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Size nouns matter: a closer look at *mass(es) of* and extended uses of SNs

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ABSTRACT

While a fair share of attention has recently been devoted to the grammaticalization process of size nouns in general (see Traugott, 2008) and individual case studies in particular (see Brems, 2003; Verweckken, 2012; De Clerck & Coleman 2011), there is still enough food for thought and room for further analysis. In this paper we want to address two aspects that have not received sufficient attention so far. First, we will focus on grammaticalized uses of yet two other size nouns (SNs), i.e. *mass of* and *masses of* and compare their quantificational potential with other SNs, such as *bunch*, *heap* and *load of* as studied in Brems (2011). This comparison will call for a repositioning of SNs on the grammaticalization cline and a reassessment of the criteria used in Brems (2011) and the notion of degree of grammaticalization. Secondly, we will shift attention away from ‘common’ quantifying uses to intensifying adverbial uses of SNs, e.g. *heaps nicer*, and the possible effect these uses have on their current position on the grammaticalization cline.

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1. Introduction

Syntagms of the ‘(determiner) (modifier) NP₁ + *of* + (determiner) (modifier) NP₂’-type are perhaps the best known representatives of the binominal construction, and their semantic-syntactic organization has also received most of the attention in the literature on the topic (e.g. Akmajian & Lehrer, 1976; Aarts, 1998; Keizer, 2001; Denison, 2002; Brems, 2003; Willemse, 2005; Traugott, 2008; Langacker, forth., Verweckken, 2012). Both formal and cognitive-functional frameworks have tackled the descriptive-theoretical challenges they pose, e.g. the identification of the head (e.g. Quirk et al., 1985; Halliday, 1994; Traugott, 2008) and the tests used for its identification (Hudson, 1987; Aarts, 1998). Others have focused on parallels and differences between different types of binominals, categorial gradience or the possibility of a constructional network (Denison, 2006; Aarts et al., 2004; Keizer, 2007). In addition, NP *of* NP-binominals have frequently been argued to be the locus of (ongoing) grammaticalization, subjectification and decategorialization processes. In some cases the nominal elements seem to have lost or are losing typically nominal features such as the potential for pre- and postmodification, pluralization, etc. (e.g. **a nice wonder of a city*, **bunches of idiots*, etc.) and may be shifting to the categories of quantifier, intensifier, hedger, etc. From this perspective the current variation in several binominal constructions can be seen as cases of synchronic layering (Hopper and Traugott, 2003).

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This paper, too, will address binominal syntagms within the framework of grammaticalization, and will focus on two main aspects, based on empirical analysis. First, the quantification potential of *mass of* and *masses of* will be compared to other size nouns. With their more abstract lexical source semantics, *mass* and *masses of* complement previous research on size nouns such as *bunch*, *heap* and *load* which started out as nouns with very specific lexical meanings. The comparison will call for a critical reassessment of the parameters that are used to measure degrees of grammaticalization and grammaticality: since a clear lexical source construction seems to be missing for *mass(es) of*, semantic criteria of grammaticalization to do with degrees of delexicalization become less reliable and are in need of closer scrutiny.

Secondly, we will take a closer look at intensifying uses of size nouns such as *it is loads softer*, in which non-nominal predicates are modified in terms of degree or frequency. Extension to contexts outside the source construction is generally considered to be a sign of increased grammaticalization (see [Himmelmann, 2004](#)), but, as we will see, some of these uses pose a challenge for further research as some nouns seem to have acquired intensifying potential without first having developed an entrenched productive quantifier use, e.g. *I love you bunches and bunches*.

As such, both case studies in their own way hence raise interesting theoretical and methodological questions about how to measure degrees of grammaticalization: first, the lexical-semantic contrasts between the vaguer meaning of *mass* and the previously investigated size nouns with very specific source lexical meanings raises the question of whether and to what extent such lexical properties affect the degree of grammaticalization and whether similar proportions of quantifying uses may be regarded as symptoms of equal degrees of grammaticalization or not. Furthermore, by examining instances which seem to skip a number of stages, the second case study questions default presentations of grammaticalization as a smooth process with successive transgressions (at least in the study of size nouns), which also calls for a reassessment of grammaticalization diagnostics and especially degrees of grammaticalization. It raises the issue of whether size nouns which have intensifying uses but lack quantifying attestations, can (still) be regarded as more advanced in terms of grammaticalization in comparison with quantifying size nouns that lack intensifying uses.

