# Locatives in Shona and Luganda

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**Abstract**

At a general level, this paper is concerned by the categorisation of expressions in natural languages. We approach this question with a relatively new tool in hand: phrasal spell-out. The basic idea is this: 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 behaviour corresponds to a mixture of prototypical categorial properties.

This paper applies this relatively new analytical option to locative markers in Shona and Luganda. We contrast the behaviour of the locative markers in these languages with more familiar Indo-European adpositions, in order to establish a new class of items: locative class markers. The behaviour of the new class, however, is not explained by positing a new category in the decomposed projection, but by proposing that locative class markers correspond to a combination of several existing categories.

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

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accounts 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 in some sense intermediate between prototypical nouns and prototypical adpositions. If that is so, the Bantu situation is in fact only one particular 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 suggests 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).

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, it is not immediately clear why the overt silent PLACE modifiers cannot modify a non-silent noun. Similarly, it is not clear why the silent PLACE cannot be modified by other modifiers, e.g., adjectives.

Such facts are taken by Svenonius as a starting point for his alternative analysis and lead him to conclude that there is in fact 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 postulated as an independent category whose relationship to nominal or other properties is not apriori expected.

Against this background, our contribution is going to be twofold. First of all, we will 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.[1]

# 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.

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[1]The 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 http://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
          1-NHU
          a person
   b.  **va**-nhu
          2-NHU
          people

   c.  **chi**-nhu
          7-NHU
          thing
   d.  **zvi**-nhu
          8-NHU
          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.

It should be also mentioned that the root and the marker form often a non-compositional semantic unit (an idiom), as well as a phonological unit (tonal marking is superimposed over the two markers). See, e.g., Taraldsen (2010) Ferrari-Bridgers (2008) or Carstens (1997) for a recent discussion of the issues in generatively oriented frameworks.

Noun class markers enter into a rich set of concord/agreement relations. This is illustrated in (2-a,b).

(2)   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 in the marking of the head noun is further reflected on the adjective, the demonstrative and the verb.

## 2.2 Locative markers

The examples in (3) 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.

(3)   a.  nhunzi dzi-ri **pa**-ma-poto
          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 (4). 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 (4-b). It cannot occur to the left of the locative class marker, see (4-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 (4).

(4)  [ LOC [ DemP ] ]

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 (as well as Luganda) may both follow (unmarked) or precede the noun (marked). When the precede, they come in between the locative marker and the noun:

(5)  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

This contrasts with the behaviour of non-locative class markers, which are tightly bound to their nominal host, and no phrase may intervene between the two. For instance, diminutives in Shona (like locatives) are formed by stacking a diminutive class marker on top of a regular class marker, see (6-a,b).[2]

(6)  a.  mu-ti               b.  ka-mu-ti
         3-tree                  13-3-tree
         'a tree'                'a little tree'

However, the diminutives may not be separated from the root by any means (a fact stressed by Bresnan and Mchombo 1995). For instance, in (7-a), a possessor

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[2]This is where Shona and Luganda differ: Luganda attaches diminutives directly to the root, and the regular class marker is absent. This is also an option in Shona, alongside the one discussed in the main text.

is placed in between the diminutive prefix *ka* and the noun with its class prefix *mu-ti*. But the combination is ungrammatical, which contrasts with the behaviour of locative prefixes shown in (5-b).[3] (7-b) completes the pattern and illustrates the fact (which we already know) that possessors may both precede and follow the noun; but crucially, the diminutive prefix is counted as part of the noun, and the locative one is not.

(7)    a.    *ka-{w/k}-angu mu-ti
           13-3/13-my     3-tree
           intended: my little tree
      b.    {k-angu} ka-mu-ti {k-angu}
           13-my      13-3-tree 13-my
           'my little tree'

All facts summed up, the syntactic distribution of the locative markers seems unremarkable in comparison to familiar adpositions, and contrasts with the behaviour of all other class markers. For some Bantu languages (siSwati, see Marten 2010), these properties have served as the basis for the claim that locative noun class markers indeed are prepositions.

# 3    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 adverbial formatives should not be looked upon as *prepositions*, for this is to view a Bantu language through the medium of European grammatical concepts. Their behaviour is most un-preposition-like [...]." What is this behaviour?

## 3.1    Locatives can be used as ordinary class markers

The first property is that these markers may attach directly to the root, in which case they function as regular class markers. A couple of examples is provided below. Most striking is perhaps the fact that the root *nhu*, seen in (1), can be embedded under the locative markers, and yield the meaning of 'place' (with vulgar connotations).

(8)    a.    mu-nhu                  c.    **pa**-nhu
           1-NHU                      16-NHU
           person
      b.    **mu**-kati                  d.    **ku**-nhu
           18-KATI                    17-NHU
           inside                      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

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[3]The two concord options in the example show that this fact holds regardless of what concord marker (the diminutive or the regular one) there is on the possessor.

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 (9) for our string *mu-ma-poto* from (3-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.

(9)

$$
\begin{array}{c}
\text{NP}_1 \\
\diagdown \\
\text{N}_{cl} \quad \text{NP}_2 \\
| \qquad \diagup\diagdown \\
mu \quad \text{ma-poto}
\end{array}
$$

However, looking at the facts in (8) 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), and the question really is how come they can be expressed the same.

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 argument that has been put forth in the literature is that locatives in Bantu have the distribution of NPs. For example, there is a large body of literature (XXXX) that quite convincingly argues for the claim that the locatives in Bantu may become subjects. An example from Shona is given in (10). The remarkable thing is the absence of a formal subject (*it*), required in English, as well as other subject-like characteristics, including verbal agreement.

(10)    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, analysing 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 surprising.

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 serve as 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.[4]

Be that as it may – our point is that pending an ultimate solution to a tricky theoretical issue, the facts themselves (as given in (14)) 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 (11-a). The dependent noun here is *mu-komana* 'boy.' Its dependent status (its genitive case) is signalled by the marker *e*, which precedes the whole noun-phrase. This *e* is analogous to the English *of*, and it is glossed as such. The final ingredient of the bi-nominal structure is a concord marker *w-* which precedes the dependency marker *e* and tracks the class of the head noun.

(11)    nominal dependents

    a.   mu-fananidzo w-**e**-mu-komana
         3-picture      3-of-1-boy
         a picture of the boy
    b.   mu-fananidzo w-**e**-mu-bhuku
         3-picture      3-of-18-5.book
         a picture in the book (lit.: a picture of in the book)

When it comes to locatives, they are integrated in the complex NP in the same way as NPs. Taking a phrase like *mu-bhuku* 'in the book' (with *mu* a locative class marker), what we can observe is that this phrase must also be preceded by *e*, see (11-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 *e* is the analogue of the English *of*. The presence of *of* has been previously explained by the reference to the so-called Case Filter (Chomsky 1981): since nouns cannot assign Case, *of* appears in the structure to assign case to the nominal dependent. English *of* does not appear with PPs (*a picture (\*of) in the book*), because PPs do not need case. However, since *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: *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 *of*-like marker before some NP-internal PPs as well. The example in (12) 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 *pe*, which in other respects acts as a run-of-the-mill preposition.

(12)    cartea    \*(de) pe masa
       book.def   of  on table.def

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[4]See Bobaljik and Wurmbrand 2009 for an overview of the literature on both sides of the spectrum.

'the book on the table'

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 we know independently of Bantu what the distribution of NPs and PPs is. 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 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 robust.

