terminal nodes of the tree, or, following the so-called phrasal spell out strategy, they may be the pronunciation of a non-terminal node containing non-trivial sets of projections.

The simplest case of phrasal spell out is represented by examples where instead of a sequence of two morphemes forming jointly a compositional form (A+B) — we get a suppletive form (C) for a given meaning. For instance, in English, instead of the expected and regular participle (have) *sing-ed*, we get the suppletive (have) sung.

The implementation of this fact, offered by the phrasal spell out approach, is that the suppletive lexical items lexicalize a non-terminal node containing both the root sing and the participial head, call it PART. The lexical entry for sung then looks as in (48-a). It says that a node which contains the verb root meaning $\sqrt{\text{SING}}$ and the participial head (or heads) is pronounced as sung. (48-b) shows the entry for sing. This entry spells out only the verb node, and it will surface in contexts distinct from the past tense, like the infinitive, the present tense, etc.

(48) a. $\text{sung} \Leftrightarrow \text{PART} \quad \sqrt{\text{SING}}$  

b. $\text{sing} \Leftrightarrow \text{V} \quad \sqrt{\text{SING}}$

Having a lexical item like (48-a) is nothing necessary for a language; if a language has such an item, it has a suppletive participle. If it does not have such an item, it does not have a suppletive participial form.

Phrasal spell out is something that has been used in linguistics for quite some time (McCawley 1968, Weerman and Evers-Vermeul 2002, Neeleman and Szendrői 2007). The new thing that came with Nanosyntax is the possibility to provide a systematic account for patterns such as *come ‘participle’ — come ‘root,’* where the expected form *come-d* is not blocked by a third form, but by its part (*come*), see Caha (2018) for a discussion. As far as I am aware, there is no satisfactory solution to this issue predating Nanosyntax. One option
is to say that the past tense is null in the context of *come*. The other option is to have two homophonous lexical items as in (49).

\[(49) \quad \text{a. } \text{come} \Leftrightarrow \text{PART} \quad \text{b. } \text{come} \Leftrightarrow \text{V} \]

\[\begin{array}{c}
\text{COME} \\
\sqrt{\text{COME}} \\
\text{PART} \\
\text{V}
\end{array}\]

Both solutions have been independently criticized. The critique is obviously not targeted at the empirical adequacy, which is achieved. Rather, the point is that the formal power of abundant zero morphology is such that it makes it difficult to see what examples such a theory could not generate (Siddiqi 2006). Similarly, (49) amounts to postulating an accidental homophony of two forms that are clearly related, a solution that once again raises the question whether there is any kind of pattern such a mechanism could not generate by using as many lexical items as there are cells in that pattern.

The solution that Nanosyntax (more specifically Starke 2009) came up with is to propose an insertion principle that allows lexical items to spell out trees of various sizes, where the possible sizes of trees are all subtrees of the lexical specification.

\[(50) \quad \text{The Superset Principle (Starke 2009): A lexically stored tree matches a syntactic node iff the lexically stored tree contains the syntactic node.}\]

With (50) in place, we no longer need two lexical entries. It is enough to have just (49-a). The Superset Principle allows such a lexical entry to apply also to (49-b), because (49-b) is contained in (49-a).\(^7\)\(^8\)

There are two more things we will be assuming about the spell-out procedure. One is that lexical entries match only such sub-trees that contain the bottom-most head (measured by the locus of that head in the functional sequence). For instance, in the case of (49-a), this means that the entry can only spell out sub-constituents that contain the V node. It cannot spell out just the PART head. This condition has been called the Anchor condition and used independently in Abels and Muriungi (2008) and Caha (2009). The second and last assumption is that every feature must receive a spell-out (c.f., Fábregas 2007).

### 7.1 The lexical entry of locative class markers

With the background in place, we propose that all the restrictions on modification as well as the absence of a linker follow if the locative class markers spell out the whole P\(_{loc}\)P, see (51). Here we present a derivation that is rather similar to the one already proposed in (47), but updated by two features. The first one represents the core of our analysis, which is that the class marker *mu* is the spell-out of the whole fronted P\(_{loc}\)P. This has lead us to place an abstract element ‘IN’ under Class node, which performs the role of the traditional PLACE modifier, turning the silent PLACE into an INTERIOR, literally the ‘IN-PLACE.’

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\(^7\)The Subset Principle of Distributed Morphology cannot be used to regulate phrasal spell out of various constituent sizes. The reasons for this conclusion are discussed in Chung (2007). Essentially, the problem is that the Subset Principle makes a root like *sing* able to spell out any tree in which it is contained (which it cannot).

