Semantic restrictions on diminutive formation: evidence from Italian
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The aim of this contribution is to investigate the problem of restrictions on the selection of the domain of diminutives suffixes. The data we will consider here are mainly from Italian. We have chosen to limit these considerations to nouns; therefore we have excluded from our research the adjectival, verbal and adverbial alteration (*bellino, verdino; corricchiare, saltellare*; *benino, maluccio*).
Rainer [1989] -one of the few recent works on diminutives- makes the hypothesis that the feature [+ b(ounded)], introduced by Jackendoff [1983; 1990; 1991], could be a good starting point in order to explain, at least partially, the distribution of diminutive suffixes. Here we try to demonstrate that the feature [± b] by itself is not sufficient to solve all the problems. It is necessary in fact to deal with the so-called 'mass nouns', which can be largely diminutivized, even though they are [- b].
The solution we suggest consists in the introduction of a new feature [± 'delimitable'] (± d), which should work to the extent that a nominal base is [- b]. Finally we will show an interesting correlation between diminutives and plurality.

1. Theoretical background

Among the recent works on diminutives, there are relatively few which deal with constraints on their domain of application. It has often been claimed that alterative affixes are attached to all nouns and adjectives without any restriction, and sometimes this assumption has been used as evidence that they are inflectional affixes. The data clearly does not confirm this idea (**coraggino, *coraggione,* 'courage+DIM / AUGM', **fantasietta, *fantasiona,* 'imagination+DIM / AUGM).

Rather, the distribution of alterative affixes represents the result of a complex interaction of formal and semantic factors. Rainer [1989: 210] suggests that in order to constrain the distribution of diminutive suffixes, one can resort to the feature [+bounded], introduced by Jackendoff [1983; 1990; 1991]. In the following sections we will try to develop this suggestion.

2. A semantic restriction on diminutive suffixes

2.1. The semantic features [± b(ounded)] and [± i(nternal structure)]

The features [±b(ounded)] and [± i(nternal structure)] have been introduced by Jackendoff (1983 ; 1990 ; 1991) in order to give a formal representation of the distinction between plural, countable and uncountable nouns.

In Jackendoff's terms (1991 : 19), [+ b] nouns have clear, but not necessarily inherent boundaries :

> « a speaker uses a [−b] constituent to refer to an entity whose boundaries are not in view or not of concern [...]. This does not entail that the entity is absolutely unbounded in space or time ; it is just that we can't see the boundaries from the present vantage point. »

Nouns such as *dog, walk, table*, which denote individuals, have clear limits and are consequently [+ b]; *courage, water, sugar*, on the other hand, denote unbounded entities, mainly substances and aggregates, and are [-b].
It is interesting to note that nouns denoting groups (*group, committee*) are supposed to be [+b], even if they do not have inherent boundaries: their limit is determined by the number of their members («a

group entity is bounded, but there is a necessary entailment that it is composed of members» and «groups are bounded in quantity, but do not have an inherent shape»- Jackendoff [1991: 20]).

The feature [± i] allows to codify the difference between nouns denoting groups and aggregates (*group, committee; sugar, rice*) on the one hand, and those denoting individuals and substances (*boy, pig; water, beer*) on the other : the former nouns are [+ i], whereas the latter are [− i].

From the combination of these two features, Jackendoff [1991: 20] draws the following classification of nouns:

1)

	[± b]	[± i]	category:	examples:
a.	+	-	individuals	*a pig*
b.	+	+	groups	*a committee*
c.	-	-	substances	*water*
d.	-	+	aggregates	*cattle*

We can test the 'restriction on bounded nouns' suggested by Rainer [1989] on the basis of the classification in 1): the hypothesis forces us to state that only the nouns in 1a) and 1b), denoting individuals and groups, can be productively diminutivized.

Data in 2)-4) show that the situation is more complex. On the one hand, nouns which designate individuals (inherently [+b]) can, with few exceptions, be altered independently from the features [±animate], [±human] and [±abstract] very often used in order to explain the distribution of evaluative suffixes (cf. 2). On the other hand, nouns that designate groups cannot be altered uniformly (cf.3). Finally, examples in 4) show that also some mass nouns can be altered, even if they are [− b] and independently from the value of the feature [± internal structure][2]:

2) Nouns denoting individuals ([+ b][- i])

ragazz-ino	'boy+DIM'
tavol-ino	'table+DIM'
gatt-ino	'cat+DIM'
quadr-etto	'picture+DIM'
elefant-ino	'elephant+DIM'
passeggiat-ina	'walk+DIM'

