

**Mass-like categories in lexical plurals.
A gradual view on the mass/count distinction**

**Peter Lauwers
Ghent University**

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0. Introduction

As reminded in the call for papers, the **(C)ount** /vs./ non-count (henceforth **(M)ass**) distinction – regardless of the level(s) on which it is located, the lexical level or the NP/DP – is generally conceived as a binary opposition. As a matter of fact, this binary distinction has survived remarkably well, despite the empirical objections that have been raised against it on many occasions.

On the semantic side, the definition of M/C runs into problems when it comes to explaining the divisive homogeneity of count nouns such as *line*, *splinter*, *fence*, etc. (Langacker 1990 : 70 ; Kleiber 1997 : 328-332) or the heterogeneous substructures of *driehoekjesbehang* ‘triangle-patterned wallpaper’ (Landman 2011). More importantly, mass nouns such as *furniture* denote referents with atomic substructures that are reflected in such unquestionable distributional effects as the possibility to combine them with delimitative adjectives (*du riz long* ‘long rice’, or *small furniture*) that profile parts, not wholes. These and similar problems have led to proposals in which the M/C distinction has been decomposed into combinations of more basic features (e.g. Landmann 2011, Zhang 2012, ...) or transformed into a semantic cline based on individuation (Grimm 2012).

But also formally, the M/C distinction has been experienced as problematic. Quite often, the diagnostics for M/C are being taken for granted, relegating for instance the existence of plural mass forms such as *oats* to a footnote. More generally, the issue of conflicting M/C diagnostics has already been raised as early as 1980 (Allan 1980) and has recently been confirmed by a number of studies based on large-scale annotation tasks and corpus research (Katz & Zamparelli 2012, Kulkarni *et al.* 2013; Kiss *et al.* 2014). This growing body of work calls for a gradual approach, that goes beyond the proposals based on basic feature combinations. The gradualness¹ (Gillon 1992 : 613, f.n. 12) of the [count] feature is also in the heart of what has been called lexical plurals (Acquaviva 2008), the central topic of this paper.

In this contribution the following claims will be developed :

- (1) The M/C distinction is not a binary opposition ; it should rather be conceived as a gradient based on degrees of individuation, which can be objectivized by means of distributional properties
- (2) So-called lexical plurals exhibit various degrees of « count deficiency » (lack of individuation), which posit them on a cline between [+ count] and [- count] (or mass).
- (3) The internal structuring of this cline is remarkably parallel to that of the typology of singular mass nouns ; this observation is confirmed by the fact that plurals mass nouns fall within the scope of typical mass > count transfers

The research presented here subscribes to the « empirical turn » that characterizes recent research on C/M, in that it combines big corpora and acceptability surveys to examine a wide range of lexical items. The level on which M/C is apprehended is that of word senses (cf. Kiss *et al.* 2014) within a fundamentally lexicalist approach (cf. Vermote, Lauwers & De Cuypere 2017), using distributional

¹ It should be noted that the M/C distinction is also gradual in another respect, viz. in the mass/count preferences of individual lexical items (Allan 1980 ; Vermote 2014).

properties – naturally occurring in language use and elicited in surveys – as heuristics to detect the ‘countability degree’ of particular lexical items. In addition, the lexical M/C status can be contextually overruled by semi-productive transfer mechanisms (coercion) that generate ephemeral (low frequent) though generalizable meaning effects. It should be noted that I will stick as much as possible to categories that are backed-up by morpho-syntactic, and more generally, distributional properties (« reactances », Whorf 1945), in order to avoid the pitfall of projecting ontological/referential/perceptual features on linguistic (semantic) representations. This is not to say that, a posteriori, one may not look for conceptual (including perceptual) motivations of distributional categories such as similarity, cohesion and lack of boundaries (Acquaviva, 2008).

The structure the paper is as follows. The central part deals with the distributional behavior of a set of 30 lexical plurals in French. Their gradual loss of countability is compared against a typology of singular mass nouns (sections 2 & 3). As a prerequisite to this analysis, it is argued that even the category of (singular) mass is in need of a refinement (section 1). In the final section (4.), it is shown that lexical plurals are subject to mass>count transfers, which confirms their mass status within the French language system.

1. Towards a more fine-grained typology of mass nouns

Canonical exemplars of mass nouns include items such as *de l'eau* (‘water’), *du sable* ‘sand’, *du sang* ‘blood’, etc. These have denotations that are perceptually homogeneous, without individual parts clearly visible to the naked eye. They are *singularia tantum*, combine with the traditional mass quantifiers (*du, un peu de*) and obligatorily appear in the singular when they are preceded by ambivalent quantifiers such as *beaucoup de*. They do not accept delimitative adjectives (‘big’, ‘long’, etc.) and pass all the traditional semantic tests (addition, division, no comparison in terms of number etc.). Following the terminology of Culioli (1973 : 84, 1974 : 7), I will call them **dense** nouns.