\(^8\)Note that the entry (48-a) makes the form *sang* also usable for spelling out just the verb node, so that in principle we could get *to sang*. The reason we get *to sing* is because of competition: the entry (48-b) is better suited for spelling out just V, and so it wins in competition.
Once we analyze the morpheme *mu* this way, we allow for a new perspective on the absence of the linker. In particular, what we are proposing in (51) is that the phrase *ma-poto* is in fact base-generated along with the linker *e*, which we take to be the spell out of a KP-like head, potentially decomposed in the spirit of Caha (2009). This makes the phrase ‘of the pots’ an unremarkable possessor in every respect. What is special about the possessor is the fact that when it extracts out of the P_loc, it strands its case marker inside it. The stranded case marker is then spelled out along with the other projections as *mu*, whose lexical entry is then as shown below:

The type of movement where DPs strand case layers is called Peeling, see Caha (2009, 2010) for a more thorough discussion. Importantly, as Caha (2009, 2010) argues, Peeling is only possible when the stranded Peels can be spelled out by some other morpheme, a consequence of the requirement that every feature must be spelled out. In our case, this role is fulfilled by the class marker. In other words, by proposing that the locative class markers are special in that they can spell out the genitive case left behind by the possessor, we tightly link the absence of a linker to a specific lexical item, rather than to a general property of syntax. This is required for Shona and Luganda, where the linker is always present on possessors, even if these are of the ‘inalienable’ type. Our decision to encode the absence of the linker lexically goes hand in hand with observations in the literature (see, e.g., Rooryck 2018 for a recent summary) to the effect that ‘inalienable possession’ (characterized, for instance, by the lack of a linker) does not target a coherent set of nouns across languages, but rather varies from language to language in partly unpredictable ways.

In sum, what we are proposing is that Luganda/Shona class markers spell out, along-
side the Class head, a range of other projections. These include the NP node at the very bottom, explaining why the noun PLACE is silent: this is because it is spelled out as a part of the class marker. Locative class markers also spell out the linker: this explains why possessors of the silent noun lack it. In the following sections, we will turn to other empirical consequences of this proposal.

7.2 Locatives can be used as noun class markers

Recall that in Shona, a single root may be classified by distinct class markers, with the relevant data repeated in (53). The old analysis (where locative class markers spell out the Class head) captured this straightforwardly.

(53) a. mu-nhu  
   1-NHU  
   ‘person’

b. chi-nhu  
   7-NHU  
   ‘thing’

c. pa-nhu  
   16-nhu  
   ‘place’

In order to show how this can be accounted for now, let us first look in more detail at the structure of regular nominal classification. Recently, Taraldsen et al. (2018) have argued that certain differences between plural formation (some class 1 nouns have plurals in class 6) and coordination (coordinating such misbehaving class 1 nouns leads invariably to concord in class 2) point to the conclusion that noun class markers are actually complex nominal elements in the Spec of the NP, as shown in (54).

(54) a. ClassP  
   ClassP ⇔ pa  
   Class  
   NP  
   PLACE  
   Nhu

b. ClassP  
   ClassP ⇔ mu  
   Class  
   NP  
   HUMAN  
   Nhu

In these structures, the NP on the right contains the root nhu. The left branch contains a ClassP, which says what class of an object the root is to be understood as. In (54-a), the root is to be understood as denoting the property of a place. In (54-b), the root denotes a property of humans (which are the almost exclusive inhabitants of Class 1).

As we have already noted, we assume that the lexical specification of a locative class marker is as shown in (52). Due to the Superset Principle, this lexical entry is compatible with spelling out just a ClassP (because ClassP is contained in the lexical entry). As a consequence, we predict that each locative class marker can also be used as a regular class marker. When this happens, it behaves just like a regular Class marker for all intents as purposes, including being in complementary distribution with other class markers.

Note, however, that unlike in the traditional approaches, we do not claim that Class 18 mu (or the Class 16 pa) are exactly the same markers as, e.g., the Class 1 marker mu. Rather, the Class 1 mu is only specified as a ClassP in the lexicon. Therefore, the relation between the two types of markers (locative and non-locative) is not that of identity but that of a containment. Both types of markers can be inserted as a ClassP, and then both behave as class markers. But only locative class markers contain $P_{loc}$ and can be used in locatives.

We now turn to the question of how to deal with the fact that no modifier may be present in the phrase spelled out by the class marker.
7.3 No adjectival modification

The specific pattern we would like to explain is repeated below from (30). The pattern shows that adjectives may not have locative concord.

