

# Nominal syntax in Bantu languages: How far can we get with gender on *n*?

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May 25, 2018

## Background

- What is “grammatical gender”?

- Grammatical gender as it features in DP syntax is primarily a *categorizing feature* that groups nouns according to their morphological shape and/or syntactic behavior.
- Classic example of gender determining concord on determiners and modifiers:

(1) *Spanish*

- a. **el** libro roj-**o**  
the.MASC book red-MASC  
‘the red book’
- b. **la** manzana roj-**a**  
the.FEM apple red-FEM  
‘the red apple’

- Gender of noun can also determine case morphology and verb agreement (ex. Polish), among others.

- Why do linguists care?

- Gender is **not interpretable**.  
Typically, a small subset of nouns in a language (usually animate nouns) can be classified according to properties of their real-world referent; for the rest, gender is not interpretable.
- Gender is **arbitrary**.  
If there are no real-world properties that determine the gender category of a noun, then it must be arbitrary. Consider:

	el libro	<i>book</i>	masculine	Spanish
(2)	książka	<i>book</i>	feminine	Polish
	das Buch	<i>book</i>	neuter	German

- Gender information **needs to be stored somewhere**.

Clearly, gender information is language-specific and needs to be stored somewhere. One of the big questions in DP syntax is where this information is stored.

- **Variety of candidate analyses...**

- Early analyses assumed that gender is stored in the lexicon, but the field has mostly moved away from such proposals.
- Various hypotheses suggest gender may be located on the Number projection or on its own gender projection.
- Most recently, Kramer (2014, 2015) suggests gender is located on *n*.
- Our goal is not to distinguish between various analyses (this has been done in the literature more thoroughly than we can do here) but to consider the most recent proposal and how it fairs when put to the test in a complex gender system.

- **...and a ready-made testing ground.**

- Languages in the Bantu language family have on average 12-20 noun classes, determined by number and gender.
- Derived nominals in these languages have agglutinative noun class morphology that allows us to test predictions made by the *n* analysis of gender.

**Question:** How far can we get in a proposal for Bantu nominal syntax when we apply an *n* analysis of gender to noun classes in this language family?

**Goal:** To show that analyzing gender as located on *n* in Bantu languages gives new insight into Bantu DP structure and provides further evidence for gender on *n* as a crosslinguistically plausible and uniform analysis.

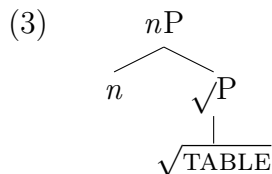
Outline:

1. Gender on *n*: from Kramer (2014, 2015) to Bantu languages
2. *n* as a nominalizer (infinitives)
3. Other derived nominals: diminutives & augmentatives
4. A Bantu-specific type of nominal: locatives

# 1 Analysis: the basics

## 1.1 Gender on $n$ (Kramer 2014, 2015)

- A standard assumption of DM: nouns are formed by a category-less root merging with a nominalizer  $n$ .



- Gender features are characteristic to nouns...  
...and yet gender cannot be located on roots themselves under standard assumptions of DM, since gender is a category-specific feature, and roots are category-less.
- Kramer (2014, 2015) proposes that, for languages with grammatical gender, gender is on  $n$ , and is thereby assigned to a root when it merges with the nominalizer.
- As Kramer notes, there can be **many “flavors” of  $n$** , and the exact number of  $n$  and the nature of the features of each  $n$  is determined by the details of how nouns are assigned to gender categories in the language
- For Spanish, which on the surface has (what is referred to as) masculine and feminine gender, she proposes the following gender system:

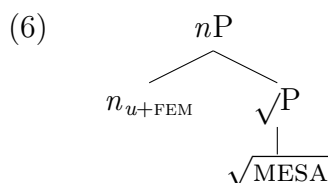
(4)

$n$	$i$ +FEM	female natural gender	la chica ‘girl’
$n$	$i$ -FEM	male natural gender	el chico ‘boy’
$n$	$u$ +FEM	feminine arbitrary gender	la mesa ‘table’
$n$		no natural gender (or irrelevant / unknown)	el libro ‘book’

- The featureless  $n$  is the “default”, which in Spanish is realized as the masculine.
- Which gender is default will vary from language to language. For Spanish, it is determined based on what gender is used when the referent is unknown

(5) Para él, nadie es mal-**o**  
 for him nobody is evil-MASC  
 ‘For him, nobody is evil.’ (Roca 1989: 14, as cited in Kramer 2015)

- For the Spanish feminine noun *mesa* ‘table’:



- Vocabulary Insertion (VI) rules serve as licensing rules:

$$(7) \quad \sqrt{\text{MESA}} \rightarrow \text{mesa}_{\text{fem}} / n_{u+\text{FEM}}$$

