Studies in African Linguistics

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LETTER FROM THE EDITOR

Readers will note that volume 39, number 2 (2010), the current issue in which this letter appears, and volume 40, numbers 1 & 2 (2011) appear in rapid succession. In fact volume 40 will contain no letter from the editor and no other announcements. This number contains the regular quota and apportionment of content, but the latter, volume 40, numbers. 1 & 2 (2011), consists solely of a lengthy and fascinating monograph by Greg Anderson on African auxiliaries, a work extensive in its scope and rich in data and analysis.

Volume 41 (2012) will return to the regular pattern of several articles and announcements.

Following this note is a list of the reviewers who have voluntarily contributed their time and expertise to evaluating submissions to the journal. Without their assistance the quality of the journal could not be maintained. Our thanks to them all.

Sincerely yours,

- Tucker

G. Tucker Childs
Editor

Thanks to our reviewers

(in alphabetical order)

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PLURAL STRATEGIES IN YORÙBÁ[1]

Ọládiípọ̀ Ajíbóyè
University of Lagos, Lagos, Nigeria

This paper accounts for the strategies that Yorùbá adopts to mark plural. One way in which plural is marked syntactically is by certain plural words. The plural word can either interpret the noun as plural directly as in the case of *àwọn* and quantifying words such as *púpọ̀* 'many' and *méjì* 'two'; or it can be realized on a primitive adjective (in the form of COPY) or on a demonstrative (in the form of *wọ̀n-*). Such elements in turn make available the plural interpretation of the noun they modify. The paper proposes that these plural words possess a covert or an overt [PLURAL] feature, which percolates onto the NP. This analysis of plural marking predicts that there are two ways by which languages may (overtly) mark their nouns for plural cross-linguistically. Languages like Yorùbá, which do not show agreement, mark plural syntactically and make use of a plural feature percolation mechanism, while languages like English, which show agreement, mark plural morphologically and use a plural feature-matching mechanism. It further demonstrates that in Yorùbá, an NP can be freely interpreted as singular or plural in specific discourse context and proposes a general number analysis to account for this type of case. As to the syntax of these plural words, It is proposed that like other non-morphological plural marking languages (e.g., Halkomelem (British Columbia, Canada) as in Wiltschko 2008), Yorùbá plural words are adjuncts that are adjoined to the host head (noun or modifier/demonstrative).

1. Introduction

This paper addresses the various ways by which plural is expressed in Yorùbá, a Benue-Congo language spoken mainly in southwest Nigeria. The first thing to note about plural marking across languages is that there are two types: morphological and

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[1] This paper is part of chapter 6 of Ajíbóyè 2005, thoroughly revised here in terms of data, proposal and analysis. I thank the two anonymous reviewers and Victor Manfredi for their comments and suggestions.

syntactic. By morphological plural marking, I mean a process whereby plural is marked by a nouninflection, either a prefix as in the case of Tagalog and Bantu languages or a suffix as in English.

(1)   a-i.wa-toto   'children'   *Swahili (Bantu)*
               PL-child

       a-ii   mga-aso   'dogs'   *Tagalog*
               PL-dog

        b.   book-s   'books'   *English*

Such languages have obligatory plural marking and obligatory agreement. A syntactically marked plural on the other hand is instantiated by a morpheme or word that may not be solely dedicated to plural marking. Such elements are often referred to as "plural words", e.g., Dryer 1989.[2]In Halkomelem, for example, there are different ways of marking plural :a noun maybe distinctively marked for plural internally as in the case of (2a); some other markers of plurality may appear on the determiner as in (2b); or even somewhat morphologically, as when a plural morpheme is prefixed to a noun, (2c).

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[2]A plural wordaccording to Dryer (1989)is a word or morpheme that gives a noun or an entity it co-occurs with a plural interpretation. Dryer goes further to draw a similarity between it and plural affix when he asserts that 'a plural word is a morpheme whose meaning and function is similar to plural affixes in other languages. In the same spirit, Corbett (2000: 135) defines 'plural words' as special 'number words' that languages use to indicate number.

(2)   a. te   sw**ó**weles   'boys'   *Halkomelem* (Wiltschko 2004)
           DET   boy-PL

       b. ye   swíweles 'boys'
           PL-DET boy

       c. méle   **má**-mele 'children'
                     PL-child

Such languages that syntactically mark plural do not have obligatory plural marking and obligatory agreement. In particular, in Halkomelem's example (2b) above, the noun itself does not have to be formally marked plural. Thus, if either the noun or the determiner is marked for plural, the whole NP is interpreted as plural (Wiltschko 2008).The second thing to note about plural words cross-linguistically is that theydo not belong to a natural syntactic class. As noted in Dryer (1989), the grammatical category of words that function as plural words varies from language to language.For example, the fact that plural meaning is reflected in a determiner in Halkomelem in (2b),rather than on the noun directly, qualifies the language as one that has plural words.

    This paper addresses syntactic plural marking as well as the free interpretation of NPs as singular or plural (subject to a discourse context of occurrence) in Yorùbá andshows that plural marking in this language is syntacticallymanifested through the use of modifierwords or morphemes rather than dedicated plural words.

1.1The Yorùbá data set.   In this subsection, a set of data that reflect all cases of plural interpretation of nouns in Yorùbá is presented. It is observed that, there are four types of plural words in the language. First is *àwọn* 'third person plural pronoun', which gives nouns as in (3a) a plural interpretation. Second are quantifiers like *púpọ̀* 'many' as in (3b-i) and numerals denoting two or more as in (3b-ii). The third category is *wọ̀n*, which marks demonstratives as plural. This plural demonstrative in turn marks the entire NP it modifies as plural as shown in (3c). The fourth category of plural word contains copied modifiers as in (3d).

(3)   a. Mo   kí   [**àwọnọkùnrin**]tí ó   wà   níbẹ̀
           1sg   greet PL   man   that   RPbe there
           'I greeted the **men** that were there.'

b. (i)   Adé   pa   [**eku púpọ̀**]   nínú ahéré Òjó
         A.   kill rat   many   inside hut   O.
         'Ade killed [**many rats**]inside Ojo's hut.'

   (ii) Adé   pa   [**òkétéméjì**]   pẹ̀lú pàkúté
         A.   kill giant-rat two   with   trap
         'Ade killed **two giant-rats** with trap.'

c. Ọdẹ   gidi   ni   ajá   **wọ̀n**-yẹn
   hunter proper FOC   dog   PL   Dem
   'Those dogs are good in hunting games.'

d. Fádèyí   ra   ológbò   **dúdú dúdú** lọ́jà   Ejìgbò
   F.   buy   cat   black black   at-market Ejigbo
   'Fadeyi bought black cats at Ejigbo market.'

There are two things to note with respect to the set of data in (2). First is that the plural morpheme, *wọ̀n* in (2c), is highly restricted as it can only co-occur with demonstratives such as *yìí* 'this' and *yẹn* 'that'to give them a plural interpretation. As earlier mentioned, once the demonstrative is made plural, the plural demonstrative in turn enforces a plural interpretation on the noun.[3]Second, with modifiers, it is observed that in order for plural construal to be attained, a modifier must necessarily

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[3]The *wọ̀n* plural morpheme can be treated as a 3pl plural pronoun because of its segmental similarity with the short 3pl pronoun. However, it differs from it in some respects. The short 3pl pronoun has two forms that are syntactically conditioned: high-toned *wọ́n*which is the form it assumes when in subject position (i) and mid-toned *wọn*, which is the form it assumes when in the object position or the subject of a negative sentence (ii)whereas the form the plural word takes is the low-toned one (iii).

(i) Wọ́n rí Adé   (ii)a. Adé rí wọn   b.Wọn kò rí Adé   (iii)   ọmọ wọ̀n-yìí
    They saw Ade   Adé saw them   They did not see Adé   child PL-this

Following from the above is the fact that only the low toned *wọ̀n* is found with demonstratives for the purpose of plural marking; as such, we do not have *wọ́n-yìí or *wọn-yìí. If we hold on to the claim that there is only one WỌN, then, the argument will be that, the phonological variants are syntactically conditioned: an instance of phonology-syntax interface (Déchaine 2001). Note too, that it is the low-toned form that can undergo nominalization (see footnote 27). The essential thing is that the low-toned variant indirectly marks nouns for plural.

be copied, and like demonstratives, it is the plural modifier in turn that gives the noun a plural interpretation.[4]

Lastly, in Yorùbá, an NP can be freely interpreted as singular or plural depending on the discourse context.

(4) Adé rí   [**ejò**] lọ́nà   oko
 A. see snake on-path farm
   (a) 'Ade saw a **snake** on his way to farm.'
   (b) 'Ade saw **snakes** on her way to farm.'

On appropriate discourse contexts for each interpretation, see section 3.1 below.

From the examples above, the emerging picture is that, plurality in Yorùbá is done mainly through some multifunctional morphemes which may be realized on the head noun or an element within the noun phrase. As a way of accounting for the data relating to the overt plural markings, the *feature percolation mechanism* as laid out in section 1.2 is proposed. On contextually determined plurality, the *General plural markingmechanism*, as discussed in section 3, is also assumed.

1.2 The percolation mechanism analysis. The plural-marking strategy in Yorùbá is intended to capture the fact that certain lexical items, by virtue of being a plural word, enforce a plural interpretation on nouns. To account for this, I propose a

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[4]Note that, when reduplicated modifiers occur by themselves, they cannot be construed as plural except in certain restricted contexts.
(i) a. Mo ra ajá pupa pupa   b. #Pupa pupa ni mo rà
        'I bought red dogs'
(ii) Context for acceptance of bare copied modifier: Speaker B has sets of mixed-coloured balls for sale and Speaker A wants red balls only. *Pupa pupa* here means "red Xs" known to both speakers.

Speaker A: Pupa pupa ni   kí   o   sà   fún   mi   nínú   àwọn bọ́ọ̀lù
        red   red   FOC that 2sg pick for   1sg inside they ball

        tí   o   rà
        that 2sg   buy

        'Pick only red ones for me out of the balls you bought.'

Speaker B: Ó dára
        That is all right.

feature percolation mechanism. Observe that there are two mechanisms of plural marking that are available cross-linguistically: feature percolation and feature matching. The assumption in this paper is that; while Yorùbá and any other languages that mark plural syntactically adopt a feature mechanism, languages that mark plural morphologically adopt feature matching.

In its broad use as a well-formedness condition, Selkirk (1982) and Scalise (1984) define percolation as follows:

(5)   If a constituent α is the head of a constituent β, α and β are associated with
        an identical set of features (syntactic or diacritic) (Selkirk 1982: 21)
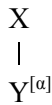
In the same spirit, Owólabí (1995: 106) claims that percolation is a device which enables a complex word to inherit the syntactic properties (or features) of its head. This suggests that feature copying is usually from the head. These percolation approaches differ from the present analysis in one respect. In the proposal here, based on the available data from Yoruba, what makes an NP plural does not essentially rely on the head *per se*. Indeed, a plural feature of an adjunct can percolate onto the NP if the head noun that the adjunct is adjoined to is not specified for plural.

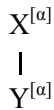I formulate the notion of percolation in the sense of copying where the copied feature is α, as outlined below.

(6) a. Node X immediately dominates node Y

<div align="center">

X

|

Y

</div>

  b. Y is specified for the feature α, X is unmarked for the feature α

<div align="center">

X

|

$Y^{[\alpha]}$

</div>

  c. The feature α is copied on to X

<div align="center">

$X^{[\alpha]}$

|

$Y^{[\alpha]}$

</div>

The structure in (7) illustrates how plural feature percolation works. The assumption is that plural feature percolation mechanism copies the plural feature of a node onto the node that immediately dominates it.

(7) a.   NP   Input

|

$X_{[PLURAL]}$

  b. $NP_{[PLURAL]}$ Output

| *Plural percolation*
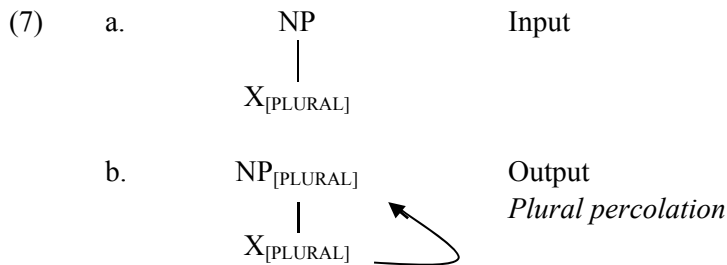
$X_{[PLURAL]}$

As it is demonstrated in 2.4,it is possible for percolation to come from one or more nodes within a nominal expression. Such casesare treated as multiple plural marking.

The Plural Feature Theory proposed here falls within the theory of features in syntax in general.[5] The feature theory is aimed at understanding how nouns which are

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[5]Such syntactic feature theory in the literature is also manifested in PERSON (1st, 2nd, 3rd), and TENSE (present, past) among others.

not morphologically marked have a plural interpretation. In view of this, I propose a NUMBER feature which includes singular and plural.

2 Syntactically determined plural marking in Yorùbá

As earlier mentioned in the introduction, Yorùbá marks plural in its nominal expressions in one of the following four ways; by the use of *àwọn* 'third person plural pronoun', quantifiers and numerals, the element *wọ̀n* which is prefixed to a demonstrative, and a copied modifier. The paper accounts for all of these in the next four subsections using the feature percolation mechanism spelt out above.

2.1 Plural marking with *àwọn* '3pl pronoun.' As it has been established in the data presented earlier, one way by which plural is overtly marked on nouns in Yorùbá is the use of *àwọn* '3pl strong pronoun'[6] (Dryer 1989, Rowlands 1969).[7] In what follows, more examples of how the presence of *àwọn* makes available the plural interpretation are given.

(8)   a.   Ìyàwó   ò   mi   kí   [**àwọnọkùnrin**]tí   ó   wà   níbẹ̀
            Wife   G-M   1sg   greet   PL   man   that   RP   be   there
            'My wife greeted the **men** that were there.'

      b.   [**Àwọn**   obìnrin]   wá   túnpín   sí   ọ̀wọ́   méjì
            PL   woman   come   again divide   to   group two
            'The women again divide into two groups.'

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[6]Note that Yorùbá is not the only language that uses 3pl to mark plurality. Others include Chamorro and Ngarinjin (Dryer 1989: 877), Angas and some Creoles (Corbett 2000: 135 fn.3).

(i) a.   mandjan   biri
          stone   PL
          'stones'

     b.   biri-ma-ra
          they-say-past
          'They said.'   (Dryer 1989: 87)

[7] The universal quantifier *gbogbo,* patterns with *àwọn* in terms of distribution as it also precedes the noun.

c. [**Àwọn** ọkùnrin kan] nínú [**àwọn**ọmọ Israeli]dé ìhín yìí
 PL man Spef among PL child Israel reach place this
 'Certain **men** among the **children** of Israel got here.'
 (Bible, Joshua 2: 2)

I propose the structure in (9) which shows that Yorùbá NP consists of a bare NP and a plural word that is left adjoined to the NP. Applying the percolation mechanism, it is claimed that the [PLURAL] feature of *àwọn* percolates onto the higher NP node to give the plural interpretation to the entire nominal expression.

(9)
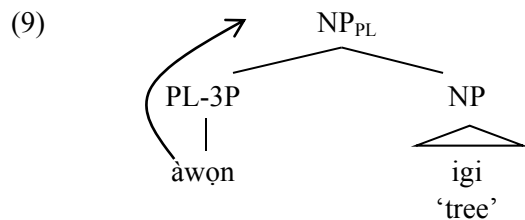
As we can see the plural word *àwọn* is an adjunct that is left adjoined to the NP.

The proposal that bare nouns have the structure of NPs rather than N in Yorùbá is developed in Ajiboye (2005). It is there established that these bare nouns are arguments and they can be construed as (in)definite in appropriate discourse context or generic with the presence of a generic Operator. This proposal does not in any way eliminate the traditional syntactic nodes like N, V, A. Quite the contrary, it suggests that, since these bare nouns can be construed as indefinite or definite in appropriate discourse contexts (among other factors), they are essentially analyzable as NP rather than N.

2.2 Plural marking with quantifiers and numerals. The concern in this section is to demonstrate how quantifying elements readily make available the plural interpretation of nouns that they modify, thereby capturing the generalization that exists between quantifiers and numerals in language. The only difference is the fact that in most languages, the nouns must, in addition, be independently marked plural, so that, there will be agreement between the two. However, such agreement is not required in Yorùbá.

2.2.1 Quantifiers and numerals as plural words. We notice that when NPs in Yorùbá occur with group-denoting expressions that are inherently plural, namely, quantifiers and numerals, they are unambiguously expressed as plural. There are three quantifiers that make available such a plural construal of Yorùbá NPs. These are *púpọ̀*[8] 'many', *díẹ̀* 'few' and *gbogbo* 'all'. In (10), where the only element in the nominal expression in addition to the bare NP is the quantifier, the whole NP is also construed as plural.

(10)   a. Mo   ra   [ìwé **púpọ̀**]   NP Q
                 1sg   buy   book many
                 'I bought many books.'

          b. Mo   ra   [ìwé **díẹ̀**]   NP Q
                 1sg   buy   book few
                 'I bought few books.'

          c. Mo   ra   **gbogbo** ìwé   Q NP
                 1sg   buy   all   book
                 'I bought all (the) books'

The Yorùbá case contrasts with Chierchia's (2005:8) claim that 'quantifiers generally lack inherent NUMBER/PLURAL feature. Rather, they receive this through agreement.' As previously illustrated, bare nouns are unmarked for plural in the language. Thus, unlike English, it is not essential that the noun must be plural before it can take a plural quantifier.

    We must point out that the syntactic position of *gbogbo* in relation to *púpọ̀* 'many' and *díẹ̀* 'few' is not clear at the moment; we can only say that while *gbogbo*, a universal quantifier precedes the NP, *púpọ̀* 'many' and *díẹ̀* 'few' follow the NP. The other thing to note is that *gbogbo* sometimes occurs post nominally in a context that is yet to be determined.

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[8] Lawal (1986, 1989) and Adéwọlé (1989) show that *púpọ̀* is derived from the verb *pọ̀* 'be plenty'. Two other words that are derived from the same word are *ọ̀pọ̀* and *ọ̀pọ̀lọpọ̀,* both of which mean 'many/plenty' and 'plentiful'.

(11) a. Òógùn   bo   ara   [**gbogbo**   ènìyàn]
          sweat   cover body all   people
          'The body of everybody is covered with sweat.'

      b. Eruku   bo   ọmọ   [aráyé **gbogbo**]… àfi   ẹyẹ   kékeré gbogbo
          dust   cover child relation-world all… except bird small all
          'The body of everybody is covered with dust…except all small
          birds.'(Fagunwa 1961:1)

However, if the order is reversed, *gbogbo ọmọ aráyé*and *gbogbo ẹyẹ kékeré*will still
be construed as 'the body of everybody and 'all small birds' respectively. It appears
that the syntactic position of *gbogbo*, whether pre-nominal or post-nominal, has no
effect on the quantificational interpretation of the noun.

   Note, also, that *gbogbo* can co-occur with *àwọn*. When this happens, *gbogbo*
precedes *àwọn*, never following.

(12) a. **Gbogbo àwọn** ọmọ   ọ́n   dé
          PL   PL   child HTS   arrive
          'All the children have arrived.'

      b. *Àwọn   gbogbo ọmọ   ọ́n   dé
          PL   all   child HTS   arrive

The co-occurrence of the two, however, is not surprising; as we shall show in section
2, there are cases of multiple plural words co-marking single NPs to mark plural.

   The other quantificational group of words that perform the function of plural
marking is numerals. Nouns which co-occur with the cardinal numeral 'two' or any
cardinal numeralgreater than two are interpreted as plural in Yorùbá.

(13) Mo   ra   [**ìwé méjì**]
      1sg   buy   book two
      'I bought two **books**.'

The case of Yorùbá data in (13) has parallels elsewhere. According to Corbett (2000:
211) and Wiltschko (2008),any noun that takes a numeral denoting a set with
cardinality 'greater than one' should be able to have a plural interpretation in any
language.Expressing the same view, Ionin and Matushansky (2004) assert that the

semantics of numerals is the same cross-linguistically;numerals always signify plural (cf. Chierchia 2005).[9]

Based on the interpretation of these nominal expressions, I propose that quantifiers and numerals have an abstract(covert) [PLURAL] feature, which can be realized on nouns that they co-occur with. By abstract plural feature, I mean quantifiers and numerals are inherently plural and need no other independent pluralizing morpheme to make the noun they are adjoined to plural. This claim is justified in that whenever a noun takes any other non-quantifying modifiers, as with the case of nouns occurring with an adjective,[10]it is ambiguous between a singular and a plural interpretation.

(14) a. aja   'dog(s)'

      b. ajá pupa   'red dog(s)'

      c. ajá burúkú   'bad dog(s)'

      d. ajá gíga   'tall dog(s)'

      e. ajá kékeré   'small dog(s)'

However, the only interpretation that is available when a noun takes a quantifying element is plural. This suggests that both group-denoting quantifiers and numerals have the semantic feature [PLURAL]denoting a group, while plain plural words on the other hand introduce a [PLURAL] feature and nothing else.

