Syntactic gradients in compounding: Bemba associative nominals vs. Italian prepositional and deverbal compounds

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In this article we compare three classes of nominal constructions: Bemba so-called 'associative nominals', a class of nominal constructions found in several Bantu languages (though we will essentially concentrate on Bemba), Italian so-called 'prepositional compounds' (or 'phrasal compounds'), a class of nominal constructions common to other Romance languages (such as French and Spanish), and a specific class of prepositionless deverbal compounds that is peculiar to Italian and is not found in the other Romance languages.

The reason for comparing such geographically and typologically distant languages is that Bantu associative nominals and Romance compounds share some important properties.

As is well known, Romance noun-noun compounds (see also Basciano et al. 2011, this volume) differ from Germanic root compounds in a number of respects. First of all, Romance noun-noun compounds are left headed, whereas Germanic root compounds are typically right headed. Also, in Romance noun-noun compounds, the two nominals are sometimes separated by a phonologically independent preposition-like element which seems to contribute in a non trivial way to the meaning of the whole compound. Germanic noun-noun compounds sometimes feature a so-called 'linking element', occurring between the two nouns. However, this element has the form of a nominal inflection marker, it is a bound form, and does not seem to contribute in any substantive way to the meaning of the whole construction.

Moreover, some recent contributions (see Delfitto & Melloni 2009, 2011) have shown that Romance prepositional compounds (that is, those noun-noun compounds featuring a preposition-like element) do not always obey the restrictions dictated by the Lexical Integrity Hypothesis and, therefore, are less morphologically encapsulated than Germanic root compounds.

Interestingly, Bemba associative nominals pattern together with Romance prepositional compounds in that they are left headed, they are composed of two nominals separated by a phonologically independent marker which seems to restrict the set of possible interpretations of the whole construction, and, arguably, they lie outside the scope of the Lexical Integrity Hypothesis.

The goal of this article is therefore to compare in greater detail Bantu associative nominals and two specific varieties of Romance com-

pounds in order to further investigate their differences and similarities from a theoretical perspective.

The paper is organized as follows. In section 1 we discuss the main structural and interpretive properties of Bemba associative nominals and consider a number of tests enlightening their degree of morphological encapsulation. In section 2 we consider Italian prepositional compounds, their structural and interpretive properties, and, by applying the same tests adopted for Bemba associative nominals, their degree of morphological encapsulation. In section 3 we discuss the preliminary results of the analysis. Section 4 offers an overview of the properties of Italian deverbal compounds, shortly considering their relationship with the two classes of nominal constructions discussed in the preceding sections. The general conclusions are found in section 5.

1. Bemba associative nominals

1.1. Internal structure and headedness

Bemba associative nominals (henceforth AN) are constituted of two nouns (N^1 and N^2), whose internal structure we will discuss shortly, and a connective occurring between the two nouns, known in the Bantu literature as 'associative marker' (AM). Their structure is schematically represented in (1). Some examples are given in (2) and (3):

(1)　N^1 + AM + N^2

(2)　u**bw**álwa **bw**a　　mataba
　　　14beer　　14AM　　6maize
　　　'beer of maize'

(3)　u**lú**kasú **lw**a　　mfúmú
　　　11hoe　　11AM　　9chief
　　　'the chief's hoe'

Bemba nouns, following a pattern found in most Bantu languages, can be decomposed into a root, a class marker (CM), and an initial vowel (IV) - often referred to as 'augment' - according to the template IV+CM+root.[1] To see an example, consider the noun *ubwálwa* in (2): *álwa* is the noun root; *bu-* (realized as *bw-* for phonological reasons) is the CM for class 14, the class the root belongs to; *u* is the IV. As the reader may have noticed, in the constructions in (2) and (3), N^2 does not have an IV; we will discuss the distribution of the IV in the second noun of AN later in this section.

The AM is a phonologically independent element that can be decomposed into a morpheme *-a* and a concoredial agreement marker, according to the template CONCORD+a. Concordial agreement is made with the noun class of N^1. For example, in (2) the AM is *bw-a*; it is constructed by attaching *-a* to the concord agreement marker of class 14, which is the class N^1 belongs to. Similarly, in (3) *lw-a* contains the class agreement marker of class 11 *lu-* because N^1 belongs to class 11. The agreement pattern is highlighted in (2) and (3) by the use of bold font.

ANs are left-headed; that is, N^1 is the head of the construction. N^1 is the structural head as it determines the class of the whole construction. In (4) the AN *ulúkásu lwa pamushí* is the subject of the sentence; crucially, the verb agrees in class with N^1 (class 11) but cannot agree with N^2 (class 16):

(4) ulúkásu   lwa   pamushí   palyá   na-lu/*pa-lubá
     11hoe   11AM   16village   16DEM   TNS-11/*16SM-lost
     'the hoe of that village is lost'

N^1 is also the semantic head of the construction: (2) refers to a type of beer; (3) refers to a hoe.