As frequently observed, concrete mass nouns often refer to referents that still contain individual parts, which lack however referential salience, such as *du riz* (‘rice’) (Kleiber 1997 : 333-334 ; Joosten 2006). As stated by Langacker (1987 : 205), they are characterized by various degrees of individuation (*water > dust > sand*). This property is linguistically marked by the availability of delimitative adjectives. Otherwise they pattern with the properties of dense mass nouns. Following Grimm (2012), I call these nouns **granular aggregate nouns**.

A third group of nouns has received a lot of attention in the literature : **collective** (*outillage* ‘equipment’) and **superordinate** (*meublier* ‘furniture’) mass nouns. They also allow for delimitative adjectives, but the linguistic (semantic) representation of the parts is even more accessible than in the case of granular aggregates, as shown by the fact that number is still the basis on which their referents are compared (Barner & Snedeker 2005). On the whole, collective and superordinate mass nouns come a little bit closer to the [+count] pole. They are « second degree » mass nouns, referring to heterogeneous objects united by a common function. I will not develop the difference between collectives and superordinates (and the battery of meronymic and taxonomic tests they require), since this intricate question is somehow orthogonal to the mass/count distinction.

Finally, there is an important subclass of mass nouns that has not been acknowledged outside the French linguistic tradition (as far as I know). As a matter of fact, some purportedly mass nouns do not pass the traditional diagnostic test with the partitive article: **de la peste* ‘plague’ (Boone 1989 : 111), **de l’environnement* ‘environment’ ??*de la blancheur* ‘whiteness’ (Van de Velde 1995). They always appear in the singular and are actually reluctant to any form of quantification. They only allow for definite determiners, especially the definite article (*le, la, l’*), for these do not interfere with the internal part/whole structure of the noun (and hence with its M/C status): *la/ ?cette peste, l’/cet/son environnement, la/cette/sa blancheur*. Nouns such as *le nord* ‘the North’ which denote unique referents may also be associated with them. Following Culioli, I call them **compact mass** nouns (Culioli 1973 : 84, 1974 : 7). Note that compact nouns can be shifted to the count domain by a mechanism related to both the universal sorter and packager. Indeed, combined with a modifier, c.q. a descriptive adjective, the singular can and must take the indefinite article (*un/une*), as often been observed (Flaux

& Van de Velde 2000 ; Kleiber 2014) : *une blancheur éblouissante* ‘a blinding whiteness’, *un environnement merveilleux* ‘a marvellous environment’. The resulting NP refers to qualitatively distinguishable instances of the nominal concept. Note that the shifted noun does not yet behave as a fully-fledged count noun for it does not accept pluralization (nor cardinal numbers, e.g.).

2. Methodology : corpus study and acceptability survey on lexical plurals

The extended typology of mass nouns will be mapped on the results of the analysis of 30 lexical plurals. As recalled by Lauwers & Lammert (2016) in a recent special issue on Lexical Plurals, “*Lexical plurals* are plural forms (*oats, remains*) in which plurality constitutes an inherent lexical specification (cf. Booij, 1994, 1996: “inherent inflection”; Acquaviva, 2008). As such, they cannot be accounted for by means of a grammatical rule or generalization yielding nouns that mean ‘many x’ as opposed to the meaning of the corresponding singular form ‘one x’ [or ‘one’ vs ‘one or more’, cf. i.a. Sauerland *et al.* 2005]. Therefore, they have to be learned as part of “what it is to know a word”.” Crucially, lexical plurals are forms that function outside the regular singular/plural opposition. Such configuration occurs when the singular nominal form simply does not exist (the so-called *pluralia tantum*: *les environs*/**un environ* ‘the surroundings/*a surrounding’), when it is very low-frequent (e.g. *un vestige* ‘a remnant’), or when a (lexical) plural sense seems to be dissociated from the meaning of the singular (which often takes part in a grammatical opposition with a regular plural), e.g. *épinards* ‘spinach’, *un épinard* being ‘a spinach plant’.

