A unified syntactic analysis of Italian and Luganda nouns

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In this paper, I propose a unified syntactic analysis of Luganda and Italian simple nouns. I argue that Italian and Luganda nouns are formed in the syntax via merge and move operations. More specifically, I show that in both languages all nouns are formed via the merger of the nominalizer head [n] with a nominal stem [LP] yielding the nominal structure [nP [n [LP]]] and that syntactic movement is necessary in the noun formation process of Italian nouns to derive the correct morpheme order.

In order to prove that the structure [nP [n [LP]]] is representative for both languages, I demonstrate that the nominalizer head [n] corresponds to both the Italian gender feature and the Luganda class feature and that, therefore, gender and class are the same feature. The data analysis in sections (2) and (3) of this paper supports the claim that gender and class are the same feature because of their identical inflectional and derivational functions. At the inflectional level, gender and class trigger VP and DP agreement and at the derivational level gender and class function as n-marked heads whose merger with an XP yields a noun.

1. Theoretical framework and proposal

In the last ten years, many scholars have proposed a novel syntactic approach to word formation processes, showing that words, very much like sentences, can be formed in the syntax via Merge and Move operations: see Marantz (1997); Josefsson (1998); Kihm (2001); Alexiadou (2001); Lacarme (2001); Julien (2002); Pylkkanen (2002); Ferrari-Bridgers (2005), (2006); and Lowerman (2006).

In contrast to a strict lexicalist approach to word formation, which considers words as lexical units impenetrable by the syntax (see Di Sciullo & Williams 1987: 47), the syntactic approach claims that words do not exist as morphological units in the Lexicon. Rather, they are the product of the merger of the lexical features
n/v/a, which are considered functional heads, with a lexical head (L), yielding either a noun, a verb or an adjective as represented in (1):

(1) a. \[nP \left[ n \left[ LP \right] \right]\]
b. \[vP \left[ v \left[ LP \right] \right]\]
c. \[aP \left[ a \left[ LP \right] \right]\]

Though there are several interpretations in the literature with regard to the nature of the lexical head (L), (see Ferrari 2005 for a full discussion), most authors agree that (L) projects in the syntax as a lexical head separate from the functional feature categorizing it (see Picillo (1991); Marantz (1997); Ferrari (2005), among many others). Following Ferrari’s (2005: 30) quantitative data analysis, in this paper I assume that lexical heads (L) are stems, i.e., roots \([V]\) categorically marked for one of the three functional features n/v/a. There are three types of stems: verbal stems \([V+n]\), adjectival stems \([V+a]\) and nominal stems \([N+n]\). Because stems are categorically marked, they are morphologically analyzable by the syntax and therefore they project in the syntax as independent LPs.

Within this syntactic framework, in this paper I propose a comparative syntactic analysis of the Italian and the Luganda nominal system focusing in particular on the derivation of simple nouns.¹ I argue that Italian and Luganda simple nouns are derived in the syntax via the merger of a nominalizer head \([n]\) with an LP and that their underlying representation conforms to the structure given in (1a).

In order to prove that the structure in (1a) is representative for both languages, I argue the following: (i) the nominalizer head \([n]\) in (1a) corresponds to the Italian gender feature and to the Luganda class feature and, consequently, gender and class are the same feature; and (ii) syntactic movement is a necessary operation in Italian noun formation process to derive the correct output morpheme order.

With regard to the claim that gender and class have a similar functional nature, Corbett (1991: 19) and Kihm (2001: 2) among many others point out that gender and class have the identical inflectional function of triggering VP and DP agreement. The morphological analysis of Italian and Luganda simple nouns proposed in section (2) of this paper shows that in these two languages, gender and class

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¹. In morphological terms, there are three types of nouns: simple, derived and compound nouns. Simple nouns are formed with one nominal stem; derived nouns are formed via the merger of derivational morphemes with a nominal or a non-nominal stem; and compound nouns are formed by the merger of two nominal and/or non-nominal stems.
also have the identical inflectional function of triggering agreement. Furthermore, in section (3) of this paper, I provide evidence that gender and class also share an identical derivational function, i.e., they are nominalizer n-heads whose merger with an LP or an XP yields a noun. Though the derivational nature of gender and class has been previously observed by Ritter (1995) and Lacarme (2002) for the gender feature, and by Kihm (2001); Muñwene (1980); Myers (1990); Katamba (2003) and Schadeberg (2003) for the class feature, the data analysis presented in (3) unifies the two languages by showing that the derivational nature of gender and class depends on the fact that gender and class correspond to the functional feature [n]. In other words, contrary to what was previously assumed by Picallo (1991) and Myers (1987), gender and class are not two distinct functional heads external to the NP and selecting for a NP, but they are the functional feature [n], i.e., the head of the nP itself.

With regard to the second claim relative to syntactic movement, in section (4) of this paper I show that structure (1a) alone is still insufficient to account for the fact that gender and class markers occupy symmetric positions with respect to the lexical head (L). In Luganda, in fact, the class markers are prefixed to an LP, whereas in Italian the gender markers have traditionally been assumed to be suffixed to the base as indicated in (2):

(2) a.  mu-nitu
      class1-person
      'person'

b.  cas-a
    house-feminine gender
    'house'

Under the assumption that languages are uniform at their core level of representation, I argue that the structure in (1a) is representative of all Luganda simple nouns as well as the default class of Italian nouns, i.e., masculine nouns. Through a reanalysis of Italian masculine noun morphology, I show that the nominalizer head [n] of masculine nouns has no overt morphological realization, given that masculine noun endings ⟨o⟩ and ⟨e⟩ are not morphemes but epenthetic segments added to the nP at PF.