1.2. Interpretation

ANs can express a number of readings. In particular, they can express possession, kind, part-whole, location, content, purpose, material, source. Interestingly, these readings correspond to those typically expressed by the genitive (see Asher 2011), with the exception of the purpose reading. The relevant examples are provided in (5-10):[2]

(5) *Possession*:
     ulúkású   lwa   mfúmu
     11hoe   11AM   9chief
     'the chief's hoe'

     ulúsapátó   lwa   mwáana
     9shoe   9AM   1child
     'the child's shoe'

(6) *Kind*:
     ubwálwa   bwa   mataba
     14beer   14AM   6maize
     'beer of maize'

     ubwálwa   bwa   malé
     14beer   14AM   6millet
     'beer of millet'

(7) *Part-whole relation*:
     ukúúlú   kwa   nkókó
     15leg   15AM   9chicken
     'chicken's leg'

(8) *Location / place / time*
     ulukású   lwa   pamushí
     11hoe   11AM   16village
     'hoe of the village'

amasali   ya   luceelo/cuungulo
6prayers   6AM   morning/evening
'morning/evening prayer'

(9)   *Content or purpose*:   (10) *Material / source*:

ulúpe	lwa	mbalala		íngânda	ya	máloba
11basket	11AM	9groundnuts		9house	9AM	6mud

'basket of nuts'/'basket for nuts'   'house of mud'

ísáaká	lya	malasha		umúténgé	wa	nshindé
5sack	5AM	6charcoal		3roof	3AM	9reed

'sack of charcoal'/'sack for charcoal'   'roof of reed'

1.3. N^2 modification

We now consider a battery of tests assessing the possibility of manipulating N^2 by means of various types of modifications. The goal of these tests is to show whether ANs are morphological constructions, therefore obeying the restrictions of the Lexical Integrity Hypothesis, or freely modifiable syntactic constructions.

1.3.1. Adjectives

N^2 can be modified by an adjective. This is shown in (11) and (12). Notice that, in these examples, the adjective agrees in class with N^2. This agreement pattern shows that the adjective is modifying N^2 and not the whole AN:

(11)

ukuulú	kwa	nkókó	iyí-kulu
15leg	15AM	9chicken	9-big

'leg of a big chicken'

(12)

isáaka	lya	málásha	ayá-kulu	na-li-luba
5sack	5AM	6charcoal	6-big	TNS-5SM-lost

'the sack for the big charcoal is lost'

1.3.2. Relative clauses

N^2 can also be modified by a relative clause. This is shown in (13-15). Again, the agreement in class between N^2 and the relative clause marker *-yo* guarantees that the relative clause is modifying N^2:

(13)

ubwálwa	bwa	matábá	áyo	bá-shítile	máiló	na-bu-pwa
14beer	14AM	6maize	6REL	2SM-buy.PERF	yeasterday	TNS-14SM-finish

'the beer of the maize that they bought yesterday is finished'

(14) isáaka lya   matábá áyo tu-léé-fwaya   na-li-luba
5sack 5AM 6maize 6REL 2PL.SM-TNS-want TNS-5SM-lost
'the sack for some maize that you want is lost'

(15) ulukásu   lwa   mfúmu íyo   bá-á-mwééné na-lu-luba
11axe   11AM   9chief 9REL 2SM-TNS-see.PERF TNS-11SM-lost
'the axe of the chief that I saw is lost'

1.3.3. Quantifiers
N^2 can be a quantified noun phrase, as shown by the grammaticality of (16) and (17):

(16) isáaka   lya   matábá yamó   na-li-luba
5sack   5AM   6maize 6some TNS-5SM-lost
'the sack of some maize is lost'

(17) ulúkásu lwa   mfúmu   shónse na-lu-luba
11axe   11AM   10chief 10all   TNS-11SM-lost
'the axe of all the chiefs is lost'

Although the structural properties of Bantu quantifiers are still matter of debate (see Riedel 2009), the facts reported in (16) and (17) suggest that N^2 can have more structure than that of a simple noun.

1.3.4. Demonstratives
Further evidence that N^2 can be more than a simple noun is provided by the fact that N^2 can be headed by a demonstrative, as shown in (18-20):

(18) ulupé   lwa   mbalálá ishi   na-lu-luba
11basket   11AM   10nuts 10DEM   TNS-11SM-lost
'the basket for these groundnuts is lost'

(19) ukúulú   kwa   nkókó iyi   na-ku-kontoka
15leg   15AM   9chicken 9DEM TNS-15SM-broken
'the leg of this chicken is broken'

(20) ubwalwa bwa   malé   aya   na-bu-bola
14beer   14AM   6millet 6DEM   TNS-14SM-rotten
'the beer of this millet is rotten'

1.3.5. Coordination of nouns
N^2 can be a coordination of nouns, as shown by the examples in (21-23):

(21) amásaali   ya   lucéélo   na   icuunguló na-ya-támpa
     6prayers   6AM   11morning CONJ   7evening   TNS-6SM-start
     'the prayers for the morning and evening have started'

(22) ubwalwa   bwa   malé   na   ámatába   búú-kali
     14beer   14AM   6millet   CONJ   6maize   14SM.COP-strong
     'the beer of millet and maize is strong'

(23) ingáanda   ya   malóba   na   ifimuti   na-i-ónáika
     9house   9AM   6mud   CONJ   8sticks   TNS-9SM-destroyed
     'house of mud and trees is destroyed'