- We assume, following Kramer (2015), that a lexical item cannot be inserted if there is no context provided. That is, the derivation fails if an  $n$  combines with a root for which it does not have a licensing condition, because it does not satisfy the context for that root to be spelled out.
- Thus, the absence of a licensing rule as in (8a) prevents the structure in (8b) from being spelled out, thereby accounting for the absence of a masculine Spanish *mesa*.

$$(8) \quad \begin{array}{l} \text{a. } * \sqrt{\text{MESA}} \rightarrow \text{mesa}_{\text{masc}} / n \\ \text{b. } * \begin{array}{c} n\text{P} \\ \swarrow \quad \searrow \\ n \quad \sqrt{\text{P}} \\ \quad \quad | \\ \quad \quad \sqrt{\text{MESA}} \end{array} \end{array}$$

- Having discussed the basics of the analysis that we will be testing, let us have a look at the testing ground itself...

## 1.2 Gender in Bantu languages

- Bantu languages have on average 12-20 noun classes.
- The singular form of a noun belongs to a different noun class than the plural form of that noun does.
- Noun classes determine concord morphology on nominal modifiers and agreement on verbs.

(9) Swahili

- m-toto hu-yu a-na-soma**  
1-child DEM-1 1SM-PRES-read  
'this child is reading'<sup>1</sup>
- wa-toto hu-wa wa-na-soma**  
2-child DEM-2 2SM-PRES-read  
'these children are reading'

(10) a. **ki-tabu hi-ki ki-na-som-wa**  
7-book DEM-7 7SM-PRES-read-PASS  
'this book is (being) read'

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<sup>1</sup>Where no references are indicated, data are gathered by the authors.

- b. **vi**-tabu hi-**vi** **vi**-na-som-wa  
 8-book DEM-8 8SM-PRES-read-PASS  
 ‘these books are (being) read’

- A full list of noun classes in Swahili is provided here:

(11) Noun classes in Swahili (Carstens 2008)

Noun class	Example	Gloss
1	<i>m-tu</i>	person
2	<i>wa-tu</i>	people
3	<i>m-ti</i>	tree
4	<i>mi-ti</i>	trees
5	<i>gari</i>	car
6	<i>ma-gari</i>	cars
7	<i>ki-atu</i>	shoe
8	<i>vi-atu</i>	shoes
9	<i>n-yumba</i>	house
10	<i>n-yumba</i>	houses
11	<i>u-bao</i>	board
14	<i>u-kweli</i>	truth
15	<i>ku-soma</i>	to read; reading
16	Noun + locative suffix	specific place
17	Noun + locative suffix	general place
18	Noun + locative suffix	inside place

- We adopt Carstens’ (1993) system of labeling genders (rather than the “class” labeling) in order to better capture the relationship between singular and plural noun classes. For Swahili, a subset of these genders would be as in (12).

(12)

A	stems of classes 1/2
B	stems of classes 3/4
C	stems of classes 5/6
D	stems of classes 7/8
E	stems of classes 9/10

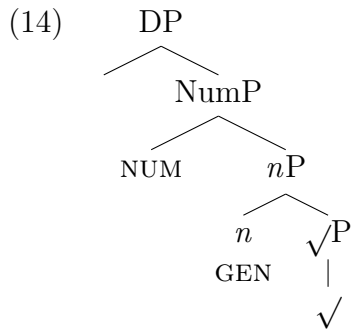
### 1.3 Applying the *n* analysis to Bantu languages – the basics

- We label possible *n* in Bantu languages according to Carstens’ gender groupings.

(13)

$n_A$	stems of classes 1/2
$n_B$	stems of classes 3/4
$n_C$	stems of classes 5/6
$n_D$	stems of classes 7/8
$n_E$	stems of classes 9/10

- Attempts have been made to provide semantic underpinnings for Bantu gender categories (Richardson 1967, Denny & Creider 1976, Contini-Morava 1997) but these remain unconvincing and are not the focus of our analysis; we therefore abstract away from semantic properties.
- We assume the nominal structure in (14) and follow much of the literature in assuming that Number is universally projected above *n*.



- Licensing conditions are in the form of DM-style VI rules. For Swahili:

- (15)
- $\sqrt{\text{PERSON}} \rightarrow -tu / n_A$
  - $\sqrt{\text{TREE}} \rightarrow -ti / n_B$

- Recall that the absence of certain licensing VI rules accounts for the absence of illicit stem/gender combinations.<sup>2</sup>
- Noun class prefixes are the spell-out of the fusion of NUM and GEN. To illustrate for Swahili:

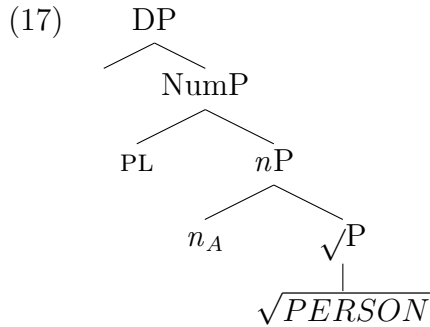
- (16) Vocabulary Insertion Rules of Noun Class Prefix (to be revised below)
- $n_A + \text{SG} \rightarrow \text{m- (Class 1)}$
  - $n_A + \text{PL} \rightarrow \text{wa- (Class 2)}$