(55) Adjectives
   a. mu-sha mu-chema
      3-white 3-village
      ‘the white village’
   b. pa-mu-sha mu-chema
      16-3-village 1-white
      ‘in the white village’
   c. *pa-mu-sha pa-chema
      16-3-village 16-white

In order to provide an explanation of this pattern, we must place adjectives in the functional sequence. What we will be assuming is that since the class marker and the root form a constituent for idiomatic interpretation and other processes, adjectives are generated outside of that constituent, in the specifier of a dedicated head F, see (56). We are not explicitly representing concord on the adjective, but we assume it is base-generated as a part of the extended AP in Spec,FP, and subject to a matching requirement such that there must be a matching local ClassP in a position c-commanded by the adjective. (56) is the base structure we are assuming for (55-a).

(56)

We assume further that ClassP moves across FP, which yields the surface position of the adjective after the noun (cf. Cinque 2005). This movement is not represented in the tree.

With this issue clarified, let us now turn to (55-b). We propose that its structure is essentially like in (51), with the relevant details adjusted. Specifically, the phrase ma-poto in (51) would be replaced by the phrase we see in (56). Also, since the locative class marker is different (pa in the current case, mu in (51)), we assume that the silent PLACE modifier is ON, rather than IN, which leads to the emergence of pa (instead of mu); otherwise the derivation is exactly parallel. We further take for granted the fact observed in (20), namely that for concord to obtain, the agreeing modifier must c-command the relevant Class marker. With these assumptions in place, the reason why the adjective cannot have the locative concord is because it is contained inside the possessor DP, and does not c-command the locative class marker. It cannot move out of the containing DP, since adjectives (unlike possessors) do not move (except, perhaps, for focus reasons, which we disregard here).

Let us now turn to the impossible (55-c). In standard accounts, the way to generate this example would be to have it modify the silent noun PLACE, as in (57).
Recall that standardly, this is accounted for by proposing that PLACE needs licensing, which fails when modified by adjectives. On the current account, the impossibility of such a modification falls out from the proposal that pa spells out \( P_{\text{loc}} \). In order to see that, consider the tree in (58).

What we see here is that, in (58), it is not possible to use \( pa \) as the spell out the whole \( P_{\text{loc}} \) structure, as indicated by the star preceding \( pa \) in (58). That is because the lexical entry of \( pa \), analogous to the one in (52), does not contain the F head and its Spec, as required by the Superset Principle.

Note as well that the Anchor Condition prohibits that \( pa \) is inserted under the \( P_{\text{loc}} \) head only. The result is that \( P_{\text{loc}} \) cannot be lexicalized at all. This in turn clashes with the assumption that content must be expressed (recall the Exhaustive lexicalization requirement), and the structure is thus illicit.

This result holds for any head or phrase that would happen to occur inside the complex Spec in between Place and the bottom-most NP. All summed up, the result is that no modifier may occur in between Place2 and SURFACE, since any such modifier will disrupt the constituency needed for the insertion of locative markers. This explanation thus carries over to the lack of the initial vowels in Luganda, but pressing against the page limit, we will not go through the details here, since the logic should be clear.
7.4 Summary of the proposal

The last two sections have introduced a new proposal for the structure of Shona/Luganda locatives. We adopted the proposal that there is a second noun in the structure, a version of the silent PLACE. This noun is the source of the nominal properties of the locatives. Unlike in standard approaches, however, the silent noun does not correspond to a phonetically empty terminal. The noun is silent because it is spelled out as a part of a larger constituent. The argument in favor of this hypothesis is that the phrasal nature of the locative class markers helps us explain why the silent PLACE accepts no modifiers, and why its possessors lack the expected linker.

8 General conclusion and implications

We have argued that Bantu locative class markers are, in a descriptive sense, an instantiation of the category AxPart, and we have proposed a novel analysis of this recently established category. Specifically, we have suggested that locative prefixes (and by analogy AxParts in general) do not correspond to a specific label in the functional sequence, but that they are a specific type of a lexical item that combines several labels. We have shown that under this assumption, their complex behavior can be explained.

If correct, this line of research suggests that perhaps some of the labels that have been postulated in the description of various phenomena may in fact be re-interpreted as a combination of several independently needed categories. At the same time, the gist of the Cartographic enterprise remains intact; we are still working under the assumption that there is a rich and cross-linguistically rigid sequence of heads and specifiers.

The general lesson for future research is that phrasal spell-out increases our descriptive power beyond the traditional view, which works under the assumption that a morpheme (or a class of morphemes) that behaves unlike all other existing morphemes necessarily means that a new category label (corresponding to those morphemes) must be postulated in the functional spine.

References