1.3.6. Pronominalization

N^2 can be referred back to by an anaphoric expression, as shown in (24) and (25):

(24) ulúkásu   lwa   mfúmu   na-lu-luba.   Na-i-fúlwa
     11axe   11AM   9chief   TNS-11SM-lost.   TNS-9SM-upset
     The axe of the chief$_i$ is lost. He$_i$ is very upset

(25) ukúulu   kwa   nkókó   na-ku-kóntóka. Na-la-i-pósha
     l5leg   15AM   9chicken   TNS-15SM-broken.   1SM-TNS-9OM-cure
     'The leg of the chicken$_i$ is broken. I will cure it$_i$'

1.3.7. Interim summary

The tests proposed in this section indicate that Bemba ANs are syntactic constructions whose internal constituents are fully available for modification. They also indicate that N^2 can be more than just a noun, as it can be headed by a quantifier or a demonstrative. Finally, the pronominalization test indicates that N^2 introduces a discourse referent, which can be referred back to by an anaphoric expression.

1.4. Recursion

We now look at the recursion properties of ANs. The example in (26) shows that the head of an AN can be itself an AN. That the bracketing proposed in (26) is correct is suggested by the fact that the second AM agrees in class with *ulúpé*, the head of the first AN:

(26) [[ulúpé   lwa   matábá]   lwa   bamáma]
     5basket   5AM   6maize   5AM   2grandmother
     '((grandmother's) maize basket)'

The example in (27) shows that N² can be an AN. Again the bracketing proposed reflects the fact that the second AM agrees with *bamáma*.

(27) [ulúpé   lwa   [matábá   ya   bamáma]]
     5basket   5AM   6maize   5AM   2grandmother
     '((grandmother's maize) basket)'

Other cases of complement recursion are provided in the sentences (28-30):

(28) úlupé   lwa   matábá   ya   bamama   na-lu-luba
     11basket   11AM   6maize   6AM   2grandmother   TNS-11SM-lost
     'the basket of maize of grandmother is lost'

(29) ísáaka   lya   malasha   ya   pamushi   na-li-luba
     5sack   5AM   6charcoal   6AM   16village   TNS-5SM-lost
     'the sack for charcoal of the village is lost'

(30) umuténge   wa   nshindé   sha   kumúmaná   na-u-wa
     3roof   3AM   10reed   10AM   17river   TNS-3SM-fall
     'the roof of reeds of/from the river has collapsed'

There is an interesting constraint on head recursion which, as we will see, holds also for Italian prepositional compounds. Notably, a possession reading cannot precede a purpose reading. This is demonstrated by the plausibility of (31) and the unsoundness of (32):

(31) ínôngó   ya   kumushí   ya   bamáma
     9calabash   9AM   17village   9AM   2grandmother
     'grandmother's calabash of the village'

(32) # ínôngó   ya   bamáma   ya   kumushí
     9calabash   9AM   2grandmother   9AM   17village
     'grandmother's calabash of the village'

1.5. Initial vowel

As discussed at the beginning of this section, Bemba nouns, following a pattern found in most Bantu languages, can be decomposed into root, CM and IV, often referred to as 'augment'. The constraints on the distribution of the IV are still a matter of debate (cf. de Blois 1970, Hyman & Katamba 1990, Ferrari-Bridgers 2009). However, in

the case of ANs it is clear that the IV can appear on N^1 but cannot appear on N^2 (this property is shared with the class of Bemba nominal compounds that is discussed in Basciano et al. 2011, this volume).

The fact that the IV cannot appear on N^2 may be relevant for the analysis of the structural properties of N^2. Recent contributions on the IV suggest that the IV is associated with the D(eterminer) position. The obligatory absence of the IV on N^2 may then be taken as evidence that N^2 is not a full DP but a smaller chunk of nominal structure. This conclusion however contrasts with the observation that N^2 can be headed by a quantifier or a demonstrative, which are likely to occupy a D-related position (see Riedel 2009 on this issue). It should also be noticed that things may be more complicated than this given that the IV can appear on the second conjunct of a conjoined N^2, as shown by the examples in (21-23).

In this respect it is worth noticing that quantifiers and demonstratives interact in a non trivial way with the IV. Bemba quantifiers and demonstratives can occur either in prenominal or postnominal position, the former option being the marked one. Within ANs both options are available: N^2 can be headed by either a prenominal or a postnominal quantifier or demonstrative. In the case N^2 is headed by a postnominal quantifier or demonstrative, N^2 cannot take the IV, as demonstrated by the minimal pairs (33a-b) and (34a-b). However, in the case in which N^2 is headed by a prenominal demonstrative or quantifier the IV can appear on N^2, as demonstrated by the pairs (33c-d) and (34c-d):

(33) a. úlupé   lwa   mbalálá   ishó   na-lu-luba
          11basket   11AM   9nuts   9DEM   TNS-11SM-lost
      b. *úlupé   lwa   imbalálá   ishó   na-lu-luba
          11basket   11AM   9nuts   9DEM   TNS-11SM-lost
      c. úlupé   lwa   ishó   mbalálá   na-lu-luba
          11basket   11AM   9DEM   9nuts   TNS-11SM-lost
      d. úlupé   lwa   ishó   imbalálá na-lu-luba
          11basket   11AM   9DEM   9nuts   TNS-11SM-lost
      'the basket of those nuts is lost'