## 3.3   Locatives enter into concord

No matter whether we look at locative class markers as ambiguous or not, it comes as no surprise that when the morphemes *mu, ku* and *pa* are used as regular noun class markers, they trigger concords. The reasoning is this: grammatical behaviour is defined by function/the underlying category, and when these markers express the class marker function, they are expected to behave exactly like other class markers. The following example illustrates this:

(13)   **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

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 several sentence types (the so-called locative inversion construction among them), the location comes before the verb, and in such cases, the verbal marking reflects the class of the locative:

(14)   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

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 possessors such as 'my' in 'my hand' agree in Bantu with the possessee. An example is shown in (15-a), where the possessor 'my' (*angu*) agrees with the possessee 'hand.' What is remarkable is that when such structures are embedded under a locative prefix, the possessor may optionally also exhibit concord with the locative, see (15-b).

(15)      Two distinct concords possible on (a subset of) modifiers
       a.   n-hunzi i-ri **pa**- [ru-oko   rw-angu]
            9-fly     9-is 16-  11-hand 11-my
       b.   n-hunzi i-ri **pa**-ru-oko   **p**-angu
            9-fly     9-is 16-11-hand 16-my
            The fly is on my hand

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How strong an argument for the nominal status of locatives is this? So far, not very strong. We know that there are languages, e.g., Finnish, where locative marking is copied by concord; see the examples in (16).

(16)    Locative concord in Finnish

    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 have never been analyzed as heading a syntactic node of the category N. Hence, NP-internal locative concord on its own is not a strong sign of nominal categorial status.[5]

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 (17-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 (17-b).

(17)    a.   *n-hunzi i-ri **pa**-ru-oko **pa**-rw-angu
          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'

What does this contrast mean? Let us start with Finnish. We will call the category of *ssa* 'Case,' and the category of *i* 'Number'. Then we can 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, and the question really is whether such a rule is a possible rule of grammar. Adopting Taraldsen's approach, the issue is even more pressing. It is simply impossible to state a rule for concord which uniquely determines a part of the functional sequence that is reproduced on the modifier.

The important conclusion is that these problems arise only because of the initial assumption, namely that *pa* and *ru* are of a distinct category. If, on the contrary, we 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:

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[5]In several studies (van Riemsdijk and Huybregts 2002, Asbury 2006, Svenonius 2010, Pantcheva 2011), arguments have been given for analysing such locative morphemes as the affixal spell-out of a syntactically independent adpositional syntactic head. Vainikka (1993) claims that the appositional head is silent in Finnish, and it is responsible for assigning the relevant case to the whole DP, which is reflected by the overt morphology.

modifiers in Shona agree in Class – a specific part of the nominal sequence – with the modifi-ee.

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 which lead to the conclusion are given below. We have already seen that when a pre-nominal possessor bears the non-locative concord, it comes in between the locative class prefix and the noun, see (18-a). It cannot precede the locative prefix, see (18-b).

(18)  a.  **pa**-rw-angu ru-oko
           16-11-my    11-hand
           on my hand
      b.  *rw-angu **pa**-ru-oko
           11-my    16-11-hand
           on my hand

Structurally, this means that the possessor with non-locative concord is contained inside the DP which is embedded under the locative marker, see (19). It cannot be higher than *pa*, since that would incorrectly allow it to be to the left of *pa*.

(19)    [ 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 (20-a)), and cannot follow (as shown in (20-b)).

(20)  a.  p-angu **pa**-ru-oko
           16-my  16-11-hand
           on my hand
      b.  ***pa**-p-angu ru-oko
           16-16-my   11-hand
           on my hand

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

(21)    [ p-angu [ pa [ ru oko ] ] ]

With the syntactic difference between the two concords clarified, and under the assumption that both locative and non-locative classes belong to a single category, we end up with a clear and completely general rule for concord: the possessor agrees in Class with the first class marker lower down.

## 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 favour of the label N 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 two properties of the locative markers that sets them apart from nouns, and then turn to the analysis.

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# 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 assimilate the constructions completely, and propose that just like ordinary class markers attach to nouns, the locative class markers do too, just that the noun is silent. This leads to the consequence that locatives really are bi-nominal structures (perhaps with a silent PLACE, Carstens 1997). However, there are at least two 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, a linker/genitive marker $e$ (analogous to *of*) is present between the two nouns, see (11-a), repeated in (22-a).

(22)   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 head noun by the hypothesised silent noun PLACE, we end up with an ungrammatical string (22-b). The comparison with (22-c) reveals that the problem is the presence of the linker $e$ with the accompanying concord marker. Put simply, one cannot say *inside **of** the pots* in Shona, one has to say *inside the pots*.

## 4.2 Only a subset of modifiers is allowed

In (15), we have seen that it is possible for certain modifiers to bear locative concord even when the locative noun class markers are used as spatial markers. We repeat the relevant example below:

(23)   n-hunzi i-ri **pa**-ru-oko  **p**-angu
      9-fly     9-is 16-11-hand 16-my
      The fly is on my hand

We have also concluded on the basis of their order that they sit higher in the functional spine than *pa*. Myers (1987) and Bresnan and Mchombo 1995 have argued that in order to accommodate such modifiers in the structure, we need to say that the locative marker heads a regular nominal projection, where such modifiers are added.

However, this argument has a double edge, because the set of such modifiers is restricted. For example, while part-whole relations such as (23) are fine with a locative concord, ordinary possessors cannot bear it, see (24). Specifically, (24-b) shows that only non-locative concord is possible here.

(24)    Possessors

    a.    n-hunzi i-ri   pa-mu-komana w-angu
         9-fly     9-be on-1-boy      1-my
         The fly is on my boy
    b.  *n-hunzi i-ri   pa-mu-komana pa-ngu
         9-fly     9-be on-1-boy      16-my

Similarly adjectives may not have locative concord. The following example illustrates that.

(25)    a.  *pa-mu-komana pa-chena
        16-1-boy      1-white
    b.  pa-mu-komana mu-chena
        16-1-boy      1-white
        'on the white boy'

The example (25-a) does not have any of the two conceivable interpretations: it cannot mean either 'on the white surface of the boy' or 'on the white boy.' It is simply unacceptable. (25-b) shows that the non-locative concord is fine.

This should be compared against the fact that there is no general ban on adjectival concord with the locative class markers. When the class markers are used in a non-spatial meaning (to refer to a part of an object, and not to a space defined with respect to a part of an object), adjectival modification becomes possible:

(26)    **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 the locatives project a second nominal projection where nominal modifiers may freely be added. Clearly, something more is going on in here.

The facts are highly reminiscent of Svenonius' (2006) discussion of English. He points out that "[a] distinction between the [non-spatial] use and the [spatial] use of *front* is adjectival modification, which is only acceptable with [non-spatial use]."

(27)    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 Bantu, 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.

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

# 5   The analysis

With the basic facts laid out, let us turn to the analysis. What we found in general terms is that locative class prefixes have some nominal properties, but at the same time differ from nouns. As highlighted at the outset, the current literature contains two classes of approaches. Svenonius (2006) proposes that since such expressions cannot be identified as fully identical to any of the existing categories, they belong

to a special category which he calls AxPart. AxPart is understood as a special category label and occupies a slot in the functional sequence between the DP and a prototypical adpositional region (what we will call here PlaceP, following Svenonius' terminology). Nothing else said, it seems to us that this approach deals easily with the fact that such expressions differ from nouns (as well as adpositions), but leaves the overlap in properties with nouns accidental. There is no guarantee from the label AxPart itself that expressions instantiating it will trigger concord, etc.

The second approach is to say that there is a second noun in the structure. For some, the marker itself is the second noun (for Bantu: Myers 1987, Bresnan and Mchombo 1995), or there is a silent noun PLACE, and the marker is related to it in one way or another (for Bantu: Carstens 1997). The second noun is responsible for the nominal properties. However, as far as we can see, the fact that the extra noun cannot be modified by adjectives or possessors is left unexplained, as well as the lack of the overt linker.

