ON MASS NOUNS IN ROMANCE: SEMANTIC MARKEDNESS AND STRUCTURAL UNDERSPECIFICATION[1]

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1. Introduction

The current semantic literature on the mass versus count noun distinction can be divided into two families of approaches. The first approach, represented for instance by Link (1983) and Chierchia (1998), among others, argues that the difference between mass and count can be reduced to homogeneity or vagueness. According to the other approach, the difference is typal (Krifka, 1989; Rothstein, 2010). This paper uses insights from a phenomenon found in Romance dialects, and some new data, to support the latter family of approaches.

Our starting position is based on two assumptions. First, we assume – following Borer (2005) and Rothstein (2010), among others – that real world homogeneity (or cumulativity for that matter) does not necessarily correspond to a grammatical representation of homogeneity (or cumulativity, respectively). Furthermore, we assume that there is no one-to-one mapping between real world countability and semantic countability.

Once we take the stand that homogeneity and countability are encoded in the grammar, the question that arises is whether the encoding happens at the level of the lexicon or whether it arises through derivation. Specifically, if the difference between mass and count is typal, does it mean that typally distinct nouns must have a distinct syntactic structure? The answer to such a question is not trivial. For example, Borer's position is that a typal difference necessarily arises out of differences in the syntactic structure, whereas Rothstein defends the position that typal differences are in principle independent of structural differences, and that semantically distinct nominal structures can in principle be syntactically identical.

The empirical focus of our paper lies in the investigation of non-homogeneous agreement patterns in a large group of Italo-Romance dialects. Even though the gender system in Romance is mostly binary (M and F), some Italo-Romance (and Ibero-Romance) dialects[2] exhibit properties of a three-way gender system. Interestingly, the three-way gender system is attested only with a subset of nouns,

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[2] The Italo-Romance dialects in question are those in south-central Italy, in particular, varieties along the so-called Rome-Ancona corridor (northern boundary) to those found in Puglia and Basilicata to the south: the area includes, aside from varieties spoken in Puglia and Basilicata, dialects spoken in Campania, the southern Marche, southern Umbria, Lazio, Abruzzi, and Molise. Ibero-Romance varieties that display a similar mass-count phenomenon are located in north-western Spain, in Asturias and Cantabria. For reasons of space, this paper addresses only the properties of Italo-Romance dialects; a complete analysis would also need to account for the Ibero-Romance data.

namely, certain mass nouns (MN), and a certain productive class of deverbal nouns. Furthermore, unlike the binary gender system, the trinary gender system gives rise to surprising morphological mismatches in the agreement domain. We will argue that to understand the morphological properties of MN we must analyze them as NPs, i.e., nominal projections lacking a D layer encoding number and gender. Although our proposal refers directly to the syntactic structure, we will place the burden mainly on semantic types. Concretely, we will argue that there is a relation between the semantic type of the noun and its structure. Here we follow Winter (2000) in assuming that there is no type-shifting without D'. Interestingly, if D is semantically or syntactically required, a structure extension takes place and triggers morphological or morphophonological alternations. We will use the observed correspondence between syntactic processes (agreement) and semantic interpretation to argue that the semantic distinction between mass and count indeed has a structural counterpart. Moreover, we will go one step further and argue that since the differences in the interpretation of mass/count map onto syntactic structures, the distinction itself cannot be reduced to vagueness, but rather must be typal.

The broader questions that lie behind our investigation (and which unfortunately remain mostly unanswered due to limitations of space) concern the nature of nominal structures and their inherent morphological features; the relationship between a morphological structure and its semantic interpretation; and the very nature of type-shifting in natural languages.

The paper is organized as follows. First, we present the basic data (Section 2), then a new semantic generalization motivated by the data. Section 3 presents the actual proposal and section 4 investigates some further predictions the proposal makes.

2. The data

The surface realization of the mass versus count noun distinction in many non-standard Romance varieties shows a wide range of variation. What these variations have in common is that there is a special morphological realization which is distinct from masculine singular (M.SG.) and feminine singular (F.SG.) and which is best characterized as a "third" gender category. This third category often reveals itself in agreement relations. While some agreement relations exhibit a default morphological agreement (typically M.SG.), other agreement relations exhibit a marked morphological realization.