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[9]Observe that in a language like English, parallel examples will be considered ungrammatical in most dialects.

(i) a. *many book   (ii) a. *two book
     b. *few book   b. *seven book

The reason this is ungrammatical for English but grammatical for Yorùbá is that the two languages mark plural differently and therefore adopt different mechanisms: while Yorùbá which marks plural syntactically with feature percolation; English marks plural morphologically through the use of certain inflectional morphemes adopts feature matching (cf. Ajiboye 2005).
[10] See section three for the account of examples such as given in (14).

Using the feature percolation mechanism, I propose that the [PLURAL] feature of the quantifying element percolates onto the NP, thus, enhancing it a plural interpretation as illustrated in (15).

(15) a.   b.
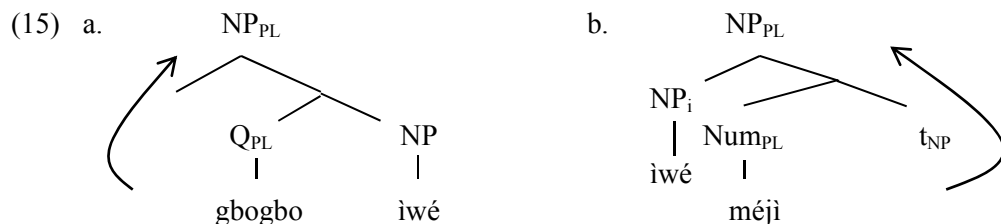
Note that for *gbogbo*, there is no need for the NP to move since the modifier precedes the noun in the surface syntax. However, for numerals and *púpọ̀* and *díẹ̀*, which follow the noun in surface syntax, the NP moves to Spec of higher NP to derive the [NP Modifier] surface linear order.

Evidence from French also supports the claim that quantifiers are inherently plural. The word *plusieurs*[11] 'many' combines only with a plural noun. Compare (16a), where the noun is plural with (16b) where it combines with a singular noun. For the latter, the result is ungrammaticality because there is no agreement between the noun and the quantifier.

(16) a. plusieur**s** chevaux
          many   horse.PL
          'many horses'

      b. *plusieurs   cheval
          many   horse.sg
          'many horse'

The fact that we are trying to establish here is that *plusieurs* is like Yorùbá *púpọ̀* in the sense that it occurs only with plural nouns. Where French differs from Yorùbá is that in the latter, the noun need not be marked for plural for the whole NP to be interpreted as plural, once the quantifiers is marked for plural; in the case of French, the plural must be plural before the whole phrase is interpreted as plural.

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[11]One should not mistake the presence of 's' at the end of this quantifier to mean a plural morpheme.

In English, the quantifiers 'many' and 'few', among other quantifiers, are also inherently plural. Compare example (17a), where 'many' combines with a plural noun,toexample (17b) where it does not.[12]

(17) a. many   orange-s

     b. *many   orange

But more than this, English is like French since a noun that occurs with a quantifier or a numeral that is greater than one must itself be marked for plural. Again this is a property that differentiates languages that mark plural morphologically from those that mark plural syntactically.

2.2.2 The form of Yorùbá numerals in plural marking. Having discussed plural marking involving quantifiers and numerals, we will now explain the form and structure of numerals that mark plural. It has been observed that Yorùbá numerals have at least three different forms (Abraham 1958, Bámgbósé 1967, Awóbùlúyì 1978, Ajíbóyè & Déchaine 2004). In particular, Ajíbóyè & Déchaine discuss two forms that are crucial to the account of plural formation being discussed here: the base form and the *m*-form. The latter is derived from the base numeral by a surface prefix *m*-with a H tone that docks onto the initial vowel of the base numeral. The *m*-

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[12] Although, the quantifier 'many' is supposedly inherently plural, the phrase: [a man] may occur with this quantifier in certain restricted contexts.

(i) a. During the 1930s [many [a man]] sold his farm and moved west.
    b. During the 1930s [many men]sold their farms and moved west
    c. *many man

Observe also the parallel situation in other English quantifiers: 'every' versus 'all'. Both denote groups. While 'all' takes a plural NP, 'every' takes the unmarked form.

(ii) a. Every man
    b. All men
    c. *All man

form contrasts with the base form phonologically in that the initial tone of the base numeral is replaced with a H, as seen in (18).[13]

(18)	Base	*m*-form	Output	Gloss
a.	ení	m´ + ení	*méní	'one'
b.	̣òkan	m´ + ̣òkan	*mọ́kan	'one'
c.	èjì	m´ + èjì	méjì	'two'
d.	̣èta	m´ + ̣èta	mẹ́ta	'three'
e.	èrin	m- + èrin	mérin	'four'

(adapted from Ajíbóyè & Déchaine 2004: 6)

The numeral 'one', which has two base forms (*ení* and *ọ̀kan*), cannot take the *m*-prefix. The reason may not be unconnected with the fact that the *m*-form, though a modifier, is dedicated primarily to plural marking. In what follows I present the syntactic distributions that differentiate the two types. On the surface, both types can occur by themselves as nouns.

(19) a. Mo   ra   **ẹ̀ta**   b. Mo   ra   **mẹ́ta**
          1sg   buy   three   1sg   buy   three
          'I bought three.'   'I bought three.'

However, only the *m*-form can occur as a modifier, and therefore only the *m*-form seems capable of marking plural (20).

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[13]One can speculate that the *m*- prefix is a reduced form of mV́, where this unspecified vowel deletes, leaving the tone floating before it displaces the tone on the noun. In fact, Awóbùlúyì (2008) postulates *mú* as the underlying form for this morpheme, the vowel of which obligatorily deletes when in collocation with numerals.

(20) a.*Mo   ra   [ìwé **ẹ̀ta**]   b. Mo   ra   [ìwé **mẹ́ta**]¹⁴
          1sg   buy   book three   1sg   buy   book three
          'I bought three books.'

(19b) is indeed a reduced form of (20b); thus (19b) is to be interpreted as 'two X'.

    As mentioned earlier, the *m*-form of numerals cannot occur with *ọ̀kan* and *ení* to modify nouns, as seen in (21).

———————————————

¹⁴Only the *m*-form can co-occur with a noun. But observe that the base form like *èjì* 'two' also inherently contains an abstract [PLURAL] feature. As such, it ought to qualify to mark plural on nouns. But this is not the case. However there are certain instances where only the base form can modify nouns and mark them for plural. A few things to note about such numerals: first, they do not allow the *m*-form (i-a); secondly, they precede the noun they modify, (i & ii). Third, they are multiples of ten starting from *ogún* 'twenty' (see Abraham 1958: xxxii-xxxvi, (i-iii).

(i) a.   Ṣehun   ra   [**ogún**   ìwé]
            S.   buy   twenty   book
            'Sehun bought twenty books.'
     b.   *Ṣehun   ra   [ìwé   **mógún**]

(ii) a.   Jẹ́nrọlá   ta   [**ọgbọ̀n**   iṣu]
            J.   sell   thirty   yam
            'Jenrola sold thirty yams.'
     b.   *Jẹ́nrọlá ta [iṣu**mọ́gbọ̀n**]

When these numerals follow the nouns, they show ordinals and as such, they no longer mark nouns for plural.

(iii) a.   Ṣehun   ra   [ìwé**ogún**]
            S.   buy   book   twenty
            'Sehun bought the 20ᵗʰ book.'

     b.   Jẹ́nrọlá   ta   [iṣu   **ọgbọ̀n**]
            J.   sell   thirty   yam
            'Jenrola sold the 30ᵗʰ yam.'

There is more to say than claiming that only the *m*-form or the base form of numerals qualifies as a plural marker. What determines which numeral must be in the *m*-form and which one must be in its base form to mark plural as well as the linear order between the numeral and the noun requires further research.

(21) a.*Mo   ra   [ìwé **mọ́kan**]   b.*Mo   ra   [ìwé **méní**]
     1sg   buy   book   one   1sg   buy   book   one

The ungrammaticality in (21) suggests two things: (i) only a numeral that denotes a set with cardinality />1/ can be used to derive the '*m*-numerals', (ii) it might be the case that the *m*-form has to do with the semantics of more than 'oneness'. I return to this later.

It is essential to note that Yorùbá is not the only language where numerals are used as plural words. There are other languages that require no further marking whenever a numeral that denotes a set with cardinality />1/ is used. Hungarian is one such language. In (22), *lány* 'girl' is marked as plural only by the presence of the numeral *két* 'two'.

(22) Két   lány   beszélget   [Hungarian]
    two   girl.SG   chat.SG
    'two girls are chatting'(Corbett 2000: 211).

However, there is a slight difference between Yorùbá and Hungarian. In Yorùbá it is possible to use other plural words to mark nouns for plural even when a numeral is present. Hungariandoes not allow any other plural marker. The question that arises is,How do we treat a language like Hungarian in the present analysis?

The explanation might be that Hungarian permits only one instantiation of the PLURAL feature. It could also be that there is a language specific rule that prohibits further plural marking once a numeral is introduced. Note that even for Yorùbá, all that is required for a noun to be interpreted as plural is for at least one plural word or

morpheme to be present.[15]

   There are also languages where a numeral and a dedicated plural word do not co-occur. The reason for this might be because numerals occupy the same syntactic position as the plural word. In Gurung, a Tibeto-Burman language of Nepal, the plural word occurs in the same syntactic slot as numerals. The examples in (23) illustrate this.

(23) a. cá   pxra-báe mxi   **jaga**
          that   walk-adj   person   PL
          'those walking people'

      b. ca   mxi   **só-bra**
          that   person   Numeral
          'those three hundred people'   (Dryer 1989: 872)

(24) a. *cá   pxra-báe mxi   **só-bra   jaga**
          that   walk-adj   person   Numeral   PL

      b. *cá   pxra-báe mxi   **jaga só-bra**
          that   walk-adj   person   PL   Numeral

This suggests that the dedicated plural word and numeral in this language are in complementary distribution (cf. Dryer 1989: 871).

2.3 Reduplicated modifier as plural word. Another way by which Yorùbá expresses plurality on its nouns is through the use of modifiers.[16] The claim we make

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[15] For Hungarian, one can also speculate that the PLURAL feature takes precedence over the SINGULAR feature, hence when an NP contains a numeral that has an abstract PLURAL feature and a noun with a SINGULAR feature, the NP is interpreted as plural because of this precedence constraint. This is illustrated in (i).

(i)   NP$_{PL}$
                              wo
                     Num   N
                  [PLURAL]   [SINGULAR]
                      #   #
                    Két   lány

in this regard is that modifier-as-plural-word has a structure of a "COPY-modifier".[17]Observe that bare nouns with or without plain modifiers display an ambiguity between a singular and plural interpretation. This is illustrated in all the (a) and (b) examples in (25)-(29). However, this ambiguity disappears once the modifier is copied. This is reflected in the (c) examples.

(25) a. Ìlú   yìí   ní   [àṣà]
           town DEM have custom
           'This town has a custom.' or
           'This town has customs.'

      b. Ìlú   yìí   ní   [àṣà   burúkú]
           town DEM have custom   bad
           'This town has a bad custom.' or
           'This town has bad customs.'

      c. Ìlú   yìí   ní   [àṣà   **burúkú** burúkú]
           town DEM have custom   COPY   bad
           'This town has bad customs.' or
           'This town has a bad custom.'

---

[16]Note that cross-linguistically, reduplication is used extensively to mark'plural' in many formally distinct ways.

[17]The use of "COPY" as a mechanism of marking plural is famous among the Yorùbá people, as demonstrated in the early novels. The example in (i) is taken from one of the works of Fágúnwà, a famous Yorùbá novelist. The copied modifier *ńlá* in citation means 'big' but when used as a plural word as in (i), it means 'great Xs'.

(i) Ìwọ   ni   o   ni [agbára ńlá]   tí   o   fi   dá   gbogbo [ǹkan
    2sg   FOC   2sg own power   big   that 2sg usecreate all   thing

    ńlá   ńlá] inú   ayé...
    COPY   big   inside world

    'You are the one that has a **strong** power that you used in creating all the **great things** in this world.' (Fágúnwà 1961: 146).

(26) a. Péjú   ta   [bọ́ọ̀lù]
          P.   sell   ball
          'Peju sold a ball.' or
          'Peju sold balls.'

      b. Péjú   ta   [bọ́ọ̀lù   pupa]
          P.   sell   ball   red
          'Peju sold a red ball.' or
          'Peju sold red balls.'

      c. Péjú   ta   [bọ́ọ̀lù   **pupa** pupa]
          P.   sell   ball   COPY   red
          'Peju sold red balls.'
          'Peju sold a red ball.'

(27) a. Ọmọ́le   fọ   [ìgò]
          O.   wash   bottle
          'Omole washed a bottle.' or
          'Omole washed bottles.'

      b. Ọmọ́le   fọ   [ìgò   palaba]
          O.   wash   bottle flat
          'Omole washed a flat bottle.' or
          'Omole washed flat bottles.'

      c. Ọmọ́le   fọ   [ìgò   **palaba**   palaba]
          O.   wash   bottle COPY   flat
          'Omole washed flat bottles.' or
          'Omole washed a flat bottle.'

(28) a. Mo   ra   [ọ̀gẹ̀dẹ̀]
          1sg   buy   banana
          'I bought a banana.' or
          'I bought bananas.'

  b. Mo   ra   [ògèdè   ńlá]
     1sg   buy   banana   big
     'I bought a big banana.' or
     'I bought big bananas.'

  c. Mo   ra   [ògèdè   **ńlá**   ńlá]
     1sg   buy   banana   COPY big
     'I bought big bananas.' or
     'I bought a big banana.'

(29) a. Abíọ́lá   ní   [ilé]   ní Èkó
       A.   have house P Lagos
       'Abiola has/owns a building in Lagos.' or
       'Abiola has/owns buildings in Lagos.'

   b. Abíọ́lá   ní   [ilé   gogoro]   ní Èkó
      A.   have house tall   P Lagos
      'Abiola has/owns a tall building in Lagos.'
      'Abiola has/owns tall buildings in Lagos.'

   c. Abíọ́lá   ní   [ilé   **gogoro** gogoro]   ní Èkó
      A.   have house COPY   tall   P Lagos
      'Abiola has/owns tall buildings in Lagos.'

Following Ajíbóyè and Déchaine (2004), I assume that the copied entity is at the left edge of the base.[18] Consequently, I adopt the structure in (30) for the Yorùbá copy-

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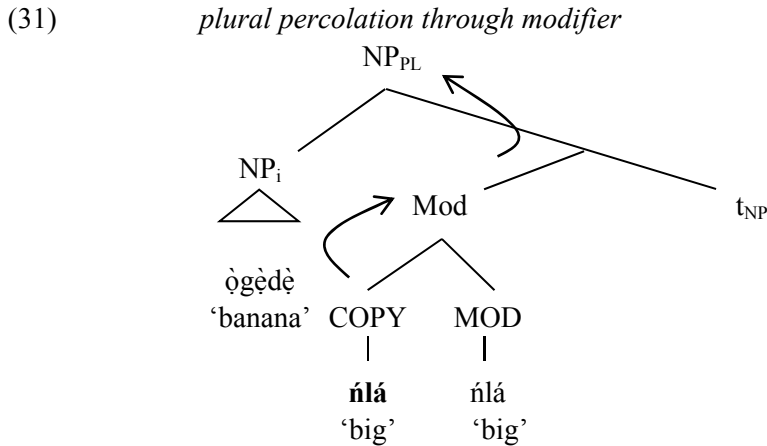[18]On the Copy-Modifier order, there may be nothing that hinges on the suggestion that the copied entity is prefixed to the base since both are the same. However, there is language internal evidence in other structures that supports the order suggested here. In partial reduplication that derives gerunds (i-a) and partial reduplication that derives universal quantification (i-b), it is clear that the copied elements are attached to the left of the base.

(i) a. wí-wá 'coming' (ii) a. ojú-ojúmọ́ (ojoojúmọ́)   'everyday'
       copy-come   copy-day-break

    b. *wá-wí   b. *ojúmọ́-ojú

modifier. The plural marker is left adjoined to the modifier to form a plural modifier (cf. Kayne 1994).

(30)   Mod$_{PL}$

              COPY   Mod
              [ńlá   ńlá]
                                            big
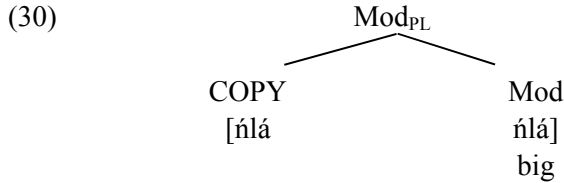
The analysis of modifiers is the same as those previously accounted for. For completeness, I show how the mechanism of feature percolation derives plural NPs with modifiers using (31a) as an illustration.

(31)   *plural percolation through modifier*

                              NP$_{PL}$

              NP$_i$

                              Mod   t$_{NP}$

              ògèdè   COPY   MOD
              'banana'
                         ńlá   ńlá
                        'big'   'big'

It must be noted that Yorùbá speakers do not have the same judgments on which subclass of modifiers can be copied to mark plural. Quality modifiers (e.g. *burúkú* 'bad') and quantity modifiers (e.g. *ńlá* 'big') can be copied to "indicate more-than-oneness" (Bámgbósé 1967: 112-113),a finding that our study also found to hold true. In addition, we have demonstrated that copying that involves color[19](such as *dúdú*

The fact that only (i-a and ii-a), which have the COPY to their left is grammatical attests to this claim. For details, see Pulleyblank (2002) and Ajiboye & Déchaine (2004) among others.

[19] Observe that quantity modifiers (quantifiers and numerals) are treated as a kind of plural word with an abstract [PLURAL] feature. They, therefore, require no copying to function as plural words. However, whenever they are copied, they modify verbs, (i-b).

'black'), quality, and dimension can undergo copying for plural marking. However, some native speakers disagree. As reflected in (25-29), quality, dimension and color[20]are considered as modifiers that can undergo copying for plural marking.

Putting aside speaker variation, the fact remains that in Yorùbá, not all modifiers are eligible for copying to mark plural. In particular, the class of attributives (32a)[21], most ideophones (32b),[22] and locatives (33-34) cannot be copied to form plurals.

(i) a. Mo   ra   ìwé   púpọ̀
    1sg   buy   book   many
    'I bought many books.'

  b. Mo   ra   **púpọ̀** púpọ̀
    1sg   buy   COPY many
    'I bought in large quantity (i.e., the buying was done in large quantity).'

[20] Observe that quantity modifiers (quantifiers and numerals) are treated as a kind of plural word with an abstract [PLURAL] feature. They, therefore, require no copying to function as plural words. However, whenever they are copied, they modify verbs, (i-b).

(i) a. Mo   ra   ìwé   púpọ̀
    1sg   buy   book   many
    'I bought many books.'

  b. Mo   ra   **púpọ̀** púpọ̀
    1sg   buy   COPY many
    'I bought in large quantity (i.e., the buying was done in large quantity).'

[21]The term 'attributive' as used here is a kind of modifier that describes or characterizes the mental state of the noun it modifies. This contrasts with the standard use of the term as any adjective, which appears directly beside the noun. These modifiers are attributives because they assign some kind of quality to the noun they modify.
[22] According to Doke in Awóyalé (1974:139), an ideophone is a word, often onomatopoetic, which describes a qualificative, predicative, or an adverb with respect to sound, color, smell, manner, state, action or intensity. Moreover, there is a category of ideophones that can be copied to mark plural (cf. Beck 2005).

(32) a. *ajá olóríburúkú olóríburúkú(cf. ajá olóríburúkú;'bad-luck dog')
          dog COPY   bad-luck

      b. *ajá játijàti   játijàti[23](cf. ajá játijàti; 'useless dog')
          dog COPY   feckless

(33) *eyín   **òsì**   òsì(cf. eyín òsì; 'left tooth')
      tooth   COPY   left

(34) *apá   **òtún**   òtún (cf. apáòtún; 'right hand/way')
      arm   COPY   right
      'right arm'

It might be the case that locative modifiers cannot undergo copying because 'left' and 'right' are unique nominal adjectives.

    The next thing that we would like to discuss is the size of the copied item. Whenever a modifier is copied for the purpose of marking plural, it is the whole word that is copied even though, in most cases, full copying is subject to certain phonological constraints. The particular claim is that the principle of "foot binarity" determines the size of what is to be copied (Ola (1995) and Ola-Orie and Pulleyblank (2002)). In this approach, at least the copied entity must be bi-moraic. Thus, in tri-syllabic or polysyllabic words not more than two syllables are copied.