All summed up, we stand in a situation where each analysis has complementary merits and drawbacks. What we would like to propose here is a third type of analysis, which keeps the noun in the structure, but adds to this that AxPart is indeed a special category (as argued by Svenonius). However, it is not a special category in the sense that it corresponds to a specific label in the functional sequence. Instead, we suggest that it is a special type of a lexical item, namely one that combines several labels (both N and P). In particular, we propose that 'AxParts' (of which the locative classes are an instance) are stored in the lexicon as expressions that may spell out a whole phrase that contains minimally a nominal terminal, a class node, and an adpositional terminal:[6]

(28)    AxPart ⇔
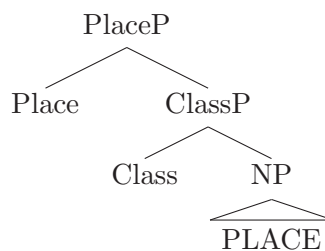
The constituent has an NP at the bottom which corresponds to the silent PLACE of various approaches. However, there is no unpronounced terminal; the NP node corresponding to PLACE is pronounced as a part of a larger structure.
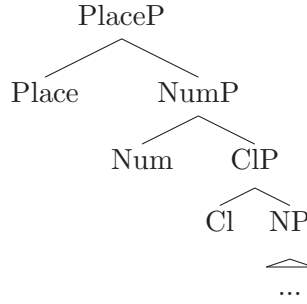
We believe that this analysis has the potential to capture both the nominal and non-nominal properties, as we argue below. In the following sub-sections, we review the relevant properties one by one and show how these can be explained if one adopts the hypothesis (28).

## 5.1  The lack of the linker

The lack of the linker follows from the way expressions such as (28) are integrated into the structure. Our assumptions here follow traditional Cartography (Cinque and Rizzi 2010) in that we assume a cross-linguistically fixed sequence of labels (the functional sequence), which is responsible for the underlying order of heads and their specifiers. For our purposes, only a small subset of all the categories will be relevant. They are given in (29).

---

[6]For the theory of phrasal spell out assumed here, see Starke (2009), Caha (2009), Caha (2013).

(29)

```
                    PlaceP
                   /      \
               Place      NumP
                         /    \
                      Num      ClP
                              /   \
                            Cl     NP
                                  /‾\
                                  ...
```
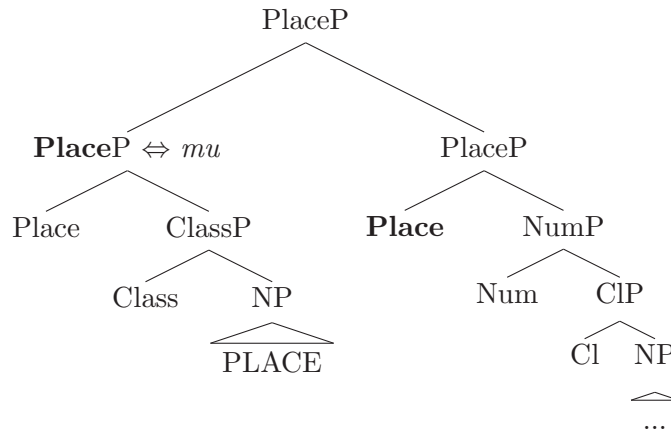
First of all, there is the 'lexical head' N at the bottom, with nominal class and number higher up in the structure in that order. Another relevant projection will be called Place, after Koopman (2000) and Svenonius (2010). Following further Svenonius (2008b), we assume that the role of this head is to introduce a region relative to the noun that it takes as a complement.[7]

As in traditional cartography, we assume that these heads may have specifiers which have to 'match' the particular head. For example, various types of adjectives have been proposed to be generated in the Spec of their corresponding projection (an approach pioneered in Cinque 1999 for adverbs, and adopted for adjectives by Scott 2002 and Svenonius 2008a, a.o.).

Putting these assumptions together, the proposal for Bantu locative markers is that they are similar to adjectives in being introduced as the Spec of their corresponding category, i.e., in the Spec of PlaceP. Their role is to specify the precise content of the relation (interior, surface, surroundings) between the reference object and the region constructed on its basis. The following tree depicts the proposal.

(30)

```
                                 PlaceP
                          /                    \
              PlaceP ⇔ mu                        PlaceP
              /       \                         /      \
          Place      ClassP                  Place      NumP
                    /     \                           /    \
                 Class     NP                      Num      ClP
                          /‾\                              /   \
                        PLACE                            Cl     NP
                                                               /‾\
                                                               ...
```

Boldface of the label Place indicates the assumed Spec-Head matching, which allows the Place head to remain silent, as in Koopman (1996) or Starke (2004). There is no matching beyond the top node; the two NPs are independent of each other.
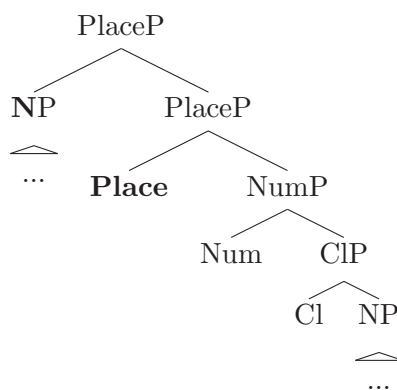
The Spec-Head nature of the relationship between PLACE and the second noun on the right branch is an alternative to an ordinary bi-nominal complement structure as proposed for Bantu by Myers (1987), Bresnan and Mchombo (1995) and

---

[7]Even higher up is a Path region, which encodes distinctions related to how the region denoted by PlaceP is to be understood, i.e., whether it is a static location, or whether it is a source/goal of a motion event. In essence, the Place region corresponds to what Kracht (2002) calls the localizer function, and the Path region to what he calls the modalizer function, although we assume that both Place and Path may be more complex (see, e.g., Svenonius 2010 for an elaborated Place region, and Pantcheva 2011 for an elaborated Path region of the functional sequence).

Carstens (1997), see (9).[8] We propose that this alternative structure is the reason for the absence of a linker, which we understand as associated to complement structures. Importantly, the absence of the linker does not mean the absence of a second noun (PLACE); it's just that the second noun is generated inside the complex Spec.

Note as well that 'ordinary' nouns cannot be used in this manner, i.e., as a Spec of a functional projection Place. This option is dependent on Spec-Head matching, which is only an option if the noun spells out Place in addition to the nominal projections. For instance, the following structure is illicit, because the boldfaced labels do not match:

(31)    illicit structure:

```
                        PlaceP
                       /      \
                    NP        PlaceP
                    ‿         /      \
                   ···     Place      NumP
                                     /    \
                                  Num      ClP
                                          /   \
                                        Cl     NP
                                               ‿
                                              ···
```

Since ordinary nouns cannot be generated as Specs of functional heads, they have to enter into regular complement structures, which (by assumption) lead to the occurrence of the linker.

In other words, we have now explained both why locative prefixes do not have a linker, and why ordinary nouns do. The source of this difference, however, is not that the former is not a noun and the latter is. The difference is in how the second noun is introduced in the structure. If the noun's the lexical entry has a functional head in addition to the nominal part, it may be merged as a Spec, and avoid the need for a linker.