- Putting this together to get *wa-tu* ‘people’: tree in (17) and VI rules from (15a) and (16b)

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<sup>2</sup>There are many stems that are not restricted to a single noun class, resulting in different meanings. This suggests some roots are licensed in the presence of more than one flavor of *n*:

- embe ‘mango, Class 5’  
ma-embe ‘mangos, Class 6’
  - mw-embe ‘mango tree, Class 3’  
mi-embe ‘mango trees, Class 4’
- chungwa ‘orange, Class 5’  
ma-chungwa ‘oranges, Class 6’
  - m-chungwa ‘orange tree, Class 3’  
mi-chungwa ‘orange trees, Class 4’



### Looking ahead:

- In the DM literature, *n* can merge with a root to form a noun (a *root-derived* nominal) but it can also merge with a phrase not headed by a root (a *phrase-derived* nominal) (Marantz 2001, Alexiadou 2001 et seq., Arad 2003, Borer 2005, and many others).
- “If *n* has a gender feature when it combines with roots, there is no *a priori* reason that it could not carry a gender feature when it combines with phrases” (Kramer 2015: 186).
- Expectation: derived nominals might also carry gender features, and in Bantu languages, where gender → noun class, this should be easy to investigate.
- We will check out:
  1. nominalizations (particularly infinitives)
  2. diminutives and augmentatives
  3. locatives

## 2 *n* as a nominalizer

- A consequence of Kramer (2015): all nominalizations of a particular category are expected to have the same gender, because they are derived using the same flavor of *n*.
- Example: Romanian action/state nominals (also known as infinitives) are formed from a root and are always feminine (Iordăchioaia and Soare 2008, Alexiadou et al. 2010).

- (18) o bună spăla-re a rufelor e recomandată pentru țesatură  
 a.FS good.FS wash-INF of clothes is recommended-FS for fabric  
 ‘A good clothes-washing is recommended for fabric.’ (Soare 2014, as cited in Kramer 2015)

- Can we find evidence of this in Bantu languages?
- Turns out infinitives get their own noun class marker, as illustrated for Luganda:

- (19) a. n-a-lab-a  
 1SM-PST-see-FV  
 ‘I saw.’  
 b. o-**ku**-(mu-)lab-a  
 AUG-15-(1OM)see-FV  
 ‘to see (him/her)’

- This suggests we need to add a ‘flavor’ of  $n$  to our set for Bantu languages:

- (20)  $n_{inf}$  | takes a verbal stem and returns an action/state nominal

- Evidence that this  $n_{inf}$  merges with a verbal phrase of some sort:

- The possibility of the object marker in (19b)
- Infinitives can also contain negation (examples from Creissels & Godard 2007)...

- (21) a.  $\upsilon$ -lím-á  
 S3:1-plough-FIN  
 ‘(s)he ploughs / is ploughing’  
 b.  $\chi\upsilon$ -lím-à  
 15-plough-FIN  
 ‘to plough’

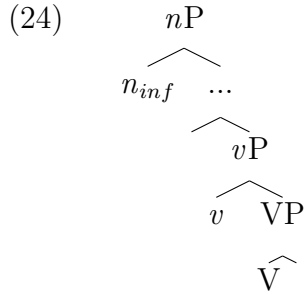
- (22) a.  $\chi\grave{\text{a}}$ -á-lím- $\text{I}$   
 NEG-S3:1-plough-FIN  
 ‘(s)he does not plough / is not ploughing’  
 b.  $\chi\upsilon$ - $\text{sà}$ -lím-à  
 15-NEG-plough-FIN  
 ‘not to plough’

- ... and modal morphology (examples from Creissels & Godard 2007).

- (23) a.  $\upsilon$ -**ká**-lím-á  
 S3:1-POT-plough-FIN  
 ‘(s)he can/may plough’  
 b.  $\chi\upsilon$ -**ká**-lím-à  
 15-POT-plough-FIN  
 ‘to be able to plough’

- We therefore posit that the structure of infinitives in Bantu languages is as in (24), where  $n_{inf}$  is added to an initially verbal projection.





- This verbal projection can be as small as a  $vP$ , assuming object markers to reflect  $\phi$  features on  $v$  (Iorio 2014, Van der Wal 2015, a.o.)...
- ... or somewhat larger, including higher inflectional heads like negation and mood (but not T).

- Two expectations have been met:

1. *Derived nominals might carry gender features.*

In Bantu languages, gender features determine noun class, and we see that derived nominals like infinitives have noun class prefixes. We will see more of this later.