Section 2 first discusses the pathway of change that characterizes the development of size nouns from head noun to quantifier, which will serve as the backdrop to the analysis of *mass of* and *masses of* in Section 3. Section 3.2 provides a comparison between the different size nouns, which leads to a critical examination of existing parameters of grammaticalization. Section 4 focuses on intensifying uses of size nouns in corpus and web data, followed by a discussion of the repercussions of the results on existing categorizations and assumptions of gradualness in grammaticalization in Section 5.

2. From size noun to quantifier: the path often taken

Recent attention to the development of size nouns in the context of grammaticalization has led to an upsurge of publications that nicely capture some of the most important features and changes that characterize increased grammaticalization (e.g. [Keizer, 2001](#); [Brems, 2003, 2007, 2010](#) and [2011](#); [Denison, 2005](#); [De Smedt et al., 2007](#); [Langacker, forthcoming](#); to name but a few).

Based on synchronic and additional diachronic data, [Brems \(2011\)](#) has argued that size nouns (SNs) such as *bunch/load(s)/heap(s) of* in binominal NPs display synchronic variation which is the result of semantically driven grammaticalization processes. Semantic extension or delexicalization motivates changes in the distribution of SNs (in this case collocational broadening) which may eventually lead to a complete syntactic reanalysis.

In non-head uses, [Brems \(2011\)](#) distinguishes two major functions: a quantifier use as in (1) and a valuing (-quantifying) use – mainly with *bunch/load of* – as in (2) to (4), in which the referent is evaluated rather than, or in addition to, being quantified.

- (1) I went up the steps of a church and into a back room where **a bunch of people** were having a meeting. (COCA 1995 ACAD)
- (2) What **a bunch of gobbledeygook** ([Brems, 2011](#), p. 186)
- (3) Dear U.M.: Wait a minute! You mean to tell me that **a bunch of Belgians** were using Japanese machinery to undermine the very foundation of the capital of the United States – so they could fill it up with Italian subway cars? (COCA 1991 WashPost)
- (4) Movie stars my ass. **A bunch of suckers**. Give me a house with a backyard anytime. (COCA FIC 2009)

We will briefly elaborate on the development of *bunch* as a case in point, as put forward in [Brems \(2011\)](#). First, in its pre-delexicalization and pre-grammaticalization stage *bunch* has a readily identifiable head noun use, which is still fully lexical and literal in meaning, referring to a somewhat unruly, untidy cluster of things fastened or growing together at one point, holding the component parts together. In this meaning, it is collocationally restricted to a rather limited set of postmodifying nouns, such as types of flowers and herbs, *grapes*, *bananas*, *carrots*, etc. In such uses *bunch* still clearly functions as the head of the binominal noun phrase and controls verb agreement, as shown in (5).

- (5) In the upper center of Braque's first collage, Fruit Dish 1912, **a bunch of grapes** is rendered with such conventionally vivid sculptural effects as to lift it practically off the picture plane. (COCA 2002 MAG)

In subsequent stages the 'cluster' meaning expressed by *bunch* is increasingly backgrounded, which opens up collocational possibilities with regard to the type of noun that can appear in the NP₂ slot. We gradually move to a stage where humans and

abstract entities are allowed to feature in the *of*-phrase as well, as in *a bunch of kids*, and *a bunch of lies*. In such uses, the lexical ‘arrangement’ meaning of *bunch* has faded into a purely quantifying meaning by means of repeated pragmatic inferences to do with the typical ‘size implications’ of the size noun, a developmental path which was also pointed out by Langacker (1991, p. 88). This process of delexicalization also involves grammaticalization and reanalysis from lexical head to quantifier status, as shown by the fact that it no longer or not always controls verb agreement as in (1) above, and (6), where there is verb agreement with *kids*, not with *bunch* (but see Francis and Yuasa, 2008 and Brems, 2011 for critical notes on the reliability and operationalization of verb agreement for the determination of head status).