## 5.2    Locatives can be used as noun class markers

Recall from the discussion above that locative class markers can also attach directly to roots, and serve as ordinary class markers:
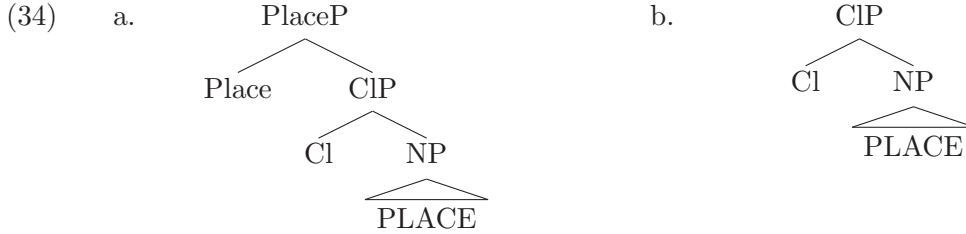
(32)    a.    mu-nhu
              1-NHU
              person
        b.    **mu**-kati
              18-KATI
              inside

        c.    **pa**-nhu
              16-NHU
        d.    **ku**-nhu
              17-NHU
              both: place

How can we account for that? The analysis has two ingredients. The first one is the fact that the phrasal spell-out model we use here (see Starke 2009, Caha 2013) contains a matching principle that allows a single lexical item to spell-out (pronounce) multiple structures (i.e., more than just the one specified in the lexicon). The principle is given below in (33); see the literature quoted for an independent motivation for this particular spell-out rule.
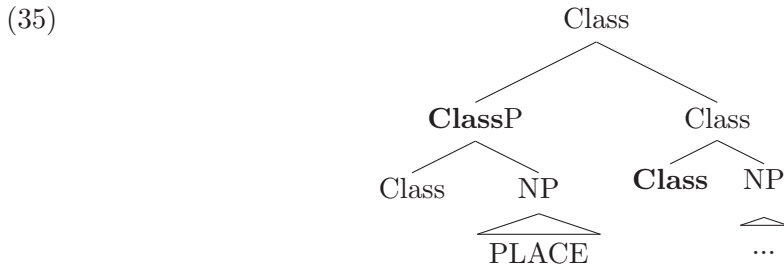
---

[8]All other silent PLACE approaches that we cite above seem to us to assume the same, namely that the Ground is introduced as the possessor of the silent PLACE. We do not adopt this proposal here.

(33)    *The Superset Principle (Starke 2009)*: A lexically stored tree matches a syntactic node iff the lexically stored tree contains the syntactic node.

The principle allows that a locative class prefix with the entry (34-a), repeated from above, can also spell-out syntactic structures such as (34-b), because (34-b) is contained in the entry (34-a).

(34)    a.

```
            PlaceP
           /      \
      Place        ClP
                  /   \
                Cl     NP
                      /__\
                     PLACE
```

b.

```
          ClP
         /   \
       Cl     NP
             /__\
            PLACE
```

The second ingredient of the analysis consists in wider application of the principles of Spec-Head matching that we have sketched above. Recall that our working hypothesis here is that a particular functional head may have a complex Spec, and remain silent. We have applied this idea to the Place node, but the very same principles may also apply at different levels of structure. Among others, we can generate structures such as the following:

(35)

```
                      Class
                    /        \
              ClassP          Class
             /     \         /     \
        Class       NP    Class     NP
                   /__\            /‾\
                  PLACE            ...
```
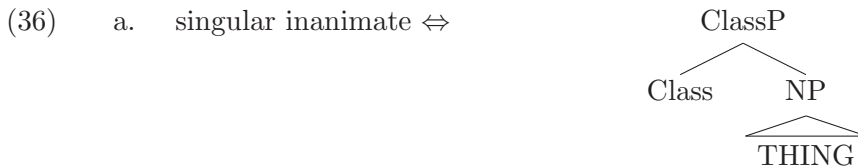
In this structure, the complex Spec indicates the particular content of Class, and the whole structure corresponds to an ordinary noun-class construction. Recall that beyond the Class node, no matching is required. So the right branch NP in the structure (35) may be spelled out by the root *nhu*, and classified as a particular concept (ANIMATE, THING, PLACE) by the class marker, which spells out the left branch. The boldfaced head Class is left unpronounced, a by-product of the Spec-Head configuration.
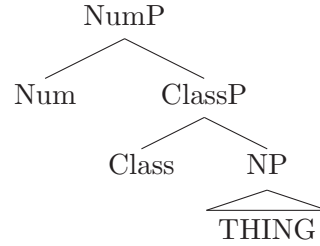
Putting now the classifier structure (35) together with the proposal that complex locative markers may 'shrink', as in (34-b), we have an account of the fact that locative class markers may also function as non-locative class markers.

In general terms, shrinking gives us an account of the fact that 'AxParts' (like *front*) have a locative use and a nominal use, where the nominal use is always a by-product of 'shrinking,' predicted by the Superset Principle.

Let us also mention here that for regular class markers, we assume that they have lexical entries like the ones in (36).

(36)    a.    singular inanimate ⇔

```
                  ClassP
                 /      \
            Class        NP
                        /__\
                       THING
```

b.   plural inanimate ⇔

```
              NumP
             /    \
          Num     ClassP
                 /     \
              Class    NP
                       |
                     THING
```

This allows them to function as class markers in structures such as (35), but not in locative structures (they lack the Place node, crucial for the possibility to be used as Spec,PlaceP). We hasten to add that this is a tentative proposal created to have something concrete to start from; for instance, the object described here by simple THING may correspond to a complex structure which includes syntactically relevant heads such as COUNT, INDIVIDUATED, etc. Similarly, the animate class markers (classes 1 and 2) may include a decomposed head ANIM, in addition to those mentioned above, etc.

The reason why we mention such entries here is to show explicitly what kind of relationship our analysis proposes for the relation between locative and non-locative class. It is not identity, but *overlap* (they have some nodes in common). The nodes which are not shared help us explain the differences (ordinary class markers cannot occur in Spec,PlaceP). The shared nodes are important in order to understand the parts of the grammar where locative and non-locative classes pattern alike. One such domain is concord.

## 5.3   Concord

As highlighted in section 3.3, locative class markers may be borne by modifiers which are located higher than the locative, as in (37-a). Modifiers which are lower than the locative bear the class of the noun, as in (37-b). The two markers cannot be copied simultaneously, (37-c).

(37)   a.   [ p-angu [ pa [ ru oko ] ] ]
       b.   [ pa [ rw-angu [ ru oko ] ] ]
       c.   *pa-ru-oko pa-rw-angu

As discussed in section 3.3, the complementary distribution seen in (37-c) suggests that whatever we call the category that is targeted by concord, both locative and non-locative classes have that category. The present account allows us to formalise this insight. First of all, we assume that concord replicates a ClassP projection (potentially decomposed, as in Taraldsen 2010) on top of the modifier, and the locative marker may 'shrink' to spell out whatever is copied.

(38)

```
                       Class
                      /     \
                 ClassP      Class
                /    \       /    \
            Class    NP   Class  modifier
                     |           |
                   PLACE         ...
```
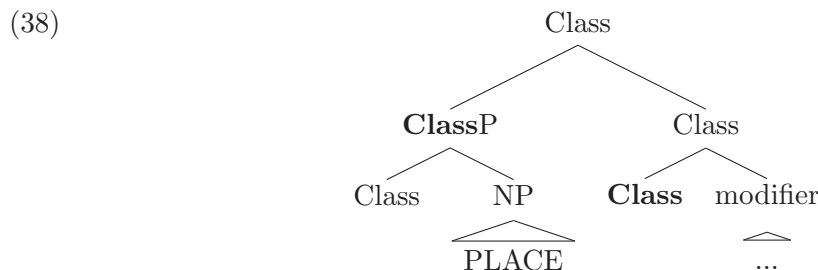
The particular Class which is present on top of the modifier is determined by two principles. In a given structure, the modifiers carry the class of the noun which they

(i) c-command and (ii) which is closest to them (i.e., whose extended projection – as revealed by precedence – a symmetrically c-commands the other noun).