(34) a. úlupé   lwa   mbalálá   shimó   na-lu-luba
          11basket   11AM   9nuts   9some   TNS-11SM-lost
      b. *úlupé   lwa   imbalálá   shimó   na-lu-luba
          11basket   11AM   9nuts   9some   TNS-11SM-lost
      c. úlupé   lwa   shimó   mbalálá   na-lu-luba
          11basket   11AM   9some   9nuts   TNS-11SM-lost
      d. úlupé   lwa   shimó   imbalálá na-lu-luba
          11basket   11AM   9some   9nuts   TNS-11SM-lost
      'the basket of some nuts is lost'

1.6. Summary

To briefly summarize the results presented so far, Bemba ANs are left-headed, open to a variety of interpretations (largely corresponding, with exception of the purpose relation, to the interpretations encoded by genitival structures) and open to recursion. N^2 can be modified by an adjective or a relative clause and can be headed by a quantifier or a demonstrative. Moreover, N^2 can be a conjunction of nominals and can be referred back to by a pronoun.

2. Romance phrasal / prepositional compounds

2.1. Internal structure and headedness

Romance phrasal compounds (PCs) consist of two nouns and a preposition-like particle (P). Their structure is schematically represented in (35). Some examples are reported in (36), from Italian, (37), from French, and (38), from Spanish. In Italian PCs, P is chosen among one of the following prepositions: *di*, *da*, and *a*. The choice of the preposition is relevant for the meaning of the compound. For example, (36a) denotes a glass filled with wine, whereas (36b) denotes a glass whose prototypical use is to contain wine. Crucially, the two PCs differ only in the choice of P. We will investigate the semantic properties of PCs later in this section:

(35) $N^1 + P + N^2$

(36) a. Bicchiere di vino
       glass   DI   wine
       'glass of wine'
    b. Bicchiere da vino
       glass   DA   wine
       'wine glass'
    c. Porta a vetri
       door   A   glass(pl)
       'door made of glass'

(37) Fr.verre à vin
       glass   A   wine
       'wine glass'

(38) Sp.pantalones de   campana
     trousers   DE   bell
    'bell trousers'

PCs are left-headed. N^1 is the element determining the grammatical features of the whole construction. For example, the N^1 of (36c) is marked for feminine gender; accordingly the whole PC is marked for feminine gender, as demonstrated by the agreement pattern in (39):

(39) La   porta   a   vetri   è   rotta
    The   door.F.SG   A   glass.M.PL   is   broken.F.SG

N^1 is also the semantic head of the PC: (36b) refers to a type of glass; (36c) refers to a type of door.

2.2. Interpretation

The interpretation of PCs is highly constrained. Delfitto, Fábregas & Melloni (2008, forthcoming) propose that the interpretation of PCs is constrained in ways "that correspond to the activation of the default predicative structures made available by the '*Qualia*' information encoded on the head". That is, N^2 introduces a predication about one of the four *Qualia* of the head N^1. Some examples are reported in (40-43). In (40) *stella* predicates something about the formal properties of the head, that is, its having the shape of a star. In (41) *vetri* predicates something about the constitutive properties of the head, that is, its being made of glass. In (42) *pallottola* predicates something about the agent in the event of coming into being of the head, that is, its having been made by a bullet. In (43) *pane* predicates something about the prototypical use of the head, that is, its being a knife for cutting bread:

(40) chiave a stella → FORMAL *quale* (a key which has the shape of a star)
    key A star

(41) porta a vetri → CONSTITUTIVE *quale* (a door made of glass)
    door A glass(pl)

(42) foro di pallottola → AGENTIVE *quale* (a hole made by a bullet)
    hole DI bullet

(43) coltello da pane → TELIC *quale* (a knife whose prototypical use is to cut bread)
    knife DA bread

As we saw, the choice of P is relevant for the meaning of the whole PC. However, pairs such as (40)-(41) and (36a)-(42) indicate that there is no one-to-one correlation between the choice of P and the *quale* being predicated. Only preposition *da* seems to strictly correlate with telic *quale* predications.

Moreover, it is important to observe that there is a class of PCs featuring the preposition *di* that have a locative reading. Some examples are reported in (44-46). However, as we will see later in this section, the tests concerning N^2 modification show that *di*-PCs with a locative reading are far more constrained than the PCs that predicate a property of the head's *Qualia* structure. This suggests that locative PCs should be treated as an independent class:

(44) Casa   di   campagna
      house   DI   countryside
      'country house'

(45) Frutta di   stagione
      fruit   DI   season

(46) Quartiere di   periferia
      district   DI   suburb

2.3. N^2 modification

As we did for Bemba's ANs, in order to assess the degree of lexical integrity of PCs, we consider a battery of tests concerning the possibility of manipulating N^2.