    Note also that, whenever a modifier is copied, it does not undergo any phonological process of either deletion or assimilation, either at the segmental or tonal level. The reason may be due to the fact that the kind of copying under discussion is syntactic.[24] It may also be because of its phonological

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[23] The category of ideophones that can be copied to mark plural in Yorùbá is shown in (41).
[24] See Inkelas and Zoll (2000) and Pulleyblank (2002) among others for a discussion of phonological versus morphological reduplication.

structure: the modifiers in question are all consonant initial.[25]

(35) a. ńlá   > ńlá   ńlá
           big   COPY   big

      b. pupa   > pupa   pupa
           red   COPY   red

      c. kékeré   > kékeré   kékeré
           small   COPY   small

One final question that is addressed in this section is the case when two or more modifiers modify a noun. In the discussion of overt plural marking with modifiers above, it has been shown that the COPY of the modifier functions as a plural word. However, there is a restriction on the copying process when there is more than one modifier within a nominal expression. It appears only the modifier that is adjacent to a noun can undergo copying. This claim is supported by the examples in (36) where there are two modifiers: *ńlá* 'big' and *tuntun* 'new' that modify *ilé* 'house'. As it turns out, only one and the first of the two, can be copied.

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[25] Observe that Yorùbá also makes use of the partial copying strategy to derive gerunds. If modifiers were to be partially copied for the purpose of plural marking, the process would involve copying the first consonant of the modifier and the insertion of a fixed segment a.k.a. H toned /í/.

(i) a. kékeré   *kí-kékeré
          small   COPY-small

     b. dúdú   *dí-dúdú
          black   COPY-black

     c. ńlá   *ní-ńlá
          big   COPY-big

However, partial copying does not apply to modifiers not to talk of using it for plural marking. With this, we conclude that copying that involves plural marking must be full and not partial.

(36)   a. ilé   **ńlá**   ńlá   tuntun
            house PL   big   new
            'new big houses'

        b.*ilé   ńlá**tuntun**   tuntun

In (37), despite the fact that the adjacent modifier is copied, thus satisfying the adjacency constraint, it is not possible to extend copying to the next modifier.

(37)   *ilé   **ńlá**   ńlá**tuntun**   tuntun
        house PL   big   PL   new

When the noun itself is already marked for plural with *àwọn*, the same generalizations obtain.

(38)   a. **àwọn**   ilé **kékeré** kékeré   tuntun
            PL-   house PL-small   new
            'new small houses'

        b. ***àwọn**   ilé kékeré   **tuntun**   tuntun
            PL-   house small PL-   new

(39)   a. **àwọn**   ajá   **dúdú** dúdú kékeré
            PL-   dog   PL   black small
            'small black dogs'

        b. ***àwọn**   ajá   dúdú [**kékeré** kékeré]
            PL-   dog   black PL-   small
            'small black dogs'

From the foregoing, it is clear that there is more to be done before we can state definitivelywhat accounts for specific restrictions ofcopying modifiers when they are

stacked within NPs in Yorùbá.[26]The case of plural marking with demonstratives is the next to be discussed.

2.4 Plural demonstratives as plural word. Observe that without prior discourse cues,it is difficult to guess whether a bare N refers to a singular or a plural, even with adjectives as shown in the previous section, possessive pronouns, or NPs as illustrated in (40).

(40) a. ìwé e rè   his/her book(s)

      b. ìwé Adé   Ade's book(s)

However, the case with demonstratives is quite different. The data below show that the base form of demonstratives is unmarked for plural. That is probably the reason, the nouns which they combine with are obligatorily interpreted as singular.

(41) a. Mo   ra   **ilé   yìí**   ní mílíọ̀nù   mẹ́wàá   náírà
          1sg   buy   house   Dem   for million   ten   naira
          'I bought **this house** for ten million naira.'

      b. Mo   ta   **ilé   yẹn**   ní   pọ̀ńtọ̀
          1sg   sell   house   Dem   for   cheap
          'I sold **that house** at a ridiculously low price.'

The data in (41) raise a fundamental question of why nouns occurring by themselves or when they take a modifier are ambiguous between a singular and a plural interpretation; whereas with an unmarked demonstrative, they are obligatorily

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[26] On what prevents N copy for the purpose of plural marking, one can only speculate that this might be due to the fact that all known cases of copying in Yorùbá already have been assigned a semantic function. For example, when the initial consonant of a verb is copied and the fixed high-toned /í/ is inserted, this derives gerunds, e.g. *wá* 'come' *wí-wá* 'coming'. Similarly, when temporal nouns such as *ọ̀sán* 'afternoon' and numerals such as *èjì* 'two' are copied, they derive quantificational nouns, e.g. *ọ̀sọ̀ọ̀sán* 'every afternoon', *èjèèjì* 'all the two' (cf. Ajiboye & Déchaine 2004). Lastly, when common nouns such as *ilé* 'house' is copied and *kí* is inserted between the base and the copied stem, the result is a polarity item, e.g. *ilé-kí-ilé* 'any house' (cf. Kock 2004). With modifiers, the output of copying, is to give a marked plural reading.

interpreted as singular. Put differently, what is there in an unmarked demonstrative that forces a singular interpretation? I return to this question in section 3.3. Meanwhile, for the nouns in (41) to be interpreted as plural, the demonstratives must first be pluralized by prefixing the morpheme *wòn-*, and the noun in turn will take the plural demonstrative; then, the whole NP receives a plural interpretation.[27]

(42) a. Mo   ra   ilé   wòn-**yìí** ní mílíọ̀nù méwàá   náírà
        1sg   buy   house PL-Dem   for million   ten   naira
        'I bought **these houses** for ten million naira.'

     b. Mo   ta   ilé   wòn-**yẹn**   ní   pọ́ńtọ̀
        1sg   sell house PL-Dem   for   cheap
   'I sold **those houses** at a ridiculously low price.'

Recall that, in the present analysis, demonstratives are treated as a functional head which takes the NP as its complement. In the final analysis, the NP moves to Spec D(em)P, which derives the surface linear order of NP-Dem. The derivation follows the previous mechanism, namely, the plural feature of the demonstrative percolating to the D(em)P and assigning the whole phrase its plural feature.

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[27] Note also that, whenever *wòn* combines with demonstratives to form plurals, the derived word can in turn undergo a nominalization process by prefixing *ì-*. This suggests that *àwọn* is probably derived from *wọn* by prefixation of *ì-*to the latter (cf. Awobuluyi 2008)

(i) a. ì-   wòn-   yí
        Nom   PL   Dem
        'these ones'

     b. ì-   wòn-   yẹn
        Nom   PL   Dem
        'those ones'

One can also assume that *àwọn* is derived from the plural prefix *wòn* by prefixing *à-*to the former. However, such argument is not tenable, considering the fact that the output **àwòn* is not attested.

(43)   *Plural percolation via demonstrative*

D(em)P_PL

NP

ìwé

D(em)_PL

PL   Dem

wòn   yìí

t_NP
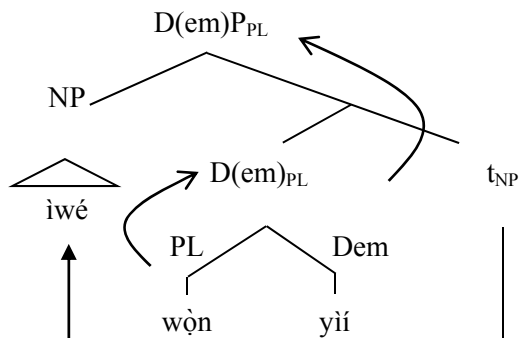
Finally, the plural feature can multiply percolate through *àwọn* and *-wòn.*

(44) *plural-percolation through* àwọn *and* wòn

D(em)P_PL

NP_PLi

PL

àwọn

NP

ajá

Dem_PL

PL   Dem

wòn   yí

_tNP_PL
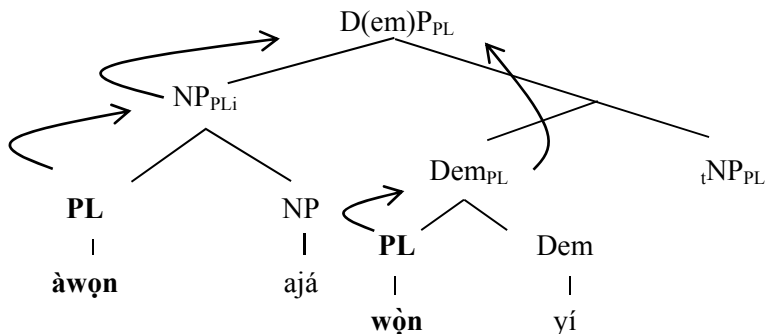
Note that, the plural morpheme like the previous plural words already accounted for, is left adjoined to the host demonstrative.

As mentioned earlier, the unresolved problem involving demonstratives is that when there isa bare N inside an NP with a demonstrative, it must be interpreted as singular.One speculation is that it might be the case that Yorùbá demonstratives have some idiosyncratic property that is not yet understood. In section 3.2 below, we present further discussion.

3 Contextually determined singularity versus plurality

It has been observed that there are two distinct ways by which nouns that are unspecified for number in Yorùbá can be interpreted. There are contexts in which

they can be interpreted as singular or plural.I treat this type in 3.1. There are other contexts in which they can only be interpreted as singular, as seenin 3.2.Section 3.3 provides an analysis for both in 3.1 and 3.2.

3.1 Unspecified for number resulting in ambiguity. When a count noun occurs by itself (45a), or when it takes a modifier (45b),a relational noun (45c),or a possessive pronoun (45d),the noun can either be construed as singular or plural depending on the discourse context.

(45) a. Fálànà ra   **ìwé**   ní Lọ́ńdọ̀
          F.   buy   book   in L.
          'Falana bought a/some book(s) in London'

      b. Fálànà ra **ìwé pupa** ní Lọ́ńdọ̀
          'Falana bought a/some red book(s) in London'

      c. Fálànà ra **ìwé òfin** ní Lọ́ńdọ̀
           'Falana bought a/some law book(s) in London'

      d. Fálànà ra **ìwé rẹ̀** ní Lọ́ńdọ̀
           'Falana bought his book(s) in London'

The examples in (45) suggest that Yorùbá nouns are unspecified for number; as such, number marking can be said to be underdetermined in the language (cf. Rullmann 2004). Some specific contexts for singular interpretation are given in the folktale in (46).

(46)   **Context for singular interpretation**:The song below story is taken
         from the story Dog and Tortoise who went to steal in another man's
         farm:

      a. Ajá, ajá o,   ràn   mí   lẹ́rù
          Dog, dog emph, help   1sg   in-load
          'Mr. Dog, relieve me of my load.'

b. Bí **o** ò bá ràn mí lẹ́rù, mà á ké sólóko
   If   2sg   neg   help   me   in-load,   1sg   will   call   to-farm owner
   'If you refuse to relieve me, I will call on the owner of the farm.'

c. Bólóko gbọ́ o, á gbé **ẹ** dè
   If-farm-owner   hear   emph,   will   carry   2sg   tie
   'If the owner of the farm hears, he is going to arrest you.'

The use of the second person singular in (46b&c) leaves no doubt that *ajá* 'dog' in (46a) is singular. On the other hand, the example in (47) shows a context where *ajá* 'dog' can only be interpreted as plural. In the movie"Ṣaworoidẹ"(Ìṣọ̀lá 1999), Adébòmí told a story of a hunter and his dogs to his children and the excerpt below is the song from the folktale.[28]

(47) **Context for plural interpretation**: The hunter in the story used to summon his dogs with songs like the one below in times of danger, and the dogs would then run quickly to his aid.

a. **Ajá** à mi dà o
   dog   G-M   1sg   Q-tag   emphatic
   'Where are my dogs?'

b. Ajá ọdẹ
   dog   hunter
   'the hunting dogs'

c. Òkémọkéréwú...Ọ̀sọpàkàgbọ́mọmì...Ògbálègbáràwé

d. Ajá ọdẹ
   dog   hunter
   'the hunting dogs'

---

[28]"Ṣaworoidẹ", afamous Nigeria home video movie written by Professor Akínwùnmí Ìṣọ̀lá, was produced in (1999) by the *Mainframe Film Production* under its director Túndé Kèlání.

e. Ẹ   sáré **ẹ**   mía bọ̀   o
    2pl run   2pl   Prog come emphatic
    'You should all come immediately.'

The mention of Òkémọkéréwú, Ọ̀sọpàkàgbọ́mọmì, Ọ̀gbálẹ̀gbáràwé in this song as well as the use of the 2nd person plural in (47e) leave no one in doubt that *ajá* 'dog' can only be interpreted as plural with no overt morpheme for such an interpretation. The example in (48) illustrates contexts where a noun with a modifier can be interpreted as singular, while the example in (49) shows the context for plural.

(48) **Context for singular interpretation of N modifier**

a. Ade is crying. Ajayi, his father who quickly thinks of what to do to pacify him gives the instruction in (48b).

b. Lọmú [**bọ́ọ̀lù pupa**]tó   wà   nínú àpò   mi   kí   o   máa
    go take ball   red   that-it be   inside bag   my   that you   be

    fi   ṣeré
    use   play

    'Go and take the **red ball** that is inside my bag and play with it.'

(49) **Context for plural interpretation of N modifier**.

a. Ajayi sells balls only. This morning, he asked Ade to arrange the balls on the shelves with the instruction in (49b).

b. To   [**bọ́ọ̀lù pupa**]sí apá .kan,   kí   o   sì   to   [**bọ́ọ̀lù
    arrange ball   red   to side one,   that 3sg   then   arrange ball

    dúdú] sí apá   kejì
    black   to side   second

    'Arrange the **red balls** on one side and the **black balls** on the other side.'

From the preceding, we see that Yorùbá differs from some other languages where the expression of plurality is morphological. In such languages where plural marking is morphologically expressed, it is donethrough a dedicated plural morpheme. Consider the English examples in (50). The plural suffix*s* on 'dog' differentiates between the singular interpretation (50a) and the plural interpretation (50b).

(50)　　a. (*Singular*)I saw a **dog** on my way home this afternoon.

　　　　b.(*Plural*)I saw **dog-s**r ace at the Vancouver city hall when I visited Canada.

I conclude, along the lines of Corbett (2000), that, the issue of ambiguity of number interpretation of nouns as singular or plural is one of the peculiarities of languages with no overt dedicated plural marking.[29] Yorùbá therefore does not constitute an exceptional case.

3.2 Unspecified for number with obligatory singular interpretation. From the discussion in the immediate previous section, it has been established that without prior discourse cues,one cannot say whether a bare NP is to be interpreted as singular or plural, even with adjectives, possessive pronouns or other NPs. Surprisingly, when there is a bare NP with a demonstrative, it can only be interpreted as singular.

(51)　a.　Mo ra ajá yìí ní igba náírà
　　　　　'I bought this dog for two-hundred naira.'

　　　b.　Mo ra ewúrẹ́ yẹn ní ẹ̀ẹ́dẹ́gbẹ̀ta náírà
　　　　　'I bought that she-goat for five hundred naira.'

This suggests that demonstratives have some special (idiosyncratic) property with respect to marked-singularity. If the discourse suggests plurality, there will be some discourse infelicity.

(52)　a.　Mo pe ajá, Tańtọ́lọ́un, Ṣùúrù
　　　　　'I called the [dog] Tańtọ́lọ́un! Ṣùúrù.'

---

[29] Matthewson (personal communication) notes that Brazilian Portuguese has number-neutral bare nouns and a real plural marker.

b.   Ajá yẹn wá, a sì bẹ̀rẹ̀ sí ń rìn lọ
     'That-[dog] came and we started to walk.'

The utterance is strange, since there is a clash between the facts and the use of a bare
N+dem as *ajá yẹn*(52b) cannot refer to *Tańtọ́lọ́un* and *Ṣùúrù*. We would not expect
this clash unless demonstratives have some kind of special property with respect to
marked singularity. The task before us is to account for the phenomenon in a
principled way.

   A less elegant way out is to claim that *yìí* and *yẹn* are intrinsically singular,
whereas *wọ̀nyí* and *wọ̀nyẹn* are intrinsically plural. There is, however, no overt
singular FEATURE on *yìí* and *yẹn*.Amore elegant explanation would be to suggest a
reason these two items are necessarily singular. Such an explanation will never be
morpheme-based, but will have to pass through the computational system (Manfredi
personal communication).Consider a related fact in paradigm (53a) where *ajá* can be
INDEFINITE plural, but not DEFINITE plural. For the latter interpretation to be
obtained, we need a plural morpheme, as in (53b).

(53) a.   Mo   rí   ajá
           1sg   see   dog
           'I saw a dog/some dogs.' or
           'I saw the dog in question.'
           *I saw the dogs in question.'

      b.   Mo   rí   àwọn   ajá
           1sg   see   3PL   dog
           'I saw some (individual) dogs.' or
           'I saw the dogs in question.' (Manfredi 2010: 13)

According to Manfredi, there is something about the combination of definite and the
plural word which requires overt "individuation"(Welmers 1973: 220-222).

   The other context where bare nouns are not specified for number is when they co-
occur with the numeral "one", as in (54a), the specificity marker for indefinite NPs
(54b), and the specificity marker for definite NPs (54c). Here the noun is obligatorily
interpreted as singular.

(54) a.   Mo   rí   [ajá   **(*ọ̀)kan**] N NUM=1
           1sg   see dog   one
           'I saw **one** dog.'

      b.   Mo   rí   [ajá   **kan**]   N SPF$_{indef}$
           1sg   see dog   SPF
           'I saw a **CERTAIN** dog.'
           '*I saw **CERTAIN** dogs.'

        c. [Ajá   **náà**]   tóbi   N SPF$_{def}$
           dog   SPF   be-big
   'The **VERY** dog is big.'
           '*The VERY dogs are big.'

While it is not surprising to see a bare noun with numeral "one" to have a singular interpretation, it is still not clear what explanation one can offer for the case of specificity markers *kan* and *náà* in Yorùbá which give a singular interpretation of the noun they modify.

    The question of how to incorporate the exceptional cases in section 3.2 finds an answer in the "general number analysis" proposed in the literature. I give this account in the next section.

3.3 The General number analysis.   The idea of General number adopted here follows Rullmann and You (2003) and Rullmann (2004). On the basis of the semantic and pragmatic properties of bare nouns, Rullmann and You claim that bare nouns are neither singular nor plural; i.e., they are unspecified for number (cf. Déprez 2004: 10). In order to determine whether a singular or a plural interpretation will be applicable, one has to put such bare nouns in a discourse context. Rullmann and You (2003: 2) claim further that nominal expressions with general number, have the same truth conditions as those which have a semantically singular object.

    On the syntax of Yorùbá bare nouns, I follow Longbardi (1994, 2001) and propose that Yorùbá bare nouns have a DP structure comprising a null or overt D and an NP as its complement. In this proposal, the specificity markers *kan* and *náà* as well demonstratives *yìí* and *yẹn* are treated as some kind of determiners.

(55)   a. *Unspecified for number resulting in ambiguity*
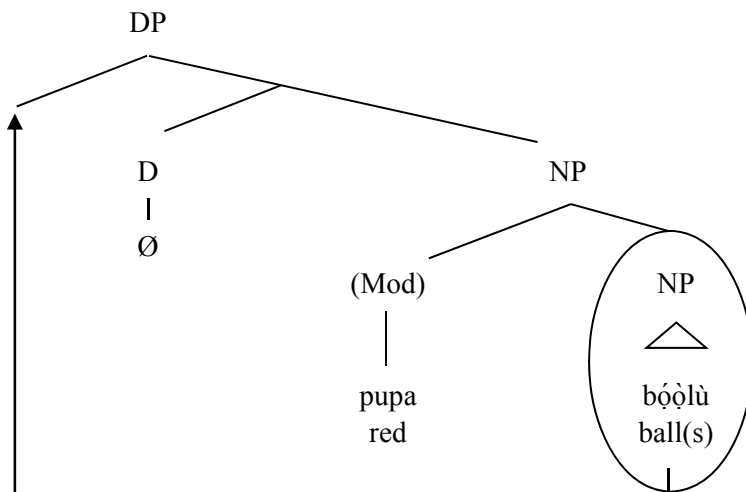
(56)   a. *Unspecified for number with obligatory singular interpretation*
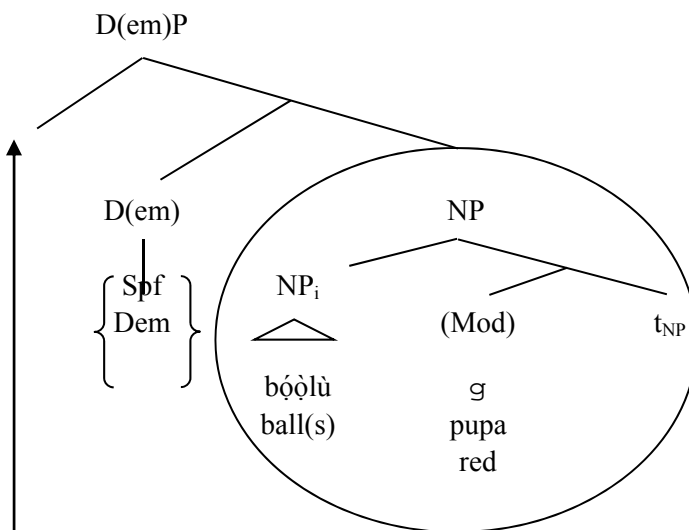
Note that in the surface syntax, the NP precedes the modifier. This suggests that modifiers are right adjoined to the NP. But this is not so. In line with the earlier proposed structure, the modifier is also left adjoined and the NP moves to the Spec, NP of the next higher phrase. And when the D position is filled, as in the cases with the specificity marker or the demonstrative, the whole NP moves to Spec,DP as illustrated in (56b). Even with a bare NP, it is still assumed that there is a covert movement of the NP.