3) Nouns denoting groups ([+ b][+ i])

grupp-etto	'group+DIM'
squadr-etta	'team+DIM'
mucchi-etto	'bunch+DIM'
?comitat-ino	'committee+DIM'
?comitivina	'party+DIM'

4) Nouns denoting substances and aggregates ([− b][± i])

a.	zuccher-ino	'sugar+DIM'	b.	?acet-ino	'vinegar+DIM'
	burr-ino	'butter+DIM'		?fum-ino	'smoke+DIM'
	ghiacci-olo	'ice+DIM'		?ris-ino	'rice+DIM'
	formagg-ino	'cheese+DIM'			

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      latt-ino   'milk+DIM'

The restriction 'bounded bases' appears, therefore, not to be sufficient because there are nouns [+ b] that cannot be altered across the board and nouns [− b] that can be productively altered.

2.2. *Jackendoff's classification revisited*

Even though Jackendoff's classification of nouns seen in 1) does not explain all the data we have introduced, it constitutes a good starting point for our proposal. We have, thus, to modify the system of features in the following way.

First of all, one should observe that among [+b] nouns only those that denote groups cannot be altered across the board. It is important to remember that these nouns, as already said, denote entities with no inherent limits. One can argue, therefore, that among [+b] nouns they are located in a sort of peripherical position. In this sense, the nouns in 1b) seem to be more similar to nouns in 1d) than to nouns in 1a). For the purpose of this research, it is therefore useful to establish that the feature [+b] characterizes only entities with real and inherent limits. In this framework, nouns that denote groups do not belong to the domain of the feature [+b] but to the domain of [-b] because, as we have seen, they do not have inherent limits.

The data in 4) show that even certain nouns [-b] can be altered. In this case the features [± b] and [± i] do not allow us to define the behaviour of diminutive suffixes because they do not allow further specifications among [-b] nouns. The difference between the forms in 4a) and nouns such as **coraggino* and **fantasietta* is that the former denote entities not bounded but that can be bounded, whereas the latter denote entities always undelimitable. In order to capture this possibility, one has to make a distinction between nouns [+d(elimitable)] and nouns [-d(elimitable)]. The former, in turn, can be divided into nouns inherently bounded (+bounded) and nouns not bounded (-bounded). The last kind of nouns denotes entities that can have non arbitrary, conventionally accepted limits (*water, sugar, butter*). It is obvious that a [+bounded] noun is necessarily 'delimitable', but the contrary does not hold: a delimitable noun does not necessarily have inherent limits. A non delimitable noun cannot acquire the feature [+b].

Since the feauture [± i] does not refer to the presence or to the absence of internal structure (" the value −i does not entail lack of internal structure, but rather lack of necessary entailment about internal structure" - Jackendoff 1991 : 20) we propose to replace it with the feature [± (discrete) e(ntities)] : [+ e] nouns refer (adopting the terminology used in 1) to groups and aggregates, that is to entities internally made up by elements that can be clearly individualized and singularly bounded. Nouns such as *rice, sugar, committee* are [+e], while *cat, boy, table, beer* are [-e]. Finally, the difference between groups and aggregates can be codified by another feauture [± (animate) m(embers)]. Words that denote groups ([+ e]) whose members are animate beings but not necessarily human are [+m]: *committee, group*. Nouns such as *sugar, sand, rice* are [-m]: the identifiable elements that constitute these entities are not human beings.

On the basis of the preceeding considerations, we can propose the following classification of nouns:

3

5)

The diagram in 5) allows us to establish three levels of "alterability":

- 1st level: [+b] nouns can be productively altered with very few exceptions;
- 2nd level: [+ d][− b] nouns can be altered in given contexts and with a specific semantic reading;
- 3rd level: [− d] nouns cannot be altered with very few exceptions and therefore we will not take them into account in the rest of this paper.

Our hypothesis then is that there is a general restriction «delimitable bases» by which only [+d] nouns can be altered by the attachment of a diminutive suffix.

3. The alterability of unbounded nouns [-b]

Nouns that belong to the first level of alterability in 5) are not particularly problematic: they can be altered uniformly and without relevant exceptions. From the formal point of view they respect the most important property of diminutive suffixes, the categorial neutrality and in fact a diminutive suffix attached to them changes neither the lexical category nor the features of its base. From the semantic point of view, the denotative interpretation of these nouns is always the paraphrasis 'small / little X':

6)   tavolino > 'piccolo tavolo'   'small / little table'
       passeggiatina > 'piccola passeggiata'   'small / little walk'
       pesciolino > 'piccolo pesce'   'small / little fish'

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Nouns that find themselves in the second level of alterability in 5) exhibit, in turn, a more problematic and interesting behaviour and we will now focus on them.