2.3.1. Adjectives

The examples in (47-50) show that N^2 can be modified by an adjective:

(47) camicia   a   quadri   rossi
      shirt   A   square(pl)   red
      'shirt with red squares'

(48) porta   a   vetri   opachi
      door   A   glass.PL   opaque
      'door made of opaque glass'

(49) bicchiere   da vino   rosso
      glass   DA wine   red
      'glass for drinking red wine'

(50) bicchiere di birra scura/filtrata
      glass   DI beer   dark/filtered
      'glass of dark/filtered beer'

Notice, however, that all the adjectives used in (47-50) express individual-level properties (that is, inherent, non-contingent properties; for the distinction between individual-level and stage-level predicates see Carlson 1980). Pairs such as (51-52) suggest that N^2 cannot be modified by an adjective expressing a stage-level property (that is, a contingent, non-inherent property):

(51) vestito di seta lucida /*sporca
      dress   DI silk   bright /soiled
      'dress made of bright/soiled silk'

(52) porta a vetri doppi /*rotti
      door   A glass.PL double /broken
      'door made of double/broken glasses'

As for locative PCs (that is, PCs featuring the preposition *di* and a locative interpretation), notice that N^2 cannot be modified by an adjective, even in the case in which the adjective expresses an individual-level property:

(53) *casa di [campagna francese]
      house   DI countryside   French

(54) *appartamento di città piccola
      flat   DI city   small

(55) *frutto di stagione fredda
      fruit   DI season   cold

2.3.2. Relative clauses

The distinction between stage-level and individual-level predicates holds also for relative clause modification. Examples (56) and (58) show that N^2 cannot be modified by a relative clause expressing a stage-level property. The examples remain ungrammatical also when a reduced relative clause is used. On the other hand, examples (57) and (58), featuring a relative clause expressing an individual-level property, are significantly more acceptable. Also, according to some speakers, (57) and (58) are perfectly acceptable if a reduced relative clause is used:

(56) *bicchiere   da   vino   (che ho)   bevuto   ieri
      glass   DA   wine   (that 1s-have) drunk   yesterday

(57) ? bicchiere da vino   (che è) invecchiato almeno cinque anni
      glass   DA wine (that is) aged   at least   five   years

(58) *porta a   vetri   (che sono stati) imbrattati dai   teppisti
      door   A   glasses (that have been)   soiled   by-the hoodlum

(59) ? porta a   vetri   (che sono stati) prodotti a Murano
      door   A   glasses (that have been)   crafted   in Murano

As for locative PCs, the examples in (60-63) show that N^2 cannot be modified by a relative clause, be it stage or individual-level, full or reduced:

(60) *quartiere di periferia (che è stata) trascurata dal sindaco
      district   DI suburb   (that has been) neglected   by the mayor

(61) *quartiere di   [periferia (che si trova)   sul mare]
      district   DI   suburb   (that is located)   on the sea

(62) *casa   di [campagna (che è stata) comprata dalla famiglia Tepper]
      house   DI countryside   (that has been) bought   by the Tepper family

(63) *casa   di [campagna che si estende per molti ettari]
      house   DI countryside   that extends   over many hectares

2.3.3. Quantifiers

The examples in (64-67) show that N^2 cannot be headed by a quantifier:

(64) *bicchiere da ogni   vino
      glass   DA every   wine

(65) *camicia   ad alcuni quadri
      shirt   A   some   squares

(66) *porta a molti   vetri
      door   A   many   glasses

(67) *vestito   di qualche seta
      dress   DI some   silk

(68) *frutta di   ogni stagione
    fruit   DI   every season

2.3.4. Demonstratives

N^2 cannot be headed by a demonstrative, as demonstrated by (69-70). However, the sentences in (71-72) suggest that the N^2 of locative PCs can be headed by a demonstrative (it remains to be seen whether the constructions in (71-72) are true PCs or more complex genitival structures):

(69) *bicchiere   da   quel vino
      glass   DA   that   wine

(70) *camicia   a quei quadri
      shirt   A those squares

(71) Gianni ama gli   appartamenti di quella città
     Gianni loves   the   apartments   DI that   city

(72) ? Gianni ama la   frutta di   questa stagione
      Gianni loves   the   fruit DI   this   season

2.3.5. Coordination of nouns

N^2 can be a coordination of nouns, as shown by (73-75). Coordinations within locative PCs trigger contrasting judgments. Yet, examples such as (76) are quite acceptable:

(73) camicia   a quadri   e   righe
      shirt   A squares   and stripes

(74) bicchiere da vino e   birra
      glass   DA wine   and beer

(75) bicchiere di acqua   e   vino
      glass   DI water   and wine

(76) ? Gianni ama le case di campagna e   città
      John   loves the houses DI countryside and   city

2.3.6. Pronominalization

The referent of N^2 can be resumed by a pronoun. This holds at least for the cases in (77-78). Judgements are less clear in the case of PCs expressing a telic *quale* predication (cf. Bassac & Bouillon 2001). Yet, (79) is quite acceptable:

(77) Ho comprato una camicia a quadri$_i$ che ne$_i$ ha di diversi colori e
dimensioni
'I bought a shirt with squares that has them in different colors and
measures'