If we survey the relevant Italo-Romance dialects we can group the types of marked morphological realization into three general patterns based on their morphological and morphophonological properties. We call Pattern 1 the pattern that is attested in the Rome-Ancona corridor (e.g., in the dialect of Servigliano). In this pattern mass nouns exhibit an affix which is distinct from the affix attested for masculine singular count nouns. This pattern is often characterized by morphophonemic alternations in the determiner system (stemming from the presence or absence of metaphony[3]), namely on demonstratives, and sporadically in the

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[3]Metaphony is an assimilatory process whereby final vowels (affixes) exert pressure on, and ultimately change (raise or diphthongize), preceding tonic vowels. In the south-central Italian dialects,

noun stem itself. Thus, two lexically related nouns may or may not exhibit a morphophonemic alternation depending on whether the intended interpretation of the noun is mass or count, but we do find distinct determiners (definite articles, demonstratives) used with mass nouns. Examples (1)–(3) exemplify these basic properties. The Italo-Romance examples presented in this section are drawn from various sources. Examples from Celano (Abruzzi) are our own; all other examples are drawn from Andalò (1991); Leonard (1978); Maiden (1991, 1997); Penny (1994); Rohlfs (1966, 1968).

(1) *Demonstratives (distinct affixes + morphophonemic alternation)*

a.	kwístu, kwíssu, kwíllu	M.SG
b.	kwésta, kwéssa, kwélla	F.SG
c.	kwésto, kwésso, kwéllo	MN

‘this’, ‘that’, ‘that (over there)’ (Servigliano, Marche)

(2) *Morphophonemic alternation in nouns*

a.	/ferru/ ‘iron implement’	M.SG
b.	/fɛrro/ ‘iron’	MN

(Borgorose, Lazio)

(3) *Definite articles*

a.	lu	M.SG
b.	lo	MN

(Servigliano)

Patterns 2 and 3, typical for dialects south of the Rome-Ancona corridor, usually have no overt affixes because of general final atonic vowel neutralization.[4] Thus, on the noun itself gender and number distinctions are marked only by morphophonemic alternations (tonic vowels). Consequently, the mass versus count distinction is overtly expressed mainly through the inflectional morphology of determiners (definite articles and demonstratives) and direct object pronouns (cf. Maiden 1997 and Maiden 2011).

Pattern 1 and Pattern 2 may be characterized as having distinct determiners (definite articles and demonstratives). In Pattern 3 the surface realization of definite articles, demonstratives and direct object pronouns appears to be the same for mass nouns and their masculine singular counterparts, but mass noun and masculine forms differ crucially in that the mass form produces *raddoppiamento sintattico* (lengthening of the initial consonant of the subsequent word), while the

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metaphony gave rise to a morphological system quite different from the system of Standard Italian: tonic vowel alternations, stemming from changes brought about historically by widespread metaphony, generally mark number and gender on the noun (and person on the verb), rather than final atonic vowels, as is the case in Standard Italian. For a detailed discussion of Italian metaphony, and the relationship between phonologically-conditioned metaphony and the morphologization of metaphonic alternations, see Maiden (1985, 1987, 1989, 1991) and Savoia and Maiden (1997).

[4]There are some exceptions to the general pattern of final vowel neutralization. For example, in many varieties the feminine singular affix is overtly realized under certain conditions, as in *la rosa bɛllə* ‘the beautiful rose’.

masculine does not. In Pattern 3 varieties *raddoppiamento sintattico* is normally triggered by feminine plural and mass determiners and pronouns.[5] The following examples from the dialect of Celano (Pattern 2) and Neapolitan (Pattern 3) illustrate the basic characteristics.