4 Summary and conclusion

It is clear that plural construals on nouns in Yorùbá divide into three interpretive classes as summarized in (57). Class 1 divides into three sub-groups:(i) cases where the plural word *àwọn* precedes the noun, (ii) cases where bare nouns are either accompanied by a numeral that is greater than 'one' or a quantifierand (iii), cases where a plural demonstrative or modifier occurs with nouns. In all of these, the noun is obligatorily interpreted as **plural**. Class 2 involves cases where a noun occurs bare or with a modifier and the noun is interpreted as **singular or plural**. Finally, class 3 involves cases where a noun can be accompanied by an unmarked demonstrative, the numeral 'one', or the specificity markers *kan/náà* and is obligatorily interpreted as **singular**.

(57)   *A summary of the analysis*

CLASS		Syntactic context	Interpretation
1	(i)	3PL + N	PLURAL
	(ii)	N + Num >1	
		N + Q	
	(iii)	N + PL-Dem	
		N + PL-Mod	
2	(i)	N	SINGULAR OR PLURAL
	(ii)	N + Mod	
3	(i)	N + Dem	SINGULAR
	(ii)	N + Num 1	
	(iii)	N + SPF	

What remains to be discussed is how the feature percolation mechanism adopted in the account for Yorùbá contrasts with feature matching attested in English. Since this is not a comparative study, such cannot be addressed here. Readers are referred to Ajíbóyè (2005).

   This paper has accounted for the strategy that Yorùbá adopts in plural marking. The general picture that emerges is that plural is syntactically marked through the use of certain plural words or morphemes. The analysis of plural marking proposed for Yorùbá, namely, feature percolation, makes a prediction that there are two ways by which languages may mark plural on nouns. Languages like Yorùbá which do not show agreement mark plural syntactically, while languages like English which show agreement mark plural morphologically.

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Ọládiípọ̀ Ajíbóyè
University of Lagos, Lagos, Nigeria
Department of Linguistics, African &
Asian Studies
oladiipo@yahoo.com

VOICE CONTRAST AND CUMULATIVE FAITHFULNESS
IN LUWANGA NOUNS∗

Christopher R. Green   Ashley W. Farris-Trimble
Indiana University   University of Iowa

Luwanga has a seemingly allophonic surface distribution of voiced and voiceless obstruents. This commonplace distribution typically requires the proposition that segments are specified as either [±voice] underlyingly, with their counterparts derived via phonological rule. Drawing evidence from consonant alternations in Class 9/10 nouns and their derivatives, obstruents contrast for [voice], at least in stem-initial position. Elsewhere, voice is non-contrastive. The outcome of this alternation, although transparent, cannot be captured in a standard constraint-based optimality theoretic framework and instead requires machinery employed to address surface opacity. This paper illustrates that the result of competing pressures to remain faithful to the underlying segmental structure, as well as to a consonant's specification for [voice], is the seemingly transparent but analytically opaque retention of marked structure. We illustrate that this type of cumulative faithfulness is best addressed via one of two evaluative mechanisms capable of capturing additive effects, namely Local Constraint Conjunction and Harmonic Grammar.

1. Introduction

Luwanga [lwg] is a language of the Masaba-Luyia cluster (J30) spoken in Western Kenya by an unknown number of individuals, according to the latest Ethnologue (Lewis 2009). It is one of sixteen languages included in this group and has been classified recently by Maho (2008) as JE32A.[1] Luwanga is an underdocumented language with realatively few pre-existing materials, among them a vocabulary list created by an anonymous author (1940) and a more general Luyia vocabulary list and grammar published by Appleby (1943, 1947). Green's (in press) work on Luwanga is a more recent addition to the growing list of publications on this language group that have emerged in the last several years. References to these publications are included in §7.

The current paper explores characteristics of Luwanga's nominal morpho-phonology, particularly the behavior of nouns in classes 9/10 and their diminutive and augmentative derivatives found in classes 12/13 and 20/4, respectively. Collected data show that Class 9/10 nouns surface with one of two different manifestations of their prefixes (*iN-*[2] and *tsiN-*, respectively) depending on the nature of their stem-initial consonant. In certain instances, these prefixes surface faithfully (i.e. *iN-* and *tsiN-*), while in others, the nasal consonant is removed (i.e. *i-* and *tsi-*). While the removal of a prefix nasal consonant is not an unusual phenomenon in Bantu languages, what is unique in the case of Luwanga is that the removal of this prefix consonant in a particular set of Class 9/10 correlates with the absence of the augment (or pre-prefix) in corresponding diminutive and augmentative nouns. In other instances, the augment in Luwanga is obligatorily present.[3] While the paradigmatic relationship between the prefix and augment in Luwanga is discussed in more descriptive detail in Green (in press), the difficulties that arise in formalizing

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[1] The three-letter code provided in brackets after a language name refers to its assigned ISO code. Other letter + number combinations are used customarily for Bantu languages to refer to their classification within a specific geographic zone. Data were collected by the first author from a 32-year-old male speaker of Luwanga from Musamba, Kenya, over the span of approximately 16 months.

[2] "*N*" indicates an archiphoneme nasal consonant that regressively assimilates to the place of articulation from the consonant that it precedes.

[3] A noted exception to this observation is Class 5 nouns where the prefix varies between [ɛli-] for vowel-initial stems and [li:-] for consonant-initial stems. This variation has no bearing on Class 6 plurals or other derivatives. As discussed in Green (in press), these derivatives are not affected owing to the preservation of mora count in both Class 5 prefix variants.

this phenomenon and its related characteristics in a theoretical framework have not yet been entertained. It is to this task that we turn in the current paper.

Both generative and optimality theoretic frameworks of phonology have little problem providing coherent bases and analytical explanations for a vast number of linguistic attributes, transparent processes, and non-opaque interactions found widely in developing and fully-developed languages. By developing languages, we are referring to the developing phonologies constructed by children at various stages of L1 language acquisition, while fully-developed languages are considered to be end-state adult phonologies. Literature in the field, however, has revealed that other processes and interactions challenge and oftentimes confound a given framework. In these cases, new machinery must be created and/or appended to it in order that it can once again adequately predict attested phonological phenomena. Among the processes that have come to challenge phonological theories are the well-known opacity effects – interactions producing forms that are either non-surface apparent or non-surface true (Baković 2010; Kiparsky 1971; McCarthy 1999). Best known among these effects are instances of underapplication (counterfeeding opacity) and overapplication (counterbleeding opacity) that have been well-attested in both developing and fully-developed languages (e.g. Baković in press, Dinnsen 2008, and references therein). Grandfather effects (McCarthy 2002) are another well-known type of opacity yielding interaction in which phonological processes are blocked from occurring in non-derived environments.

A number of mechanisms have been proposed to address these opacity effects in their various instantiations, among them Comparative Markedness (McCarthy 2002), Local Constraint Conjunction (e.g. Smolensky 1995; Łubowicz 2002; Smolensky 2006), Sympathy (McCarthy 1999), Parallel Optimality Theory (Prince & Smolensky 1993/2004), Optimality Theory with Candidate Chains (McCarthy 2007), and Stratal Optimality Theory (Bermúdez-Otero in press). It is expected that non-opaque or transparent data can be readily derived from a given underlying representation without resorting to this additional machinery. As we illustrate below, this is not always the case. For Luwanga, in the absence of opaque surface forms, machinery developed to address instances of phonological opacity must be invoked to account for the language's seemingly transparent distribution of obstruents that differ only in their specification for the binary feature [voice].

Our analysis proposes that transparent machinery cannot capture satisfactorily what appears to be the transparent and seemingly allophonic distribution of voiced and voiceless stops in the language. We propose that this unusual type of opacity is a manifestation of a particular *cumulative faithfulness effect*. More specifically, it

represents an instance where the cumulative violation of multiple constraints on segmental faithfulness has the ability to 'gang up' on a higher-ranked markedness constraint thereby omitting a doubly-unfaithful output in favor of a more marked winner. In terms of cumulative faithfulness effects, the situation found in Luwanga is atypical, as discussed below in §7 and described in more detail in Farris-Trimble (2008). Better known examples of cumulative faithfulness involve instances in which low-level faithfulness constraints gang up on another higher-ranked faithfulness constraint. Given the role that cumulativity of violations plays in Luwanga, we propose that the behavior of obstruents in Luwanga is best captured in either an optimality theoretic framework utilizing the local conjunction of faithfulness constraints or in a harmonic evaluative framework utilizing constraint weighting.

The paper is organized as follows: First, we introduce components of Luwanga nominal morphophonology that bear on our analysis. Next, we consider more specifically data from Luwanga nominal stems and their diminutive and augmentative derivatives and illustrate the challenge that they provide for standard Optimality Theory (Prince & Smolensky 1993/2004). We then consider the adaptations to such an analysis that must be invoked to account for the Luwanga data and illustrate that the unique behavior of the language is accommodated by Local Constraint Conjunction and perhaps more successfully by Harmonic Grammar. Our discussion frames this unusual opacity effect alongside other instances of cumulative faithfulness. We close with a brief conclusion.

2. Luwanga morphophonology

Luwanga shares with its Bantu relatives a number of phonological and morphological characteristics, among them a system of grammatical genders known as noun classes. While the noun classes in many Bantu languages are similar, the number of noun classes present in a given language, the degree of semantic uniformity within a noun class, and the particularities of affixation (e.g. the obligatory use or disuse of certain morphological components) are largely language-specific.

In the case of Luwanga, the language utilizes 23 identifiable noun classes including eight singular/plural pairs, three locative classes (Classes 16-18), sub-classes for kinship terms (Class 1a/2) and uncountables (Class 6a), as well as a class for infinitives or verbal nouns (Class 15), and a singular-only class of abstract nouns (Class 14). A representative list of nouns from these classes follows in (1). A longer list of collected Luwanga nouns from classes 1/2, 1a/2, 3/4, 5/6, 7/8, and 14 is found

in Appendix 1. Appendix 2 contains a more detailed list of nouns from Classes 9/10 and 11/10a alongside their corresponding diminutives and augmentatives. Data throughout this paper are presented phonemically, rather than orthographically, unless otherwise stated. Luwanga's sound inventory follows in (2), where allophones are given in parentheses.

(1) Luwanga noun classes[4]

Class	Noun	Gloss	Class	Noun	Gloss
1	omusaatsa	'woman'	2	abasaatsa	'women'
1a	kuka	'grandfather'	2	abakuka	'grandfathers'
3	omusaala	'tree'	4	emisaala	'trees'
5	liibeka	'shoulder'	6	amabeka	'shoulders'
7	eʃitari	'door'	8	efitari	'doors'
9	imbako	'hoe'	10	tsimbako	'hoes'
11	olubafu	'rib'	10a	tsimbafu	'ribs'
12	axatari	'small door'	13	orutari	'small doors'
14	obutʃena	'intelligence'			
15	oxukula	'to buy'			
16	anzu	'near the house'			
17	xuunzu	'on the house'			
18	muunzu	'in the house'			
20	okutari	'big door'	4	emitari	'big doors'

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[4] Intervocalically, /b/ → [β], /x/ → [χ], and /ɹ/ → [ɾ]. Word-initially, /e/ → [ɛ], /o/ → [ɔ], and /l/ → [ɭ]. Long vowels are indicated by a double vowel. [ts] is a contrastive alveolar affricate. Classes 14 and 15 do not have plural counterparts. Classes 16, 17, and 18 contain locative nouns formed by replacing the agument of the base noun with the prefix of the locative class. Bantu languages typically have CV syllable structure, although NCV and CVN syllables are common.

(2) Luwanga sound inventory

	Labial	Labio-Dental	Alveolar	Post-Alveolar	Palatal	Velar	Glottal
Nasal	m		n		ɲ	ŋ	
Stop	p b(β)		t d			k g	
Fricative		f v	s z			x(χ) χ	h
Affricate			ts	tʃ dʒ			
Approx.	w		ɹ(ɾ)		j		
Liquid			l (ɭ)				
Vowel	i(iː), e(ɛ,eː), a(aː), u(uː), o(ɔ,oː)						

Of primary interest for this paper are nouns of the Luwanga singular/plural noun class 9/10 and the diminutive and augmentative singular/plural pairs of nouns derived from them found in classes 12/13 and 20/4, respectively. Diminutive and augmentative nouns are best considered derivatives of their counterparts based upon both their patterns of affixation and their paradigmatic relationship to one another, as described in Green (in press). As illustrated in (3), Luwanga nouns are constructed via affixation to the noun stem of the noun class prefix and, in most instances, an augment or pre-prefix. The order of affixation, *augment + noun class marker + stem*, is invariant, and we refer to the combination of *augment + noun class marker* as the *noun prefix* throughout.

(3) Class 1: omusaatsa   'man'

```
    o          + mu           + saatsa
 Augment   + Class Prefix + Noun Stem
```
                    Noun Prefix
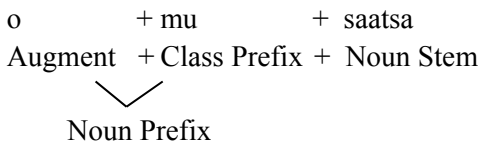
Nouns of Luwanga Class 9/10 are of particular interest to us owing to the segmental content of their respective noun prefixes, *iN-* and *tsiN-*, and the potential for these noun prefixes to be affixed to stems beginning with consonants of various types. The faithful maintenance of the underlying form of these prefixes when affixed to stems beginning with certain consonants, compared to the resolution of resultant impermissible NÇ (nasal + voiceless consonant) sequences when affixed to

other stems, reveals much about the overall phonological inventory of Luwanga and the morphophonological processes active in the language. Expanded study of the intricacies of these components in a lesser-known language like Luwanga is imperative given the spotlight that Bantu languages have occupied in debates and discussion of NC phonology. Bantu languages have been known to showcase the myriad ways that languages resolve varying permissibilities of certain NC combinations and have offered insight into phonological processes acting upon or in conjunction with these sequences. Furthermore, the study of these languages continues to contribute to the state of knowledge on syllable and moraic phonology (e.g. Broselow, Chen & Huffman 1997; Downing 2005, Hubbard 1995; Hyman & Ngunga 1997, Odden 2006), among other important issues in phonology and African linguistics in general (e.g. Hyman 2003, 2008).

The formation of Luwanga Class 9/10 nouns and their derivatives proceeds in much the same way as demonstrated in (3) for other noun classes. The augment, *i-* or *tsi-*, respectively, is affixed to the noun class prefix *-N-*, which is then affixed to the stem. This construction is illustrated in (4) for the Luwanga noun *iŋgato* 'sandal' alongside its singular diminutive and augmentative derivatives. These forms reveal that base nouns differ from their derived counterparts only in their noun prefix and showcase a surface voice alternation in stem-initial stops.[5]

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[5] [t] ~ [d] and [k] ~ [g] are typical voiceless/voiced pairs in Luwanga, however the language lacks an alternation between [p] and [b]. Luwanga appears to have an inventory in which *[p] developed into [β], which then alternates with [b] in certain environments, as has been suggested for some other Bantu languages (e.g. Guthrie 1967; Meinhof 1932). Luwanga lacks the phone [p] except in loanwords borrowed from Kiswahili. [β] ~ [b], in Luwanga, alternate analogous to other voiceless/voiced pairs in the language.

(4) a. Voiced stem-initial stops after nasal

i-N-gato	iŋgato	'sandal'	Class 9
tsi-N-gato	tsiŋgato	'sandals'	Class 10

   b. Voiceless stem-initial stops after vowel

a-xa-gato	axakato	'small sandal'	Class 12
o-ru-gato	orukato	'small sandals'	Class 13
o-ku-gato	okukato	'large sandal'	Class 20
ɛ-mi-gato	ɛmikato	'large sandals'	Class 4

What makes these particular nouns interesting in Luwanga is the distribution of alternating stops in stem-initial position (compared to elsewhere in the word) taken alongside the assumptions that one must make about their underlying representations. The details of this distribution and the descriptive anomaly that it poses for analyses of Luwanga nouns follow in Section 3. To be clear, our focus in this paper is on the subset of Class 9/10 nouns and their derivatives given that they offer the necessary conditioning environment in which to view the consonant alternations of interest to us. One could argue that the distribution of consonants and related effects discussed for Class 9/10 noun stems can be generalized at least to other noun classes (and perhaps to other lexemes); however, the formation of these other classes does not yield the appropriate conditioning environment within which to view these alternations. This can be seen from the presentation of Luwanga noun classes in (1) where only Class 9/10 (and 10a) contains a prefix nasal that has the potential to be deleted, thus triggering the observed alternation.

3. Distribution of consonants

At first glance, the distribution of Luwanga voiced and voiceless consonants appears to be a simple case of allophony. The consonant distribution of the language is such that [+voice] stops are found only in instances when they are preceded by a nasal segment. Their [-voice] counterparts are found in all other instances, i.e. word-initially and intervocalically. This distribution suggests that Luwanga stops do not underlyingly contrast for the feature [voice]. It would appear, therefore, that stops are specified as [-voice] underlyingly, and, in the presence of a preceding nasal, the [+voice] nasal segment progressively changes a following underlyingly [-voice] stop

to its voicing specification. Viewing the distribution of these segments in Luwanga words like those in (5) poses no problem for this generalization, as one observes that [+voice] stops are found only in environments where they are immediately preceded by a nasal segment, while their [-voice] counterparts are found elsewhere; a classic illustration of allophonic complementary distribution.

(5)   Typical stop distribution in Luwanga

a.	omukulo	'playmate'	f.	obusaaŋgafo	'happiness'
b.	efitari	'beds'	g.	obutuunduri	'bone marrow'
c.	kuka	'grandfather'	h.	omusuumba	'bachelor'
d.	amatumwa	'corn'	i.	oxulaaŋga	'to call'
e.	liibeka	'shoulder'	j.	oxulooŋga	'to make pottery'

A problem arises with this generalization, however, when confronted with Class 9/10 nouns with stop-initial stems. Consider a comparison between words like (6a-d) and (6e-h).

(6)   Class 9/10 Nouns

	Class 9	Gloss	Class 10	Gloss
a.	imbako	'hoe'	tsimbako	'hoes'
b.	imbooŋgo	'bongo'(antelope)	tsimbooŋgo	'bongos'
c.	inda	'belly'	tsinda	'bellies'
d.	iŋgato	'sandal'	tsiŋgato	'sandals'
e.	ikwaaya	'armpit'	tsikwaaya	'armpits'
f.	ikweena	'crocodile'	tsikweena	'crocodiles'
g.	italani	'lion'	tsitalani	'lions'
h.	ibaka	'python'	tsibaka	'pythons'

These nouns may appear, at first, to be analogous to those in (4) and to support the proposal of allophony between voiced and voiceless stops. Once again, in (6), voiced stops are found only in environments following a nasal (i.e. [+voice]) consonant. A closer look at these nouns, however, reveals that positing that stem-initial stops of Luwanga Class 9/10 nouns are derived from underlying segments with an identical specification for the feature [voice] fails to provide motivation for their observed

distribution. Let us consider more carefully a comparison between the nouns (6c) and (6g), *inda* 'belly' and *italani* 'lion', in which the nasal class prefix has been either retained or omitted, respectively.

Analysis of such nouns begins with what one assumes to be the underlying form of the constituent morphemes.[6] There are two distinct possibilities that one can propose for the underlying morphological construction of these nouns; however, it can be demonstrated that they both arrive at the same conclusion. On the one hand, one could posit that the Class 9/10 noun prefix consists of the augment, *i-*, and a null noun class prefix, therefore leading to | *i-* + Ø + stem | as the underlying morphological form of such nouns. A more supported assumption, based upon comparison to other Luyia languages and to Bantu languages in general, would be that the Class 9/10 noun prefixes contain the augment plus an underlyingly placeless nasal noun class prefix, -*N*-, that regressively assimilates the place of articulation specification of the consonant it precedes. This yields an underlying morphological form, | *i-* + N + stem |, for these nouns.

We begin by adopting the second, better-supported possibility. Because *inda* and *italani* are both Class 9 nouns, we posit that *iN-* is the underlying form of their noun prefix. Moving beyond this point, one would first posit, based solely upon the distribution of voiced and voiceless stops elsewhere in Luwanga, that these two nouns have stems containing the same underlyingly voiceless stem-initial consonant. It is here that the conundrum behind the [voice] specification of Luwanga stem-initial obstruents arises. If one assumes that the underlying form of 'belly' is /iN-ta/ and the underlying form of 'lion' is /iN-talani/, how then can one explain why, in the instance of 'belly', the attested Luwanga word is *inda* (having undergone progressive voicing assimilation, and therefore retaining its prefix nasal), while in the instance of 'lion', the attested Luwanga word is *italani* (having undergone nasal deletion)? If one were to maintain that these words are formed in such a way, one would fail to identify any factor or environment driving the choice of one process versus the other in these words. It would be necessary to assume that, if both contain obstruents with the same underlying specification for the feature [voice], the choice of voicing versus deletion would have to be lexically specified for each stem. As we illustrate next, this is not necessary if one considers a second alternative for the these nouns.