On the other hand, the merger of [n] with an LP alone is not sufficient to account for the derivation of Italian feminine nouns, whose n-feature is morphologically realized with the suffix ⟨a⟩. I show that the suffix position of the marker ⟨a⟩ depends on movement of (L) to the left of [n] and that it is not the effect of a parametric variation in the position of the feature [n].
2. Italian gender and Luganda class systems  
and the nature of the feature [n]

In the first part of this section, I will briefly introduce the Italian and Luganda nominal systems (2.1, 2.2), showing that gender and class have the identical inflectional function of triggering agreement. In the next section, I argue that gender and class are n-marked features which have identical derivational functions in the noun formation process. Because gender and class have identical grammatical functions, I conclude that they are the same feature.

2.1 Italian nominal system

In Italian, all nouns are marked either for masculine or for feminine gender. Gender is obligatory for purposes of DP and VP agreement as indicated in the following examples:

(3) *La bell-a* casa *ross-a* è *stat-a distrutt-a*  
The-f beautiful-f house-f red-f has been-f destroyed-f  
'The beautiful red house has been destroyed.'

Looking at the endings of nouns, it is possible to establish five noun types: (i) masculine nouns ending in ⟨o⟩; (ii) feminine nouns ending in ⟨a⟩; (iii) masculine and feminine nouns ending in ⟨e⟩; (iv) recent loans; and (v) a residue class of nouns, all as represented in table (1):

<table>
<thead>
<tr>
<th>Type</th>
<th>Gender</th>
<th>SG</th>
<th>Examples</th>
<th>PL</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>⟨o⟩</td>
<td>Mas.</td>
<td>-o</td>
<td>tavolo “table”</td>
<td>-i</td>
<td>tavoli “tables”</td>
</tr>
<tr>
<td></td>
<td>Fem.</td>
<td>-a</td>
<td>casa “house”</td>
<td>-e</td>
<td>case “houses”</td>
</tr>
<tr>
<td>Epenthetic</td>
<td>Mas.</td>
<td>-e</td>
<td>fiore “flower”</td>
<td>-i</td>
<td>fiori “flowers”</td>
</tr>
<tr>
<td></td>
<td>Fem.</td>
<td>-e</td>
<td>parete “wall”</td>
<td>-i</td>
<td>pareti “walls”</td>
</tr>
<tr>
<td>Loans</td>
<td>Mas.</td>
<td>0</td>
<td>bar</td>
<td>0</td>
<td>bar “bars”</td>
</tr>
<tr>
<td>Residue</td>
<td>Mas.</td>
<td>ë,ì,ò</td>
<td>caffè “coffee”</td>
<td>0</td>
<td>caffè “coffees”</td>
</tr>
<tr>
<td></td>
<td>Fem.</td>
<td>ò,ù,</td>
<td>città “city”</td>
<td></td>
<td>città “cities”</td>
</tr>
</tbody>
</table>

With regard to gender morphology, many Italian grammars have claimed the existence of a morphological correlation between noun endings and gender. More precisely, nouns ending in ⟨o⟩ have been associated with masculine gender, and nouns ending in ⟨a⟩ with feminine gender. Though these correlations have been questioned (Thornton 2001: 485), quantitatively they retain a certain amount of validity. Despite
the presence of a small number of exceptions, according to Ferrari’s (2005) Italian noun database containing over 4,000 nouns, masculine nouns ending in (o) are 32% of the total number of nouns in the database; and feminine nouns ending in (a) make up another 32%. Feminine nouns ending in (o) (as in (4a)) and masculine nouns ending in (a) (as in (4b)) are less than 1% of the nouns in the database.

(4) a. moto ‘motorbike’, mano ‘hand’, metro ‘underground’
   b. poema ‘poem’, sistema ‘system’, tema ‘theme’

Nouns ending in (e), recent loans, and residue nouns constitute three separate groups, whose gender feature is expressed not through morphemes but through DP or VP agreement as shown in (5a–b):

(5) a. il sole caldo
    the-m sun hot-m
    ‘the hot sun’
   b. il bar nuovo
    the- bar new-m
    ‘the new bar’

With regard to nouns ending in (e), (e) is not a morpheme but an epenthetic segment added to the stem for syllabification purposes in order to avoid word-final coda consonants. The epenthetic nature of (e) is evident in its tendency to undergo deletion when it is preceded by a sonorant consonant (l, r, n, or m), i.e., the phenomenon of “troncamento” (truncation). The elision of this segment, however, does not deprive the noun of its gender information. Gender is still retrievable from DP agreement as illustrated in (6):

(6) il sole levante/ il sole levante
    the-m sun rising/ the-m sun rising
    ‘the rising sun’

It is interesting to note that the deletion of the segment (e) does not take place when it functions as a feminine plural morpheme, as (7a) shows. Similarly, the feminine singular gender marker (a) does not undergo deletion as shown in (7b):

(7) a. Gianni mostra le suole-e / *suole rovinate-e delle sue scarpe
    Gianni shows the soles-f. pl. worn-out-f.pl. of his shoes
    ‘Gianni shows the worn-out soles of his shoes’ (Nespore 1993: 227)
   b. Gianni mostra la suola-a / *suola rovinata-a delle sua scarpa
    Gianni shows the sole-f. sg. worn-out-f.sg. of his shoe
    ‘Gianni shows the worn-out sole of his shoe.’