(6) **A bunch of kids** were waiting at the bus stop at the corner. (COCA 2000 FIC)

To account for its valuing (-quantifying) uses, Brems observes that *bunch* tends to collocate with negative human nouns such as *rednecks*, *no-hopers*, *bastards*, and *do-nothings* or abstract concepts referring to nonsense, such as *crap*, *codswallop*. This can be linked up to the semantic feature of ‘unruliness’ already present in the source semantics of *bunch* where it pertained to the particular manner of arrangement of a collection of items. In valuing uses this sense of ‘unruliness’ applies to the negative evaluation of the person or entity denoted by the following noun (cf. Brems, 2003, p. 298). In other words, rather than bleaching completely, the grammaticalizing item has retained and reinforced particular features of its original use, which, in addition to the purely quantifying uses, may also develop valuing quantifier uses (cf. persistence as described by Hopper, 1991). The main driving factor behind both developmental paths is “(hyperbolic) expressivity” (Brems, 2011, p. 100; also see Hopper and Traugott, 2003 and Haspelmath, 1999).

In addition to lexical and grammatical uses, Brems (2011) also distinguished an ambivalent category, which subsumes examples which are ambiguous between lexical and grammatical status, or which are vague. Whereas ambiguous examples allow for two different readings dependent on a more specific contextualization (7), vague examples simultaneously incorporate a lexical and grammatical layer of meaning and centre around a metaphor (8):

(7) At the moment she’s looking at **a heap of movie scripts** (CW-Today)

(8) The British have forged a fine tradition of gardening and cannot afford to sit on their well-clipped laurels. Striding past **the compost heap of nostalgia**, comes Christopher Lloyd. (CW-Times)

Depending on the contextualization, one can understand (7) to refer to an actual heap consisting of movie scripts sitting on someone’s desk, or as referring to ‘many scripts’. In (8) *the compost heap of nostalgia* has literal reference within the extended gardening metaphor, but at the same time also creatively states that there is much nostalgia in Britain. In contrast to (7), the two layers of interpretation in (8) do not cancel one another out given a more specific contextualization, but are both part of the global metaphorical meaning of the example. In addition, depending on the analysis of *heap (of)* in (7) the status is either head noun or quantifier. In (8), on the other hand, the metaphor necessitates a head noun analysis of *heap*. In the remainder of this paper vague uses will hence be classified as head noun uses.

Extensive data analysis of various SNs in Brems (2011) shows that not all SNs synchronically function as (valuing-) quantifiers to the same extent. The following scale of grammaticality represents the percentages of grammatical uses of each SN¹:

From the scale we can conclude that plural versions of SNs on the whole show higher percentages of grammatical uses than the singular versions, except for *bunch(es) of*, where the singular and plural version are really far apart on the scale and *bunch of* has many more grammatical uses. For *pile(s)* and *lot(s)* the difference between the singular and plural form is small, but both sets of forms are situated at one end of the scale. *Lot(s)* almost exclusively have grammatical uses in the data sets, whereas other SNs have a predominant grammatical use, e.g. *loads* or are still mostly used lexically, e.g. *pile(s)*.

3. A closer look at *mass of* and *masses of*

3.1. A comparative discussion of original lexical meaning

With respect to *mass of/masses of* our question is how they behave as SNs in comparison with the other SNs studied in Brems (2011). In order to do so, one has to start from their original semantic meanings. In this respect, *mass* and *masses* seem different from *heap*, *pile*, *load* and *bunch*, because lexical *mass* is already more general in terms of semantics, whereas the SNs looked at in Brems (2011) all start out as nouns with (more) specific meanings paralleled by restricted collocations. This is not only the case for *bunch*, as shown above (e.g. *a bunch of flowers/carrots/*blood/*rock*), it also applies to the other SNs. While *heap* is clearly less specific and less collocationally restricted than *bunch*, it is still more specific than *mass* in terms of its lexical meaning and more restricted in terms of collocational possibilities. The main difference lies in the conceptualization of spatial

¹ The data analysis is based on exhaustive extractions from all of the British, American and Australian subcorpora of the Collins Wordbanks Online Corpus, which contains 553,171,489 tokens in total, though British English is overrepresented. See <http://wordbanks.harpercollins.co.uk/auth/> for more information on the exact composition of the corpus. See Section 3.1.