The alternative, although contrary to the seemingly allophonic surface consonant distribution noted elsewhere in the language, is to posit that stops (at least stem-initially, but perhaps in all instances) contrast underlyingly in their specification for

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[6] For the sake of clarity, we utilize Class 9 singular nouns unless otherwise noted.

the feature [voice]. We broach this possibility in a more theory-neutral way here but discuss it in the light of the principles of *Richness of the Base* and *Lexicon Optimization* (Prince & Smolensky 1993/2004) below. By adopting this position, the observed distribution is motivated wherein Class 9 nouns with underlyingly voiceless stem-initial stops repair an impermissible morphologically-derived NÇ sequence via nasal deletion (e.g. /iN-talani/ → [italani]), while nouns with underlyingly voiced stem-initial stops are free to maintain their nasal prefix, thereby surfacing faithfully (e.g. /iN-da/ → [inda]). This represents a clear diagnostic for determining the underlying specification of stem-initial stops for the feature [voice]. Furthermore, we now find an environmentally-conditioned motivation for the noted consonant distribution. That is to say, voiced stops are retained when they are preceded by a nasal consonant and devoiced elsewhere, while nasal + voiceless stop sequences are never found.

   The situation is somewhat more complicated for stem-internal obstruents. It has been illustrated by the data and distribution above that Luwanga fails to exhibit a surface alternation in the feature [voice] for these segments. This differs from the unique behavior of stem-initial obstruents shown above that clearly indicate that a contrast must be in place in this more prominent stem-initial position.[7] While the Luwanga data illustrate that, in stem-initial position, the underlying [voice] specification for stops can be diagnostically determined; for stem-internal obstruents, however, no evidence can be found allowing one to posit a similar contrast. Then again, no evidence can be found to exclude a contrast either. On the one hand, based upon their seemingly allophonic distribution, one could assume that only voiceless obstruents are found underlyingly in stem-internal positions and are voiced by phonological rule. In such a situation, their distribution would be transparent in its own right. However, one could also posit that the underlying inventory of obstruents is identical in all stem positions and that their surface distribution is analogous to that

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[7] This type of split distribution is not entirely uncommon in Bantu, and has been described in Hyman (2008). As Hyman explains, the Bantu stem is, in general, "the unambiguous locus of much phonological or prosodic activity." While he details such phenomena as harmony, assimilation, and reduplication across Bantu, of interest in this study is his discussion of the skewed distribution of consonants within the stem. Specifically in regards to Northwest Bantu languages (e.g. Koyo and Basaa), Hyman explains that "the consonant distribution and realizations point to an important edge-asymmetry in the stem phonology of Northwest Bantu languages. There is a marked decrease in the number of consonantal oppositions as one goes from left to right within the stem." Luwanga is spoken at great distances from these particular languages, however this appears to be a general feature of Bantu stems.

noted for stem-initial position, even though the morphophonology of the language does not permit one to identify a similarly telling alternation. This would also appear to be a transparent outcome, although one unable to be tested. This question is an impossible one to address in the synchronic state of Luwanga, although it could be informed in some respect by ongoing work on Bantu lexical reconstruction (e.g. Bastin & Schadeberg 2010; Bostoen 2008; Schadeberg 2003). Nonetheless, the principle of *lexicon optimization*, as argued for by Prince & Smolensky (1993/2004), states that when a surface form has the potential to result from more than one possible input, the input that would result in the fewest faithfulness violations between the underlying and surface forms is correct. Following from this principle, one would posit that stem-internal obstruents in Luwanga are underlyingly [-voice] and surface as [+voice] only by rule. Analytically, however, one must assume a rich base in which either underlying representation is possible.

To be clear, had we gone in a different direction and chosen the first and less cross-linguistically supported option where the Class 9 noun class prefix is a null morpheme, we would still arrive at the conclusion necessitating that we posit a contrast in stem-initial consonants. If we were to assume that no nasal prefix was involved and no underlying voice contrast exists in the inventory, we would have to explain, once again, the choice between the two surface options from the same underlying representation. In such a situation for the same words discussed above, one would posit the following mappings from the underlying to surface representations: /i + Ø + ta/ → [inda] 'belly' and /i + Ø + talani/ → [italani] 'lion'. In this case, we would be forced to predict the emergence of stem-initial [t] in the latter word versus some type of prenasalized consonant like [^{n}d] in the former, with no motivation or conditioning environment for one choice versus the other. This is certainly a less than satisfactory option. It would therefore be necessary here again to posit an underlying stem-initial contrast.

To conclude our introduction of the observed facts about the behavior of stem-initial stops in Luwanga Class 9/10 nouns, we must consider what becomes of them in instances where the stem-initial consonants are placed in another environment, namely following the VCV- noun prefixes of their diminutive and augmentative derivatives in Classes 12/13 and 20/4, respectively. The construction of these nominal derivatives was presented in (4) and reveals what appears to be intervocalic obstruent *devoicing* (e.g. iŋgato → axakato). While the other processes entertained thus far are common and phonetically-motivated (e.g. progressive post-nasal voicing (e.g. Hajek 1997; Maddieson & Ladefoged 1993) and nasal deletion before voiceless consonants (e.g. Ohala & Busà 1995; Ohala & Ohala 1993), the noted behavior of

intervocalic consonants in Luwanga is unusual indeed.[8] One does not expect that a language employs different underlying representations for the same noun stem, and therefore we suggest that something more intricate is at play in Luwanga. It may be the case that a rule is active in the language that requires obstruents to be [+voice] post-nasally and [-voice] otherwise. This follows straightforwardly in stem-internal positions where no voicing contrast is observed for obstruents, and voicing is noted only allophonically after nasals. The situation is analogous in stem-initial positions where underlyingly voiced stem-initial obstruents are compelled to lose their [+voice] specification on the surface if they are not preceded by the Class 9/10 prefix nasal. A difference between the two instances lies in the fact that evidence is present in the form of a voiced/voiceless alternation in stem-initial obstruents. This fact supports the proposition of an underlying voice contrast. In stem-internal positions however, no overt alternation is witnessed, and thus one cannot support the proposition of a contrast, or lack thereof, in these instances.

    With all of these seemingly transparent surface forms found in the language, it is surprising from an analytical standpoint that the overall result in the language is an unusual type of opacity, although clearly one that does not match Kiparsky's (1971) description of non-surface-apparent or non-surface-true phenomena. The resultant opacity, if one chooses to call it that, stems from competition in the language between the avoidance of segmental markedness alongside the comparatively less costly but cumulatively fatal accrual of multiple violations of segmental faithfulness. As we shall see below in §5, machinery developed for the purpose of addressing true opacities, in the Kiparskian sense, must be invoked to address this unusual opacity effect in Luwanga. That the data are truly transparent, rather than opaque, is clear in the ability for a non opacity-tolerant framework like Harmonic Grammar to capture these data successfully as well. This is demonstrated in §6.

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[8] This particular outcome can be captured in a rule-based analysis, but not without problems arising. Firstly, one could posit a simple rule of intervocalic devoicing, but as noted, this rule is poorly-motivated typologically and phonetically. Dinnsen (personal communication) has intimated that this outcome could potentially be captured via a disjunctive rule ordering relationship (Chomsky & Halle 1968) supported by the Elsewhere Principle (Kiparsky 1973), although such an analysis makes certain assumptions about the vacuous application of rules so ordered (see Kiparsky 1973 and Hastings 1974 for opposing views on this issue). This possibility is nonetheless entertained briefly in §4.

4. Standard analysis of Luwanga

The data above allow us to make several key observations about the phonology of Luwanga and the phonological processes underway in the language that interact to produce the surface distribution of voiced and voiceless obstruents that we have described. Thus far, we have encountered compelling evidence for the presence of a voicing contrast in stem-initial stops. We have illustrated that one is hard-pressed to predict the surface forms of Luwanga nouns, if one assumes a single underlying specification for the feature [voice] in stem-initial obstruents. Furthermore, we have shown that in stem-internal positions, the distribution of voiced obstruents is transparent. A valid theoretical account of Luwanga's phonology, then, must take into account the surface distribution of obstruents and any processes that affect this distribution.

From a derivational point of view, the Luwanga distribution of voiced and voiceless obstruents is relatively straight-forward and requires only two rules. One rule, Nasal Deletion, deletes a nasal before a voiceless obstruent, while another rule, Devoicing, devoices all obstruents that are not post-nasal. The structural descriptions of the two rules do not overlap, and so they do not interact. The relevant rules are formalized in (7).

(7) Luwanga derivational rules

> Nasal deletion (ND):   N → Ø / __ [-voice, -sonorant]
> Obstruent devoicing (OD):   [-sonorant] → [-voice] / [-nasal] __

Though these two rules are formally unrelated, they achieve similar results: both rules avoid the sequence of a nasal consonant followed by a voiceless obstruent. ND does this by deleting the nasal when the sequence is underlying, and OD restricts itself from applying only when it would create such a sequence. These rules thus show the hallmarks of a conspiracy (Kisseberth 1970). However, it is important to note that the ND rule resorts to deletion to resolve the prohibited sequence, rather than obstruent voicing, which would seem to be an equally good solution, particularly as such sequences are attested both word-internally and across morpheme boundaries (as in (5) and (6)).

Derivations for three of the most relevant Luwanga patterns are shown in (8). The devoicing process is illustrated in (8a) and nasal deletion in (8b). Neither rule applies

to sequences of a nasal followed by a voiced obstruent, and so those sequences remain unchanged, as in (8c).

(8) Derivational account of Luwanga

		a. /axa-duuma/	b. /iN-takata/	c. /iN-duuma/
ND		--	i-takata	--
OD		axa-tuuma	--	--
		[axatuuma]	[itakata]	[induuma]

The rule-based account of Luwanga is somewhat unsatisfying, as mentioned above. While the restriction of voiced obstruents to the post-nasal position is not typologically uncommon, a rule *devoicing* non-nasal obstruents is. A more common rule would be one that actively voices post-nasal obstruents, particularly because we do not typically need rules to create *unmarked* sounds. Likewise, as noted above, the two rules are formally unrelated, but they function in a conspiracy. One solution to both problems is to turn to a constraint-based analysis in which a language's preference to allow or repair a particular marked structure is formally independent of the repair process.

The phonological phenomena in Luwanga discussed above can be formalized to some extent in a standard optimality theoretic framework (Prince & Smolensky 1993/2004), where evaluation of violations of a language-specific ranking of universal constraints can predict the noted consonant distribution in the language. One of the central tenets of Standard Optimality Theory is the principle of *strict domination*, which says that a single violation of a high-ranked constraint is more costly, phonologically speaking, than multiple violations of any single constraint ranked below it, or alternatively any combination of constraint violations assessed below it. In a framework utilizing strict domination, constraints on markedness and faithfulness are ranked hierarchically relative to one another according to the ways in which they interact, i.e. either critically or non-critically, to yield an optimal output candidate for the grammar.

The phonology of Luwanga is such that the phenomena under consideration can be discussed in terms of the relationships between four well-supported constraints: two markedness constraints and two faithfulness constraints. These markedness constraints are introduced in (9) and (10), while the faithfulness constraints are shown in (11) and (12).

(9)   *NÇ – No nasal plus voiceless obstruent sequences (Kager 1999)

(10)   *VOIOBS – Voiced obstruent are banned (Ito & Mester 1998)

(11)   MAX-IO – Every segment of S_1 has a correspondent in S_2, i.e. no deletion (McCarthy & Prince 1995)

(12)   IDENT-IO[voice] – Output correspondents of an input [ɣ voice] segment are also [ɣ voice] (McCarthy & Prince 1995)

We begin by considering the antagonistic relationship between constraints (10) and (12), the first of which is a context-free markedness constraint that militates against voiced obstruents in any environment. The latter is a faithfulness constraint that protects against any change in the specification for the feature [voice] between the underlying and surface correspondents of a segment. The relationship between these two constraints is important in Luwanga, as seen in the formation of diminutive and augmentative derivatives from Class 9/10 nouns. In these forms, underlying stem-initial obstruents lose their [+voice] specification (a violation of ID[voice]) in order to satisfy the higher ranking constraint *VOIOBS. This represents a crucial relationship between these two constraints, as illustrated in (13).[9] (Rather than presuppose a static underlying specification for [voice] in all stem positions, we choose instead to appeal to *Richness of the Base* (Prince & Smolensky 1993/2004) in order to entertain any possible [voice] specification for stem-internal obstruents. The analyses below are shown with underlyingly voiced obstruents when there is no evidence to the contrary, but the analysis does not rely on this assumption.

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[9] The criticality of the relationship between these two particular constraints is important here, as there exist other instances in Luwanga where one could argue that a particular candidate potentially violates one or the other of these constraints with the same outcome. A notable example is the possibility of post-nasal voicing in /iN-takata/ → *[indakata]. The attested output candidate is [itakata], which witnesses nasal deletion instead. The avoidance of *[indakata] taken separately could be said to result from a violation of either *VOIOBS or ID[voice]. However, as shown in (13), it is clear that these two constraints are separable, critically ranked in the Luwanga hierarchy, and therefore must be considered in the evaluation of all potential output candidates.

(13)   *VOIOBS >> ID[voice][10]

/axa-duuma/ → [axatuuma] 'small yam'

/axa-duuma/	*VOIOBS	ID[voice]
a.☞ axatuuma		*
b. axaduuma	*!	

A second instance of competition between a context-free markedness constraint and its antagonistic faithfulness constraint is found in the choice for resolution of an NÇ sequence via deletion of the prefix nasal. In such instances, faithfulness is once again violated in favor of satisfying the higher-ranking markedness constraint. The critical relationship between *NÇ and MAX is illustrated in (14).

(14)   *NÇ >> MAX

/iN-takata/ → [itakata] 'chest'

/iN-takata/	*NÇ	MAX
a. ☞ itakata		*
b. intakata	*!	

The above tableau omits another relevant candidate, namely [inakata], in which the NÇ cluster has been resolved by deletion of the obstruent, rather than the nasal. Such a candidate is a viable alternative but is dispreferred for a number of reasons. It deletes the first segment of the stem, which is a particularly privileged position in Bantu languages (Hyman 2008). Moreover, it deletes an onset segment, a privileged syllabic position, and the resulting nasal is a less satisfactory onset according to the Sonority Sequencing Principle (Clements 1990). Any of these explanations may account for deletion of the nasal rather than the obstruent, but because the stem onset

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[10] In a standard optimality theoretic analysis and accompanying violation tableaux, the critical versus non-critical relationship between individual constraints or constraint tiers is indicated by the use of solid versus dashed lines, respectively. Constraint violations are shown by '*', and a fatal violation (i.e. eliminating a potential output candidate from further evaluation) is marked by '!'. A winning candidate is marked by the manual indicator '☞'.

has been shown to be privileged in Bantu, we appeal to a constraint requiring correspondence in the initial stem position: ANCHOR-L, as in (15).

(15)   ANCHOR-L$_{Stem}$: Any elements at the designated periphery of S$_1$ has an elements in the designated periphery of S$_2$ (McCarthy & Prince 1995)

If high-ranked in the grammar, as one might expect in Bantu languages, this constraint eliminates the problematic candidate, as in (16).

(16)   ANCHOR-L[Stem], *NÇ >> MAX

/iN-takata/ → [itakata] 'chest'

	/iN-takata/	ANCHOR-L$_{Stem}$	*NÇ	MAX
a. ☞	itakata			*
b.	inakata	*!		
c.	intakata		*!	

Because it is never violated, the ANCHOR-L constraint and the candidates that it eliminates are omitted from subsequent tableaux.

Along these same lines, one observes that another possible repair for an impermissible NÇ sequence could be to voice the stem-initial voiceless obstruent progressively. We know, however, that the chosen repair is deletion, as shown above. It is possible in these situations that either the markedness constraint *VOIOBS or the faithfulness constraint ID[voice] could be argued to protect against /iN-takata/ → *[indakata]. However, as we saw in (13), *VOIOBS is critically ranked above ID[voice]. Therefore, in a strict domination analysis, a violation of the higher-ranked *VOIOBS would prove fatal. This relationship is illustrated in (17).

(17)   *NÇ, *VOIOBS >> ID[voice], MAX

	/iN-takata/	*NÇ	*VOIOBS	ID[voice]	MAX
a. ☞	itakata				*
b.	intakata	*!			
c.	indakata		*!	*	

   The result of this constraint ranking is striking for voiced obstruent-initial stems. We have seen evidence of alternations above indicating that an underlying [voice] contrast can be posited in these stem-initial positions. We have seen that the outcome in Luwanga is a fully faithful mapping of the input to the surface. Therefore, in such instances, one observes an outcome like /iN-duuma/ → [induuma] 'yam', which is the non-diminutive form of the noun in (13). Given what we already know about the constraints at play in Luwanga and their ranking, it is perhaps surprising that an outcome like /iN-duuma/ → *[ituuma] is ungrammatical. In this potential output candidate, the language would satisfy both high-ranking markedness constraints at the same time by removing a voiced obstruent (i.e. avoiding a *VOIOBS violation) and deleting a nasal (i.e. avoiding an *NÇ violation). In turn, however, this result would necessitate violating both of the lower-ranked faithfulness constraints ID[voice] and MAX by both changing the input specification for [voice] and removing a nasal segment, respectively. As the Luwanga data reveal, however, this is not the outcome. The language instead prefers to violate a single higher-ranked markedness constraint (i.e. *VOIOBS) in order to avoid violating the two lower-ranked faithfulness constraints at the same time. The result is a fully-faithful but more marked output candidate. Consider this outcome as illustrated in (18) where the attested but unpredicted winner is indicated by '☹'.

(18)   *NÇ, *VOIOBS[11] >> ID[voice], MAX

	/iN-duuma/	*NÇ	*VOIOBS	ID[voice]	MAX
a. ☹	induuma		*!		
b.	intuuma	*!		*	
c.	iduuma		*!		*
d. ☞	ituuma			*	*

As tableau (14) indicates, the predicted winner in a strict domination evaluation of these potential output candidates is (14d), wherein both high-ranking markedness constraints are satisfied via the violation of two low-ranking faithfulness constraints. This outcome is clearly problematic given that it is unattested. The attested winning candidate (14a) is not predicted given that it violates the high-ranked *VOIOBS markedness constraint. In this case, then, Luwanga prefers a candidate that violates a higher ranked markedness constraint over one that is doubly unfaithful to the input. It is here that the 'opacity' noted in Luwanga comes into play. While the surface distribution of voiced and voiceless stops is transparent, the phonological grammar so stated overpredicts the desire of the language to avoid marked structures. Thus, a standard optimality theoretic analysis fails to predict the correct transparent output. This is due to the fact that such an analysis cannot capture the *gang effect* of cumulative faithfulness that is now seen to be in play in Luwanga.

In order to compensate analytically for this cumulative faithfulness effect, one must employ supplementary machinery in an optimality theoretic analysis to capture the attested winner. The following sections entertain two distinct possibilities to address this issue. Section 5 proposes that a strict domination account utilizing Local Constraint Conjunction (e.g. Smolensky 1995; Łubowicz 2002, 2003, 2005; Moreton & Smolensky 2002; Smolensky 2006) is one method of addressing this phenomenon in Luwanga. Section 6 next explores an alternative to strict domination that utilizes

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[11] A potential solution to this ranking paradox would be to reformulate the constraint *VOIOBS so that it only applied to intervocalic obstruents. This solution parallels the obstruent devoicing rule in the derivational account. Candidate (18a) would not violate the reformulated constraint and would win. This would create a tie between candidates (18a) and (18c), however, making post-nasal voicing and nasal deletion equally good repairs for a nasal+voiceless obstruent sequence. Morever, unlike derivational rules, OT constraints are assumed to be universal, and such a typologically unattested constraint is unlikely to be found in CON.

weighted constraints in a Harmonic Grammar framework (e.g. Farris-Trimble 2008; Legendre, Miyata and Smolensky 1990a, 1990b; Smolensky & Legendre 2006).

5. Cumulative faithfulness in Luwanga

The account above demonstrates that Luwanga has a process of obstruent devoicing, as in (13), and another process of nasal deletion, as in (14). These two repairs are allowed individually, but not together within a single nasal-obstruent sequence; in this case, Luwanga prefers to allow the marked output (i.e. a voiced obstruent), as in (18). This behavior examplifies a cumulative faithfulness effect (CFE; Farris-Trimble 2008). This class of effects results when a language allows multiple individual unfaithful mappings, but does not allow those unfaithful mappings to co-occur within a given domain. CFEs, in general, are unusual from a theoretical standpoint in that they tend to produce transparent outputs but require mechanisms normally suited for opacity effects. As shown above, standard OT cannot account for CFEs, in spite of their transparency, because of the principle of strict domination (Prince & Smolensky 1993/2004). There is no way in classic OT for multiple low-ranked constraints to 'gang up' on a higher ranked constraint, but this seems to be exactly the case in CFEs like Luwanga. It is thus necessary to appeal to an account that can deal with gang effects.