With regard to loans, the majority of loans of inanimate nouns are masculine by default. According to Thornton (2003c), there are few feminine loans whose gender is assigned
manually. According to Ferrari’s database (2005), loans account for 6% of the nouns in the database and less than 0.5% of these nouns are feminine. Loans of nouns denoting human beings, instead, undergo semantic gender assignment; i.e., they are feminine if they denote a female person and masculine if they denote a male person.

Finally, nouns in the residue class are few in number and belong to closed classes of number-invariable nouns. It is possible to predict the gender of these nouns by looking at their final vowel. For instance, all nouns ending in ⟨à⟩, ⟨tù⟩ and ⟨i⟩ are feminine: e.g., città “city”, virtù “virtue”, crisi “crisis”; whereas nouns ending in ⟨è⟩, ⟨ii⟩ and ⟨i⟩, which are for the most part loans, are masculine: e.g., caffè “coffee”, iglù “igloo”, colibrì “humming bird”.

2.2 Luganda

As with many Bantu languages, Luganda is characterized by an elaborate noun class system which accounts for a large number of classes with each noun class marked for a specific set of agreement markers. According to Ashton et al. (1954); Welmers (1973) and Katamba (2003: 109), in Luganda there are 19 noun classes. This number is derived by looking at the number of noun class prefixes as well as by looking at the grammatical agreement markers occurring on nouns, adjectives, numerals, determiners and pronouns. Noun classes are usually numbered in pairs, e.g., class 1/2 and class 3/4. Each pair is characterized by the presence of two noun class prefixes, expressing identical class information, but differing in their number morphology. The first member of the pair is associated with the singular while the second element indicates the plural, e.g., Luganda cl.1/2: mu-ntu “person” – ba-ntu “people”, as illustrated in table (2):

As in the case of gender for Italian, class for Luganda is obligatory for the purposes of agreement. According to Maho’s (1999: 128–129) typological classification of Bantu noun class systems, Luganda belongs to the traditional formal type, i.e., type A. In Bantu Type A languages, all agreement markers (in Bantu terminology “conords”) are chosen on the basis of the class information inherent in the stem, disregarding the meaning of the stem. Noun class prefixes and concords simultaneously mark the same noun class. An example of the Luganda agreement system (from Ashton et al. 1953:23) is given in (8) below:

(8) Aba-ana ba-no aba-satu aba Mukasa te-ba-leese kintu,
   cl.1-children cl.1-these cl.1-three cl.1-of Musaka not-cl.1-brought anything
   ‘These three children of Mukasa have not brought anything’

2. There are 3 additional locative classes which for the moment I do not include in the discussion, as they are not pertinent to the present analysis.
Table 2. Luganda nominal system

<table>
<thead>
<tr>
<th>Class</th>
<th>Prefix</th>
<th>Singular</th>
<th>Class</th>
<th>Prefix</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>mu-</td>
<td>mu-ntu (man)</td>
<td>2</td>
<td>ba-</td>
<td>ba-ntu (people)</td>
</tr>
<tr>
<td>3</td>
<td>mu-</td>
<td>mu-ti (tree)</td>
<td>4</td>
<td>mi-</td>
<td>mi-ti (trees)</td>
</tr>
<tr>
<td>5</td>
<td>li/-ri/-e-</td>
<td>ri-nya (name)</td>
<td>6</td>
<td>ma-</td>
<td>ma-nya (names)</td>
</tr>
<tr>
<td>6a.</td>
<td>ma-</td>
<td>ma-zzi (water)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>ki-</td>
<td>ki-ntu (thing)</td>
<td>8</td>
<td>bi-</td>
<td>bi-ntu (things)</td>
</tr>
<tr>
<td>9</td>
<td>0/n-</td>
<td>n-te (cow)</td>
<td>10</td>
<td>0/n-</td>
<td>n-te (cows)</td>
</tr>
<tr>
<td>11</td>
<td>lu-</td>
<td>lu-naku (day)</td>
<td>13</td>
<td>bu-</td>
<td>bu-ntu (small things)</td>
</tr>
<tr>
<td>12</td>
<td>ka-</td>
<td>ka-ntu (small thing)</td>
<td>14</td>
<td>bu-</td>
<td>bu-ntu (manhood)</td>
</tr>
<tr>
<td>15</td>
<td>ku-</td>
<td>ku-lima (cultivating)</td>
<td>18</td>
<td>tu-</td>
<td>tu-zzi (drop of water)</td>
</tr>
<tr>
<td>20</td>
<td>gu-</td>
<td>gu-ntu (huge thing)</td>
<td>22</td>
<td>ga-</td>
<td>ga-ntu (huge things)</td>
</tr>
</tbody>
</table>

From the Italian and Luganda data in (3), (5) and (8) and from the above observations, one can draw the conclusion that gender and class have the identical inflectional function of triggering agreement at the DP and VP/IP level.

3. Gender and class as n-marked Features

As seen above, gender and class have an identical inflectional nature. In this section, I argue that gender and class also have an identical derivational nature. They are n-marked features whose merger with a nominal stem, e.g., [√+n], and non-nominal bases, e.g., [√+a], [√+v], VP, VoiceP, ApplicativeP and other types of XPs, generates a noun. The data analysis of Italian and Luganda derived nominals in sections (3.1, 3.2 and 3.3.) of this paper confirms the validity of my argument.