For our purpose, it is crucial to note that the split between the intrinsically plural form and a singular form entails ‘count deficiency’. Not only disappears the singular/plural alternation - one of the main diagnostics for count status - but also the use of quantifiers (plural forms) turns out to be heavily affected (*plusieurs pommes* ‘several apples’ vs **plusieurs épinards* ‘several spinach’). As a consequence, the gradual loss of the count status of lexical plurals can be measured by the range of quantifiers they combine with, since each quantifier imposes specific semantic constraints on the subsequent noun. The following elements have been examined:

- *Les/ces/ses* (definite article, demonstrative, possessive), *des* (indefinite plural), *quelques* (‘some’), *plusieurs* (‘several’), *différents* (‘different’), *divers* (‘various’), cardinal numbers
- *Un peu de*

The selection is based on the literature on determiners in French (see Lauwers 2014 for an overview). On the whole, the quantifiers located on the right side of the spectrum impose stronger constraints on the degree of individuation of the « parts » within the semantics of the noun. By contrast, the definite determiners do not impose any condition on the internal part/whole structure (hence M/C) of the noun (this also holds for their singular form; they are neutral w.r.t. the M/C distinction : *le sable* ‘the sand’ / *le chapeau* ‘the hat’). As a consequence, strongly count deficient lexical plurals pattern only with very few determiners (the less individuating ones), while only weakly deficient plurals allow for all of them (albeit with variable, and often very low, frequency). In addition, *différent/divers* not only measure individuation, but also the noun’s capacity to construe qualitatively distinguishable entities (parts) : *différents modèles* vs **différents kilos* (cf. also Acquaviva 2008 : 93-97 on ‘identity’). I will also include *un peu de*, which typically patterns with singular mass, but which also may occur with some lexical plurals (Doetjes 2001, Hilgert 2014). By contrast, ambivalent quantifiers such as *beaucoup de* ‘many’, *peu de* ‘few’, *plus de* ‘more’ etc. that combine both with mass (in the singular form) and count nouns (with a plural form) are not taken into account here.

In order to adequately measure the gradual loss of countability, extensive corpus research and sentence ratings tasks have been conducted on a sample of 30 lexical plurals. These have been retrieved on the basis of the literature and by means of the frequency list provided by B. New’s database *Lexique* (<http://www.lexique.org/docLexique.php>), which easily allows one to retrieve items that are strongly biased for the plural. The items that have finally been included in the sample represent a variety of semantic fields (diseases, complex artefacts, food stuff, unbounded spaces, complex events, etc. ; cf. Acquaviva 2008). Blatantly polysemous items allowing also for a regular

singular/plural opposition such as *selles* ‘faeces’ (vs. *selle(s)* ‘saddle(s)’) have been discarded from the start, for pragmatic-empirical reasons: they require a lot of manual disambiguation of the corpus data, which would have made such a corpus study impossible. Still, a lot of data cleaning had to be done, since several lexical items appeared to have (low frequent) senses besides their lexical plural sense. The corpus that has been used is the *French Ten Ten corpus*, a 12-billion² corpus of the Sketch Engine family (www.sketchengine.co.uk/). Although web corpora have some important drawbacks, this was the only option available (especially in the French linguistic context) given the lexical nature of the investigation. Frequency list of the items occurring at the left-hand side of the key-word have been generated by means of the Sketch Engine platform and have been manually cleaned for all quantifiers, except for the high-frequent ones (definite and *des*). Irrelevant senses and other false positives have been discarded. For the highly frequent determiners extrapolations have been made on the basis of random samples of at least 50 tokens. This strategy has also been applied to calculate the relative frequency of the plural indefinite article (*des*) and the contracted combination preposition *de* + definite article *les*, both surfacing as *des* in the corpus.

In addition, I also conducted a sentence rating task in order to test M/C diagnostics that cannot be executed by means of corpora:

- two distributive (individuating) reciprocal expressions: *l’un après l’autre ; les uns après les autres* (‘the one(s) after the other(s)’)
 - delimitative (Zhang 2012) or « stubbornly distributive » adjectives (Schwarzschild 2011) to test the boundedness of individuated subparts: *grand* ‘big’, *long* ‘long’

I also included a picture description task (cf. Barner & Snedeker (2005) to test whether lexical plural nouns still accept number-based comparisons. Due to some practical difficulties (esp. with respect to less concrete nouns) the results of this part of the survey have not been taken into account. The on-line survey has been completed by 12 native speakers; most of them were linguists of the *Masscolex* project and speakers of hexagonal French. In order to limit the number of questions to approximately 60, I allocated the items to two surveys. Informants had to score the sentences on a 5-point Likert scale; for some items participants had to choose between two possible answers (and “I don’t know”).