For example, in the following structure, Modifier 1 agrees with N1 (the modifier c-commands both N1 and N2, but N1 is chosen because it is closer than N2). Modifier 2 agrees with N2 (the modifier does not c-command N1).

(39)
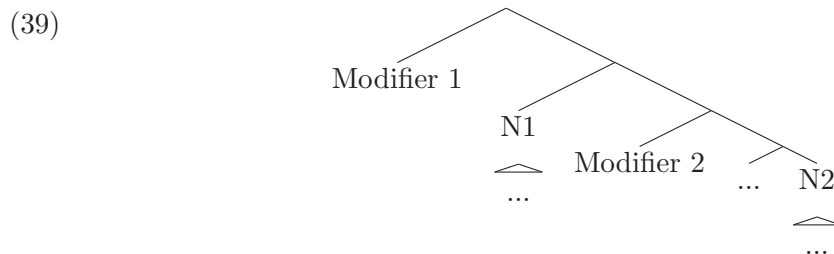
This mechanics then ensures that the result we get is the one shown in (37). But most importantly, the proposal explains both the fact that we get a complementary distribution between locative and non-locative concord markers on the modifier, but not on the noun. The crucial ingredient of this analysis is the notion of *overlap*. Locative and non-locative class share a part of their structure, and this shared part is targeted by concord. As a consequence, they show complementary distribution, even though they are not identical. On the noun, the locative marker may stack, because of its extra Place specification: it uses the part which is not shared.

In the remainder of this section, we would like to point out that the behaviour of concord in Shona (as well as Luganda) locatives is completely parallel to what can be observed elsewhere in similar type of non-complement bi-nominal constructions. Consider for example the behaviour of measure constructions (a cup of coffee) in Swedish. The starting point is the observation that there are two ways of conveying this meaning. One, by a regular bi-nominal construction with a preposition, where N1 takes N2 as a complement (see (40-a)). Two, by a construction without a preposition (as in (40-b)). The construction (40-a) appears to be an ordinary bi-nominal construction, and each noun may have its own determiner, as (41-a) shows. The construction without the preposition behaves differently, and only a single determiner is allowed, see (41-b).

(40)  a.  en kopp med kaffe
          a   cup   with coffee
      b.  en kopp kaffe
          a   cup   coffee
          'a cup of coffee'

(41)  a.  en kop med det  kaffet
          a   cup with that coffee
          a cup of that coffee
      b.  *en kopp det  kaffet
          a   cup   that coffee

The construction without the preposition is, we believe, analogous in abstract structural aspects to the Bantu locative construction. What we have is a special type of a quantity noun, which can be analysed as a Spec of a dedicated functional head. This explains both the lack of the preposition and the fact that only a single determiner is allowed (because we are looking at a single extended functional sequence).

The relevant point is that the behaviour of concord in the relevant construction is strongly reminiscent of Bantu. Whatever modifier c-commands both *kopp* 'cup' and *kaffe* 'coffee' agrees with 'cup' (because it is the closest noun). Whatever modifier c-commands only *kaffe* 'coffee,' tracks the class of 'coffee.'

This is easy to show since *kopp* and *kaffe* differ in their gender. In (42-a,b), the modifiers c-command *kopp*, and reflect its nominal class called common gender in

Swedish grammar. In (42-c), the modifier c-commnads only *kaffe* and agrees with it, showing the neuter gender instead.

(42)   controls concord like ordinary nouns

    a.   en/*ett    kopp   kaffe
          a-CG/a-NEUT cup-CG coffee-NEUT
          'a cup of coffee'

    b.   en {varm/* varmt}   kopp   kaffee
          a   warm-CG warm-NEUT cup-CG coffee-NEUT

    c.   en kopp   {*varm/ varmt}   kaffee
          a  cup-CG warm-CG warm-NEUT coffee-NEUT
          both b and c: 'a cup of warm coffee'

To conclude: the Spec-Head structure proposed here in (30) contains two nouns, and two distinct class projections. Modifiers that appear in this structure agree in Class with one of the two nouns, subject to c-command and locality. Because of the fact that locative and non-locative class markers *overlap* for Class, they are in complementary distribution on the modifier. This can be so even though they are not in complementary distribution on the noun, where they stack one on top of the other. Stacking here is allowed because unlike concord, stacking on nouns involves crucially the Place head, for which there is no overlap.

We have further shown that understood this way, the concord phenomenon seen in Bantu is perfectly analogous to the behaviour of structurally similar examples in unrelated languages.
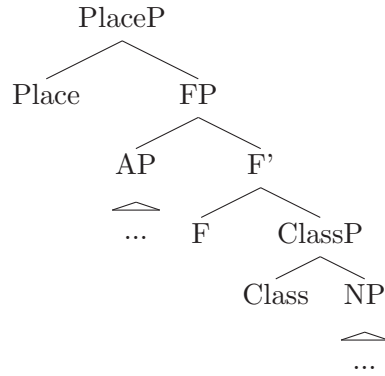
## 5.4   No adjectival modification

The final observation to be tackled here is the fact that when locative class markers are used as ordinary class markers (when they attach to the root and together with the root denote a thing), such an NP may be modified by adjectives. When they act as locative markers, adjectives are excluded. Why is this so?

In order to answer this question, we must place adjectives in the functional sequence. Before we get more specific about that, we would like to say that the only thing which is really crucial for us is that they are introduced somewhere between the NP and the Place head; if that is so, the effect described in the first paragraph can be derived. That said, we will now suggest one particular solution along these lines.

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 (43). 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 respecting the requirements of c-command and locality formulated earlier.
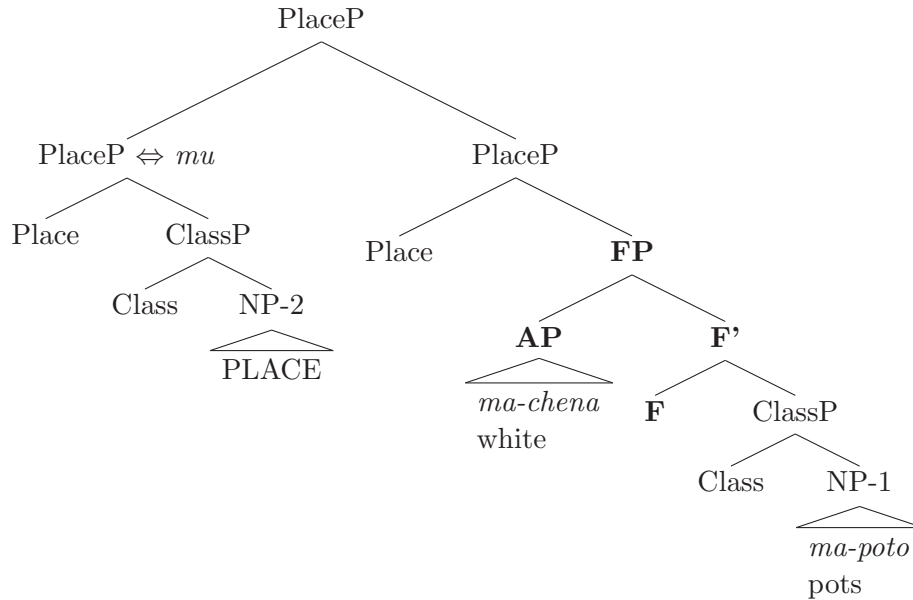
(43)

```
                        PlaceP
                       /      \
                  Place        FP
                              /    \
                          AP        F'
                         /\        /    \
                        ...      F        ClassP
                                        /      \
                                   Class        NP
                                                /\
                                               ...
```