Consider the data in 7):

7)   zuccherino   'sugar+DIM'
       burrino   'butter+DIM'
       formaggino   'cheese+DIM'

A difference between the data in 6) and those in 7) can be seen in 8):

8)   zucchero] $_N$ [+ d][– b][+ e][– m] $^{-ino}$] $_N$ [+ b]

            burro] $_N$ [+ d][- b][– e] $^{-ino}$] $_N$ [+ b]

            formaggio] $_N$ [+ d][- b][– e] $^{-ino}$] $_N$ [+ b]

The diminutive suffixes in 8) do not keep the same categorial configuration of the base: they change the value of the feature [± b] ([- b] > [+ b]). The difference between the two sets of data is therefore evident also at the semantic level. The semantic reading of *lattino, burrino, formaggino*, in fact, is not the usual paraphrasis 'small / little X':

9)   zuccherino > *'piccolo zucchero'   *'small / little sugar'
       burrino > *'piccolo burro'   *'small / little butter'
       formaggino > *'piccolo formaggio'   *'small / little cheese'

Forms in 7) denote, rather, a 'conventional and bounded quantity' of X (e.g. *zuccherino* = lump of sugar = conventional quantity of sugar): the diminutive identifies a limited portion of the umbounded entity denoted by the base.

This general picture seems to be confirmed by various interlinguistic data:

10)   mod. gr.   to   butur-áki
                           butter-DIM.NOM.SG.NTR / 'little portion of butter'
                   galat-akja   (Sifianu [1992 : 162])
                   milk-DIM.NOM.PL.NTR / 'little container of milk for coffee'
       cat.   aigü-eta   (Gràcia & Turon [1998 : 1 and 7])
                   water-DIM / 'small bottle of water'
                   paper-et   (Gràcia & Turon [1998: 7])
                   paper-DIM / 'small piece of paper'
       sp.   azucar-illo
                   sugar-DIM / 'lump of sugar'
       mac.   šeker-če   (Lunt [1952: 286])
                   sugar-DIM / 'bit of sugar, sweet, candy'
       yidd.   der zamd   >   dos zemdl   (Jurafsky (1996 : 536))
                   'sand'   sand.DIM / 'a grain of sand'
       berb.   ta-ličin-t   (Aspinion [1953; 66])

> DIM-oranges-DIM / 'an orange'
> ta-lmšmaš-t (Abdel-Massih [1971: 118])
> DIM-apricots-DIM / 'an apricot'
> t-azMur-t (Jurafsky [1996: 536])
> DIM-'olive trees'-DIM / 'an olive tree'

The conventional unit identified by the diminutive is not arbitrary and impredictable: in order to understand it, it is necessary to refer to the features [± e] et [± m] introduced in 5).

If the base noun denotes a delimitable entity which is composed by discrete and inanimate elements (and so has the configuration [+ d][− b][+ e][− m]), then the bounded entity identified by the diminutive coincides with one of these single elements: in fact this is the most plausible unit one can associate to the entity denoted by the base:

11)   a. berbère   b. yiddish
      t-azMur-t   der zamd >   dos zemdl
      DIM-olive trees-DIM 'an olive tree'   'sand'   sand.DIM 'a grain of sand'
      (Jurafsky [1996 : 536])

On the contrary, if the noun-base denotes a delimitable entity without internal structure ([+ d][− b][− e]), then the bounded unit identified by the diminutive indicates the most plausible 'unit of measure' one can associate to this entity:

12)   it.   burr-ino
             butter-DIM / 'lump of butter'
             formagg-ino
             cheese-DIM / 'small portion of cheese'
      cat.   aigü-eta   (Gràcia & Turon (1998 : 1 et 7))
             water-DIM / 'small bottle of water'

These two semantic schemas explain the interpretation of all the data in 10) in a really satisfactory way. Therefore, the derivational rule which attaches diminutive suffixes (= the diminutive rule?) can be represented as follows:

13)[3]   formal section   semantic section[3]
         a. $X]_{N[+ b]}$ -$DIM]_{N[+ b]}$ «small / little X»
         b. $X]_{N[+ d][- b][± e]}$ -$DIM]_{N[+ b]}$ «conventional unit of X»
                                                              b' «unit of measure of X» $(X]_{N[− e]})$
                                                              b'' «member of X» $(X]_{N[+ e][− m]})$

4. Final remarks

Our opinion is that the formal and semantic rule in 13) and the schema in 5) account for the behaviour of diminutive suffixes and allow to predict their interpretation.