boundaries and the effect on the eligibility of N2s. In the OED *heap* is described as “a collection of things lying one upon the another so as to form an elevated mass often roughly conical in form”. The obvious implication of this is that lexical uses of *heap* are restricted to N2s that are stackable in a three-dimensional shape that has both height and volume. Frequent collocations – based on additional queries in the 450 m COCA corpus – in such lexical uses include *rubble, garbage, ash(es), blankets, clothes, trash, etc.*, all of which are tangible and stackable. Such restrictions also apply to *pile*, which has an additional lexical feature as “a heap of things *placed regularly* one above the other” (OED, emphasis added).² The collocational preferences are similar to those of *heap*, (e.g. *rubble*), but they also include N2 that are more easily stackable in an orderly fashion (e.g. *papers, books*). The lexical meaning of *load* also restricts possibilities for N2 uses. It is defined in the OED as “that which is laid upon a person, beast or vehicle to be carried; a burden”, which again calls for N2s that have a certain shape (and weight) that can be put onto or into something. Frequent collocations include *a load of laundry, clothes, firewood, bricks and hay*. By contrast, the lexical meaning ascribed to *mass* is a more general one in which the shape and the specific nature of the N2s is less specific or determined. The OED defines the original sense of *mass* “as a body of matter of unspecified or indeterminate shape, and usually of relative large bulk”. Two things are worth noticing: first, reference is no longer made to ‘things’, but to ‘matter’, which also allows for N2s that are of a somewhat different nature like liquids and gases. Secondly, the shape is referred to as unspecified or indeterminate, which implies that the capacity of being stackable is no longer a necessary feature of N2s, nor does the shape itself require a surface to rest on. This is also corroborated by more specialized uses in which *mass* is described as “a quantity of amorphous matter used in or remaining after a chemical reaction” or “a coherent body of pliable of malleable material, such as dough clay, etc. not yet moulded into a definite shape”. As such, one finds a wider range of possible N2s in collocational patterns, including water, clouds, hair, tissue, muscle, bubbles, which are less easily compatible with the N1s discussed above. In addition, OED etymology tells us that the word *mass* was borrowed from Latin in which it not only referred to “bulk, lump” but also to “a large number of people” (see also its use in ‘the masses’ referring to “the populace”). In short, unlike the other N1s, *mass*’s original lexical meaning holds few restrictions for N2 possibilities: they can be both countable and uncountable (as long as they form one shape), solid or liquid, human and non-human.

In the next section we will explore to what extent those different source semantics impact on the development of a quantifier use for *mass* and *masses of* and whether they have grammaticalized more because of their general semantics and lack of collocational restrictions. In addition, we will look into the possible development of extended degree modifier uses and compare the behaviour of the singular and plural version.

3.2. Data analysis

As in Brems (2011), data were extracted from the Collins Wordbank corpus, more specifically from the British (259,479,077 tokens), American (193,217,199 tokens) and Australian (36, 509,541 tokens) subcorpora. These subsume both written and spoken and more and less informal material. The specific subcorpus is indicated following the examples. The data sets of *mass of* and *masses of* are exhaustive and yielded 370 instances of *mass of* and 206 for *masses of*. The nouns following *of* were classified semantically as concrete (inanimate and animate) or abstract and grammatically as countable or uncountable. The SNs were classified as either head (subsuming lexical head and vague uses), (valuing-)quantifier or ambiguous using the same recognition criteria as in Brems (2011): degree of delexicalization, coextensiveness of the SN and NP₂, substitutability of SN + *of* by a more established monomorphemic quantifier, verbal and pronominal concord. The first criterion pertains to the loss of specific lexical features of SNs and a move towards more general semantics. The second one refers to the fact that in the head noun use the referent of the SN and the noun following *of* typically have the same referent, e.g. *a bunch of carrots* is ‘a bunch consisting of carrots’. As the SN acquires a grammatical meaning, this obviously changes since the SN expresses quantity and/or evaluation, e.g. *a bunch of people*, which cannot be paraphrased as ‘*a bunch consisting of people’. As noted in Brems (2011) and Francis and Yuasa (2008), verb concord can only be checked if the binominal syntagm has subject function and if the SN and N2 differ in number, e.g. *a bunch of people were*.

Tables 1 and 2 represent the collocational profiles of *mass of* and *masses of* respectively, indicating the absolute frequencies and percentages of head, quantifier, valuing and ambiguous uses and the nature of their N2 collocates. Remember that metaphorical vague uses are subsumed under Head uses as the SN syntactically functions as the head noun.

The tables make clear that overall there are more instances of *mass of* than of *masses of* (370 vs. 206). In addition, there are noticeably and statistically significant more head uses for singular *mass of* than there are for *masses of*, i.e. 72% vs. 22%. Vice versa, *masses of* has the most quantifier uses, i.e. 60% vs. 20%, and more ambiguous uses.³ Hence, despite its overall lower frequency, plural *masses of* displays more grammatical uses than *mass of*. Note that neither the singular nor the plural feature attestations of valuing uses.⁴ When we look at the collocational features, both *mass* and *masses of* team up mostly with concrete countable, then concrete uncountable, animate, abstract countable and abstract uncountable N2s.