3.1 De-nominal noun formation

De-nominal nouns are derived nouns formed via the merger of an n-marked derivational head with an n-stem. In Luganda all de-nominal nouns are formed via the merger of class morphemes with n-stems (see 9a–d), whereas in Italian de-nominal nouns are formed either via the merger of derivational morphemes such as ⟨-eria⟩, ⟨-ile⟩ with an n-stem, as in pizza ⟨pizz-eri-a “pizza place” and fierno “hay” fiemile “barn”,⟩ or via the merger of a gender marker with a nominal stem as in (9e–k):
As the data in (9a–d) show, in Luganda the change of the class morpheme corresponds to the formation of a new noun. Similarly, in Italian (9e–k), the passage from one gender to another modifies the meaning of the stem, giving rise to a new noun. 3

3.2 De-adjectival noun formation

De-adjectival nouns are formed via the merger of a class or gender morpheme with an adjectival stem.

\[(9)\]
\begin{itemize}
  \item a. \textit{b-beere} (ct.5) 'breast' > \textit{Ki-beere} (ct.7) 'udder'
  \item b. \textit{ki-batu} (ct.7) 'palm of the hand' > \textit{hu-batu} (ct.11) 'handful'
  \item c. \textit{bu-lgio} (ct.14) 'fifth' > \textit{mu-lgio} (ct.1) 'dirty person'
  \item d. \textit{ndiga} (ct. 9) 'sheep' > \textit{ka-liga} (ct.12) 'lamb'
  \item e. \textit{ferrament-o} (mas) 'iron tool' > \textit{ferrament-a} (fem) 'hardware'
  \item f. \textit{ranci-o} (mas) 'ration' > \textit{ranci-a} (fem) 'the distribution of the ration'
  \item g. \textit{buc-o} (mas) 'small hole' > \textit{buc-a} (fem) 'pit' or 'big hole'
  \item h. \textit{ciucci-o} 'pacifier' (mas) > \textit{ciucci-a} (fem) 'breast'
  \item k. \textit{mel-o} (mas) 'apple tree' > \textit{mel-a} (fem) 'apple'
\end{itemize}

It is important to point out that, although in Italian the majority of de-adjectival nouns are formed via derivational heads such as (ezz-a), (ir-a), (izi-a) etc. as in “bello” (beautiful) > “bellezza” (beauty), de-adjectival nouns formed with gender markers (o) and (a) are used mainly to derive nouns denoting human beings.

3.3 De-verbal noun formation

De-verbal nouns are formed via the merger of gender and class morphemes with either a verbal base or a constituent which in Italian and Luganda can range from a verb stem to a VP, a CausativeP or a VoiceP:

\[(10)\]
\begin{itemize}
  \item a. \textit{mu-bb-i}
    \begin{itemize}
      \item ct.1-vstem-bb-i (from kubba 'to steal')
      \item 'robber'
    \end{itemize}
  \item b. \textit{bu-bb-i}
    \begin{itemize}
      \item ct.14-vstem-bb-i
      \item 'robbery'
    \end{itemize}
\end{itemize}

3. Though it has often been claimed in the literature that such gender alternation is unproductive for inanimate nouns and is limited to a few fossilized forms, the above data show that gender alternation as a noun formation device is in fact productive. Pairs such as \textit{ciuccio-ciuccia}, for instance, are relatively new formations (1951). For more data and discussion about the productivity of such alternations see Ferrari (2005).
c. Mu-ba-zz-i  
\text{cl.}\text{-1}\text{-vstem-BA-CAUSATIVE-i}  
(from kubazza 'to cause to do carpentry work')  
'carpenter'  

d. mu-zaal-is-a  
\text{cl.}\text{-1}\text{-vstem-CAUSATIVE-a} (kuaalisa 'to assist at childbirth')  
'midwife'  
e. s-som-er-o  
\text{cl.}\text{-5}\text{-vstem-APPLICATIVE-o} (from kusom-er-a 'to read for')  
'school'  

With regard to the data in (11), the nouns in (11c,d) are built on the Causative head (iz-is) and the noun in (11e) is built on the applicative head (er-a). According to Py-llkkänen's (2002) syntactic representation of Luganda's IP, causative and applicative morphemes are heads which project independently from the VP respectively as CausativeP and ApplicativeP. It follows, therefore, that the class morpheme merges directly with a causative or applicative phrase to derive a noun.

It is interesting to note that the Luganda de-verbal nouns given in (11) have different suffixal endings, e.g., [-i,-o,-a,-e,-u]. According to Myers (1991: 38–39), the final vowels on verbal stems are morphemes: the vowel (a) is an inflectional morpheme indicating an active verb form; and the remaining vocalic segments are derivational morphemes which signal the presence of an n-feature (or an a-feature). More specifically, for Ashton et al. (1954: 371–379): (i) the suffix (i) is associated with the feature agent/instrument; (ii) the suffix (e) is associated with the feature patient; (iii) the suffix (o) is associated with the feature indicating "state" or is found on nouns which express "the result of an action"; and (iv) the marker (u) is found on adjectives or on de-adjectival nouns.