(78) Voglio un bicchiere di [vino bianco]$_i$, perché lo$_i$ preferisco al rosso
'I want a glass of white wine because I prefer it to the red'

(79) ? Voglio comperare dei bicchieri da [vino bianco]$_i$, perché lo$_i$ preferi-
sco al rosso
'I want to buy some glasses for white wine because I prefer it to the red'

Also in the case of locative PCs judgments are not clear. Yet, a
sentence such as (80) is rather acceptable:

(80) ? Voglio una casa di campagna$_i$, perché la$_i$ preferisco alla città
'I want a house in the country side because I prefer it to the city'

2.3.7. Interim summary
The tests proposed in this section indicate that Italian PCs are
more constrained than Bemba ANs. N^2 can be modified by an adjec-
tive or a relative clause only as long as the modifier expresses an indi-
vidual-level property. Moreover, N^2 cannot be headed by a quantifier
or a demonstrative. However, Italian PCs are not completely opaque:
N^2 can be a coordination of nouns and its referent can be resumed by
a pronoun.
These tests also show that locative PCs constitute a relatively
independent class as they do not allow N^2 modification, even by adjec-
tives or relative clauses expressing an individual-level property.

2.4. Recursion

Italian PCs can be recursive. Examples (81-82) show that the
head of the PC can be itself a PC. Examples (83-84) show that N^2 can
be a PC:

(81) [Vestito   da sera]   di seta
     dress   DA evening   DI silk

(82) [Vestito   di seta]   da sera
     dress   DI silk   DA evening

(83) Fodero   da coltello   da macellaio
     sheath   DA knife   DA butcher

(84) Bicchiere di vino   da degustazione
    glass   DI wine   DA tasting

We observed that in Bemba ANs a possession relation cannot precede a purpose relation. A similar constraint seems to hold also for Italian PCs. The pair (85-86) shows that a *di* measure phrase cannot precede a *da* phrase expressing a telic *quale* property:

(85) bicchiere da birra di vino
    glass   DA beer   DI wine

(86) *bicchiere   di   vino da   birra
    glass   DI   wine DA   beer

We speculate that this constraint may be reducible to a more general constraint disallowing stage-level modifications before individual-level modifications (see Langaker 1988, 1991):

    *stage-level > individual-level.

This constraint explains, among other things, why the stage-level adjective *aperta* 'open' cannot precede the individual-level adjective *rossa* 'red', as shown by the pair (87-88), or the constitutive *quale* modification *a vetri* in (89-90):

(87) Porta   rossa aperta
    door   red   open

(88) *Porta aperta rossa
    door   open   red

(89) Porta   a vetri   aperta
    door   A glass.PL open

(90) *Porta aperta a   vetri
    door   open   A glass.PL

2.5. Summary

To briefly summarize the results, Italian PCs are also left-headed and open to recursion. However, their interpretation is restricted to expressing a modification of a *quale* of the head. N^2 can be modified by an adjective or a relative clause as long as these express an

individual-level property but it cannot be headed by a quantifier or a demonstrative. Finally, N^2 can be a conjunction of nominals and can be referred back to by a pronoun. We also pointed out some important differences between *Qualia structure* PCs and *locative* PCs.

3. Intermediate summary

Table 1 summarizes the results reviewed in the previous sections.

Table 1. Bemba associative nominals vs. Romance prepositional compounds.

	BEMBA (NON-ARGUMENT) ASSOCIATIVE NOMINALS	ROMANCE PREPOSITIONAL COMPOUNDS	
		qualia structure PCs	*locative* PCs
Head	LEFT	LEFT	LEFT
Interpretation	Genitive relations + purpose	Modification of a *quale* of the head	Location
N²+adjective	✔	✔ with i-level adj. ✘ with s-level adj.	✘
N²+relative clause	✔	✔ with i-level r.c. ✘ with s-level r.c.	✘
N²+quantifier	✔	✘	✘
N²+demonstrative	✔	✘	? ✔
[$_{N2}$ N and N]	✔	✔	? ✔
N² pronominalization	✔	✔	? ✔
Recursion	✔	✔	?

We began with the observation that Bemba ANs pattern together with PCs in that they are left headed, they are composed of two nominals separated by a phonologically independent marker which seems to restrict the set of possible interpretations of the whole construction, and in that they are syntactically 'transparent', in the sense of not obeying the usual constraints posed by the Lexical Integrity Hypothesis.

However, apart from these similarities there are a number of significant differences.

1. In ANs the form of the associative marker linking the two nouns is determined by the head of the compound through class agreement; in PCs the form of the preposition is linked to the mean-

ing of the compound (although, as we saw, there is no one-to-one correlation between form and meaning).

2. The interpretation of both ANs and PCs is rather restricted, especially if we compare these forms with Germanic root compounds. However, Bemba ANs arguably subsume the meanings of the Indo-European Genitive, plus the purpose relation, whereas the interpretation of Italian PCs is restricted to the expression of a *qualia* property of the head.

3. The N^2 of ANs can be freely modified by either adjectives or relative clauses. The N^2 of PCs can be modified by an adjective or a relative clause only in case they express an individual level property.