One mechanism that has been developed to address such issues is Local Constraint Conjunction (LCC; e.g. Smolensky 1995; Łubowicz 2002; Smolensky 2006). In an LCC account, two low-ranked constraints are "conjoined" to create a new constraint that is only violated if both its components are violated within a local domain. The conjoined constraint is typically assumed to be in a fixed ranking above either of the individual constraints. LCC is a convenient solution to the cumulativity problem because it essentially overrides strict domination. If the locus of violation of two constraints overlaps, then those constraints may conjoin to eliminate candidates in which the two constraints are violated, even though candidates in which a single constraint is violated are allowed. The tableaux in (19) illustrate a cumulative interaction in LCC. (19a, b) show that the constraint C1 must be ranked above each of the constraints C2 and C3. In (19c), however, the conjoined constraint C2&C3 eliminates the candidate that violates both of the lower-ranked constraints. Note that had the conjoined constraint not been present, Candidate A would have won, even though it violates a greater number of constraints than Candidate B violates.

(19) Cumulativity in LCC

    a. C1 >> C2

/input$_1$/	C2&C3	C1	C2	C3
a. ☞ candidate a			*	
b. candidate b		*!		

    b. C1 >> C3

/input$_2$/	C2&C3	C1	C2	C3
a. ☞ candidate a				*
b. candidate b		*!		

    c. C2&C3 >> C1

/input$_3$/	C2&C3	C1	C2	C3
a. candidate a	*!		*	*
b. ☞ candidate b		*		

    LCC has been used to account for other cumulative effects. It can account for chain shifts by conjoining two faithfulness constraints, effectively eliminating a fell-swoop mapping (e.g. Kirchner 1996). LCC has also been used to account for derived environment effects by conjoining a markedness constraint with a faithfulness constraint, such that derived marked segments are penalized while underlying marked segments are not (Łubowicz 2002). LCC can be employed to account for the particular CFE observed in Luwanga via the conjunction of the two low level faithfulness constraints, namely MAX and ID[voice], within the domain of adjacent segments. Such a conjoined constraint MAX&ID[voice]$_{Adj\text{-}seg}$, when ranked above *VOIOBS, is fatally violated by a candidate that violates both relevant faithfulness constraints, i.e. a candidate that has undergone both nasal deletion and obstruent devoicing. This constraint is added in (20), and the new ranking correctly predicts the attested Luwanga data.

(20) MAX&ID[voice]$_{Adj\text{-}seg}$ – incur a violation for every instance where a candidate violates MAX and ID[voice] in adjacent segments

(21) MAX&ID[voice] _{Adj-seg} ,*NÇ >> *VOIOBS >> ID[voice], MAX

	/iN-duuma/	MAX&ID[voice]	*NÇ	*VOIOBS	ID[voice]	MAX
a.☞	induuma			*		
b.	intuuma		*!		*	
c.	iduuma			*		*!
d.	ituuma	*!			*	*

One could argue that this particular account is not intuitive. An evaluation utilizing Local Constraint Conjunction says that the language only wants to avoid deleting a segment in cases where it is adjacent to a segment that has changed in voicing. A change in the specification for the feature [voice] is, in theory, unrelated. As illustrated below in §6, an evaluation utilizing Harmonic Grammar infers that this state of affairs arises, instead, because Luwanga prefers a marked segment over a mapping that is too unfaithful. For these and other reasons discussed below and in Farris-Trimble (2008), a Harmonic Grammar account seems superior.

6. Luwanga in Harmonic Grammar

The LCC account required conjoining specific constraints, resulting in constructions like the one above. Another possibility is an account in which low-ranked constraints still have some power. An alternative to LCC that addresses this problem is Harmonic Grammar (Legendre, Miyata & Smolensky 1990a, 1990b; Smolensky & Legendre 2006). HG was a precursor to OT and was originally intended to model connectionist networks. Each phonological input and output can be thought of as a node in the grammar, with links between them symbolizing input-output pairs. Each link has a weight; the cumulative weight of all the links between an input and an output determines its activation. If heavier weights are given to more likely outputs, or more likely input-output pairs, then the resulting candidates are more likely to be activated in the grammar. HG was originally rejected in favor of OT because HG was argued to predict some grammars that do not seem to occur in the linguistic typology. More recently, though, Pater, Bhatt, and Potts (2007) have shown that HG actually predicts a limited range of languages, particularly if restrictions are placed on the domain of evaluation of certain constraints, and HG has had a resurgence (e.g. Goldrick & Daland, 2007; Jesney & Tessier 2007; Pater, Bhatt & Potts 2007; Pater,

Jesney & Tessier 2007). Most importantly, one argument for rejecting HG was that it predicted gang effects, while OT did not. If these gang effects are found to occur, and not infrequently, then this is a strong argument for HG.

HG differs from OT in that constraints are weighted rather than ranked. Constraints with greater weights would translate into higher-ranked constraints in OT, while low-weight constraints are similar to low-ranked constraints. The resulting crucial difference between the two models that strict domination is a key feature of OT but not of HG. Because of the symbolic nature of OT's constraints, a higher-ranked constraint strictly dominates a lower-ranked one—no number of violations of the lower-ranked constraint can overcome the violation of a higher-ranked constraint (McCarthy 2002). On the other hand, in HG, multiple violations of low-weight constraints may, when added together, "gang up" on a higher-weight constraint, thereby allowing low-weight HG constraints to have more power than low-ranked constraints in OT.

The HG tableaux in (22) illustrate the account of a cumulative interaction. In each tableau, the weight of each constraint is listed under the constraint name. Weights are always positive real numbers. Following convention, constraint violations are shown as negative numbers and represent the number of violations that each candidate incurs for each constraint. For each candidate, the relative harmony (H) is calculated as follows: each violation is multiplied by the weight of the constraint violated, and the resulting weighted violations are summed across constraints. The candidate with the highest harmony (the harmony closest to zero, or with the lowest absolute value) wins. Harmony is shown in the rightmost column. In order to produce a cumulative interaction, as in (22c), one constraint (here C1) must have a weight that is greater than either C2 or C3 but less than the sum of C2 and C3. C2 and C3 thus trade off against C1.

(22)   Sample HG tableaux (Jesney & Tessier 2007)

   a. $W_{C1} > W_{C2}$

/input/	C1 w=3	C2 w=2	C3 w=2	H
a. ☞ candidate a		-1		-1(2) = **-2**
b. candidate b	-1			-1(3) = **-3**

b. $W_{C1} > W_{C3}$

/input/	C1 w=3	C2 w=2	C3 w=2	H
a. ☞ candidate a			-1	-1(2) = **-2**
b. candidate b	-1			-1(3) = **-3**

c. $W_{C2} + W_{C3} > W_{C1}$

/input/	C1 w=3	C2 w=2	C3 w=2	H
a. candidate a		-1	-1	-1(2) + -1(2) = **-4**
b. ☞ candidate b	-1			-1(3) = **-3**

HG has been used to account for the cumulative effects of markedness constraints, in which more marked structures are eliminated while less marked structures are allowed to surface (e.g. Pater, Bhatt and Potts 2007). HG can also account for the Luwanga CFE – a single markedness constraint outweighs either one of the faithfulness constraints, but the combined weight of two faithfulness constraints is sufficient to eliminate a candidate that violates them both.

In Luwanga, all intervocalic obstruents are realized voiceless, even stem-initially when preceded by a vowel-final prefix. This means that faithfulness to the underlying voice specification is not a priority in the language. In the language's grammar, then, *VOIOBS has a weight that is greater than that of ID[voice], as in (23).

(23) $W_{*VOIOBS} > W_{ID[voice]}$ [12]

/axa-duuma/	*VOIOBS w=2	ID[voice] w =1	H
a. ☞ axatuuma		-1	-1
b. axaduuma	-1		-2

Secondly, we know that underlying NÇ sequences are repaired and that the preferred repair in the language is nasal deletion, rather than obstruent voicing. As

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[12] Note that in HG, the actual weights of the constraints matter less than the proportions between them. Here we use small numbers, but the weights could just as easily be 200 vs. 100 or 46 vs. 23.

below in (24), this implies that a violation of MAX (24a) is preferable to a violation of a the high-weight markedness constraint (24b) or a violation of ID[voice] that results in another marked structure (24c).

(24) Decreased weight of MAX allows deletion as a repair

	/iN-takata/	*NÇ̥ w=4	MAX w=2	*VOIOBS w=2	ID[voice] w=1	H
a. ☞	itakata		-1			-2
b.	intakata	-1				-4
c.	indakata			-1	-1	-3

   Recall that the Standard Optimality Theory account in (18) incorrectly predicted that nasal deletion, combined with obstruent devoicing, would be the optimal repair for a violation of *VOIOBS in an NÇ sequence. The attested output, however, is one that simply retains the marked voiced obstruent. In the HG account, the relatively low weights of the two faithfulness constraints (i.e. MAX and ID[voice]) add up to eliminate the doubly-unfaithful candidate in favor of the marked output. This outcome is illustrated in (25). In this way, two comparatively low-weight constraints can join forces to eliminate only the candidates that violate them both.

(25) Doubly unfaithful output eliminated

	/iN-duuma/	*NÇ̥ w=4	MAX w=2	*VOIOBS w=2	ID[voice] w=1	H
a. ☞	induuma			-1		-2
b.	intuuma	-1			-1	-5
c.	iduuma		-1	-1		-4
d.	ituuma		-1		-1	-3

   In sum, HG can account for Luwanga's preference for a marked output instead of a doubly-unfaithful repair. The final constraint weighting for the language's grammar is $W_{*NÇ} > W_{MAX}, W_{*VOIOBS} > W_{ID[voice]}$. While this outcome is easily handled in this harmonic framework, the result itself is rather unusual compared to other better-known cumulative faithfulness effects. Section 7 discusses this unique situation in more detail.

7. Discussion and concluding thoughts

As discussed in detail in Farris-Trimble (2008), cumulative faithfulness effects (CFE) arise from a variety of interactions. Single violations of multiple faithfulness constraints can gang up on another single faithfulness constraint, multiple violations of a single faithfulness constraints can gang up on another faithfulness constraint or markedness constraint, and, as we have seen in the case of Luwanga, single violations of multiple faithfulness constraints can also gang up on a single markedness constraint. Cumulative markedness interactions are also possible and are somewhat better documented (e.g. Kirchner 1992; Kawahara 2006; Pater, Bhatt & Potts 2007). The Luwanga CFE discussed in this paper does share some similarities to other CFEs in that it results in surface transparency. Where it differs from other CFEs, however, is in the mechanism that it uses to avoid doubly-unfaithful outcomes.

As Farris-Trimble (2008) discusses, most CFEs are resolved by some manifestation of a fell-swoop repair. Taken another way, when a language is faced with an offending sequence, it typically has the option of either repairing the sequence through the change in some feature or via segmental deletion. In most instances, a language will choose deletion, rather than featural repair, given that this second option often involves multiple faithfulness violations. It is here that Luwanga diverges from other languages. It has been illustrated that the Luwanga CFE involves the avoidance of violating two low-level faithfulness constraints, namely MAX and ID[voice]. Simply by considering that one of the two constraints involved in this CFE is MAX (i.e. avoid deletion), one might suppose that a typical fell-swoop repair via segment deletion will likely be problematic. This is precisely what we find in Luwanga, as the language chooses to avoid multiple faithfulness violations neither by deletion, nor by changing some featural specification (e.g. [voice]) which would involve other repairs. Rather than a repair or change of any kind, the language instead chooses simply to remain faithful to the underlying representation, even though it is marked. The transparent retention of a single marked segment in this language is less unfaithful than accumulating two violations of faithfulness – one segmental and one featural – that would result in a doubly unmarked form. It may perhaps appear counterintuitive that remaining faithful to the underlying representation is an unusual 'repair' strategy, but it is, nonetheless, an option seldom chosen by other languages to address such situations.

In sum, the study of Luwanga nominal morphophonology provides contributions on descriptive and theoretical levels in that it documents both an unusual alternation and consonant distribution in a lesser-known language while expanding the typology

of possible resolutions to effects of cumulative faithfulness and the challenges that they pose for current and developing phonological frameworks. The seemingly transparent surface distribution of obstruents in this language have been shown to present a problem for standard Optimality Theory, which is otherwise well-suited to capture such surface-true phenomena.

In addition to these theoretical concerns, the noted outcome in Luwanga has interesting descriptive implications to consider, specifically in regards to Bantu NC phonology and the study of nominal derivatives in Luyia. Some but not all of the languages of the Luyia cluster have been studied in more detail, among them Lusaamia [lsm] (e.g. Botne 2006), Lunyala [nle] (e.g. Ebarb & Marlo 2009; Marlo 2007), Lumarachi [lri] (e.g. Marlo 2007), Tura (e.g. Marlo 2008), Bukusu [bxk] (e.g. Austen 1975; Mutonyi 2000), Khayo [lko] (e.g. Marlo 2009a), Lukisa [lks] (e.g. Sample 1976), and Lutsootso [lto] (e.g. Dalgish 1976). For a more extensive set of references, see Marlo (2009b).

These studies can be grouped into two main categories: those focused on a formalization of the verbal tonology of the language or those offering a general descriptive characterization of certain aspects of the language's grammar. While some of the descriptive works discuss nominal phonology to some extent no in depth typological study has been conducted that considers the presence/absence of phenomena such as that identified in the current study for Luwanga and therefore the ways in which offending NÇ sequences are/are not resolved across the Luyia languages. For example, it may be the case that the stem-initial [voice] distinction in these languages is obscured in favor of [+voice] (much as is the case in stem-internal positions in Luwanga) given that many languages choose a post-nasal voicing repair. Prefix nasal deletion, however, is most often seen in voiceless fricative-initial stems.

Luwanga represents an unusual case in this regard, as its [-voice] stops pattern with voiceless fricatives in deleting a prefix nasal. It appears that the chosen repair in Luwanga is based upon the patterning of [-voice] stops with the natural class of [-voice] sounds, given that they pattern with the fricative stems. The voiceless stops of the language therefore do not pattern with the natural class of [-continuant] sounds (i.e. with other stops), as voiceless stops do not undergo a process of post-nasal voicing (at least in stem-initial position) that is observed elsewhere in Bantu languages. It is yet unclear how robust this alternative patterning is, as it is often the case that the works available on these languages have spent considerably little time exploring the phonology of the diminutive and augmentative nominal derivatives which (in some instances) can provide the appropriate environment in which to witness potentially telling alternations in stem-initial sounds. Clearly, additional

work is warranted to explore these possibilities, particularly given the typological importance that they may hold for other emerging descriptive and theoretical work on the paradigmatic behavior of nouns and their prefixes in Luwanga, and perhaps in other Bantu languages (Green in press).

　　What we have done in this paper is to illustrate that both an analysis utilizing Local Constraint Conjunction (as an extension to standard optimality theory) and a Harmonic Grammar analysis utilizing constraint weights can adequately account for the Luwanga cumulative faithfulness effect. We do acknowledge, however, that a body of literature exists calling into question certain issues of overpredictability and the unconstrained nature of local conjunction, as detailed further in the cited works in §5. In light of these arguments, it may ultimately prove that Harmonic Grammar is a better suited analytical means by which to characterize these and similar effects. Indeed, the body of published and unpublished literature on Harmonic Grammar (Albright 2008, 2009) and its extensions, among them the Split-Additive Model (e.g. Albright, Magri & Michaels in press), constraint weight exacerbation (e.g. Khanjian, Sudo & Thomas 2010), and superlinear conjunction (e.g. Green & Davis 2010; Legendre, Sorace & Smolensky 2006), continues to grow.

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Appendices

Appendix A contains Luwanga nouns from singular/plural classes 1/2, 1a/2, 3/4, 5/6, and 7/8. Class 6a contains mass/count nouns with no singular counterpart. Class 14 contains abstract nouns that have no plural counterpart. Class 15 contains the infinitive form of verbs and is not included in this appendix. Nouns from classes 9/10 and 11/10a are found in Appendix 2. The list of nouns in Appendix A is drawn from the first author's field notes are should not be taken to be exhaustive. Some singular or plural forms for these classes were not collected or were not grammatical to the speaker, and in these instances, cells have been left blank. The same transcription conventions used in the above paper are used here. The list of nouns in Appendix B is also drawn from the first author's field notes and contain Class 12 and Class 20 singular diminutive and augmentative derivatives, respectively.

Appendix A

Class 1	Class 2	Gloss
omukuumba	abakuumba	'childless woman'
omulakusi	abalakusi	'witchdoctor'
omulalu	abalalu	'mad person'
omulema	abalema	'lame person'
omuluale	abaluale	'patient'
omunaasi	abanaasi	'nurse'
omusiani	abasiani	'son/daughter'
omusiriʃi	abasiriʃi	'healer'
omusiru	abasiru	'fool'
omusomesi	abasomesi	'teacher'
omusomi	abasomi	'student'
omusuumba	abasuumba	'bachelor'
omutsaatsa	abatsaatsa	'man'
omutsulu	abatsulu	'grandchild'
omutʃeesi	abatʃeesi	'smart person'
omuundu	abaandu	'person'
omuxaase	abaxaase	'woman'
omwaami	abaami	'chief'

omwaana	abaana	'child'
omwibusi	abebusi	'parent'
Class 1a	Class 2	Gloss
koxo	abakoxo	'grandmother'
kuka	abakuka	'grandfather'
maama	abamaama	'mother'
papa	abapaapa	'father'
sendʒe	abasendʒe	'aunt' (father's sister'
xotsa	abaxotsa	'uncle' (mother's brother)
Class 3	Class 4	Gloss
omubiri	amabiri	'body'
omufenesi	emifenesi	'jackfruit'
omukaati	emikaati	'bread'
omukasi	emikasi	'scissors'
omukeeka	emikeeka	'straw mat'
omukoŋgo		'back/spine'
omukooje	emikooje	'rope'
omukuba	emikuba	'bellows'
omukunda	emikunda	'farm'
omunwa	eminwa	'mouth/lips'
omuosi	emiosi	'smoke'
omuriro	emiriro	'fire'
omurjaŋgo	emirjaŋgo	'door'
omurwe	emirwe	'head'
omusaala	emisaala	'tree'
omusi	emisi	'root'
	emisi	'vein'
omuʃeɲe		'mush'
omuʃipi	emiʃipi	'belt'
omuʃira	emiʃira	'tail'
omutʃeere		'rice'
omusomare	emisomare	'nail'
omusomeeno	emisomeeno	'saw'

omuuɲu		'broth'
omuxono	emixono	'arm'
omuja		'air'
omujeeka	emijeeka	'wind'
omujeʃe	emijeʃe	'sand'
omwaaka	emiika	'year'
omwaalo	emjaalo	'river'
omwaambo	emjaambo	'worm'
omwaanda	emjaanda	'road'
omweesi	emjeesi	'moon'
omwixo		'oar'
omwooko	emjooko	'cassava'
Class 5	Class 6	Gloss
eliino	ameeno	'tooth'
eljaro	amaaro	'boat'
eljuuba		'sun'
eljuulu	amoulu	'nostril'
liaro		'boat'
libaatswa	amabaatswa	'shoulder blade'
libeka	amabeka	'shoulder'
liabiakala	amabiakala	'lizard'
liboonda		'butter'
libuuŋgwe	amabuuŋgwe	'chimpanzee'
libwe	amabwe	'jackal'
lidiriʃa	amadiriʃa	'window'
lifumbi		'mist/fog'
lifumo	amafumo	'spear'
likokopiro		'gullet'
likonzo		'wound'
likoondi	amakoondi	'sheep'
likosi		'neck'
likoʃe		'ash'
lilare		'quarry'
liloba		'soil'

limeera		'yeast'
liɲaiɲa		'bat'
lioja	amoija	'feather'
lioni	amajoni	'bird'
	amalaaro	'sole'
liloro		'dream'
lipoŋgopoŋgo	amapoŋgopoŋgo	'gecko'
lipwooni	amapwooni	'sweet potato'
liraaŋgo	amaraaŋgo	'thigh'
lireesi	amareesi	'cloud'
liremwa	amaremwa	'banana'
lirinda	amarinda	'woman's dress'
lisa	amasa	'caterpillar'
lisaafu	amasaafu	'leaf'
lisaka	amasaka	'limb/branch'
liʃaati	amaʃaati	'shirt'
lisibiri	amasibiri	'dung grub'
lisika	amasika	'funeral'
lisikamo	amasikamo	'knee'
lisisi	amasisi	'wall'
liiswa	amaaswa	'bush'
liiswi		'head hair'
litaala		'large house'
litaxo	amataxo	'buttocks'
liteere	amateere	'fingernail'
litisi	amatisi	'pond'
litsoxo	amatsoxo	'lung'
litʃe	amatʃe	'termite'
litʃena	amatʃena	'rock'
litʃitʃi	amatʃitʃi	'owl'
litʃuuŋgwa	amatʃuuŋgwa	'orange'
litooro		'dynasty'
litulo	amatulo	'hill'
litwoma	amatwoma	'valley'
liuguju	amaguju	'egg'

liurwi	amarwi	'ear'
liuto	amawto	'ostrich'
liuuŋgu	amauuŋgu	'eagle'
liuusi	amawsi	'pigeon'
liuwa	amawa	'thorn'
liwaaɲi	amawaaɲi	'crested crane'
lixaaŋga	amaxaaŋga	'guinea fowl'
lixala	amaxala	'crab'
lixaniafu		'chameleon'
lixofi		'navel'
lixumuɲu	amaxumuɲu	'snail'
lixutu	amaxutu	'turtle'
lixwa		'word'
	Class 6a	Gloss
	amaala	'intestines'
	amaaɲi	'urine'
	amaatsi	'water'
	amabere	'millet'
	amabeere	'milk'
	amabibi	'time before dawn'
	amafara	'grease'
	amakata	'reeds'
	amalasire	'blood'
	amaloba	'soil'
	amalua	'alcohol'
	amameera	'phlegm'
	amaɲaasi	'traditional medicine'
	amare	'saliva'
	amaristsatʃe	'fear'
	amaswa	'body hair'
	amatoji	'mud'
	amatumwa	'corn'