2. *All nominalizations of a particular category are expected to have the same gender.*

Infinitives in Bantu languages are typically formed using the Class 15 noun class prefix. In languages where Class 15 is not used, there is still a single dedicated noun class marker used for infinitives (in the known cases, it is Class 5, as in Kinande (Patricia Schneider-Zioga, p.c.)).

- Other types of nominalizations can also be formed using the noun class markers we saw in root-derived nouns, i.e.  $n_A$ ,  $n_B$ , etc. See Appendix A for how productive this is.

### 3 Denominal nouns: diminutives and augmentatives

- In addition to deverbal nouns, another type of phrase-derived noun is denominal nouns, formed via  $n$  merging with an  $nP$ .
- This stacking of multiple  $ns$  can be seen crosslinguistically, for instance in English nouns like *father-hood* and *owner-ship*.
- It has also been proposed as an analysis for diminutives in languages such as German and Russian (Wiltschko & Steriopolo 2007).
- We will provide a  $n$  account of diminutives and augmentatives in Bantu languages and consider in more detail the functional structure in these nominals.
- We see transparent stacking of nominal morphology in some Bantu languages in the formation of diminutives and augmentatives, as in Shona below (25).

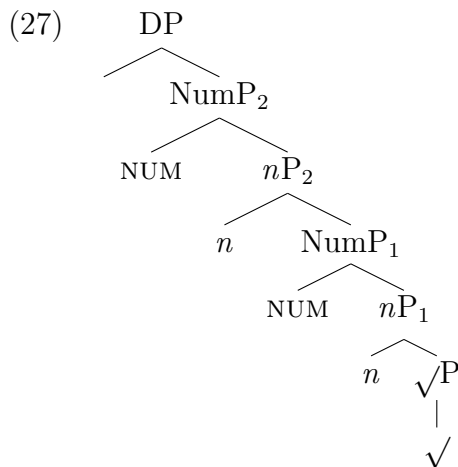
- The interpretation of a noun may be changed by the prefixation of an additional noun class marker onto an already well-formed noun, i.e. onto a noun that already includes its usual noun class prefix.

- (25)
- a. mu-kómáná  
1-boy  
'boy'
  - b. **ru**-mu-kómáná  
11-1-boy  
'thin, scraggly boy'
  - c. **ka**-mu-kómáná  
12-1-boy  
'tiny boy'
  - d. **zi**-mu-kómáná  
21-1-boy  
'big boy'

(Shona; Déchaine et al. 2014:35)

- (26) **vá-má-zi-mi**-súma  
2-6-21-4-suma.tree  
'Mister Big Suma Trees' (own elicitation)

- Based on the analysis above, we argue that the structure of Bantu diminutives & augmentatives is the following:



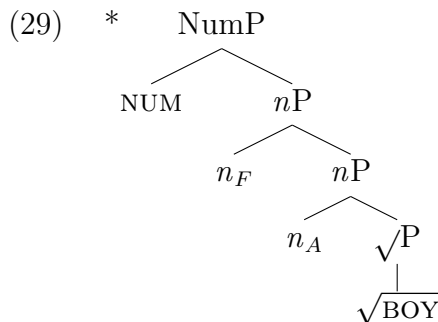
### 3.1 Double *n*?

- According to this analysis, a diminutive may have more than one *n* on the complete nominal spine.
- Following Kramer, we say “the highest genders wins”, i.e. agreement with DP-external elements (the verb) can only be determined by the highest gender feature.
- The gender of the highest *n* (corresponding to the outermost class prefix) percolates to DP, where it is accessible to external probes, allowing for agreement with the verb.

- (28) *Shona, Dechaine et al. 2014 adapted*
- a. \*chì-mù-kómáná à-nò-fámbá  
 7-1-boy 1SM-HAB-walk  
 Intended: ‘(The) slim boy walks.’
- b. chì-mù-kómáná **chì**-nò-fámbá  
 7-1-boy 7SM-HAB-walk  
 ‘(The) slim boy walks.’

### 3.2 Double NUM? A detailed structure for diminutives

- Note that the denominal structure is also redundant in that it has multiple Number projections. Is this desirable? We can test for each NumP individually.
- Previous proposals of diminutives as denominals have not considered presence/absence of NumP in quite as much detail.
- If NumP<sub>1</sub> were not present as in (29), then the lower *n* would never be adjacent to a number feature.  
 → **Prediction:** the inner class prefix in a diminutive/augmentative could never be plural (recall our VI rules for noun class prefixes).