Notwithstanding the foregoing, Ferrari (2005) points out several exceptions to these vowel-meaning correlations which make it difficult to assert the morphological and semantic values of these suffixes. For instance, in the case of the noun ending (i), there are many de-verbal nouns ending in (i) which indicate abstract concepts (see 11b). At the same time, (i) can also be found as an adjective ending or on de-adjectival nouns which do not necessarily express an agent (see 10c).

A similar lack of a one-to-one relation between suffix ending and meaning is found for the suffix (o). De-verbal nouns ending in (o) are found across different noun classes and express: abstract concepts (e.g., bu-fumbo "marriage", en-rooto "dream"); as well as things/objects (e.g., mu-biniko "cover", ki-sumuluzo "key"); and agentivity (e.g., mu-logo "sorcerer", mu-fumbo "cook"). The same can be said for nouns ending in (a) which can be: agents (e.g., mu-yigiriza "teacher", mu-wooza "tax collector" and midwife in (11d)); abstract nouns (e.g., bu-yinza "power", mpisa "habit"); as well as objects/instruments (e.g., ki-kulumbaza "microscope").
Finally, it is interesting to point out that, in Luganda, certain de-verbals nouns indicating agents can end in either ⟨i⟩ or ⟨a⟩ indiscriminately, e.g., mu-goba "driver"/mu-gobi "driver", mu-sika "heir"/musisi "heir".

From the above data, it is impossible to conclude that the vocalic endings associated with de-verbals nouns are morphemes expressing specific semantic and lexical information or playing clearly defined roles in derivational processes. Although the data show that the relation between noun endings and meaning/function is not always systematic, at the present time there is not enough data to confirm or discount the hypothesis that final vocalic segments are types of derivational morphemes. I table that discussion for a future stage of my research. Moreover, given that the focus of the present paper is on the derivation of simple nouns, i.e., nouns whose LP is an n-stem, I will consider the final vocalic segment to be part of the n-stem rather than an independent head.

With regard to Italian de-verbals nouns, one strategy for deriving de-verbals nouns is to add the feminine or the masculine gender marker to a verbal stem as in the following examples:

(12) a. *abbandonare* ‘to abandon’ > *abbandono* (N) ‘abandonment’
    b. *comandare* ‘to command’ > *comando* (N) ‘command’
    c. *accumulare* ‘to accumulate’ > *accumulo* (N) ‘accumulation’
    d. *deliberare* ‘to deliberate’ > *delibera* (N) ‘deliberation’

Evidence that the derivational process goes from a verbal stem to a noun and not the other way around is the presence of pairs of de-verbals nouns, one formed with a gender marker as in (13) and the other formed with de-verbals suffixes such as ⟨mento⟩ and ⟨zione⟩ as in the subsequent examples:

(13) a. *Delibera/deliberazione* ‘deliberation’
    b. *Accumulo/accumulazione* ‘accumulation’
    c. *Rettifica/rettificazione* ‘rectification’

⟨mento⟩ and ⟨zione⟩ are derivational morphemes which select exclusively for a verbal stem. It follows that *abbandon* and *comand* are verbal stems. From the examples in (12) and (13), I propose that gender markers also function as derivational morphemes in the same way as ⟨mento⟩ and ⟨zione⟩.

Finally, a second group of productive de-verbals nouns comprises nouns ending in ⟨ito/ita⟩ and ⟨ato/ata⟩, which are built on a past participle base as shown in (14):

(14) a. *Il cucito*
    Past participle – masculine gender
    ‘the art of sewing’

b. *una cucita*
    Past participle – feminine gender
    ‘the single act of sewing’
According to Scalise (1992), in these nouns, the feminine gender marker (a) functions as a derivational morpheme. The same is also true for the masculine marker (o). Assuming, like Cinque (1999), that a past participle is built on VoiceP, it follows that the gender marker is merged with a VoiceP rather than with a simple v-stem.

With regard to the derivation of de-verbal nouns, as demonstrated by Alexiadou 2001 and Ferrari-Bridgers (2006), the merger of the feature [n] with a VoiceP or ApplicativeP yields a noun whose underlying structure includes a large chunk of the vP-IP structure. For instance, using Cinque's (1999) or Pykkänen's (2002) representation of the vP-IP structure, a de-verbal noun built on a VoiceP as in (14b) shows the following underlying structure:

\[
\text{(15)} \quad [\text{nP} \ [\text{VoiceP} \ [\text{AspP}^4 \ [\text{CausP} \ [\text{ApplP} \ [\text{XP} \ [\text{vP} \ [\text{VP} \ [\text{LP}]])]])]]]]
\]

In summary, both the Italian and the Luganda data confirm the initial claim that gender and class morphemes function as derivational n-heads, whose merger with different types of bases forms a noun. Given it is through the presence of a gender/class morpheme that an XP acquires a nominal reading, one can conclude that gender and class correspond to the nominalizer feature [n]. From the data and observations in sections (2) and (3), one can conclude that gender and class are the same feature at both the derivational and inflectional level.

4. The syntactic representation of simple nouns

As stated above, I claim that both Italian and Luganda simple nouns are formed via the merger of a nominalizer head [n] with a nominal stem. The underlying representation for nouns in both languages is given in (16):

\[
\text{(16)} \quad [\text{nP} \ [\text{w} + (\text{n})]]]
\]

Before explaining how the structure in (16) applies to both Italian and Luganda nouns, I outline briefly the syntactic framework underlying my analysis.