(4)　　*Pattern 2: Demonstratives (three-way distinction)*

　　　a.　kwístə líbbrə
　　　　　'this book'　　　　　　　　　　　　　　　　　　　　M.SG

　　　b.　kwɛsta kásə
　　　　　'this house'　　　　　　　　　　　　　　　　　　　F.SG[6]

　　　c.　kwɛstə pépə
　　　　　'this pepper'　　　　　　　　　　　　　　　　　　MN

　　　　　　　　　　　　　　　　　　　　　　　　　(Celano, Abruzzi)

(5)　　*Pattern 3: Demonstratives*
　　　kistu, kissu, killu　　　　　　　　　　　　　　　　　M.SG
　　　kisto, kisso, killo　　　　　　　　　　　　　　　[+RS] MN
　　　'this, that, that (over there)'　　　　　　　　　　(Neapolitan)

As mentioned above, the three way distinction reveals itself also in the form of direct object clitic pronouns. As witnessed by examples (6)–(7), there are two non-feminine forms, unlike in the rest of the pronominal system, for a total of three distinct forms (M, F, MN).

(6)　　*Pattern 2: Direct object pronouns*

　　　a.　i védə
　　　　　'I see him/it'　　　　　　　　　　　　　　　　　M.SG pro

　　　b.　lə védə
　　　　　'I see it'　　　　　　　　　　　　　　　　　　　MN pro

　　　　　　　　　　　　　　　　　　　　　　　　　(Celano, Abruzzi)

(7)　　*Pattern 3: Direct object pronouns*

　　　a.　o　　　vidə
　　　　　it.M.SG see.1SG
　　　　　'I see it (the dog).'　　　　　　　　　　　　　　M.SG pro

　　　b.　o　　　bbidə
　　　　　it.MN see.1SG
　　　　　'I see it.'　　　　　　　　　　　　　　　　　　MN pro
　　　　　　　　　　　　　　　　　　　　　　　　　(Neapolitan)

The crucial properties of these two patterns are captured by the forms of the definite article: there are three distinct forms of the definite article in Pattern 2, and the mass noun definite article is distinct from the masculine singular definite article; in Pattern 3 the distinction between mass nouns and masculine singular nouns

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[5]For an overview of *raddoppiamento sintattico* in the south-central Italian dialects, see Agostiniani (1976); Fanciullo (1986, 1997) and Loporcaro (1997).

[6]The F.SG pronominal form of the demonstrative would be *kwɛstə*.

is expressed solely by means of *raddoppiamento sintattico*. Examples demonstrating the principal differences between Patterns 2 and 3 are given in (8)–(11). The table in (12), adapted from Penny (1994), is intended to convey the range of attested definite article forms: the first four examples show cases where the difference between mass and masculine singular is achieved by a distinction in the definite article; the latter four cases show varieties in which the masculine singular and mass definite article appear to be the same, but where the mass definite article has reduplicating power (indicated with '+RS').

(8)   *Pattern 2: Definite article*

    a.   i líbbrə
          'the book'   M.SG
    b.   lə pépə
          'the pepper'   MN
    c.   la vaʎʎɔlə
          'the girl'   F.SG

                                                                     (Celano, Abruzzi)

(9)   *Pattern 3: Neapolitan*

    a.   o kaffé
          'the (cup of) coffee'   M.SG
    b.   o kkaffé
          'the coffee'   MN [+RS]

(10)   *Pattern 3: S. Campania*

    a.   lu lúpu
          ' the wolf'   M.SG
    b.   lu llátti
          'the milk'   MN [+RS]

(11)   *Pattern 3: Puglia*

    a.   u pá:nə
          'the loaf'   M.SG
    b.   u ppá:nə
          'bread'   MN [+RS]

(12)   *Summary: definite article*

variety	MN	M.SG
Norcia (Umbria)	lo	ru
Rieti (Lazio)	lo	lu
Nemi (Lazio)	o	u
Celano (Abruzzi)	lə	i
Naples (Campania)	o+	o
Bari (Puglia)	u+	u
Bisceglie (Puglia)	rə+	rə
Avigliano (Basilicata)	lu+	lu