- This is counter the evidence in (30):

- (30) *Shona, Dechaine et al. 2014*
- a. ka-**mu**-kómáná  
 12-1-boy  
 ‘tiny boy’
- b. tu-**va**-kómáná  
 13-2-boy  
 ‘tiny boys’

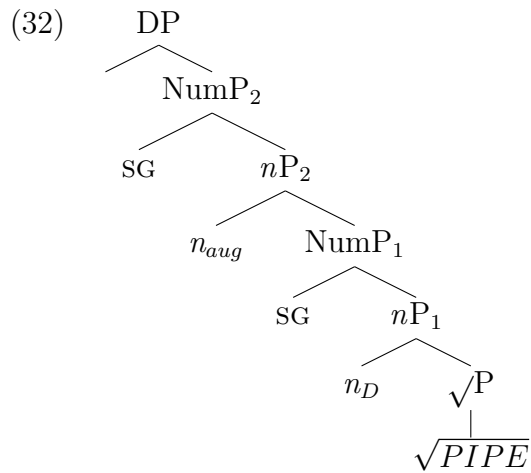
- The variation in (30) between Class 12 and Class 13 for the outer prefix also suggests that NumP<sub>2</sub> is present.
- A different type of evidence for NumP<sub>2</sub> comes from instances of the default plural marker. Consider the following:

(31) *Shona, Dechaine et al. 2014*

- a. **zi**-chi-kwepá  
21-7-pipe  
'big pipe'
- b. **ma-zi**-zvi-kwepá  
6-21-8-pipe  
'big pipes'

- The switch of the inner class prefix from Class 7 to Class 8 is expected.
- But why is there an additional noun class prefix stacked onto the augmentative?
- Let's consider what the syntax and VI rules are for the **singular**:

– Structure:

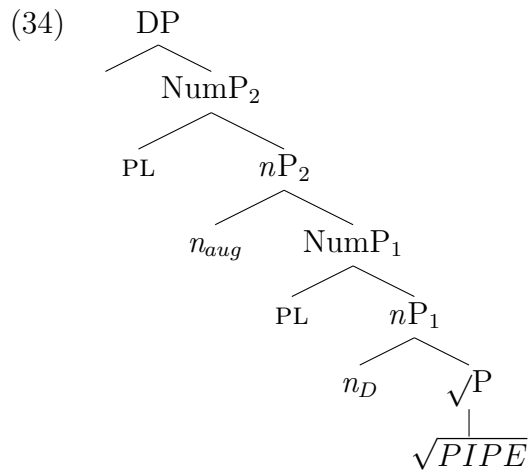


– VI rules:

- (33)
- a.  $\sqrt{\text{PIPE}} \rightarrow \text{kwepá} / n_D$
  - b.  $n_D + \text{SG} \rightarrow \text{chi- (Class 7)}$
  - c.  $n_{aug} + \text{SG} \rightarrow \text{zi- (Class 21)}$

- And now for the **plural**:

– Structure:



– VI rules:

- (35)
- $\sqrt{\text{PIPE}} \rightarrow \text{kwepá} / n_D$
  - $n_D + \text{PL} \rightarrow \text{zvi-}$  (Class 8)
  - $n_{aug} + \text{PL} \rightarrow \text{??}$

– Shona clearly does not have a rule like (35c) that would correspond to (34c).

– Normally, this would crash the derivation, except that in Shona, like in many Bantu languages, *ma-* (Class 6) functions as a default plural marker.

– If we assume default rules like in (36), then the structure can account for the complex morphology:

- (36)
- $n_{aug} \rightarrow \text{zi-}$
  - $\text{PL} \rightarrow \text{ma-}$

### Impoverishment?

As discussed until now, the set of VI rules for the Shona derivation rules would be the following:

(37)  $\sqrt{\text{PIPE}} \rightarrow \text{kwepá} / n_D$

- (38)
- $n_D + \text{SG} \rightarrow \text{chi-}$
  - $n_D + \text{PL} \rightarrow \text{zvi-}$

- (39)
- $n_{aug} + \text{SG} \rightarrow \text{zi-}$
  - $n_{aug} \rightarrow \text{zi-}$
  - $\text{PL} \rightarrow \text{ma-}$

If we assume the impoverishment of the singular then the VI rules for the class prefixes

are streamlined, more in-line with DM desiderata:

- (40) a.  $n_D \rightarrow \text{chi-}$   
b.  $n_D + \text{PL} \rightarrow \text{zvi-}$

- (41) a.  $n_{aug} \rightarrow \text{zi-}$   
b.  $\text{PL} \rightarrow \text{ma-}$

Impoverishment of the singular, although not typically discussed in the literature on Bantu, captures the intuition that the prefixes are sensitive to the presence of the plural but not to the presence of the singular.<sup>a</sup>

<sup>a</sup>One could take this one step further and argue that number is privative feature, with the plural being (morphologically) specified and the “singular” being the absence of number specification, as has been suggested by Harley & Ritter 2002, Béjar 2003, Béjar & Rezac 2009, a.o.

#### Interim conclusion:

- At this point we have seen that the  $n$  analysis of gender can be successfully applied to root-derived nominals in Bantu languages, as well as to deverbal nouns (infinitives) and denominal nouns (diminutives and augmentatives).
- The investigation into the syntactic structure of diminutives has given insight into what structures underlie even some of the most complex dim/aug morphology.