We assume further that ClassP moves across FP, which yields the surface position of the adjective after the noun. This movement is not represented in the tree.
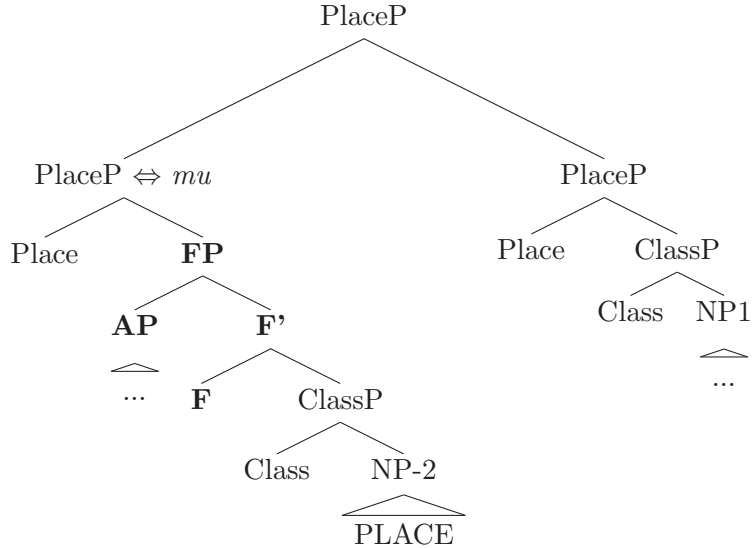
With this issue clarified, let us now come back to our original structure for locatives, given first in (30). In this structure, it is fine to modify the right branch NP1 by adjectives. This requires that an additional head F is added in between PlaceP and ClassP, hosting an adjective in its Spec, see (44). Just for illustration, we have filled in the structure by lexical material.

(44)

```
                              PlaceP
                           /          \
                PlaceP ⇔ mu            PlaceP
                 /      \             /       \
            Place      ClassP     Place        FP
                       /    \                 /    \
                   Class     NP-2         AP          F'
                            /\           /\          /    \
                         PLACE      ma-chena       F        ClassP
                                      white               /      \
                                                     Class        NP-1
                                                                  /\
                                                              ma-poto
                                                                pots
```

However, it is impossible to modify NP2 (the silent PLACE) by an adjective. Such an adjective would have to be introduced *inside* the constituent on the left branch, in the specifier of a head that would come just above the class node associated to the NP2 PLACE:

(45)

PlaceP
├─ PlaceP ⇔ *mu*
│  ├─ Place
│  └─ **FP**
│     ├─ **AP**
│     │  └─ ⌃ ...
│     └─ **F'**
│        ├─ **F**
│        └─ ClassP
│           ├─ Class
│           └─ NP-2
│              └─ ⌃ PLACE
└─ PlaceP
   ├─ Place
   └─ ClassP
      ├─ Class
      └─ NP1
         └─ ⌃ ...

However, if such an adjective were present, it would no longer be possible to use *mu* as the spell out the whole PlaceP structure. That is because the lexical entry of *mu*, given in (29), does not contain the F head and its Spec. The Superset Principle, however, requires that for *mu* to spell out the PlaceP in (45), it would have to contain these elements. Hence, the conclusion is that it is impossibility to modify the silent PLACE by adjectives. The reason for that is that the PLACE is silent only because it is spelled out by a phrasal item, and it cannot remain silent (be spelled out by a phrasal item) when it is modified by an adjective.

## 5.5    Summary

This section has introduced a new proposal for the structure of Bantu locatives. We combined the proposal that there is a second noun in the structure, PLACE, with the observations that the Bantu locative class markers are special items that stand somewhere in between the prototypical categories N and P, strongly resembling a category labelled AxPart by Svenonius 2006.

The noun we have in the structure is the source of the nominal properties of the locative, it triggers concord on c-commanding modifiers and it allows for an account of non-locative uses. We remain agnostic as to how this noun influences the external distribution of the locatives, see section 3.2, as we are not convinced that the facts show what they are supposed to show.

Despite the presence of the second noun, we are not looking at an ordinary binominal structure where one noun is the complement of the other noun. The role of PLACE in the structure may perhaps be best described as an 'auxiliary noun' function, on analogy with 'auxiliary verbs.' Its nominal part – detectable by various tests – only appears in the structure in order to support functional material.

The novel aspect of this proposal is that the noun does not correspond to a silent terminal; it is silent because it is spelled out as a part of a larger constituent. The argument in favour of this hypothesis is that the phrasal nature of the lexical item helps us shed light on the properties in which locative class markers differ from ordinary nouns: they do not take the linker, and they do not allow certain types of modification. These issues have remained unexplained under the original silent PLACE hypothesis, as far as we are aware.

There is one question that remains. So far, we have been looking at the function of the noun class prefixes as essentially modifiers of an NP. In this function, they

sit on the left branch in a Spec of a particular noun. However, the proposal is that these morphemes include a noun at the bottom, and could in principle be also used beyond the modification function as self standing nouns. Just like most auxiliary verbs can also be used as main verbs, we would expect these auxiliary nouns to have some use as regular nouns.

This expectation is based on the Superset principle. Since lexical items may shrink, these morphemes may spell out just the NP (or ClassP) and act as regular nouns. For instance, it should be fine to use *mu* in order to express something like the notion of 'place' or 'interior' or whatever its meaning is. On the first blush, this does not seem to be the case. However, there is interesting evidence that this prediction may in fact be correct.

# 6   Luganda

In order to shed some light on this issue, we are going to switch to a different Bantu langauge, Luganda. In all abstract aspects discussed up to now, Luganda behaves just like Shona. However, there is one thing that distinguishes the noun class morphology in the two languages, and this is what will become relevant here.

## 6.1   The initial vowel

The difference is that noun class markers in Luganda are generally bi-morphemic. The initial part of the class marker corresponds to a single vowel, variously called the pre-prefix, the augment, or the initial vowel. This marker is absent in Shona. The second part of a class marker is called the prefix, and it is a CV marker very similar to the Shona prefixes:

(46)   Luganda

    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).

There is evidence that the pre-prefix is a separate morpheme, because it is not always present on the noun. Its presence/absence is controlled by factors which are notoriously complex (see, e.g., Taraldsen 2010). However, the intuition many follow is that the initial vowel is similar to a determiner. For example, it must be present when the noun is the subject of the sentence, as in (47-a). Here, the adjective is interpreted as a predicate of the subject. When the pre-prefix is missing on the noun, as in (47-b), the noun is interpreted as a predicate. The adjective is then modifying the predicate, and the subject is pro-dropped.

(47)   a.   e-ki-kopo ki-nene
        7-7-cup   7-big
        The cup is big.

    b.   ki-kopo ki-nene
        7-cup   7-big

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 where definiteness and specificity are determined. This idea is further supported by the behaviour of objects under negation. Specifically, the initial vowel is missing on non-specific objects in the scope of negation, as in (48-a), but it is present when the object is interpreted as specific (48-b).

(48)    a.    ss-a-yas-izza              ki-kopo
              neg.1-past-break-perf 7-cup
              I didn't break any cup
        b.    ss-a-ky-as-izza           e-ki-kopo
              neg.1sg-past-7oc-break-perf 7-7-cup
              I didn't break the cup

What is interesting is that the locative classes in Luganda lack the initial vowel. In (49-a), a locative phrase acts as a subject. In this position, the initial vowel is expected to appear. However, (49-a) has only *mu* with no apparent initial vowel, and its inclusion, as in (49-b), yields ungrammaticality.