4. The N^2 of ANs can be headed by a quantifier or a demonstrative, whereas the N^2 of PCs cannot.

This brief summary suggests that ANs and PCs belong to quite different classes of syntactic constructions. Nevertheless, it can be concluded that both ANs and PCs cannot belong to morphology, at least as it is traditionally conceived, that is, as an independent computational module largely opaque to syntactic computations. In fact, both ANs and PCs show a significant degree of transparency.

4. A note on prepositionless genitives in Italian

In Italian, it is not only PCs that challenge the idea of a clear-cut divide between syntax and morphology but also, significantly, the class of prepositionless N+N compounds investigated by Delfitto & Paradisi (2009a-b), which contains the examples in (91):

(91) taglio spese sociali ufficio riscossione tributi
cut expenses social office collection taxes
'social-spending cut' 'tax-collecting office'
caduta foglie inizio mese
fall leaves.] beginning month
'leaf fall' 'month beginning'

This class of compounds is characterized by a set of peculiar properties summarized in (92) (see Delfitto & Paradisi 2009a-b for the relevant exemplification):

(92) (a) phonological independence of the compound constituents;
(b) semantic compositionality;
(c) licensing of ellipsis;
(d) licensing of pronominal anaphora

What interests us from the present perspective is that these properties, taken together, suggest a high degree of syntactic 'transparency'. A possibility that comes to mind is to reduce these cases of alleged compounding to a specific modality of genitive case assignment. Prepositionless genitive is well-documented both in Semitic, where it gives rise to the so-called 'Construct State' (CS), and in early phases of Romance, where it gives rise to the so-called 'Juxtaposition Genitive' (JG) of Old French (see Delfitto & Paradisi 2009a and the references cited therein). Construct State in Semitic and Juxtaposition Genitive in Romance share a number of properties, among which the aprepositional nature of the DP-complement and the strict adjacency requirement between N and the DP-complement. However, they also reveal substantial differences: the head of the construction is obligatorily articleless in Semitic (whilst the noun is normally introduced by a definite determiner in JG), and the DP-complement is obligatorily marked as +Definite and +Human in Romance (whilst there are no comparable constraints in Semitic CS, which is simply characterized by definiteness spreading effects, by means of which the definiteness or indefinitess of the DP-complement percolates to the nominal head). Moreover, residual case morphology can be detected in Romance where the genitive complement is marked with the *cas-régime* (a label subsuming syncretic morphological realization of accusative and oblique case), whereas this is clearly not the case in Hebrew and even in Arabic (cf. Shlonsky 2004), where the alleged genitival features that have been postulated in D are systematically silent. In spite of these differences, there have been suggestions that the two constructions might be amenable to theoretical unification (the interested reader is referred to Delfitto 2009), based on the idea that all prepositionless varieties of genitive assignment (or at least those connected to definiteness effects) emerge as a consequence of the activation, on the head-noun, of an unvalued definiteness feature, by means of a natural extension of the theory of genitive case developed in Pesetsky & Torrego (2004).

Quite independently of the success of these attempts, there are serious reasons to believe that the constructions in (91) represent a distinct phenomenon, whose reduction to the less standard varieties of genitive assignment under discussion looks rather problematic.

A first reason is that there is no residual case-morphology in deverbal compounds. This not only holds for the constructions in (91) in Modern Italian, but also for all cases of alleged aprepositional genitive attested in Old Italian (see below for further qualifications). This is a significant difference between (91) (and the most likely precursors of this construction-type in Old Italian) and JG in Old French.

A second reason is that the aprepositional mode of compounding exemplified in (91) is strongly productive with deverbal nouns in Modern Italian (that is, given an arbitrary deverbal noun, it is rather simple to come up with examples in which the DP-complement is realized aprepositionally). This cannot be a matter of style, register (such as the special syntax of newspaper headlines, etc.) or the result of the interaction with other sociolinguistic factors, since all these constructions are necessarily prepositional, to the best of our knowledge, in all other Romance languages in comparable linguistic settings, to the effect that Italian seems totally isolated in this respect. This is even more striking if one considers that JG is not exclusively licensed by deverbal nominal heads in Old French.

Third, there is some evidence that the special status of the class of constructions in (91) is already detectable in early phases of Italian. In fact, constructions that might be amenable to the variety of JG traditionally found in Old French are present both in Old Italian (cf. (93)) and in many (Southern) dialects of Modern Italian (cf. (94)) (see Delfitto & Paradisi 2009a for a full discussion and references to the primary sources, basically consisting in practical texts from Tuscany dating back to the 14th century):

(93) a. lo prode Puccio Sinibaldi
      the interest Puccio Sinibaldi
      'Puccio Sinibaldi's interest'
   b. a nome messer Eustagio
      at name sir Eustagio
      'in the name of Sir Eustagio'

(94) a. Rosa łu síndich∂
      Rosa   the mayor
      'Rosa, the servant of the mayor' (Southern Latium)
   b. la kasa la mammana
      the house the midwife
      'the house of the midwife' (Veroli; also attested in Castro dei Volsci)