Nevertheless one could object that this explanation is too costly, because it requires three new semantic features ([± d], [± e] and [± m]) which are not attested in the literature. Moreover, the feature

[± delimitable] seems to have just an intuitive evidence: it is really difficult to give it a clear definition. We will consider this objection in detail and we will try to solve it in 4.1..

A further problem for our analysis could be represented by the fact that, as mentioned above, the data in 10) (i.e. *burrino*) exhibit some substantial differences with respect to 'typical' diminutives in 6) (i.e. *tavolino*). Consequently, one can ask if it is right to try to give all these forms a unitary explanation. We will consider this problem in 4.2..

4.1. Correlation between plurality and diminution

In Jackendoff [1990; 1991], plurality is one of the semantic functions which can be represented in a satisfactory way by means of the features [± b] and [± i]. Plurality «encodes the multiplicity of a number of entities belonging to the same category» (Jackendoff [1991: 16]). So, plural nouns are [-b][+ i]. An entity is 'multipliable' if it is exactly identifiable, therefore if it has clear boundaries. In Jackendoff's words, plural is an operator which can be attached «to any conceptual entity that admits of individuation» [1990: 29]: so, it can attach only to [+ b] or, at least, [+ d] nouns:

14) $X]_{N[+ b] / [+ d][- b]}$ $^{-Pl}]_{N[+ d][- b][+ i]}$
     a. $X]_{N[+ b]}$ cane / -i («dog» / PL) ; passeggiata / -e («walk» / PL)
     b. $X]_{N[+ d][- b]}$ birra / -e («beer» / PL) ; acqua / -e («water» / PL)
     c. $X]_{N[- d]}$ coraggio / *-i («courage» / *PL) ; timidezza / *-e («shyness» / *PL)

Plural, therefore, exhibits a behaviour similar to that of diminutive suffixes: they both apply to bounded or delimitable nouns:

15) $X]_{N_{[+ b] / [+ d][- b]}}$ a. $+ DIM]_{N_{[+ b][- i]}}$
                                b. $+ PLUR]_{N_{[- b][+ i]}}$

Because plural and diminutive share the same constraint, we can state the restriction on 'delimitable bases', introduced in the previous paragraphs, in a more satisfactory way: a noun can be diminutivized if it can also be pluralized. Nouns which do not admit plural, are not selected by diminutive suffixes (i. e. *coraggio, *coraggi, *coraggino*). In this way, we can define the feature [± delimitable] more clearly only 'multipliable' entities are said to be delimitable. This restriction can be represented by the following implicational generalization:

16)   DIMINUTIVE ⊃ PLURAL

It allows the following logical possibilities:

17)

Dim	Plur		
+	+	*dottore(-i / -ino), tavolo (-i / -ino)*	'doctor'(PL / DIM), 'table' (PL / DIM)
+	-	not attested combination	
-	+	*comitiva (-e / ?-ina), fantasia (-e / *-etta)*	'company' (PL / DIM), 'fantasy' (PL / DIM)
-	-	riso *(*-i / ?-ino), coraggio (*-i / *-ino)*	'rice' (PL / DIM), 'courage' (PL / DIM)

If this generalization has a cross-linguistic verification, it will substitute the features we previously introduced and it will reduce the 'cost' of our hypothesis.

4.2. How many rules?

We have observed that there are some formal and semantic differences between the data in 18a) and those in 18b).

18)   a.   burrino   b.   gattino
          zuccherino   tavolino
          ghiacciolo   passeggiatina

From the semantic point of view, as we have already seen, it is not possible to give all these forms a unitary interpretation: in fact the paraphrase 'small / little X', by which we draw the interpretation of the data in 18b), does not explain the meaning of the derived words in 18a). So, it has been necessary to introduce the schema 'conventional unit of X'. This difference is stressed by the fact that all italian dictionaries list words such as *burrino, zuccherino* and *ghiacciolo* as autonomous lemmas, whereas the forms in 18b) are considered 'sub-lemmas' of the base.