Even though the special marking of mass nouns in Italo-Romance dialects has attracted a lot of attention in the Romance linguistics literature, to our knowledge there is no synchronic account of the data that takes into consideration the theoretical syntax-semantics literature on mass nouns. The existing accounts approach the data either from a diachronic perspective or from a Romance-internal synchronic perspective. The historical view on the Romance mass noun is that it is either a residue of the Latin neuter gender, since many mass nouns are reflexes of the Latin neuter, (Lausberg, 1965–1966; Merlo, 1906; Politzer, 1957; Maiden, 1991, 1997, 2011), or that the marked mass forms are evidence of the survival of a third Romance case, beyond the nominative and accusative (dative, genitive, ablative or syncretized form) (Hall, 1968; Leonard, 1978; Messing, 1972; Penny, 1994, 2009). Despite attempts to reconstruct the origins of the Italo-Romance and Ibero-Romance mass noun, it is not clear that a unified diachronic account is possible (one that can explain the facts of both areas): it is not entirely clear whether we have a case of separate but parallel innovations or common origin (cf. Lüdtke 2003 and Penny 1994). However, the focus on the origins of the Romance mass noun has relegated into the background some important facts about the phenomenon.

First of all, the special marking of mass nouns is both a productive and highly stable feature of the Romance varieties in question. As Romance linguists have noted, the special marking is found not only on mass nouns inherited from the Latin neuter (such as the words for 'honey' or 'partially fermented grape juice', respectively MEL and MUSTUM), but has been extended to 'newer' lexical items, such as the words for 'coffee' and 'tea' (Neapolitan), or for 'sugar,' 'rum' and 'saffron' (dialect of Celano). Furthermore, the special marking is not restricted to mass nouns but is found on nominalized adjectives and infinitives as well (which were neuter in Latin). What's more, the productivity of the special formation continues in contact-induced borrowing. Moro (2011) reports that speakers of Celano (Abruzzi) living in Canada derive new nominalized infinitives (corresponding, for example, to 'driving' and 'checking'); the special mass noun marking extends to various lexical items adapted from English, such as nativized forms for 'copper,' 'nickel,' 'titanium,' 'peanut butter,' 'cottage cheese,' 'brown sugar,' 'baby oil,' 'baking powder,' 'hot chocolate,' 'cornstarch,' and 'Crisco.'[7]

In addition to the high level of productivity of these forms, the pattern raises two additional theoretical and empirical challenges that remain unaddressed. First of all, the morphophonological realization of the "third" gender is in several re-

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[7]While for some of these borrowed forms the mass designation can be viewed as an extension or transfer of the category of the native equivalent (e.g., 'copper', 'butter' and 'cheese' are mass nouns in the native variety), such a strategy does not allow us to account for all examples. Assuming English headedness plays a role in borrowed compounds (and it is not clear that this should be the case, since Italo-Romance compounding seems to be predominantly left-headed; see Vogel 1990 on Italian), then 'cottage cheese' and 'peanut butter' can be explained by noting that 'cheese' and 'butter' are mass in the native variety; however, 'baby powder' and 'hot chocolate' would elude such an explanation, since both 'powder' and 'chocolate' are feminine in the speakers' first language. In the borrowed compounds a native term never substitutes either member of the compound adapted from English, even though it may dominate elsewhere: in other words, [kaʃə] 'cheese' is used more than [tʃizə], but never substitutes 'cheese' in 'cottage cheese.'

spects unlike the morphophonological realization of any other ϕ-feature(s) in Romance. Thus, for example, we observe metaphony and *raddoppiamento sintattico* instead of a single identifiable discrete morpheme as otherwise typical for Romance.

There is an additional empirical challenge raised by the data and to our knowledge not addressed in the existing literature. While masculine and feminine nouns in these varieties uniformly trigger masculine and feminine agreement, respectively, the agreement patterns attested with mass nouns is not homogeneous. Concretely, in these dialects one mass noun can trigger two distinct agreement patterns within the same structure, as exemplified in (13).