Besides these constructions, where the DP-complement is often expressed by a proper name (they are in fact largely attested also in toponyms), a distinct construction is also detected in the same sources, where the aprepositional genitive regularly expresses one of the internal arguments of a *deverbal* head noun. Some cases in point are provided in (95) (from Delfitto & Paradisi 2009a):

(95) a. facitura e cocitura lo detto pane
  making and baking the mentioned bread
  'making and baking of the above-mentioned bread'
  b. per scrivitura la sentençia contra Saracione
  for writing   the sentence   against Saracione
  'for the writing of the sentence against Saracione'
  c. reghatura una chassa da Mungnese
  transportation a   box   from Mugnese
  'the transportation of a box from Mugnese'
  d. aburattatura farina
  selection flour
  'selection of flour'
  e. Gosstommi portatura letame tra due volte . . .
  cost to me   transportation manure in two times
  'the double transportation of manure cost to me . . .'

In these constructions, as one may infer from the examples in (95), the constraints that usually apply to the DP-complement in JG do not hold: the latter can be definite as well as indefinite, and its reading can be specific as well as kind-referring. This means that not only are these constructions not articleless (the presence of the article is in fact shared by JG, as seen above), but there is also no definiteness spreading: an indefinite DP-complement is perfectly compatible with a definite reading of the head noun, as is evident from (95e) and probably also from (95c). These features arguably extend to the deverbal prepositionless constructions in Modern Italian exemplified in (91). In Modern Italian, one could point to some rocks in the middle of a mountain road while driving further and utter (96):

(96) Questa caduta massi avrebbe potuto danneggiare la nostra auto
  this   fall   rocks have   could   damage   our car
  'this rock fall could have damaged our car'

This shows that kind-reference is not as a compelling requirement, for the interpretation of the DP-complement in (91), as it might seem at first sight. Moreover, the CS and JG property according to which the nominal head and its complement need be strictly adjacent does not hold for this class of compounds, as witnessed by the relative acceptability of (97), where the adjective modifying the head noun intervenes between the latter and its nominal complement:

(97) ? Trasporto   rapido   rifiuti tossici
  transportation   fast   waste toxic
  'fast transportation of toxic waste'

On these grounds, the deverbal compounds in (91) may be taken to represent a challenging comparative puzzle: clearly, they are not characterized by the syntactic opacity effects traditionally tied to the Lexical Integrity Hypothesis, but it may not be easy to figure out how they could be reduced to a manifestation of the mode of genitive assignment exemplified by CS and JG (and arguably based on a syntactic mechanism of definiteness valuation, as proposed in Delfitto 2009).

From the point of view of the present contribution, it is fair to say that these deverbal compounds illustrate, on a par with ANs in Bemba and PCs in Italian, the case of nominal constructions that we would like to keep apart from more traditional forms of compounding, but that resist, in some way or another, a full-fledged syntactic analysis.

5. Conclusions

The three classes of nominal constructions examined in the present contribution share an interesting property: they are all syntactically 'too transparent' to be assimilated to the traditional forms of nominal compounding (on the model of, say, Germanic compounding) while resisting, at the same time, assimilation to the familiar syntactic mode of construction whereby a noun selects a full DP as its genitival complement.

There is actually a sort of gradient. ANs in Bemba look like genitives in many respects, if only we consider that their complement may be headed by a quantifier or a demonstrative, and that the set of interpretations to which they can give rise largely overlaps with those typically connected with the genitive. However, this overlap is imperfect (as witnessed by the presence of the 'purpose reading' discussed in section 1.2) and the absence of the augment in the structures where the demonstrative or the quantifier is realized postnominally may be taken to show that there are cases of ANs where the nominal complement is not a full DP.

Italian PCs are in many respects more similar to compounds: the interpretations to which they give rise are quite more constrained than those associated with the genitive. In fact, they seem to trigger the activation of the *Qualia* Structure of the head noun in the same way standard aprepositional compounds arguably do in Italian (cf. Delfitto & Melloni 2009, 2011): the role of the preposition might thus

simply consist in enhancing *Qualia* activation. However, they readily accept forms of modification of the non-head as well as they readily undergo discourse pronominalization of the non-head. Moreover, they more readily accept recursion than it is the case with the aprepositional forms of nominal compounding.

Italian deverbal compounds are perhaps in-between. On one side, they can be clearly kept apart from the aprepositional forms of genitive assignment proper to early phases of Romance, both on synchronic and diachronic grounds, as we have seen in section 4. On the other side, they remain a syntactic phenomenon, in that they readily admit recursion and modification, as well as ellipsis and pronominalization.

In order to account for the nominal constructions whose properties we have investigated in this contribution new styles of analysis and new theoretical tools are required, whereby the boundaries between morphology and syntax are completely reshaped and the gradient of 'syntactic' properties that we have detected here is fully taken into account. We leave this for future research.

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Notes

[1] For more discussion about the IV, see Basciano et al. 2011, this volume; for an in depth discussion of class markers and concord in Bantu see Carstens 2008. Interestingly, several attempts have been made to show that Bantu classes and Romance gender can be reduced to unified system of features with similar inflectional and derivational functions; on this see, among others, Corbett 1991 and Ferrari-Bridgers 2008.

[2] On this, see also Matambirofa (2000).

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