4.1 The Framework

Syntactically, I assume that Kayne's Linear Correspondence Axiom (LCA) (1994) applies at all levels of representation, i.e., at CP, IP, VP, DP and nP levels.
Kayne (1994: 40–41) suggests that compound nouns and verbs such as "can opener" and "overturn" are the result of the adjoining of separate XPs followed by movement. In the same vein, in this paper I claim that simple nouns as represented in (16) are the result of adjoining two separate XPs and, like all other major constituents, are subject to the LCA.

According to the LCA, specifiers are universally merged on the left of X and all movement is upward and leftward. Because specifiers are merged obligatorily and solely on the left of the head, Kayne (1994: 47) suggests that UG imposes a Spec-Head-Complement order which makes it unlikely to account for word order variations through a "directionality parameter". This implies that many of the word order differences between languages or "sub-parts of languages" are not the by-product of a difference in their parametric setting, but the result of different combinations of movements. With regard to movement within the LCA, Kayne (1998, 2000, 2005); Koopman & Szabolcsi (2000) and Roeper (1999) consider syntactic movement leftward, overt and preferably of the phrasal type.

Within this syntactic framework, I illustrate how the structure in (16) and the LCA accounts for the representation of Luganda and Italian nominals in (4.2); I discuss the modality of movement in simple noun formation processes in (4.3); and, finally, I rule out the possibility that the symmetric order of the feature [n] in Italian and Luganda is the result of a parametric variation in (4.4).

4.2 The analysis

With regard to the specific derivation of nouns in Italian and Luganda, the Spec-Head-Complement order predicts that, if the feature [n] is the head of the noun, then [n] selects LP as its complement. As a result, LP is found on the right of [n] as given in (16). It follows, therefore, that a final rightward position of the feature [n] with respect to LP, as in the case of Italian feminine nouns in (2b), is the result of movement.

As previously established by the analysis in Section (3) above, the feature [n] corresponds to the gender/class feature. At the formal level, as also noted by Harley (2005: 12), the nominalizer [n] can be either phonologically null [o] or phonologically realized. For instance, in English, Harley indicates that [n] is either null [o] or realized as an n-marked derivational morpheme, e.g., -ity, -ment) and -tion, etc.

Similarly, in Luganda, [n] has different morphological realizations. The feature [n] is phonologically null for nouns of class 9 and for loans mostly belonging to class 9. The feature [n] is morphologically realized for nouns of all the other
classes, including loans found in class 5. Based on these observations, I propose the following syntactic representation of Luganda simple nouns in (17) below:

(17) a. [nP [ø-cl.9 [bbulu-n]]] 'blue'
b. [nP [ki-cl.7 [ntu-n]]] 'thing'
c. [nP [b-cl.5 [bere-n]]] 'breast'
d. [nP [mu-cl.1[ntu-n]]] 'man'

The structure in (17) is the result of the merger of the head [n] with a nominal stem. The feature [n] surfaces on the left of its LP complement in agreement with the head-complement order imposed by the LCA. Move, therefore, does not intervene and the derivation of Luganda simple nouns is complete.

Somewhat different and more complex is the case of Italian, for which I propose two different derivations. I argue that masculine nouns, represented in (18a–c), like Luganda simple nouns, are the result of the merger of the feature [n] with a nominal stem and do not require movement. The derivation of feminine nouns, on the other hand, includes syntactic movement of the LP as indicated in (19).

(18) a. [nP [n-ø [tavol (ø) -n]]] 'table'
b. [nP [n-ø [bar-n]]]
c. [nP [n-ø [fior (ø) -n]]] 'flower'

(19) a. [nP [n-a [cas-n]]]
b. Movement of LP > [nP [cas-n]:i [n-a [t]]]

In accordance with the representations in (18a–c), I claim that the nominalizer head [n] is phonologically null, [ø], which means that the structure in (16) is able to account simultaneously for three types of masculine nouns: nouns ending in (ø); nouns ending in (e); and loans. The null nature of [n] also provides insight as to why non-nominal parts of speech, such as adverbs and conjunctions, are masculine once they are nominalized although they do not show any masculine morphology; e.g., perché "why" becomes il perché “the-mas why”.

Furthermore, the phonologically null nature of [n] predicts that the final vocalic segments (e) and (ø) are not gender morphemes, but rather simple epenthetic segments added to the n-stem for syllabification purposes in order to avoid word-final coda consonants. We saw that this prediction is borne out for the vowel (e), whose epenthetic nature is exemplified in its tendency to undergo truncation as shown in (5) and (6) above.

Following Cardinaletti & Repetti (2003: 7), I claim that the epenthetic nature of (ø) is implicit in its morphological neutrality. The final vowel (ø), in fact, can be considered as morphologically neutral, because it can be found in: (i) morphological salient positions, i.e., when (ø) is suffixed to noun and adjective stems and
functions as a gender marker; and (ii) in morphological non-salient positions, i.e., as an ending for gerunds (cantando “singing”); adverbs (poco “a little”, poco “a little”, tanto, “a lot”, presto “early”); quantifiers and indefinite pronouns/adjetives (uno “one”, qualcuno “someone”, altro “else”, nessuno “nobody”, tutto “all”, tanto “much”).