² This additional lexical feature also explains the limitations in terms of collocational possibilities compared to *heap*: more semantic meaning needs to be eroded before it can express the same quantificational potential.

³ Both the Chi-square and the Fischer’s exact test based on the totals for Head, Quantifier and Ambiguous uses for singular and plural show a two-tailed p-value lower than 0.0001, which indicates that results are extremely statistically significant.

⁴ This may be related to *mass*’s vaguer semantic meaning as a lexical unit. Unlike *bunch*, for instance, there are no negative (or positive) lexical features with echoes in valuing uses.

Table 1

Mass of: Uses and N2 features.

MASS OF	Head	Quantifier	Ambiguous	Valuing Q	Total#	Total %
Animate	69	9	4	0	82	22.2
Concrete/count	90	30	16	0	136	36.8
Concrete/uncount	74	22	8	0	104	28.1
Abstract/count	7	10	0	0	17	4.6
Abstract/uncount	27	4	0	0	31	8.4
Total#	267	75	28	0	370	100
Total %	72.2	20.3	7.6	0	100	100

Table 2

Masses of: Uses and N2 features.

MASSES OF	Head	Quantifier	Ambiguous	Valuing Q	Total#	Total %
Animate	15	17	7	0	39	19.0
Concrete/count	13	55	26	0	94	45.6
Concrete/uncount	17	43	3	0	63	30.6
Abstract/count	0	5	0	0	5	2.4
Abstract/uncount	1	4	0	0	5	2.4
Total#	46	124	36	0	206	100
Total %	22.3	60.2	17.5	0	100	100

Let us look at the various uses of *mass* and *masses of* in somewhat more detail, starting with their head noun use. Tables 3 and 4 represents the relevant numbers and percentages. We have also included a separate category for uses that have ‘the majority of N’ reading, as illustrated in (16) below. It is mentioned separately for two reasons: first, unlike ‘regular’ lexical and quantifying uses, it only seems to occur with a definite article before N1 and N2 (the N1 of the N2). Secondly, in terms of meaning, it is somewhat different from purely lexical or quantifying uses: rather than referring to a large quantity of something, it refers to a substantial proportion or fraction of a quantity of something. In fact, it is not quite clear whether such uses can be ascribed Head status as some instances have been attested with plural verbs (which of course also be the result of notional concord).

3.2.1. Head use

Examples (9)–(13) illustrate regular lexical uses, and examples (14)–(15) are head noun uses which are vague:

- (9) Through **the nearly impenetrable mass of akebia and stinging nettles**, long menacing brambles reach out for unsuspecting visitors. (CW-USbooks)
- (10) Suddenly she felt conspicuous. All alone. Slowly she threaded her way back through **the moving mass of bodies** to the bedroom. (CW-USbooks)
- (11) And from **these huge masses of muscle**, hanging there like twin hams in a Tom and Jerry cartoon, comes the power which can knock seven colours out of a bag of air with one swipe. (CW-Sunnow)
- (12) These are areas where **large masses of air** (500 miles or more in diameter and 2 miles or more high) remain stationary for weeks at a time, acquiring the characteristics - temperature, moisture, and density - of that area, and then move on, propelled by prevailing winds. (CW-USbooks)
- (13) It was in Beijing that this columnist fell in love with her pasta and her bicycling derring-do amid **the determined masses of crush-hour Chinese**, and to his knees in homage to her street-stall cred. (CW-OZnews)
- (14) With five grand an hour at stake, Reuben here is **a quivering mass of anxiety and thwarted greed**.” (CW-USbooks)
- (15) The ideal summer garden is a Fauve jangle of scarlet, orange and chrome-yellow stripes and whorls, or **uproariously clashing masses of mixed shades**’. (CW-UKmags)
- (16) Clearly a vast educational effort is needed. But in order to inform **the mass of the population**, the country’s doctors will themselves need new medical courses. (BBC-06)

In these examples *mass(es) of* can be preceded by the definite article (9, 10, 13), demonstratives (11) or the indefinite article (14) and all kinds of premodifying elements, *nearly impenetrable* (9), *moving* (10), *huge* (11), *large* (12), *determined* (13), *quivering* (15). These possibilities attest to the nounness of the SN. In the lexical head use, *mass(es) of* typically refers either to “a coherent body of matter of unspecified or indeterminate shape, and usually of relatively large bulk” (OED online, 2.a), e.g. (11) and (12), or to large groups of contiguous human beings, e.g. (10) and (13). Other clues that point out that *mass(es)* refer to a concrete object that takes up space are prepositions such as *through* (as in 9 and 10) or *amid* (in 13), *hanging* in (11).