## 4 A special kind of denominal noun: Bantu locatives

- Locatives are part of the noun class system (often but not always with noun class prefixes in Class 16, 17, and 18).

- (42) a. **pa**-n-gánda  
16-9-house  
'at the house'  
b. **kú**-n-gánda  
17-9-house  
'to the house'  
c. **mu**-n-gánda  
18-9-house  
'in the house'

[Bemba, Marten 2012: 433]

- In the majority of Bantu languages, locatives function as DPs, not PPs. This can be seen in their ability to trigger subject and object marking (see Marten 2010 for full discussion).

- (43) a. **Mu**-nyumba **mu**-na-yera.  
 18-9.house 18SM-PST-white  
 ‘Inside the house is clean.’ (Ron Simango, p.c.)
- b. Ndí-ma-**ku**-kóndá **ku** San José.  
 1SG.SM-PRES.HAB-17OM-love 17 San Jose  
 ‘I like (it) (in) San José.’ (Bresnan 1991:58)

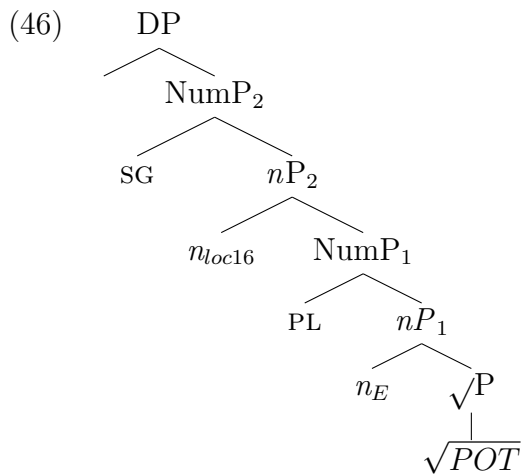
- We’ve seen this before: a well-formed noun with additional noun class prefix that contributes new meaning...
  - Apply same strategy of analyzing this as a denominal noun; this time,  $n$  carries a locative gender feature.
  - Expect this  $n_{loc}$  to be spelled out as a prefix.
- Suggests we have three new flavors of  $n$  for our inventory:

- (44)  $n_{loc16}$  | forms locative nouns, interpretation “at”  
 $n_{loc17}$  | forms locative nouns, interpretation “to”  
 $n_{loc18}$  | forms locative nouns, interpretation “in”

#### 4.1 Cross-Bantu variation in locatives

- What is the size of the complement of these  $n_{loc}$ ?
- **At least NumP**, given that inner noun class prefix can be plural.

- (45) Nhunzi dzi-ri pa-**ma**-poto  
 10-fly 10-be 16-6-pots  
 ‘The flies are on the pots.’ [Shona, Caha & Pantcheva 2015]



- **Or as big as DP...**

- Some languages has a special nominal prefix known as the augment, that is often analyzed as located in D (De Dreu 2008, Visser 2008).

(47) *Kwanyama, Halme 2004: 162*

- a. **o**-mu-ti  
AUG-3-tree  
'a/the tree'
- b. m-**o**-mu-ti  
18-AUG-3-tree  
'in the tree'

- Languages like Lugwere do not allow augment to intervene between inner noun class prefix and locative prefix, suggesting complement of  $n_{loc}$  cannot be as big as DP.

(48) *Lugwere*

- a. **a**-ka-tale  
AUG-12-market  
'market'
- b. ó-mú-(\***a**-)ka-tále  
AUG-18-(\*AUG-)12-market  
'on the market'

- This is in contrast to proposals that all Bantu languages have “double DP structure” for locatives (pace Bresnan & Mchombo 1995; Carstens 1997, 2008).

- **Occasionally as small as a root?** For a small class of inherently locative nouns, the locative class prefix can affix directly onto the stem, suggesting the complement may be as small as a root.

(49) *Ciluba-Kasai; Kuperus & Mpunga wa Ilunga 1990: 37*

- a. va-thí 'down, Cl. 16' (Makhuwa)
- b. o-tsulú 'up, on top, Cl. 17' (Makhuwa)
- c. mú-ntú '(somewhere) inside'

- Some languages have no locative class prefixes... We argue that the three types of  $n_{loc}$  are still there!

- For these languages, we always see agreement in locative noun class 16, 17, 18, or 19 on verbs, nominal modifiers or both.