According to Cardinaletti & Repetti (2003: 6), morphological saliency has been shown to be one of the factors which allow morphological neutral segments to be reanalyzed as inflectional morphemes. In Italian, for instance, stem final positions are considered morphologically salient, given that most of the morphological information is expressed through suffixation. This explains why, in loan words, the end vocalic segment (o) is often reanalyzed as masculine gender, e.g., mango > manghi, tango > tanghi. In addition to morphological neutrality, the empty ether nature of (o) is also suggested by the fact that (o), as we saw for (e), is subject to deletion when preceded by (l, n, r, m), i.e., the phenomenon of “troncamento” as shown in (20):

(20)   a.  Che bel ciel-(o) sereno, che cè stasera!
      'What a beautiful clear sky, there is tonight!'
     b.  L’oracol-(o) di dio non mente mai.
      'God’s oracle never lies.'

Nespor (1990) argues that “troncamento” is a lexical rule which applies mainly to verbs. Nominal and adjectival truncated forms are lexicalized items. However, according to Vogel (1983) and Meinschäfer (2004), the rule of “troncamento” applies to all lexical categories. Meinschäfer’s analysis of an extensive corpus of spoken Italian (300,000 words) shows that the reason why “troncamento” seems to operate more freely on verbs than on nouns and adjectives is linked to the fact that the prosodic domain of the final vowel deletion is the phonological phrase and not the intonational phrase, as previously assumed. Final vowel deletion is, therefore, subject to constraints on prosodic branchingness of the phonological phrase (Nespor & Vogel 1986), as she illustrated with the following two examples:

(21)   a.  Prosodic non-branching, final vowel deletion applies optionally
      [Per fare delle previsioni]j > [per far delle previsioni]
     b.  Prosodic branching, final vowel deletion does not apply
      [Per fare]f [delle previsioni]j > *[per far]j [delle previsioni]

The impossibility of applying the rule at the boundaries of phonological phrases explains why verbs are more susceptible to “troncamento”. Nouns and adjectives, unlike verbs, often occur in the final position of a phonological phrase where they cannot easily undergo “troncamento.”
Finally, the examples in (22) show a group of masculine nouns which freely alternate between ⟨o⟩ or ⟨e, e, o⟩ as their final endings, without a gender change.

(22)  
  a.  forestier/forestiero/forestiere ‘foreign’  
  b.  ananas/ananassee/ananasso ‘pineapple’  
  c.  corsier/corsiero/corsiere ‘charger’  
  d.  destrier/destriero/destriere ‘war horse’  
  e.  scialle/sciallo ‘shawl’  
  f.  cece/cecio ‘chickpea’

Given the morphological neutrality of ⟨o⟩, its possibility of undergoing truncation and of being interchanged with ⟨e⟩ or ⟨o⟩, I conclude that ⟨o⟩ has an epenthetic rather than a morphological nature.

The epenthetic nature of ⟨o⟩ and ⟨e⟩ confirms my hypothesis of a phonologically null nature of the nominalizer [n] and validates my proposed representation for masculine nouns as given in (18a–c). Similarly to Luganda, the structure of simple masculine nouns in Italian does not presume syntactic movement. Once the feature [n] has been merged to the n-stem, the derivation is complete. The epenthetic vowels ⟨e⟩ and ⟨o⟩ are added to the structure outside the syntax, most likely at PF.

With regard to feminine nouns, as shown in (19), the feature [n] is morphologically realized as ⟨a⟩. There is no doubt regarding the morphological nature of ⟨a⟩. Firstly, it cannot be deleted under truncation as illustrated in (7b) above, which suggests that ⟨a⟩ is a morpheme whose deletion causes a loss of information. Secondly, according to Ferrari (2005), Ferrari-Bridgers (2007) and Thornton (2001: 485, 2003a, 2003b), the correlation between feminine gender and the marker ⟨a⟩ is almost without exception from a quantitative standpoint. Finally, the morpheme ⟨a⟩ is used to express the features [+human,+female] in 99.9% of Italian nouns. In fact, there are only three counter-examples: moglie “wife”, vergine/vestale “virgin” and madre “mother”. Given the morphological nature of ⟨a⟩, it follows that ⟨a⟩ is added to the structure in the syntax.

Notwithstanding the clear morphological nature of ⟨a⟩, the derivation of feminine nouns is not complete once the morpheme ⟨a⟩ has been merged into the structure as in (19a). According to the LCA, the final rightward position of [n] derives from leftward and upward movement of its complement. This suggests that movement is necessary to derive the correct output form for feminine nouns, where the head [n] sits on the right of its LP complement as represented in (19b). One of the most challenging questions is to determine whether the correct output order in feminine nouns is derived via phrasal movement or via head movement. In the next section, looking at diminutive formation, I will make an argument in favor of phrasal movement.
4.3 Phrasal movement versus head movement

As stated above, the derivation of feminine nouns implies the presence of syntactic movement and, as suggested in (19b), I assume that movement involves the whole LP and not only the head L. The choice of phrasal movement over head movement inside a small syntactic unit such as simple nouns is based on the ability of LP, as a stem, to move independently from the feature selecting it, as I prove to be the case in the following analysis of Italian diminutives.