In the vague head uses we see the same premodification patterns as those associated with the lexical head uses, but the collocates are different in the sense that they are often abstract nouns, as in (14) and (15). We will see that such collocates are more typical of quantifier uses of SNs.

Examples (17)–(22) illustrate quantifier uses of *mass* and *masses of*, with concrete inanimate (17)–(20), animate (21), and abstract (22) collocates:

- (17) Our walk wanders through 9 villages. On the northern side it skirts round the Carlit range of mountains, with **its mass of little lakes** and into the Capcir. (CW-UKephem)
- (18) Our couriers have a host of ideas to entertain children too, with a well-stocked Activity Box, packed with cricket bats, boules, tennis racquets, balls and **masses of board games** too. (CW-UKephem)
- (19) Well, this is almost certainly the most comprehensive book so far written on three ball juggling. It has **masses of tricks**, including a big section on head rolls (that is, when you roll a ball across your head). (CW-UKephem)
- (20) On site, the wonderfully friendly M. and Mme. Gonin are always extremely welcoming and you will find that this is an ideal site for small children: the high quality wooden play equipment is excellent, there's a large sand pit and **masses of space**. (CW-UKephem)
- (21) They play like Wimbledon, have **masses of part-time supporters** (reminds me of Man Utd) and play home games in a suburban industrial estate. (CW-UKmags)
- (22) If I get up at my normal time that I have to get up when I have to do everything for the baby I've just Mm. got **masses of time** on my hands. (CW-UKspoken)

Table 3Head uses of *mass of*.

MASS OF	Animate	Concrete count	Concrete uncount	Abstract count	Abstract uncount
Purely lexical	46	68	61	1	8
Metaphorical uses	6	20	10	5	18
'majority'	17	2	3	1	2
Total#	69	90	74	7	27
Total %	25.8	33.7	27.7	2.6	10.1

Table 4Head uses of *masses of*.

MASSES OF	Animate	Concrete count	Concrete uncount	Abstract count	Abstract uncount
Purely lexical	14	11	16	0	0
Metaphorical uses	1	2	0	0	1
'majority'	0	0	1	0	0
Total#	15	13	17	0	1
Total %	32.6	28.3	37.0	0.0	2.2

In these uses *mass* and *masses of* are typically not premodified, or only by scalar adjectives, as in *a huge mass of*. The determiner is typically indefinite for *mass of* or the zero-article for plural *masses of*. In addition, as shown in example (17) the possessive determiner may occur, similar to established quantifiers such as *many in its many little lakes*.

Finally, *mass* and *masses of* also display ambiguous uses, as illustrated by (23)–(26):

- (23) She had grown taller and thinner each year, with **a mass of auburn hair** that was beyond her control. She brushed until it hung in long lustrous waves, but fifteen minutes later she looked as if she'd been caught in a wind storm. (CW-UKbooks)
- (24) They could allow a return to methods of production more in tune with natural growth patterns. Take mushrooms. Farming those is a big business these days, worth more than 150 million a year in the UK. They grow randomly so a bed consists of **a mass of differently-sized fungi**. (CW-Times)
- (25) Tydeman's White, pinkish buds, **masses of silver-white flowers** on long trusses. (CW-UKbooks)
- (26) The entire ward lived it up. Surrounded by **masses of wonderful flowers** I sneezed non-stop with hay fever, but it was great to feel so loved. (CW-UKmags)

In these uses the context allows for ambiguity between the lexical head noun reading and a quantifier one. These examples mostly contain contextual clues that point in two directions. In (24) for instance the reference to mushrooms growing close together in a bed enhances the idea that we are dealing with a mass in its lexical sense, but the reference to *big business* and *growing randomly* seems to allow a quantifier analysis as well. Similarly, in (25) and (26) the absence of specific contextual clues enables a lexical head as well as a quantifier analysis.