(49)    a.    mu-ki-no e-ki-kopo mu-ddugala
              18-7-this 7-7-cup    18-dirty
              It is dirty inside the cup (literally in the cup is dirty)
        b.    *o-mu-ki-no e-ki-kopo mu-ddugala
              18-18-7-cup 7-7-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 – with one exception – 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 (50)) are judged unacceptable in any context:

(50)    *o-mu-ki-kopo
         18-18-7-cup
         intended: in the cup

Note that this contributes to the list of differences between locative and non-locative classes, i.e., to the list of problems for a theory according to which locative constructions in Bantu are an instance of an ordinary bi-nominal complement structue (as in Myers 1987 or Bresnan and Mchombo 1995).

Let us now turn to the theoretical interpretation of this fact. 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. Seen this way, this only adds up to the expected profile of an AxPart type of category: AxParts cannot be modified by determiners. As Svenonius (2006) convincingly argues for (51), only the example without the determiner (i.e., (51-a)) is an AxPart construction, (51-b) features an ordinary nominal use of *front*.

(51)    a.    There was a kangaroo in front of the car.
        b.    There was a kangaroo in the front of the car.

All summed up, locative classes in Luganda do not have the initial vowel because

they are AxParts, and AxParts cannot be modified by determiners, which the initial vowels are an instance of.

As for the theoretical reasons why initial vowels are excluded, recall the discussion in section 5.4. Here we have proposed that AxParts (in their locative use) spell out a whole PlaceP, and nothing that would have to be introduced inside that PlaceP may appear. Since determiners (like adjectives) are generated inside PlaceP, they are incompatible with the AxPart use of the prefix.

## 6.2 Class markers in a nominal use

We are now in a position to return to the question from the end of section 5: can *mu* and its kin be used as regular nouns as the proposal predicts, or are these morphemes only ever attested as modifiers ('auxiliary nouns') that occupy the Spec of a particular projection?

We will answer this question by introducing a puzzling construction where paradoxically we do find an initial vowel with a locative class marker. We will then argue that the best way to analyse this construction is by assuming the existence of a noun, meaning PLACE, and pronounced as *mu*.

Let us start by mentioning an example where an initial vowels appear with a locative class marker; it is shown in (52). We found this construction by trying to elicit examples where *mu* 'in' appears with the initial vowel *o*, yielding *o-mu*.

(52)    n-jagala o-mw-a-Ssembatya
        1-love    18-18-of-Ssembatya
        I like it at Ssembatya's place

The example itself has *o-mw*, rather than *o-mu*, but this is a predictable phonological change in the context of a following vowel (*a*). As the interpretation suggests, this is a somewhat irregular locative construction. Ssembatya here is not the Ground (the reference object with respect to which the location is determined), it is the possessor of the Ground. This is in line with the morphosyntax: Ssembatya is preceded by the genitive like marker *a* 'of.'

Hence, it looks like we are looking at an ellipsis type of construction, where the Ground NP ('place') is elided, and only its possessor remains. Let me then look at ellipsis with possessor-like remnants in Luganda in more detail in order to see whether this is the correct way of looking at the construction.

The first sentence we will consider in this context is given in (53-a); it is a non-eliptical sentence on the basis of which the ellipsis will be constructed. The head noun 'water' belongs to class 6, and has a bi-morphemic class marker *a-ma*. The head noun has a locative modifier ('in the well'), which (recall) is embedded in the DP just like possessors. The possessive marker in Luganda is *a*, but we do not see it in (53-a), because of a regular phonological process which elides this *a* in contexts where another vowel follows. It is replaced by the sign ' in the orthography.

(53)    a.    a-ma-zzi  g-'-oku-lu-zzi   lw-affe g'a-kalidde
              6-6-water 6-of-17-11-well 11-our 6past-dry.perf
              'The water in our well dried.'
        b.    a-~~ma-zzi~~  g-'-oku-lu-zzi   lw-affe nago g'a-kalidde
              6-~~6-water~~ 6-of-17-11-well 11-our also  6past-dry.perf
              'The one in our well dried as well.
        c.    *a-~~ma-zzi~~  g-'-oku-lu-zzi   lw-affe nago g'a-kalidde
              ~~6-6-water~~ 6-of-17-11-well 11-our also  6-past-dry.perf

The important thing is how ellipsis is constructed on the basis of this sentence. The example in (53-b) shows that NP ellipsis consists in deletion of the root plus the prefix, but leaving the initial vowel present. The initial vowel cliticises on the genitive remnant, so the orthography of (53-b) would be *ag'okuluzzi*. As (53-c) shows, it is impossible to eliminate the initial vowel, leaving only the possessor.

Returning to the sentence in (52), and parsing it on analogy with (53-b), the analysis must be that *o* is the initial vowel of an elided noun, which belongs to class 18 and means 'place,' and *mw* is a concord on the possessor which reflects the class of the elided head:

(54)   n-jagala o-mu-N    mw-a-Ssembatya
       1-love   18-18 place 18-of-Ssembatya
       I like it at Ssembatya's place

The problem is that there is no such noun in Luganda. The nouns that would semantically fit in the non-elliptical construction (such as *a-wa-ntu* 'place' or *a-wa-ka* 'home') belong to class 16, rather than 18. Hence, we have a problem in finding the non-elliptical counterpart of this structure.

The point of all this is that when we put this problem together with the problem identified in section 5, both problems are solved. The problem at the end of section 5 was that we predicted that locative class markers like the class 18 *mu* should have a use as a regular noun meaning PLACE. The problem we have in (54) is that we lack a class 18 noun meaning PLACE. The natural conclusion is that *mu* is the noun we are looking for.

The idea as to why the non-elliptical counterpart is unattested is this: the noun would be pronounced just as *mu*. But this is superfluous, since this material can be without any problems recovered from the concord marker *mu*. Hence, economy dictates that ellipsis obligatorily applies.

## 6.3   The demonstrative 'here'

With this conclusion in hand, let us turn to demonstratives meaning 'here.' Both in Luganda as well as Shona, these look like the regular demonstrative 'this,' just bearing the locative concord, and with no accompanying noun.

To illustrate that, let us first look at (55-a). Here we see an ordinary demonstrative, agreeing in class with the head noun. (55-b) shows that the head noun can be elided, leaving only the demonstrative. (55-c,d) shows that when the demonstrative root is augmented by a locative concord marker, the meaning is 'here.'

(55)   a.   **ki-no** eki-kopo ki-nene
            7-dem 7-cup    7-big
            This cup is big
       b.   **ki-no** ki-nene
            7-dem 7-big
            This one (thing of class 7) is big
       c.   m-beera wa-no
            I-live      16-dem
            I live here.
       d.   eki-kopo ki-ri   mu-no
            7-cup     7-cop 18-dem
            The cup is in here

The point is that (55-c,d) very much look like ellipsis structures with the head noun

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omitted, as in (55-b). Kayne (2004) in fact argues that also in English, *here* is a modifier in a complex NP, where the head noun is a silent PLACE. If that is so, then we once again have the need for a particular type of noun to fit in the structure (55-d). But as before, there is no such noun safe the one we have postulated to reside inside the locative class marker.

Hence, it seems that our prediction that locative class markers will have a purely nominal use is in fact correct, but it can only be seen indirectly through ellipsis structures.

# 7 Conclusion

We have argued that Bantu locative class markers are an instantiation of the category AxPart, and we have proposed a novel analysis of this recently established category. Specifically, we have suggested that AxParts 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 behaviour 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 reinterpreted 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

Aboh, Enoch O. 2010. The P route. In *The Cartography of Syntactic Structure, vol.6*, edited by Guglielmo Cinque and Luigi Rizzi, pp. 225 – 260. Oxford University Press, Oxford.

Adger, David. 2012. A syntax of substance. Ms., Queen Mary, London.

Asbury, Anna. 2006. Towards a typology of morphological case. In *Nordlyd 33.1: Special issue on Adpositions*, edited by Peter Svenonius, pp. 120 – 148. University of Tromsø, Tromsø. Available at www.ub.uit.no/munin/nordlyd/.