(13) So kumbratə lə   vinə.   Lə   so kumbratə pərkɛ   ɛ
      aux bought   the. MN wine.**MN**. It. MN aux bought   because is
      bbonə.
      good. M.SG
      'I bought wine. I bought it because it's good.'   (Celano, Abruzzi)

The noun *vinə* 'wine' is a mass noun. As we can see, the referential pronoun indeed realizes the mass noun agreement. However, the predicative adjective exhibits the M.SG. agreement. This is rather puzzling from the theoretical perspective because (i) the agreement pattern is not homogenous, (ii) the less marked agreement or perhaps even default agreement, i.e., M.SG., is not likely to be a result of a non-local syntactic relation because the non-local referential pronoun is still realized by the mass noun form, and (iii) as we will see later, the M.SG. agreement is sometimes attested even *within* the noun phrase headed by a mass noun. Crucially, this is an unexpected systematic pattern.

3. Proposal

Irrespectively of whether one adopts a syntactic or post-syntactic view of agreement (Chomsky 1995 vs. Bobaljik 2008, among others), the agreement pattern exemplified in (13) is puzzling because of its anti-locality properties. We argue that the agreement reflects differences in semantic types that closely correlate with the size of the syntactic structure necessary for the relevant semantic interpretation to be available. Thus the generalization of the agreement pattern observed in Italo-Romance cannot be stated in terms of syntactic locality. Instead, the empirically most accurate generalization needs to be stated in semantic terms:

(14) *A new empirical generalization*:
      If a mass noun may be predicative, it triggers a default vocabulary insertion. If a mass noun must be referential, it triggers a "marked" vocabulary insertion.

If this generalization is correct, the question that immediately arises is whether and how the semantic generalization may be related to differences in the syntactic structure. We argue that indeed there is a correlation, namely, we argue that the nominal projection of mass nouns is structurally deficient in that it lacks a D layer.

In other words, we argue that a mass noun is structurally an NP and as such has no number projection (Borer, 2005, among others).[8] Consequently, since gender is dependent on number, mass nouns are necessarily genderless, in the sense they are neither specified for masculine nor feminine gender which is going to be crucial for our account of the agreement pattern.

As for the semantic properties of NPs, we closely follow Winter (2000) in that we assume that DPs are rigidly quantificational, while NPs are rigidly predicative. Furthermore, we assume that type-shifting is freely available (via choice function) but crucially only if D' is present in the structure. Thus if D' is present, type-shifting may take place and consequently the noun can be interpreted as referential. If there is no D' present, the referential interpretation is not available.

What does it mean for mass nouns? If mass nouns are by default NPs they should never be interpretable as arguments, nor could they combine with determiners such as definite articles. This is clearly false. We would like to suggest that mass nouns are indeed NPs by default but the grammar can employ a *last resort structure extension* that allows the noun to integrate with the syntactic structure as if it had a D' projection. We argue that this operation is available only if the structure could not be semantically interpreted otherwise. Since a structure without D cannot get a referential interpretation – for the sake of simplicity of the presentation we will assume that referential interpretation corresponds to type e) – , a mass noun can function as type e only if some additional structure building process takes place.

How does the last resort extension strategy relate to the agreement facts? We argue that the observed agreement pattern reflects the structural and semantic duality of mass nouns in the following way: If a mass noun can be interpreted as $<e,t>$ it follows that there is no D' projection, consequently there is no gender and number feature present. Without these features no Agree valuation takes place and consequently the overt agreement is realized as the morphological default. In our case we obtain M.SG. on predicative adjectives.

In contrast, if the structure requires type $<e>$, for instance when the ϕ-feature values are morphologically realized on a referential pronoun, an additional structure must be introduced. The marked morphological realization we see in these cases – our "third" gender – is a direct reflex of the last-resort semantic process implemented as a structural adjustment.

The proposal does not directly answer the question of whether the agreement pattern is a reflex of structure building or whether it could be an overt manifestation of type-shifting and, as far as we can tell, our data do not provide a clear answer. If this indeed was a reflex of type-shifting, what would it mean for the grammar architecture? Similarly, if this was a case of structure building, how could it be formally motivated? At this moment we are not in the position to answer either of these questions but we can speculate about the theoretical possibilities.