Class 7	Class 8	Gloss
eʃiaxodia	efiaxodia	'food'
eʃiini		'liver'
eʃiiro		'market'
eʃikalaba	efikalaba	'palm'
eʃikoro	efikoro	'room'
eʃikoʃe	efikoʃe	'slug'
eʃikulu	efikulu	'mountain'
eʃikuumba	efikuumba	'bone'
eʃilaaro	efilaaro	'shoe'
eʃilikisja		'hiccup'
eʃilindwa	efilindwa	'grave'
eʃilo	efilo	'night'
eʃimiiju		'dry season/drought'
eʃimuru	efimuri	'flower'
eʃinwanwa	efinwanwa	'chin/jaw'
eʃipatupatu	efipatupatu	'sandal'
eʃireendʒe	efireendʒe	'leg'
eʃirikisja	efirikisja	'hiccup'
eʃisaala	efisaala	'chair'
eʃisaanda	efisaanda	'calabash'
	efisitʃe	'eyelash'
	efisoni	'shyness'
eʃisuri	efisuri	'roof'
eʃisuutse	efisuutse	'coyote'
eʃiʃieno	efiʃieno	'ghost'
eʃitaabu	efitaabu	'book'
eʃitari	efitari	'bed'
eʃitaxo	efitaxo	'hen'
eʃiteere	efiteere	'afternoon'
eʃiteeru	efiteeru	'large bowl'
eʃitiiɲiro	efitiiɲiro	'beer sieve'
eʃituju	efituju	'hare'
eʃixoba		'skin'
eʃixuulu	efixuulu	'heel'

eʃʃalo	efjalo	'nation'
eʃʃaaŋgaaŋga		'skull'
ʃidʒidʒi	fidʒidʒi	'small town'
	Class 14	Gloss
	obuberera	'sadness'
	obubeji	'lie'
	obufiimbe	'swelling'
	obufwiisi	'venom'
	obulafu	'white'
	obulalu	'madness'
	obulalwale	'disease'
	obulamu	'life'
	obulo	'thirst'
	obuluale	'sickness'
	obumari	'black'
	obuɲaasi	'grass'
	obusaŋgafu	'happiness'
	obusije	'flour'
	obusiru	'stupidity'
	obutsuuni	'pain'
	obutʃafu	'dirt'
	obutʃeesi	'intelligence'
	obutunduri	'bone marrow'
	obweeni	'face'
	obwooŋgo	'brain'

Appendix B

Class 9/10 and 11/10a Nouns with Derivatives

Stem	Class 9	Class 10	Class 12	Class 20	Gloss
-baa	imbaa	tsimbaa	axabaa	okubaa	'clod of earth'
-baala	imbaala	tsimbaala	axabaala	okubaala	'head wound'
-baalo	imbaalo	tsimbaalo	axabaalo	okubaalo	'knife'
-bako	imbako	tsimbako	axabako	okubako	'hoe'
-bale	imbale	tsimbale	axabale	okubale	'pebble'
-balixa	imbalixa	tsimbalixa	-	-	'journey'
-bande	imbaande	tsimbaande	axabaande	okubaande	'sweet nut'
-bandu	imbaandu	tsimbaandu	axabaandu	okubaandu	'tree shoot'
-baaɲa	imbaaɲa	tsimbaaɲa	axabaaɲa	okubaaɲa	'tooth gap'
-beba	imbeba	tsimbeba	axabeba	okubeba	'mouse'
-beeko	imbeeko	tsimbeeko	axabeeko	okubeeko	'eucalyp-tus'
-beete	imbeete	tsimbeete	axabeete	okubeete	'ring'
-biindi	imbiindi	tsimbiindi	axabiindi	okubiindi	'pea'
-boko	imboko	tsimboko	axaboko	okuboko	'buffalo'
-bolo	imbolo	tsimbolo	axabolo	okubolo	'penis'
-boŋgo	imbooŋgo	tsimbooŋgo	axabooŋgo	okubooŋgo	'bongo'
-bulu	imbulu	tsimbulu	axabulu	okubulu	'water monitor'
-bundu	imbuundu	tsimbuundu	axabuundu	okubuundu	'lump of flour'
-burusi	imburusi	tsimburusi	axaburusi	okuburusi	'sling'
-bwa	imbwa	tsimbwa	axabwa	okubwa	'dog'
-βaka	ibaka	tsibaka	xabaka	kubaka	'python'
-βakuuli	ibakuuli	tsibakuuli	xabakuuli	kubakuuli	'bowl'
-βirika	ibirika	tsibirika	xabirika	kubirika	'kettle'

-dá	indá	tsindá	axatá	okutá	'belly'
-dà	indà	tsindà	axatà	okutà	'louse'
-daba	indaba	tsindaba	axataba	okutaba	'tobacco'
-dabuʃi	indabuʃi	tsindabuʃi	axatabuʃi	okutabuʃi	'walking stick'
-dalo	indalo	tsindalo	axatalo	okutalo	'garden'
-daama	indaama	tsindaama	axataama	okutaama	'cheek'
-dasi	indasi	tsindasi	axatasi	okutasi	'arrow'
-debe	indebe	tsindebe	axatebe	okutebe	'stool'
-defu	indefu	tsindefu	-	-	'facial hair'
-dekeyu	indekeyu	tsindekeyu	axatekeyu	okutekeyu	'hoof'
-deŋga	indeeŋga	tsindeeŋga	-	-	'fear'
-dendʒexo	indeendʒexo	tsindeendʒexo	axateendʒexo	okuteendʒexo	'beer pot'
-dukusi	indukusi	tsindukusi	axatukusi	okutukusi	'ant'
-dulaandula	indulaandula	tsindulaandula	axatulaandula	okutulaandula	'wild fruit'
-duli	induli	tsinduli	axatuli	okutuli	'berry'
-dusiye	indusiye	-	-	-	'bile'
-duubi	induubi	tsinduubi	axatuubi	okutuubi	'basket'
-duuma	induuma	tsinduuma	axatuuma	okutuuma	'yam'
-dumbu	induumbu	tsinduumbu	axatuumbu	okutuumbu	'calf'
-faraasi	ifaraasi	tsifaraasi	xafaraasi	kufaraasi	'horse'
-fiiro	ifiiro	tsifiiro	-	-	'soot'
-fisi	ifisi	tsifisi	axafisi	okufisi	'hyena'
-fubu	ifubu	tsifubu	axafubu	okufubu	'hippo'
-fusi	ifusi	tsifusi	axafusi	okufusi	'fist'
-fuuko	ifuuko	tsifuuko	axafuuko	okufuuko	'kidney'
-fuula	ifuula	tsifulla	axafuula	okufuula	'rain'
-fuxo	ifuxo	tsifuxo	axafuxo	okufuxo	'mole'
-gabo	iŋgabo	tsiŋgabo	axakabo	okukabo	'shield'
-gara	iŋgara	tsiŋgara	axakara	okukara	'headpad'
-gasi	iŋgasi	tsiŋgasi	axakasi	okukasi	'ladder'
-gato	iŋgato	tsiŋgato	axakato	okukato	'sandal'
-geke	iŋgeke	tsiŋgeke	axakete	okukete	'tilapia'

-go	iŋgo	tsiŋgo	-	-	'home (abs.)'
-gobi	iŋgobi	tsiŋgobi	-	-	'placenta'
-goloβe	iŋgoloβe	tsiŋgoloβe	-	-	'evening'
-gombe	iŋgoombe	tsiŋgoombe	axakoombe	okukoombe	'cattle'
-gooxo	iŋgooxo	tsiŋgooxo	axakooxo	okukooxo	'chicken'
-gore	iŋgore	tsiŋgore	-	-	'bunch'
-gubo	iŋgubo	tsiŋgubo	axakubo	okukubo	'clothing'
-guuli	iŋguuli	tsiŋguuli	axakuuli	okukuuli	'spirits'
-gwa	iŋgwa	tsiŋgwa	axakwa	okukwa	'tick'
-gwè	iŋgwè	tsiŋgwè	axakwè	okukwè	'ash'
-gwé	iŋgwé	tsiŋgwé	axakwé	okukwé	'leopard'
-dʒiira	indʒiira	tsindʒiira	axatʃiira	okutʃiira	'path'
-dʒiiri	indʒiiri	tsindʒiiri	axatʃiiri	okutʃiiri	'warthog'
-dʒuugu	indʒuugu	tsindʒuugu	axatʃuugu	okutʃuugu	'ground-nut'
-kanzu	ikanzu	tsikanzu	xakanzu	kukanzu	'robe'
-keŋgere	ikeeŋgere	tsikeeŋgere	xakeeŋgere	kukeeŋgere	'bell'
-koofya	ikoofya	tsikoofya	xakoofya	kukoofya	'hat'
-kwaaya	ikwaaya	tsikwaaya	xakwaaya	kukwaaya	'armpit'
-kweena	ikweena	tsikweena	xakweena	kukweena	'crocodile
-laŋgi	ilaaŋgi	tsilaaŋgi	xalaaŋgi	kulaaŋgi	'pants'
-mamba	immaamba	tsimmaamba	axamaamba	okumaamba	'bicep'
-meere	imeere	tsimeere	xameere	kumeere	'grain'
-meesa	imeesa	tsimeesa	xameesa	kumeessa	'table'
-mòndo	immòondo	tsimmòondo	axamòondo	okumòondo	'fat belly'
-móndo	immóondo	tsimmóondo	axamóondo	okumóondo	'ocelot'
-mooni	immooni	tsimmooni	axamooni	okumooni	'eye'
-mwo	immwo	tsimmwo	axamwo	okumwo	'maize seed'
-ndiimu	indiimu	tsindiimu	xandiimu	kundiimu	'lemon'
-ndo	indo	tsindo	xando	kundo	'bucket'
-ŋgamiya	iŋgamiya	tsiŋgamiya	xaŋgamiya	kuŋgamiya	'camel'
-ŋgano	iŋgano	tsiŋgano	xaŋgano	kuŋgano	'wheat'
-ŋguumi	iŋguumi	tsiŋguumi	xaŋguumi	kuŋguumi	'fist'
-ŋgurwe	iŋgurwe	tsiŋgurwe	xaŋgurwe	kuŋgurwe	'pig'

-nuŋgo	innuuŋgo	tsinnuuŋgo	axanuuŋgo	okunuuŋgo	'mantle'
-nundʒiro	innuundʒiro	tsinnuundʒiro	axanuundʒiro	okunuundʒiro	'meat pot'
-nuuni	innuuni	tsinnuuni	axanuuni	okunuuni	'simsim'
-ɲaama	iɲɲaama	tsiɲɲaama	axaɲaama	okuɲaama	'meat'
-ɲaŋga	iɲɲaaŋga	tsiɲɲaaŋga	axaɲaaŋga	okuɲaaŋga	'day'
-ɲanza	iɲɲaanza	tsiɲɲaanza	axaɲaanza	okuɲaanza	'lake'
-ɲanze	iɲɲaanze	tsiɲɲaanze	axaɲaanze	okuɲaanze	'centipede
-ɲende	iɲɲeende	tsiɲɲeende	axaɲeende	okuɲeende	'maggot'
-ɲeŋgo	iɲɲeeŋgo	tsiɲɲeeŋgo	axaɲeeŋgo	okuɲeeŋgo	'rattle'
-ɲeeni	iɲɲeeni	tsiɲɲeeni	axaɲeeni	okuɲeeni	'fish'
-ɲiimba	iɲɲiimba	tsiɲɲiimba	axaɲiimba	okuɲiimba	'bell'
-ɲiniɲini	iɲɲiniɲini	tsiɲɲiniɲini	axaɲiniɲini	okuɲiniɲini	'star'
-ɲundo	iɲɲuundo	tsiɲɲuundo	axaɲuundo	okuɲuundo	'hammer'
-ɲuŋgu	iɲɲuuŋgu	tsiɲɲuuŋgu	axaɲuuŋgu	okuɲuuŋgu	'pot'
-ŋani	iŋŋani	tsiŋŋani	axaŋani	okuŋani	'open grave'
-ŋoma	iŋŋoma	tsiŋŋoma	axaŋoma	okuŋoma	'drum'
-ŋombe	iŋŋoombe	tsiŋŋoombe	axaŋoombe	okuŋoombe	'cow'
-pamba	ipaamba	tsipaamba	xapaamba	kupaamba	'cotton'
-pasi	ipasi	tsipasi	xapasi	kupasi	'fire iron'
-pataasi	ipataasi	tsipataasi	xapataasi	kupataasi	'chisel'
-pilipili	ipilipili	-	-	-	'pepper'
-pumusi	ipumusi	tsipumusi	xapumusi	kupumusi	'pump'
-puusi	ipuusi	tsipuusi	xapuusi	kupuusi	'cat'
-randa	iraanda	tsiraanda	xaraanda	kuraanda	'plane'
-rotso	irotso	tsirotso	-	-	'planting season'
-saa	isaa	tsisaa	xasaa	kusaa	'clock'
-saala	isaala	tsisaala	axasaala	okusaala	'prayer'
-saako	isaako	tsisaako	axasaako	okusaako	'crook'
-salatʃe	isalatʃe	tsisalatʃe	xasalatʃe	kusalatʃe	'scar'
-salu	isalu	tsisalu	axasalu	okusalu	'cyst'
-saxaani	isaxaani	tsisaxaani	xasaxaani	kusaxaani	'plate'
-sebeere	isebeere	tsisebeere	axasebeere	okusebeere	'well'
-seefwe	iseefwe	tsiseefwe	xaseefwe	kuseefwe	'type of bird'

-sekese	isekese	tsisekese	xasekese	kusekese	'porcu-pine'
-ʃooka	iʃooka	tsiʃooka	xaʃooka	kuʃooka	'hatchet'
-ʃuuka	iʃuuka	tsiʃuuka	xaʃuuka	kuʃuuka	'cloth'
-si	isi	tsisi	axasi	okusi	'sly'
-sitʃe	isitʃe	tsisitʃe	axasitʃe	okusitʃe	'locust'
-simba	isiimba	tsisiimba	xasiimba	kusiimba	'lion'
-simbi	isiimbi	tsisiimbu	axasiimbi	okusiimbi	'cowrie shell'
-sindaani	isindaani	tsisindaani	xasindaani	kusindaani	'needle'
-sindu	isiindu	tsisiindu	axasiindu	okusiindu	'quail'
-siʃiiri	isiʃiiri	tsisiʃiiri	xasiʃiiri	kusiʃiiri	'donkey'
-sooko	isooko	tsisooko	xasooko	kusooko	'market'
-soolo	isoolo	tsisoolo	xasoolo	kusoolo	'animal'
-sukare	isukare	tsisukare	-	-	'sugar'
-sukuti	isukuti	tsisukuti	xasukuti	kusukuti	'drum
-suli	isuli	tsisuli	axasuli	okusuli	'bug'
-sumu	isumu	tsisumu	-	-	'poison'
-suna	isuna	tsisuna	axasuna	okusuna	'mosquito'
-sundo	isuundo	tsisuundo	xasuundo	kusuundo	'wart'
-surusi	isurusi	tsisurusi	xasurusi	kusurusi	'bull'
-suutsa	isuutsa	tsisuutsa	xasuutsa	kusuutsa	'wild vegetable'
-swa	iswa	tsiswa	axaswa	okuswa	'termite'
-swenene	iswenene	tsiswenene	xaswenene	kuswenene	'mantis'
-syooŋgo	isyooŋgo	tsisyooŋgo	xasyooŋgo	kusyooŋgo	'water pot'
-takata	itakata	tsitakata	xatakata	kutakata	'chest'
-talani	italani	tsitalani	xatalani	kutalani	'lion'
-tawuusi	itawuusi	tsitawuusi	xatawuusi	kutawuusi	'peacock'
-taywa	itaywa	tsitaywa	xataywa	kutaywa	'rooster'
-twaasi	itwaasi	tsitwaasi	xatwaasi	kutwaasi	'cow'
-ula	iula	tsiula	xaula	kuula	'beeswax'
-unwa	iunwa	tsiunwa	xaunwa	kuunwa	'bull'
-xafuka	ixafuka	tsixafuka	xaxafuka	kuxafuka	'pot'

-xokoro	ixokoro	tsixokoro	xaxokoro	kuxokoro	'scraper'
-xwe	ixwe	tsixwe	-	-	'dowry'
-yala	inzala	tsinzala	axayala	okuyala	'famine'
-yayuwa	iyayuwa	tsiyayuwa	xayayuwa	kuyayuwa	'axe'
-yeyi	iyeyi	tsiyeyi	-	-	'ox'
-yofu	inzofu	tsinzofu	axayofu	okuyofu	'elephant'
-yooma	iyooma	-	-	-	'fever'
-yoxa	inzoxa	tsinzoxa	axayoxa	okuyoxa	'snake'
-yu	inzu	tsinzu	axayu	okuyu	'house'

Class 11/10a Nouns, With Class 12/13 Derivatives

Stem	Class 11	Class 10a	Class 12	Class 20	Gloss
-ala	olwaala	tsiinzaala	axaala	okwaala	'finger'
-anda	olwaanda	tsiiɲaanda	axaanda	okwaanda	'rock'
-axo	olwaaxo	tsiinzaaxo	axaaxo	okwaaxo	'boundary'
-baa	olubaa	tsiimbaa	axabaa	okubaa	'wing'
-bafu	olubafu	tsiimbafu	axabafu	okubafu	'rib'
-baka	olubaka	tsiimbaka	axabaka	okubaka	'age group'
-bakaya	olubakaya	tsiimbakaya	axabakaya	okubakaya	'fishbone'
-baŋga	olubaaŋga	tsiimbaaŋga	axabaaŋga	okubaaŋga	'machete'
-bao	olupao	tsiimbao	axapao	okupao	'wood'
-baasi	olubaasi	tsiimbaasi	axabaasi	okubaasi	'a horse's kick'
-beere	olubeere	tsiimbeere	axabeere	okubeere	'breast'
-beka	olubeka	tsiimbeka	-	-	'side'
-bembe	olubeembe	tsiimbeembe	axabeembe	okubeembe	'spear grass'
-boolo	oluboolo	tsimboolo	-	-	'saying'
-bubi	olububi	tsiimbubi	axabubi	okububi	'spider'
-buutso	olubuutso	-	-	-	'gathering place'
-tʃembe	olutʃeembe	tsiindʒeembe	-	-	'circumcision knife'
-tʃenda	olutʃeenda	tsiiɲeenda	axatʃeenda	okutʃeenda	'journey'

-tʃina	olutʃina	tsiindʒina	axatʃina	okutʃina	'grindstone'
-tʃiŋgo	olutʃiiŋgo	-	-	-	'coast'
-tʃiyo	olutʃiiyo	tsindʒiiyo	-	-	'shard'
-deeru	oluteeru	tsiindeeru	axateeru	okuteeru	'winnow basket'
-fu	olufu	-	-	-	'dust'
-fungwo	olufuuŋgwo	tsiifuuŋgwo	-	-	'key'
-fwa	olufwa	tsiifwa	axafwa	okufwa	'seed'
-fwafwa	olufwaafwa	-	-	-	'soft grass'
-gano	olukano	tsiiŋgano	axakano	okukano	'story'
-goba	olukoba	tsiiŋgoba	axakoba	okukoba	'walled village'
-ibulo	olwiibulo	-	-	-	'childbirth'
-iŋgo	olwiiŋgo	tsiiŋgo	-	-	'bow'
-imbo	olwiimbo	tsiiɲiimbo	axeembo	okwiimbo	'song'
-kaka	olukaka	tsiiŋgaka	axakaka	okukaka	'hedge'
-kata	olukata	tsiikata	-	-	'tobacco pipe'
-koŋgo	olukooŋgo	tsiiŋgooŋgo	axakooŋgo	okukooŋgo	'shore'
-kosi	olukosi	-	-	-	'childishness'
-kuku	olukuku	-	-	-	'shoreline'
-kuma	olukuma	-	-	-	'head wound'
-kuusi	olukuusi	-	-	-	'red soil'
-kuxu	olukuxu	-	-	-	'rust'
-liimi	oluliimi	tsiiniimu	-	-	'language'
-lobo	olulobo	tsiilobo	-	-	'fishing pole'
-mbuku	oluumbuku	-	-	-	'couch grass'
-mbutsu	oluumbutsu	-	-	-	'vertigo'
-me	olume	-	-	-	'dew'
-muli	olumuli	tsiimuli	-	-	'thatch stick'
-mwo	olumwo	tsiimwo	axamwo	okumwo	'razor'
-ɲaaɲiro	oluɲaaɲiro	tsiiɲaaɲiro	-	-	'jaw'
-ɲasi	oluɲaasi	-	-	-	'blade of grass'
-saala	olusaala	tsiisaala	axasaala	okusaala	'stick'
-saatsa	olusaatsa	-	-	-	'manhood'
-saka	olusaka	-	-	-	'long branch'
-sambwa	olusaambwa	tsiisaambwa	-	-	'wilderness'
-saŋgula	olusaaŋgula	tsiisaaŋgula	axasaaŋgula	okusaaŋgula	'a minty fruit'

-saya	olusaya	tsiisaya	-	-	'cheek'
-si	olusi	-	-	-	'napier grass'
-swa	oluswa	-	-	-	'rebelliousness'
-ʃebe	oluʃebe	tsiiʃebe	-	-	'circumcised penis'
-tende	oluteende	tsiiteende	axateende	okuteende	'marsh'
-xaana	oluxaana	-	-	-	'virginity'
-xaasi	oluxaasi	-	-	-	'womanhood'
-xayiro	oluxayiro	tsiixayiro	axaxayiro	okuxayiro	'sickle'
-xo	oluxoo	-	-	-	'type of game'
-xooba	oluxooba	tsiixooba	axaxooba	okuxooba	'strap'
-xofi	oluxofi	-	-	-	'slap'
-xwi	oluxi	tsiixwi	-	-	'firewood'
-ya	oluyaa	-	-	-	'sweat'
-yoŋgo	oluyooŋgo	-	-	-	'type of weed'
-zafwa	olwaafwa	tsiinzaafwa	axaafwa	okwaafwa	'crack'
-zika	olwiika	tsiinziika	axeeka	okwiika	'horn'

Christopher R. Green
University of Indiana
Department of Linguistics
greencr@umail.iu.edu

Ashley Farris-Trimble
University of Iowa
ashley-trimble@uiowa.edu

Conferences, workshops, schools

2nd Department of African Language and Literature International Conference

12-14-Jul-2012
Gaborone, Botswana
Contact Person: Pearl Seloma, selomap@mopipi.ub.bw
Call for papers deadline: 30-Apr-2012
Conference Theme: African Languages, Literatures and Cultures in Development

This is an international and interdisciplinary conference which will grant scholars and practitioners an opportunity to debate on how African languages, literatures and cultures can contribute meaningfully to development, locally, regionally and/or internationally.