Ashton, E.O., E. M. K. Mulira, E. G. M. Ndawula, and A.N. Tucker. 1954. *A Luganda Grammar*. Longmans, Green and Co, London, New York, Toronto.

Bobaljik, Jonathan David and Susi Wurmbrand. 2009. Case in GB/Minimalism. In *The Oxford Handbook of Case*, edited by Andrej Malchukov and Andrew Spencer, pp. 44–58. OUP, Oxford.

Botwinik-Rotem, Irena. 2008. Why are they different? An exploration of Hebrew locative PPs. In *Syntax and semantics of spatial P*, edited by Anna Asbury, Jakub Dotlačil, Berit Gehrke, and Rick Nouwen, p. 331364. John Benjamins, Amsterdam.

Bresnan, Joan. 1995. Category mismatches. In *Theoretical Approaches to African Linguistics*, edited by Akiniyi Akinlabi, pp. 19–45. Africa World Press, Trenton, NJ.

Bresnan, Joan and Sam A. Mchombo. 1995. The Lexical Integrity Principle: evidence from Bantu. *Natural Language and Linguistic Theory* 13: 181–254.

Caha, Pavel. 2009. *The Nanosyntax of Case*. Ph.D. thesis, CASTL, University of Tromsø.

Caha, Pavel. 2013. Explaining the structure of case paradigms through the mechanisms of Nanosyntax. *Natural Language and Linguistic Theory* 31: 1015–1066.

Carstens, Vicki. 1997. Empty nouns in Bantu locatives. *The Linguistic Review* 14: 361–410.

Chomsky, Noam. 1981. *Lectures on Government and Binding*. Foris, Dordrecht.

Cinque, Guglielmo. 1999. *Adverbs and Functional Heads: A Cross-Linguistic Perspective*. Oxford University Press, New York.

Cinque, Guglielmo. 2010. Mapping spatial PPs: an introduction. In *The Cartography of Syntactic Structure, vol.6*, edited by Guglielmo Cinque and Luigi Rizzi, pp. 3–25. Oxford University Press, New York.

Cinque, Guglielmo and Luigi Rizzi. 2010. The cartography of syntactic structures. In *The Oxford handbook of linguistic analysis*, edited by Bernd Heine and Heiko Narrog, pp. 51–65. Oxford University Press, Oxford.

Ferrari-Bridgers, Franca. 2008. A unified syntactic analysis of Italian and Luganda nouns. In *The Bantu-Romance connection: A comparative investigation of verbal agreement, DPs, and information structure*, edited by Ccile de Cat and Katherine Demuth, pp. 239–258. John Benjamins, Amsterdam.

Giurgea, Ion Tudor. 2014. Romanian adnominal locative PPs and argument structure. Talk at Olinco 2014, Olomouc.

Kayne, Richard S. 2004. Here and there. In *Lexique, Syntaxe et Lexique-Grammaire/Syntax, Lexis & Lexicon-Grammar: Papers in Honor of Maurice Gross*, edited by C. Leclère, E. Laporte, M. Piot, and M. Silberztein, pp. 253–275. John Benjamins, Amsterdam.

Koopman, Hilda. 1996. The spec head configuration. In *Syntax at Sunset*, edited by Edward Garrett and Felicia Lee, pp. 37–64. Department of Linguistics, UCLA, Los Angeles.

Koopman, Hilda. 2000. Prepositions, postpositions, circumpositions, and particles. In *The Syntax of Specifiers and Heads*, edited by Hilda Koopman, pp. 204–260. Routledge, London.

Kracht, Marcus. 2002. On the semantics of locatives. *Linguistics and Philosophy* 25: 157–232.

Marten, Lutz. 2010. The great siSwati locative shift. In *Continuity and change in grammar*, edited by Anne Breitbarth, Christopher Lucas, and Sheila Watts. John Benjamins, Amsterdam.

Myers, Scott. 1987. *Tone and the Structure of Words in Shona*. Ph.D. thesis, University of Massachusetts at Amherst.

Pantcheva, Marina. 2008. The place of PLACE in Persian. In *Syntax and semantics of spatial P*, edited by Anna Asbury, Jakub Dotlačil, Berit Gehrke, and Rick Nouwen, pp. 305–330. John Benjamins, Amsterdam.

Pantcheva, Marina. 2011. *Decomposing Path. The nanosyntax of directional expressions*. Ph.D. thesis, CASTL, Tromsø.

van Riemsdijk, Henk and Riny Huybregts. 2002. Location and locality. In *Progress in Grammar: Articles at the 20th Anniversary of the Comparison of Grammatical Models Group in Tilburg*, edited by Marc van Oostendorp and Elena Anagnostopoulou, pp. 1–23. Meertens Instituut, Amsterdam. www.meertens.knaw.nl/books/progressingrammar/.

Scott, Garry John. 2002. Stacked adjectival modification and the structure of nominal phrases. In *Functional Structure in DP and IP: The Cartography of Syntactic Structures*, edited by Guglielmo Cinque, pp. 91–120. Oxford University Press, New York.

Starke, Michal. 2004. On the inexistence of specifiers and the nature of heads. In *Structures and Beyond: The Cartography of Syntactic Structures, vol. 3*, edited by Adriana Belletti, pp. 252–268. Oxford University Press, New York.

Starke, Michal. 2009. Nanosyntax. A short primer to a new approach to language. In *Nordlyd 36: Special issue on Nanosyntax*, edited by Peter Svenonius, Gillian Ramchand, Michal Starke, and Tarald Taraldsen, pp. 1–6. University of Tromsø, Tromsø. Available at www.ub.uit.no/munin/nordlyd/.

Svenonius, Peter. 2006. The emergence of axial parts. In *Nordlyd, special issue on Adpositions*, edited by Peter Svenonius and Marina Pantcheva, no. 33 in Tromsø Working Papers in Linguistics, pp. 1 – 22. CASTL, University of Tromsø, Tromsø.

Svenonius, Peter. 2008a. The position of adjectives and other phrasal modifiers in the decomposition of DP. In *Adjectives and Adverbs: Syntax, Semantics, and Discourse*, edited by Louise McNally and Chris Kennedy, pp. 16–42. Oxford University Press, Oxford.

Svenonius, Peter. 2008b. Projections of P. In *Syntax and Semantics of Spatial P*, edited by Anna Asbury, Jakub Dotlačil, Berit Gehrke, and Rick Nouwen, pp. 63–84. John Benjamins, Amsterdam.

Svenonius, Peter. 2010. Spatial P in English. In *The Cartography of Syntactic Structure, vol.6*, edited by Guglielmo Cinque and Luigi Rizzi, pp. 127 – 160. Oxford University Press, Oxford. Available at http://ling.auf.net/lingBuzz/000001.

Taraldsen, Tarald. 2010. The nanosyntax of Nguni noun class prefixes and concords. *Lingua* 120 6: 1522 – 1548.

Terzi, Arhonto. 2010. Locative prepositions and 'Place'. In *The Cartography of Syntactic Structure, vol.6*, edited by Guglielmo Cinque and Luigi Rizzi, pp. 196–224. Oxford University Press, Oxford.

Vainikka, Anne. 1993. The three structural cases in Finnish. In *Case and Other Functional Categories in Finnish Syntax*, edited by Anders Holmberg and Urpo Nikanne, Studies in Generative Grammar, pp. 129–159. Mouton de Gruyter, Berlin.

Zaenen, Annie, Joan Maling, and Höskuldur Thráinsson. 1985. Case and grammatical functions: The Icelandic passive. *Natural Language and Linguistic Theory* 3: 441–483.