In Italian, diminutives are intervening heads between the LP and the n-marker as shown in (23):\(^5\)

\[
(23) \quad \begin{align*}
& a. \quad \text{cas-a} \\
& \quad \text{house-gender} \\
& \quad \text{‘house’} \\
& b. \quad \text{cas-in-a} \\
& \quad \text{house-diminutive-gender} \\
& \quad \text{‘little house’} \\
& c. \quad \text{cas-ett-a} \\
& \quad \text{house-diminutive-gender} \\
& \quad \text{‘little house’}
\end{align*}
\]

Italian diminutive heads (\textit{-in-}), (\textit{-ett-}) are n-marked derivational heads which select for a whole nP rather than for a simple LP. The data in (23) show that Italian diminutives are not marked by their own gender and that an nP modified by a diminutive head retains its own gender. As gender in Italian is expressed via the feature [n], it follows that the diminutive head merges with a full nP as represented in (24):

\[
(24) \quad [\text{Dim} \ (n)P \ [-\text{in} \ [\text{nP} \ [-\text{a} \ [\text{LP} \ [\text{cas-}]])]])
\]

With regard to the syntactic derivation of nouns modified by diminutives, I propose a two step derivation process. Firstly, the diminutive n-head merges with the nP as represented in (25a, 26a) respectively for masculine and feminine nouns. The LP then moves to the spec of the diminutive projection to derive the correct order as illustrated in (25b, 26b).

\[\quad\]

\(^5\) In Italian, adjectives can also be modified by the diminutive heads (\textit{-in-}) and (\textit{-ett-}). Semantically, however, the diminutive heads (\textit{-in-}) and (\textit{-ett-}) have different meanings depending on whether they are merged with an nP or with an aP. Contrary to the examples in (23) above, in the case of a merger with an adjective, for instance, the diminutive head (\textit{-ett-}) forms an adjective with a negative connotation rather than a simple diminutive meaning, e.g., \textit{piccoletto} does not mean “very small”, but it denotes in a negative way that a person is either too short, small or young. I interpret the meaning differences of diminutive heads used with nouns or with adjectives as an indication that these heads are not the same morphemes, but they are distinct lexical heads.
The structure in (24), however, cannot account for the derivation of feminine nouns if one assumes that the stem L moves via head movement. The movement of L as a head yields the wrong morpheme order as represented in (27):

(27)  a.  [dimP [-in [nP [n-a [LP cas-]]]]]
    b.  [dimP [alber][-in [nP [n-o [ti]]]]]
    c.  *[dimP [[casi-a]y -in [nP [n-[ty][LP [ti]]]]]]

From the data in (27), one can conclude that XP movement is the only plausible type of movement able to derive diminutive formations.6

Given the similar nominal nature of feminine nouns and diminutive formation, I posit that there is no principled reason to assume the presence of two different types of movements, i.e., head movement for feminine noun formation and phrasal movement for diminutive formation. Therefore, I conclude that XP movement is also the type of movement used for the derivation of feminine nouns.

4.4 Movement vs.
parametric variation

The hypothesis that the final output order of morphemes in feminine nouns depends on movement and is not the result of a parametric difference in the position of [n] in Italian and in Luganda is based on the following observations.

Firstly, as stated above, the structure proposed for nouns in (1a) accounts for the derivation of all Luganda nouns as well as for all masculine Italian nouns. Movement is, therefore, assumed to intervene in the derivation of feminine nouns only. Given that parameters are supposed to explain difference across languages, the hypothesis of a parametric setting seems theoretically implausible, as it would only account for the sub-class of feminine nouns.

Secondly, if the position of [n] is a matter of parametric variation in the case of diminutive formation, then the diminutive head, which is n-marked, would also have to be merged on the right of the nP. Even discounting the fact that right merger is excluded by the LCA, if the diminutive is merged on the right of the nP, it would yield the wrong output form, e.g., *cas-a-in.

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6. The hypothesis that XP movement is the only plausible type of movement within diminutive formation processes is also compatible with a framework which assumes that diminutives are adjuncts attached below or above the number node of a noun (see Bachrach & Wagner 2007).
Finally, at the typological level, as Haegeman (1994: 19) suggests, each observed difference between two languages does not necessarily correspond to a single discrete parameter. Usually “the properties with respect to which languages vary tend to organize themselves in clusters which are stable across languages and which allows us to arrive at a typology of languages. If a language has a property X, it will also have the property Y and the property Z.”

In the case of Italian and Luganda, the hypothesis of a parametric variation implies that the two languages should show other types of word order differences, such as occur with languages belonging to two different typological classes. But, according to Greenberg’s (1963) study on Universals and their relation with word order types, Italian and Luganda are part of the same class of languages labeled as type II. Both languages show VO order, have prepositions, and have Noun-Genitive and Noun-Adjective word order. The fact that Italian and Luganda are part of the same typological class weakens the hypothesis of the existence of a parametric variation as a means of explaining the differences within the [nP]. In other words, if the limited differences within the [nP] observed for Italian and Luganda were the result of a parametric difference, the two languages would display more word order differences.

5. Conclusion

In this paper, I argue in favor of a unified syntactic analysis of Luganda and Italian simple nouns with the claim that nouns are formed via the merger of the nominalizer head [n] with a nominal stem, yielding [nP [n [LP]]]. My analysis shows that the nominalizer head [n] corresponds to both the Italian gender markers and the Luganda class markers. In reaching this conclusion, I further argue that the structure in (1a) is representative for all Luganda and masculine Italian nouns, whereas Italian feminine nouns are derived by movement. In addition, looking at diminutive formations, I argue that XP movement is the preferred type of movement in derived nominal formations. Consequently, I conclude, based on the data and the syntactic analysis, that by reinterpretting the gender/class feature as a nominalizer, it is possible to account uniformly for the derivation of nouns in two languages which belong to two distinct language families.

References


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