Registration: Participants will be required to pay a registration fee of P1000 or US$150. Students will pay P150 or US$20.

The conference welcomes papers on the following sub-themes and/or any other relevant topics in the areas of language, literature and culture:

Language:

- African languages as tools of socio-economic development
- Language contact, domination, maintenance and shift
- Linguistic landscapes
- Language technology
- Sign language in Africa
- Linguistic description and documentation
- Language policy and planning
- Language proficiency in indigenous languages
- Language, education and literacy
- Language use, communication and the media
- Indigenous languages and gender issues
- Translation, interpretation and lexicography

Literature/Culture:

- African literatures and cultures as tools of socio-economic development
- Culture, folkloric formations and spaces

- Globalization, gender and power relations
- Literary theory and African philosophy
- Indigenous Knowledge Systems (IKS)
- Literature, creativity and innovation
- Oral culture and Education
- Ideologies, beliefs and ethics
- Theatre, performance and the arts
- Intangible heritage and entrepreneurship
- Popular culture

General Sub-themes:

- Inter-cultural communication, discourse and language use
- Unity in linguistic and cultural diversity
- Linguistic and literary research
- Public speaking and development

Submission of Abstracts: Abstracts, of not more than 300 words, should be emailed, not later than 30 April 2012, to selomap@mopipi.ub.bw and batibohm@mopipi.ub.bw. Abstracts received after the aforementioned date will not be considered. Notices of acceptance will be sent out before 15 May 2012.

For further details please contact:

1) Dr. P. S. Seloma: Telephone: +267-355-2657; Email: selomap@mopipi.ub.bw
2) Prof H.M. Batibo: Telephone: +267-355-2638; Email: batibohm@mopipi.ub.bw

Niger-Congo International Congress (2nd call)

Towards Proto-Niger-Congo: Comparison and Reconstruction
LLACAN, Paris, 18-21 September 2012
Contact Person: Valentin Vydrin
Web Site: http://www.nigercongo.com
http://llacan.vjf.cnrs.fr/fichiers/nigercongo

The Niger-Congo International Congress (NigerCongress) is gathering scholars in comparative linguistic studies of the largest African language macrofamily. Issues of comparative analysis, reconstruction, language convergence and history will be discussed during three days of sessions in the Center for African Linguistics, Languages and Cultures (LLACAN) in Paris.

2nd Call for Papers: We invite all colleagues working in the field of Niger-Congo comparative and historical linguistics to submit topics and abstracts for their presentations at the Congress.

The aim of the Congress is to forward the reconstruction of the proto-languages of the Niger-Congo constituent families and, eventually, of the Proto-Niger-Congo language. Data-based communications suggesting proto-language reconstructions (phonological, morphological, lexical, syntactical, semantic, etc.) of various chronological levels or concrete steps toward such reconstructions are especially welcome.

Topics and abstracts should be directed to the Organizing Committee (mailnigercongo.com, vydrinegmail.com). Abstracts should not exceed 1,000 words (exclusive of data and references).

Presentations will be 20 minutes plus 10 minutes discussion.

The Organizing Committee will be looking for possibility to cover travel and accommodation expenditures of some participants (according to the results of selection by the Scientific Committee). Further important details concerning abstract submission are available on the Congress website. Please make sure that you consult these before submitting an abstract:

http://www.nigercongo.com/stylesheet.pdf
http://llacan.vjf.cnrs.fr/fichiers/nigercongo
Taking into account the fact that results of a serious comparative work are hard to display in a 1,000-words abstract, we invite colleagues to send their files containing

comparative data for the posting on the site of the Niger-Congo Congress. It will facilitate the discussion among specialists during the months preceding the Congress and at the Congress.

A publication of the Proceedings of the Congress is planned.

Deadline for submission of topics: 1 March 2012
Deadline for submission of abstracts: 1 April 2012
Notification of acceptance: 15 May 2012

Scientific Committee: Kirill Babaev (Moscow), Koen Bostoen (Gant), Gerrit Dimmendaal (Köln), Jean-Marie Hombert (Lyon), Larry Hyman (Berkeley), Derek Nurse (Newfoundland), Gérard Philippson (Paris-Lyon), Konstantin Pozdniakov (Paris), Guillaume Segerer (Paris), Victor Vinogradov (Moscow), Valentin Vydrin (Paris)

7th World Congress of African Linguistics (WOCAL 7)

20-24 August 2012; Buea, South West Region, Cameroon
Contact Person: Pius Tamanji (tamanjip@yahoo.fr), wocalbuea@yahoo.fr
Web Site: http://www.wocal.rutgers.edu/

The World Congress of African Linguistics will hold from the 20th to the 24th of August 2012 at the University of Buea, Cameroon. The theme of the congress is language description and documentation for development, education and the preservation of cultural heritage in Africa. Discussions will center on the following six sub-themes:

1. Language in education
2. Language documentation
3. The social dimensions of language
4. 'Contact languages' in the growth and development of African states
5. Intercultural communication
6. Linguistic analyses (phonetics, phonology, morphology, lexicology, syntax, historical linguistics, language classification, etc.).

WOCAL 7 Workshop: Antipassives in African languages

CONTACT: Guillaume Segerer (LLACAN - CNRS), segerer@vjf.cnrs.fr; Koen Bostoen (Ghent University, Royal Museum for Central Africa, Université libre de Bruxelles) koen.bostoen@ugent.be

An antipassive construction is a derived detransitivized construction with a two-place predicate, related to a corresponding transitive construction whose predicate is the same lexical item (Polinsky 2008). Just like passives, antipassives thus involve a valence decrease. However, in contrast to the former, it is the patient-like NP that is suppressed or realized as a demoted argument, and not the agent-like NP (Creissels 2006; Keenan and Dryer 2007; Polinsky 2008). The examples in (1) and (2), both taken from Schröder (2006: 96), illustrate transitive/antipassive alternations, respectively in Shilluk, where the patient-like argument becomes an oblique, and in Burun, where it is deleted.

(1)   a.   Wüno   a-'yer   yi   jal-ani (SHILLUK)
                  rope   PST:E-twist:T ERG man-REF
                  'The man twisted the rope.'

        b.   Jal-ani   a-'yët   ki   wüno
                  man-REF   PST:E-twist:AP   OBL rope
                  'The man twisted the rope.'

(2)   a.   Lälbäär   yööl   geel   (BURUN)
                  giraffe 3SG: chase:PRO lion
                  'The lion is chasing the giraffe.'

        b.   Geel   yüül-ir
                  lion   3SG: chase:PRO-AP
                  'The lion is chasing.'

Antipassives are typically found in ergative languages (Creissels 2006; Dixon 1994; Keenan and Dryer 2007; Polinsky 2008), where the basic 'absolutive' case encodes both the single argument of intransitive verbs and the patient-like argument of transitive verbs, as opposed to the agent-like argument of transitive verbs which is encoded by means of a marked 'ergative' case (cf. Dixon 1994: 9). This close association with ergativity could be a reason why antipassives are a relatively rare typological feature in Africa. According to the relevant WALS map, antipassive constructions occur only in 4 out of 32 surveyed African languages, three of them in north-eastern Africa (Krongo, Päri, Lango) and one in western Africa (Koyraboro

Senni - Songhay), but all belonging to Nilo-Saharan (Polinsky 2008), just like the West-Nilotic and Surmic languages discussed by Schröder (2006). Following WALS, antipassives would be completely absent from Niger-Congo, Afro-Asiatic and Khoisan languages.

Nevertheless, both the link of antipassives with ergativity and their typological rarity in Africa need to be nuanced. Cases of antipassives are known from nominative-accusative oriented African languages, both in Nilo-Saharan where they occur in languages exhibiting ergative traces (Schröder 2006) and in other language families where ergativity is not a historical fact. Creissels (2006) reports morphological passive constructions in Soninke (Mande, Niger-Congo) and Wolof (Atlantic, Niger-Congo) (see also Voisin-Nouguier 2002). Given that the antipassive is a typological feature, whose study is relatively recent, it is to be expected that there are many more African languages where the construction has remained unnoticed or where it was described differently. Such is for instance the case in the Bantu language Songye, where Stappers (1964: 27) labelled the new function of the inherited Proto-Bantu associative suffix *-an- as 'alterative'. This de-transitivizing suffix indicating that the action is directed towards others which can no longer be mentioned as an object, e.g. kumona 'to see' > kumonána 'to see others', could easily be reanalyzed as an antipassive, even if the available description is strictly morphological.

The proposed workshop aims at a better documentation, description and understanding of antipassive constructions in African languages, especially from language families where they are thought to be inexistent or extremely rare. We invite papers that take a closer look at antipassives in African and pay attention to following topics/questions:

1. Is the antipassive morphological or periphrastic?
2. Is the patient-like argument left implicit or expressed as an oblique argument?
3. Does the antipassive co-exist with the passive and can be analyzed as its mirror image?
4. Is antipassivation (historically) linked with ergativity or not?
5. Is the antipassive marker dedicated or does it exhibit synchronic polysemy?
6. What is the etymology of the antipassive marker? Is it a morpheme diachronically associated with other functions (e.g. reflexive, reciprocal, middle) which underwent semantic shift or did it directly grammaticalize from a distinct lexical source?
7. What are its semantic and discourse functions (e.g. affectedness, individuation, definiteness, etc.) as well as it structural functions (e.g. making the agent-like argument the syntactic pivot for grammatical processes)?

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WOCAL 7 Workshop: The history of post-verbal negation in African languages

Contact Person: Maud Devos (Royal Museum for Central Africa, Tervuren), maud.devos@africamuseum.be; Dmitry Idiatov (LLACAN-CNRS, Paris)

Notwithstanding a cross-linguistic tendency for negative markers to occur before the verb (Dryer 1988) there is an area in Africa where post-verbal negative markers abound. Following Dryer (2009:307) this area 'stretches from Nigeria across to the Central African Republic and down into the northern Democratic Republic of the Congo'. This region overlaps with the 'hotbed' of a large linguistic area referred to by Güldemann (2008) as the Macro-Sudan belt. The proposed workshop aims at a better understanding of the typologically unusual phenomenon of post-verbal negative markers and its history in the African context.

We invite papers that take a closer look at post-verbal negative markers in African languages (within and beyond the area described above) and contribute to one of the following topics (or another topic relevant to post-verbal negation):

1. The position of the post-verbal negative marker: In the area identified by Dryer the post-verbal negative markers typically occur 'at the end of the clause, following any adverbs or adjunct phrases' (Dryer 2009:307). Outside the area the position of the post-verbal negative marker shows more variation. Data, mostly from Bantu languages, show that the post-verbal negative marker may also occur immediately after the verb (Devos et al. 2010), or that (pragmatically motivated) variation is possible (Odden 1996, Philippson & Nurse 2000).

2. The etymology of the post-verbal negative marker: What is the source of the post-verbal negative marker and especially are non-negative source meanings as suggested for Metta (Grassfields Bantu, Mihas 2009), Senufo (Gur, Carlson 1994), Ma (Adamawa-Ubangi, Tucker and Bryan 1966) and a number of Bantu languages (Devos & van der Auwera forthcoming) a recurrent phenomenon?

3. Post-verbal negative markers and 'Jespersen Cycles': For Bantu languages it has been suggested that post-verbal negative markers were originally used to reinforce negation and a fair number of Bantu languages display double, even triple negation. How valid is the Jespersen Cycle as a historical explanation for post-verbal negative markers in Africa and how recurrent is triple negation (involving post-verbal negative markers)?

4. Post-verbal negative markers and language contact: Following Güldemann (2008) post-verbal negation, more precisely the V-O-Neg word order pattern, is one of the linguistic features relevant for the Macro-Sudan belt. How does such a pattern diffuse? Nurse (2008:180) notes that some of the post-verbal negative markers in Bantu languages are Wanderwörter; they are easily transferred from one language to another. Do we find clear cases of borrowed post-verbal negative markers or is contact-induced grammaticalization (Beyer 2009) a more plausible scenario?

5. Stability of post-verbal negative markers: Can post-verbal negative markers be reconstructed for any significant time-depth, such as the level of a proto-family or a major branch of a family?

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Beyer, Klaus. 2009. Double negation-marking: A case of contact-induced grammaticalization in West Africa? In Norbert Cyffer, Erwin Ebermann & Georg Ziegelmeyer (eds.), Negation patterns in West African languages and beyond, 205-222. Amsterdam: John Benjamins.

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Devos, Maud, Michael Tshibanda Kasombo & Johan van der Auwera. 2010. Jespersen cycles in Kanincin: Double, triple and maybe even quadruple negation. Africana Linguistica XVI, 155-181.

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Nurse, Derek. 2008. Tense and Aspect in Bantu. Oxford: Oxford University Press.

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Philippson, Gérard & Derek Nurse. 2000. Gweno, a little known Bantu language of Northern Tanzania. In Kitore Kahigi & Maarten Mous (eds.), Lugha za Tanzania/Languages of Tanzania, 233-84. Leiden: CNWS.

Tucker, A.N. & M. A., Bryan.1966. Linguistic analyses. The non-Bantu languages of North-eastern Africa. Oxford: Oxford University Press.

Endangered Languages: from Documentation to Revitalization (3L 2012)
July 1-13, 2012; Lyon, France
Meeting URL: http://www.ddl.ish-lyon.cnrs/colloques/3L_2012

The 4th 3L International Summer School will be hosted by LED-TDR (Langues En Danger - Terrain Documentation Revitalisation), DDL & ICAR CNRS laboratories, University Lumière-Lyon 2, France.

The focus of this Summer School will be on the links between work on description, documentation and archiving of endangered languages and the conservation, revalorization and revitalization of these languages. The Summer School will include morning lectures by major figures of the field, afternoon courses and workshops and thematic evenings. One goal of the school is to facilitate networking between on-going field projects and provide support for the launching of new field projects linked to revitalization projects. The Summer School will be trilingual: English-French-Spanish.

On Friday 6th and Saturday 7th of July, the 3L Consortium will host an International Conference on the Evaluation of 20 years of focus on Endangered Languages (1992-2012), with the participation of UNESCO, the CTLDC and the major foundations for Endangered Languages. On Wednesday 11th July the Summer School will also include a Student Conference.

Publications

Féral, Carole de ed. 2010. Le nom des langues en Afrique sub-saharienne ; Pratiques, dénominations, catégorisations / Naming Languages in Sub-Saharan Africa : Practices, Names, Categorizations. Louvain-la-Neuve: Peeters. (reviewed by Mauro Tosco in Journal of Language Contact 4 (2011) pp. 141-51.)

Dingemanse, Mark. 2011. The Meaning and Use of Ideophones in Siwu. Nijmegen, Netherlands: Max Planck Institute for Psycholinguistics.
link to supplementary materials: http://thesis.ideophone.org

Online Bibliography of Chadic and Hausa Linguistics
The "Online Bibliography of Chadic and Hausa Linguistics", compiled by Professor Paul Newman of Indiana University, is a comprehensive, open access bibliography containing more than 2500 entries. The initial edition (Version 01) is now available as a searchable pdf file on the website of DEVA, Institute of African Studies, University of Bayreuth, http://deva-research.uni-bayreuth.de. To access the bibliography, find the baobab tree thumbnail at the bottom of the page and click on the Chadic Hausa link. Scholars using the bibliography will have the opportunity to contribute to its completeness and accuracy by submitting additions and corrections to be incorporated in subsequent editions.

Mandenkan 47 (2011)

Mandenkan is a peer-reviewed open access journal dedicated to the Mande language family. Papers are published in English or French. Previous issues are freely accessible at http://llacan.vjf.cnrs.fr/sec_mdkn.htm.

- A propos des adverbes du bambara, ou de l' art d'accommoder les restes. Gérard Dumestre. 3-11
  http://llacan.vjf.cnrs.fr/PDF/Mandenkan47/47Dumestre.pdf
- Le système prédicatif du mano de Guinée by Maria Khachaturyan, 13-56.
  http://llacan.vjf.cnrs.fr/PDF/Mandenkan47/47Khachaturyan.pdf
- Nominalization in Mwan by Elena Perekhvalskaya, 57-75.
  http://llacan.vjf.cnrs.fr/PDF/Mandenkan47/47Perekhvalskaya.pdf
- Phoneme distribution, syllable structure, and tonal patterns in Nko texts by Andrij Rovenchak, 77-96.
  http://llacan.vjf.cnrs.fr/PDF/Mandenkan47/47Rovenchak.pdf

- Book Review : Babaev, Kirill. Zialo: the Newly-Discovered Mande Language of Guinea. München: Lincom Europa, 2010, 253 by Laura Wilhoit, 97-102
  http://llacan.vjf.cnrs.fr/PDF/Mandenkan47/47Wilhoit.pdf

Linguistique et langues africaines (2012)

llafrique@vjf.cnrs.fr
Nicolas Quint et Paulette Roulon-Doko, Directeurs de publication

Linguistique et langues africaines est une revue internationale de linguistique africaine portant sur les langues subsahariennes tant vernaculaires que véhiculaires ainsi que sur les créoles de cette zone (à l'exclusion des langues d'origine européenne).

Les articles retenus pourront être strictement linguistiques (phonologie, morphologie, syntaxe, lexicographie, sémantique...) ou ethnolinguistiques (ethnosciences...,). On privilégiera les études portant sur des données de terrain, sur toutes les langues de la zone concernée, en particulier celles qui sont peu ou mal décrites. Des articles de comparatisme et / ou de typologie seront également les bienvenus. Nous invitons vivement les jeunes chercheurs (Doctorants...) à nous soumettre également des contributions.

Cette revue se veut un lieu privilégié d'élaboration et de diffusion des connaissances dans le domaine de la linguistique africaine, représentant diverses tendances, en particulier des écoles théoriques variées. Outre des articles, la revue inclura des comptes rendus et des contributions de portée moins théorique regroupées dans une rubrique "notes et documents".
Elle acceptera des articles en français et en anglais, ainsi que dans les principales langues européennes (pour les autres langues consulter le comité de rédaction) et fonctionnera selon le principe de la double évaluation anonyme. Le premier numéro est prévu pour 2012.

Linguistique et langues africaines [African Languages and Linguistics] is an international journal for African linguistics, whose main goal is contributing to a better knowledge of languages spoken in Sub-Saharan Africa, be they vernaculars, vehicular or creoles, with the exception of local varieties of European languages.

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- Language Contact, Language Change and History Based on Language Sources in Africa, edited by Wilhelm J.G. Möhlig, Seidel, Frank and Marc Seifert, Gabriele Sommer, 307-308.

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