Formal differences are even more evident. In the first place, the suffix *–ino* does not exhibit a uniform behaviour with respect to subcategorization frames: in the derived words in 18b), it respects categorial neutrality, which is a typical property of Italian evaluative suffixes: in fact it does not change the syntactic category nor the features of the base. On the contrary, as shown in 8), the same suffix changes the value of the features [± b] if the base is a delimitable, but unbounded noun (as in 18a).

In the second place, even the 'syntactic' behaviour of the forms derived by *–ino* is not omogeneous, as appears in 19):

19)   a.   b.
      ho comprato uno *zucchero / zuccherino   ho comprato un cane / cagnolino
      I have bought a *sugar / sugar.DIM   I have bought a dog / dog.DIM
      ho comprato qualche *zucchero / zuccherino   ho comprato qualche cane / cagnolino
      I have bought some *sugar / sugar.DIM   I have bought some dogs / dogs.DIM
      ho comprato tutto lo zucchero / *zuccherino ho comprato *tutto il cane / *cagnolino
      I have bought all the sugar / *sugar.DIM   I have bought *all the dog / *dog.DIM

With respect to quantifiers, the distribution of the forms in 19a) is conditioned by the suffix *-ino*: the base forms and the derived forms do not have the same contexts of occurrence; furthermore the

presence of the one excludes the presence of the other. It is not the case of the forms in 19b): here the diminutive suffix *-ino* does not exert any influence on the syntactic behaviour of the base.

These observations seem to suggest that the relationship between *zucchero* and *zuccherino* is different from the relationship between *cane* and *cagnolino*:

20)   zucchero : zuccherino ≠ cane : cagnolino

One can ask at this point whether it is convenient to give all these forms a unitary explanation or rather to consider words as *burrino* and *zuccherino* separately form *gattino* and *tavolino*.

There are arguments in favour of both the hypotheses: we will limit ourselves to presenting them, without giving the problem a definite solution.

In favour of the first solution we can state that the distribution of the two interpretations of *–ino* ('small / little X' and 'conventional unit of X') is complementary: they cannot overlap in any Italian word. As a consequence we can think of them as two contextual variants of a unique underlying meaning: the schema 'small / little X' works if the base is [+ b], whereas the schema 'conventional unit of X' works if the base is [+ d][- b].

The second solution (according to which we are dealing with two different suffixes) could be supported by the fact that the semantic and formal behaviour of the suffix varies depending on the nature of the base: so, we would have two different suffixes with two different kinds of restrictions. If we assume that evaluative rules are not «a prototypical representative of derivational morphology» (Dressler & Merlini Barbaresi [1992:21]), we can affirm that forms such as *zuccherino* are more 'derivational' than forms as *gattino*: in fact in *zuccherino* the suffix *–ino* modifies the conceptual meaning of the base, introduces the feature [+ b] and exerts a great influence on the distribution of derived words. Instead, in *gattino* the suffix alters (but does not change !) the meaning of the base, does not modify the subcategorization frame and does not condition the distribution of derived forms.

The issue has really a great relevance, because of its cross-linguistic spread (cf. 10) and it would be useful to check both hypotheses on all the data in 10). This kind of research is beyond the limit of this paper: so, we limit ourselves to define the terms of the problems, without giving it a clear solution.

5. Conclusions

In this paper, we have aimed to demonstrate that the restriction on bounded bases, suggested by Rainer [1989], is not sufficient to explain the distribution of Italian diminutive suffixes. The data we presented show that the feature [± b] has to be integrated by the features [± delimitable], [± discrete elements] and [± animate members]. From these features we have drawn the formal representation in 13), that allows us to establish a correlation between plurality and diminution. This implicational correlation would need a cross-linguistic check: if it is empirically verified, it will substitute some of the features previously introduced and so it will reduce the 'cost' of our hypothesis.

The relationship between the two possible uses of italian diminutive suffixes ('small / little X' and 'conventional unit of X') is an unsettled question: in 3.2. we have defined the terms of the problem, without giving it a conclusive solution.

Notes:

1   This work has been supported through a contribution by Italian CNR.
2   In our   data, we have not considered the so-called 'baby-talk': we think that the limit between acceptability and unacceptability of diminutivized words becomes more subtle in this speech-situation.
3   'Small' admits at least three interpretations: physical-spatial (*tavolino* (= small table)), temporal (*maestrina* (=young teacher), *aquilotto* (pup of eagle)), figurative (es. *poemetto* (= short and bad poem), *ragionamentino* (= useless and unlogical reasoning)). These interpretations can overlap: *passeggiatina* denotes a short walk, both in spatial and temporal terms.

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