- (50) nyumba-ni **ku-/pa-/m-na** watu wengi  
 9.house-LOC 17SM/18SM/19SM-be 2.people 2.many  
 ‘In/at the house are many people.’  
 (Swahili; Carstens 1997: 402)
- (51) a. nyumba-ni **p-angu pa-zuri**  
 9.house-LOC 16-my 16-good  
 ‘in/at my good house’  
 b. nyumba-ni **kw-angu ku-zuri**  
 9.house-LOC 17-my 17-good  
 ‘in/at my good house’  
 c. nyumba-ni **mw-angu m-zuri**  
 9.house-LOC 18-my 18-good  
 ‘in/at my good house’ (Swahili; Carstens 1997: 402)

- This indicates that  $n_{LOC}$  is **still present** in the structure as above, but is silent (i.e. the VI rules dictate that it will not be overtly pronounced).
- In some other languages, overt spell-out of the locative noun class is **optional**. Again we see agreement patterns than indicate that  $n_{LOC}$  is present in the structure. We can adjust the VI rules accordingly.

## 4.2 What is *-ni*?

- Let’s take a closer look at (50), repeated here, and pay attention to the suffix on the locative nouns:

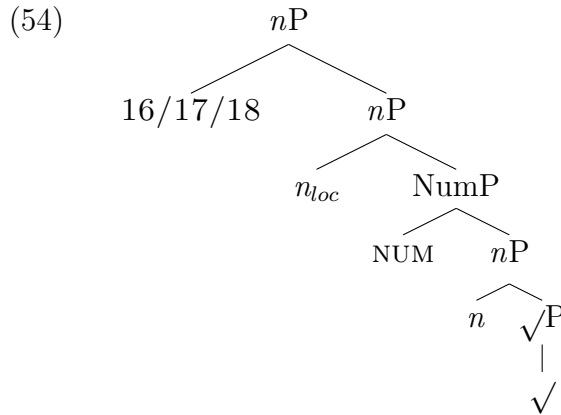
- (52) nyumba-**ni** **ku-/pa-/m-na** watu wengi  
 9.house-LOC 17SM/18SM/19SM-be 2.people 2.many  
 ‘In/at the house are many people.’  
 (Swahili; Carstens 1997: 402)

- In some languages, although there is no overt noun class prefixes, it appears locatives are derived by the suffix *-(i)ni*, especially in Bantu zones E and (south) G (Gregoire 1975).

- (53) *Gikuyu, Mugane 1997: 33*
- a. mu-twe  
 3-head  
 ‘a/the head’
- b. mu-twe-**ini**  
 3-head-loc  
 ‘by/on the head’
- c. ma-nyumba  
 6-9.house  
 ‘houses (collective)’

- d. ma-nyumba-**ini**  
 6-9.house-loc  
 ‘by/on/in the houses (collective)’

- In brief: some languages have locative nouns that show (a) no noun class prefix, but do have Class 16/17/18 features as evidenced by subject/object marking, and (b) a common locative suffix.
- We apply a **stacked-*n* analysis** to these locatives (following Kramer’s (2015) very similar derivation of German nominalizations like *Lerherin* ‘female teacher’):
  - We argue that Bantu locatives have a similar stacked-*n* structure.
  - The lower *n* derives a **locative noun with no further specification**.
  - The higher *n* provides the **interpretable gender features** of locative ‘on, near’ (class 16), ‘at, to’ (class 17), or ‘in’ (class 18).



- Further evidence:
  - Languages in which locative nouns take the suffix *-(i)ni* may have a class of inherently/semantically locative nouns that do not need the *-(i)ni* marker but show locative behavior otherwise.

(55) *Kivunjo-Chaga, Moshi 1995: 131*

- a. **Mesa-nyi** ha-wozre shitapu na ma-karitasi.  
 9.table-LOC 16SM-have 8.books and 6-papers  
 ‘On the table, there are books and papers.’
- b. **Sangazra** ha/ku-wozre soko na malruwu.  
 9.market 16SM/SM-have 9.beans and 6.bananas  
 lit. ‘At the market has beans and bananas.’

- The existence of such (semantically as well as functionally) locative nouns without *-(i)ni* suggests that the function of the suffix is merely to derive an underspecified locative noun.

- Further, there are languages in which locatives have both the noun class prefix and the suffix.
- In Makhuwa, the prefix is obligatory, and the suffix is omitted in the case that the noun has a locative meaning inherently:

- (56) *Cuwabo, Guerois 2015: 170-171*
- a. Oo-mótt-él-a                      **mu**-má-ánjé-**ní** kíbííí.  
 1SM.PFV.DJ-fall-APPL-FV 18-6-water-LOC IDEO  
 ‘She fell into the water “splash!”’
- b. Rapáási oo-vény’                      **óo**-kobélâ...  
 1a.boy 1SM.PFV.DJ-leave 17-9a.bank  
 ‘The boy left the river bank...’

## 5 Conclusions & Implications

- We tested the *n* analysis of gender by extending it to the Bantu language family.
- Each Bantu language has on average 12-20 noun classes, each determined by number and gender features.
- These noun classes are also used in derived nouns, such as infinitives, diminutives, and locatives.
- In applying the *n* analysis of gender to this system and exploring its explanatory power, we found that the proposal successfully accounted for the basic nominal structure in Bantu languages and even gave us new insight into the structure of derived nominals such as diminutives and locatives.