Its general source semantics as well as the fact that in its lexical use *mass(es) of* already has a broad collocational scatter probably facilitated the grammaticalization process. By comparison, a SN like *pile*, in its lexical meaning, incorporates the semantic notion of constructional solidity and being intentionally put together, lacking in both 'mass' and 'heap'. Such additional lexical features and their resistance to delexicalization may help to explain differences in the degree to which *pile(s)* and *heap(s)* occur as quantifiers (see Fig. 1).

The potential for delexicalization and grammaticalization in *heap(s)* and *mass(es) of* is confirmed cross-linguistically, for instance by Dutch *hoop/hopen* and *massa('s)* (see De Clerck and Colleman, 2009 and Brems, 2011). In all these SNs the delexicalization seems to involve two interlocking aspects. First, from referring to a coherent, tangible body of matter (see 27) or a dense aggregation of contiguous objects in their lexical meaning, as quantifiers *heap/mass* and *hoop/massa* shift to referring to a non-continuous large amount/collection of concrete entities. In (28) below, for instance, *a mass of followers* does not necessarily refer to a concentrated group of followers, all situated in the same spot, but to a large number of them, scattered all over the world.

- (27) One thing I did learn to my chagrin was that **the mass of wobbling fat** I proudly thrust over my belt is not actually a beer belly, as I had been so proudly boasting to my friends (like most true Australian men love to do) (oznews)
- (28) Its massive use of the Internet, however, allows that movement to address a global audience, thus connecting it with a mass of followers spread all over the world and immediately communicating its messages to the centers of cultural production. <http://hsozkult.geschichte.hu-berlin.de/rezensionen/2006-3-189>, accessed 01/12/2013.'

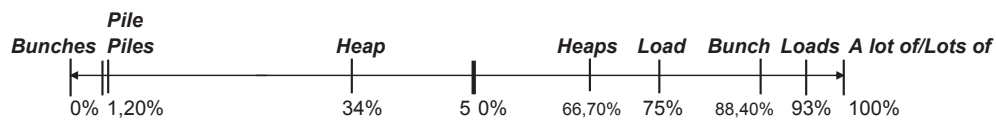


Fig. 1. Scale of grammaticality (cf. Brems, 2011, p. 203).

This loss of spatio-temporal contiguity also applies to the quantifying size noun construction with human N2s:

- (29) There is **a mass of talented people** out there making, or wanting to make, amazing factual stories on film. www.4docs.org.uk/, accessed 20 February 2013.
- (30) At this crucial moment the Athenians did something impossible - impossible, at least, for **a mass of unprofessional rustics**. (COCA)

In a second step, the data suggest a move from concrete N2s to abstract N2s with an expansion from a concrete amount of matter to an abstract amount, as illustrated in (31) and (32). Note also that the adjective *incalculable* underscores the 'quantitative' interpretation.

- (31) Admittedly, a lot of unnecessary disruption and **an incalculable mass of suffering** would have been avoided, but then who is to say that the suffering would not have taken place in other ways and through other causes?
- (32) It's just been so painful to see her making such **a mass of fuck-ups**. (COCA).

In the next section *mass of* and *masses of* will be compared with other size nouns.⁵

3.3. Comparison of *mass of* and *masses of* with other SNs

Table 5 sums up the percentages of the various uses of the SNs studied in Brems (2011) and of *mass* and *masses of*.

Table 6 gives an overview of the collocational profile of the quantifying uses of the various SNs uses.

If we compare *mass* and *masses of* with the SNs studied in Brems (2011) it appears that the former occur less often with abstract N2s than the latter.⁶ *Mass* and *masses of* do occur with a fair proportion of animate N2s, but this is related to one of the lexical meanings which involves a crowd of people and not necessarily a sign of a high degree of grammaticality, which it was with SNs such as *heap(s)*, *load(s)*, *bunch*, which could not occur with animate nouns in their lexical head noun use. Adding up the figures in columns 4 and 5 in Table 6, for instance, shows that only 5% of N2 combinations with *masses* are countable or uncountable abstract nouns, whereas 45% of N2 combinations with *heaps* include abstract nouns, e.g. (33).

- (33) But you call me now, when you're in **heaps of trouble** and have nowhere else to go (COCA 2011 FIC)

It thus seems that the collocational scatter of both *mass* and *masses of* is fairly limited, with all of their uses typically associating with concrete N2s.