3. Results : mass-like lexical plurals along the [+/- count] cline

The results show that ‘count deficiency’ within lexical plurals is a gradual phenomenon (a tendency that is reinforced by the fact that the separation from the singular is often not an all-or-nothing issue, cf. Acquaviva 2008), in which, however, different levels can be distinguished on the basis of clusters of distributional properties. These distributional properties are indeed ordered (as we have seen). This ordering is confirmed by the quantitative results which posit the items on an implicational scale (if a noun allows for Quantifier 1, then it also allows for Quantifier 2 if the latter is located on the left). Moreover, the typology that emerges shows striking analogies with the structuring of the [+mass] domain:

Category	Mass_examples	Criteria_plural	Additional criteria_plural ³	Plural_example
Compact	Peste ‘plague’	[-des], [-quelques], [-plusieurs], [-différents/divers], [-cardinal numbers], [- les uns ... les autres]	[-delim.], [-comp. number]	oreillons ‘mumps’, alentours ‘surroundings’
Internal (plural)		[+des] , [-quelques], [-plusieurs], [-différents/divers], [-cardinal numbers], [- les uns ... les autres] Note: # ! if n ≥ 2	[+ delim.] [comp. number = NA] --- [delim. = NA] [comp. number = NA]	- concrete: <i>fontes baptismaux</i> ‘bapt. font’ --- - events: <i>félicitations</i> ‘congrats’, <i>pourparlers</i> ‘negotiations’

² In the meantime, a newer – cleaned - version is available of about 10 billion tokens.

³ If applicable (e.g. not for abstract nouns).

Dense	Eau 'water'	[+des], [+quelques], [-plusieurs], [-différents/divers], [-cardinal numbers], [- les uns ... les autres]	[- delim.], [- comp. number]	<i>épinards</i> 'spinach', <i>rillettes</i> (<i>rillettes</i> , i.e. a kind of <i>pâté</i>), <i>bonnes manières</i> 'good manners' <i>décombres</i> 'rubble',
Granular aggregate	Riz 'rice'		[+ delim.], [- comp. number]	<i>pâtes</i> 'pasta'
Collective	Outillage 'equipment'	[+des], [+quelques], [+?plusieurs], [+?différents/divers], [+?cardinal numbers], [+ les uns... les autres]	[+ delim.], [+ comp. number], [- hyperon.]	<i>Ossements</i> 'bones', <i>vestiges</i> 'remnants'
Superordinate	Mobilier 'furniture'		[+ delim.], [+ comp. number], [+ hyperon.]	<i>Excréments</i> 'excrements', <i>mauvaises herbes</i> 'weeds', <i>viscères</i> 'entrails', <i>commodités</i> 'facilities'

Since the delicate issue of taxonomic and meronymic relations is somehow orthogonal to M/C, I will leave this discussion aside. It suffices to mention that some of them realize both type of relations (e.g. *viscères*, cf. Lammert, 2016) and that superordinate plurals often require the conjunction of co-hyponyms (Lauwers 2014), which may be a trace of their original collective meaning (Mihatsch 2016). The main dimension that structures the field of mass and count in French seems to be that of degree of (conceptual) individuation (cf. also Mc Cawley 1975: 314; Grimm 2012, who shows that this parameter also structures cross-linguistic choices; cf. also Acquaviva 2008, "unity"). Additional parameters involve identity (cf. *différent/divers*), boundedness and cohesion, the latter two being intrinsically related to [+/- individuation] (Acquaviva 2008 : 101).

The fact that both singular mass and plural only forms converge in terms of lack of individuation can be explained by the fact that *singularia* and *pluralia tantum* do not (longer) operate within the canonical singular vs plural opposition (cf. Jespersens' 1924 "non-number"). For lexical plurals this means that the "massifying" effect inherent to the multiplication of individuals in the (grammatical) plural is reinforced (cf. i.a. Langackers' 1987 "replicate mass"; Bosveld-De Smet 2001; Mufwene 1981).

4. Mass > count transfers with mass plurals

The parallelism between the structuring of the field of lexical plurals and the singular mass spectrum is confirmed by the fact that at least some (categories of) lexical plurals pattern with singular mass with respect to the transfers (type shifting) they allow for (Lauwers 2016). As a matter of fact, lexical plurals constitute the input for mass > count transfers that enhance their [+ count] status, as witnessed by the presence of strongly individuating quantifiers in the shifted readings. These shifts appear to line up with two canonical mass>count transfers, viz. the universal sorter (*12 mauvaises herbes* '12 kinds of weeds') and the universal packager. The latter comes in various subtypes according to the nature of the input-noun: packaging in three-dimensional space (*4 rillettes* 'plates consisting of rillettes'), temporal bounding (*2 vacances* '4 holiday periods'), spatio-temporal bounding of complex activities and objects (and, finally, "qualitative" packaging (**des règles* 'menstrues' > *des règles douloureuses* 'painful menstrues'). In some cases, back-formation of the singular count form is attested (*Une rilette, s'il vous plaît!* 'one plate of rillettes'), restoring the grammatical number opposition. These operations beyond "plural mass" confirm both the genuine 'mass' status (mass being conceived both as 'dense' and 'compact') of these lexical plurals and the lexical (rather than contextual) nature of the

form/meaning pairings that constitute them. Moreover, these transfers show that lexical plurals are not a “dead” end for the language system; they still take part in productive mechanisms.

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