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## Appendix A: Productivity of nominalizations

- Nominalizations are not restricted to infinitives.
- The same noun class markers that we saw in root-derived nouns in Section 1 are also used to derived nominalizations that fit into the general semantics of each noun class.
- The following table from Mletshe (2017) gives an illustration of the productivity of this nominalization process.

	class 1	class 3	class 5	class 7	class 8	class 9	class 11	class 14
<i>lamba</i> 'be hungry'	<i>umlambi</i> 'hungry person'	<i>umlambo</i> 'state of becoming hungry'	<i>ilamba</i> 'chronically hungry person'	<i>isilambi</i> 'severely hungry/poor person'	<i>izilambi</i> 'severely hungry/poor people'		<i>ulambo</i> 'hunger'	<i>ubulambo</i> 'quality of hunger'
<i>godola</i> 'shiver'	<i>umgodoli</i> 'shivering person'			<i>isigodoli</i> 'extremely shivering person'	<i>izigodoli</i> 'extremely shivering people'	<i>ingodoli</i> 'expert shiverer'		
<i>khuthala</i> 'be diligent'	<i>umkhuthali</i> 'diligent person'			<i>isikhuthali</i> 'extremely diligent person'	<i>izikhuthali</i> 'extremely diligent people'	<i>inkuthalo</i> 'act of being diligent'		
<i>tyeba</i> 'be fat'			<i>ityeba</i> 'rich person'	<i>isityebi</i> 'extremely rich person'	<i>izityebi</i> 'extremely rich people'			
<i>bhitya</i> 'be thin'			<i>ibhityo</i> 'thin person'					
<i>luphala</i> 'be old'	<i>umluphali</i> 'old person'		<i>iluphala</i> 'old person'	<i>isiluphali</i> 'old person'	<i>iziluphali</i> 'old people'			
<i>bola</i> 'rot'	<i>umboli</i> 'rotten person'			<i>isiboli</i> 'extremely rotten person'	<i>iziboli</i> 'extremely rotten people'		<i>ubolo</i> 'state of rot'	<i>ububolo</i> 'quality of rot'
<i>phakama</i> 'rise'	<i>umphakami</i> 'conceited person'			<i>isiphakami</i> 'extremely conceited person'	<i>iziphakami</i> 'extremely conceited people'	<i>impakamo</i> 'act of being conceited'	<i>uphakamo</i> 'state of being conceited'	
<i>thula</i> 'quiet'	<i>umthuli</i> 'quiet person'			<i>isithuli</i> 'extremely quiet person'	<i>izithuli</i> 'extremely quiet people'	<i>intulo</i> 'act of being quiet'	<i>uthulo</i> 'state of being quiet'	

## Appendix B: How do locatives and diminutives differ?

- Nominal modifiers in Bantu languages are well known for exhibiting what is known as alternative concord: a modifier of a nominal with multiple noun class prefixes may exhibit concord with either the lower noun class or one of the higher ones (57a-c).
- It is important to note that this is not totally unconstrained (57d).

- (57) *Karanga-Shona, Myers 1987: 104*
- pa-mu-shá **apo** p-ósé p-a-ká-chén-a  
16-3-home 16.that 16-all 16-white  
'at that whole white home'
  - pa-mu-shá **uyo** p-ósé p-a-ká-chén-a  
16-3-home 3.that 16-all 16-white  
'at that whole white home'

- c. pa-mu-shá **uyo** w-ósé p-a-ká-chén-a  
16-3-home 3.that 3-all 16-white  
'at that whole white home'
- d. \*pa-mu-shá **apo** w-ósé p-a-ká-chén-a  
16-3-home 16.that 3-all 16-white  
'at that whole white home'

- The exact details of which adjectives allow alternative concord and which do not can vary from language to language, and indeed the availability of alternative concord at all also varies. For an overview, see Zeller (to appear).
- But diminutives and augmentatives do not typically allow alternative concord (there are a few exceptions). This is illustrated by the following data from Shona but appears to be consistent across Bantu languages:

(58) *Shona*

- a. mu-suma **mu**-refu  
3-tree 3-tall  
'tall suma tree'
- b. zi-mu-suma **zi**-refu  
21-3-tree 21-tall  
'tall big suma tree'
- c. \*zi-mu-suma **mu**-refu  
21-3-tree 3-tall  
intended: 'tall big suma tree'

- Why this difference between locatives and diminutives?
- A tentative proposal:
  - When you are deriving a locative, you have an entity (ex. *table*), and upon deriving the locative a second entity is formed (ex. the location on the table).
  - When you are deriving a diminutive or augmentative, you only have one referent – both the noun and its smallness/big-ness refer to the same entity.
  - If modifiers can only attach to referential entities, then we may have some understanding of why we find alternative concord in locatives but not in diminutives and augmentatives.