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[8]The limited space does not allow us to address here the question of the semantic interpretation of mass nouns. We assume the view of plurality articulated in Landman (2000). It is not obvious how our proposal could be executed in semantic systems such as that of Chierchia (1998, 2010).

One possibility is that the additional structure building might be the result of a selectional requirement. Alternatively, structure building might be the result of a phasal requirement. As for the former option, we know that at least some determiners etc. require a referential object, i.e., they select for D'. Thus the structure might have to be extended in a way analogous to Wurmbrand's account of insertion of functional projections in infinitives only if needed for c-selection.

As for the phasal requirement hypothesis, it might be the case that Merge is a set operation that requires one of the sets to be a singleton. Such a requirement might be necessary for computing labels or headedness in general. Consequently, an argument may be externally merged only if it has been previously spelled-out. Such a requirement might be responsible, for instance, for the fact that only CPs but not TPs may be merged in the subject position.

For the sake of concreteness we will assume the following technical implementation which does not discriminate between the c-selection and the phasal hypotheses. We assume – in the line of Distributed Morphology – that for structure adjustment to be possible, feature insertion must take place (Noyer, 1992; Embick, 2000) and be followed by vocabulary insertion (Halle and Marantz, 1993). It is the process of vocabulary insertion that reflects a structural "deficiency", i.e., the lack of a valued gender feature (M or F). In turn, the structural deficiency is overtly reflected in the choice of the elsewhere agreement, in our case M.SG.

4. Further predictions

Our proposal makes some concrete predictions that can be further tested. First of all, if a mass noun NP gets modified by something that is of type $<e, t>$ it should be irrelevant whether the modifying element is locally adjacent (or attached) to the noun or whether it is non-local. Thus quantifiers as possible NP modifiers should pattern as predicative adjectives rather than demonstratives or definite articles, irrespectively of whether they are merged within the nominal projection of the mass noun or whether they are in a predicative position. This prediction is indeed borne out as witnessed by (15).

(15)   pokə   vinə
        'little.M.SG. wine.MN'   (Celano, Abruzzi)

Another prediction concerns non-quantificational adjectival modifiers. Non-quantificational adjectival modifiers in Romance can be either post-nominal or pre-nominal. Usually, the post-nominal adjectives are analyzed as adjoined to NP, while the pre-nominal position is result of movement to a higher functional projection. According to our proposal, since post-nominal adjectives combine directly with NP, they should reflect the D-less NP structure and as such should show an $<e, t>$ type of agreement, i.e., M.SG. In contrast, since pre-nominal adjectives need to adjoin to a structurally adjusted nominal structure, we expect them to display the marked mass noun agreement. This prediction is borne out as well, as witnessed by the following Neapolitan examples from Andalò (1991). As we can see, the post-nominal adjectives does not trigger *raddoppiamento sintattico* exactly as we expect under the default masculine singular like behavior. In contrast,

the pre-nominal adjective, unlike its masculine singular counterparts, does trigger *raddoppiamento sintattico*.

(16)   a.   panǝ pɔvǝrǝ
            bread poor   M.SG/[−RS]
       b.   pɔvǝru ppanǝ
            poor   bread   MN/[+RS]

      In addition to these predictions, our proposal might shed light on the intuition of native speakers who tend to describe mass nouns as "feeling" like masculine. Furthermore, if the switch from unmarked to marked gender valuation corresponds to being [−M] it follows that the morpho-phonological realization of mass nouns is often similar to the morpho-phonological realization of feminine.

      To conclude, we have provided evidence from Italo-Romance dialects that there is a structural difference between mass nouns and count nouns and this difference has a direct semantic counterpart. Consequently, it follows from our proposal that the difference between mass nouns and count nouns is typal and as such cannot be reduced to homogeneity or vagueness. The open question is whether it is always the case that a typal difference has to translate into a structural difference. We believe that the answer is in principle negative since the observed Italo-Romance pattern results from a conspiracy of several morpho-syntactic and morpho-semantic factors, but the question remains open to further investigation.

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