Compared to other SNs, *mass of* has a limited quantifier use of only 20%, whereas *masses of*, with 60% quantifier uses, is similar to *heaps of*. If we include *mass* and *masses of* on the cline presented earlier as Fig. 1, they take up a position to the left of most SNs:

Masses of has a relatively large share of quantifier uses, but compared to other SNs its collocational scatter is fairly limited. In view of its general source semantics and the collocational possibilities allowed for by its lexical use (in comparison with *bunch*, *pile* and *heap*, for instance) this is actually fairly remarkable. Regardless of its more general semantics and attested possibilities for N2 in lexical uses, the grammaticalization process does not seem to have been accelerated/facilitated by this head start. It also raises the question of how 'degrees of grammaticalization' should be calibrated in these cases. We will briefly elaborate on these issues in the next section.

⁵ See De Clerck and Coleman 2013 for similar observations regarding the grammaticalization of Dutch *massa* and *massa's*.

⁶ Statistical significance was tested in a 2x2 contingency table by adding up all countable and uncountable abstract N2s for *mass(es) of* and all countable and uncountable concrete N2s for *mass(es) of*, which were subsequently compared with the values for abstract and concrete N2s of all other size nouns. With a p-value lower than 0.0001, the difference in distribution is statistically significant. Of course, the effect of some size nouns will be bigger than others, see for instance, *heap(s)* and *load(s)* vs. *pile(s)* and *bunch(es)*.

Table 5
Comparison with other SNs.

	Head use	Quantifier use	Valuing (-Q) use	Total grammaticalized uses	Ambiguous
<i>Heap</i>	63.2%	32.1%	1.9%	34%	2.8%
<i>Heaps</i>	32.2%	66.7%	/	66.7%	1.1%
<i>Pile</i>	95.2%	1.2%	/	1.2%	3.6%
<i>Piles</i>	91.5%	1.2%	/	1.2%	7.3%
<i>Load</i>	24%	40.8%	34%	74.8%	1.2%
<i>Loads</i>	6%	93%	/	93%	1%
<i>Bunch</i>	11.6%	52.4%	36%	88.4%	/
<i>Bunches</i>	93.9%	/	/	/	6.1%
Mass	72.2%	20.3%	/	20.3%	7.6%
Masses	22.3%	60.2%	/	60.2%	17.5%

Table 6
Proportion of N2 uses.

	Animate		Concr/count		Concr/uncount		Abstr/count		Abstr/uncount		Total
	#	%	#	%	#	%	#	%	#	%	
<i>heap</i>	8	7.7	30	28.8	30	28.8	12	11.5	24	23.1	104
<i>heaps</i>	9	10.0	20	22.2	20	22.2	14	15.6	27	30.0	90
<i>pile</i>	7	2.8	150	60.0	83	33.2	6	2.4	4	1.6	250
<i>piles</i>	2	1.2	82	49.7	77	46.7	3	1.8	1	0.6	165
<i>load</i>	40	16.2	50	20.2	50	20.2	17	6.9	90	36.4	247
<i>loads</i>	51	20.4	55	22.0	45	18.0	51	20.4	48	19.2	250
<i>bunch</i>	167	66.8	44	17.6	9	3.6	21	8.4	9	3.6	250
<i>bunches</i>	3	6.1	38	77.6	8	16.3	0	0.0	0	0.0	49
mass	82	22.2	136	36.8	104	28.1	17	4.6	31	8.4	370
masses	39	18.9	94	45.6	63	30.6	5	2.4	5	2.4	206

3.4. Attesting degrees of grammaticalization

The cline proposed in Brems (2011) and the position of *mass of* and *masses of* on it, is based on the proportion of quantifying uses versus lexical uses. The more quantifying uses are yielded by the data, the more the SN is said to have grammaticalized, or at least that is what the visual representation in Figs. 1 and 2 seems to suggest. This observation/interpretation, however, needs to be refined. The proportion of quantifying uses is not the only indication of degree of grammaticalization.⁷ Collocational broadening serves as an indicator too. While it is true that collocational broadening will invariably lead to a higher frequency of quantifying uses, a high proportion of quantifying uses need not be the automatic result of collocational broadening. Secondly, the current position of the quantifying SN on the cline needs to be compared with its original lexical meaning and the trajectory that has been followed to go from one stage to the stage it is in now. In this way, the changes *bunch* has gone through with its very specific original meaning and very restricted possibilities for N2 and its current (qualifying-quantifying) uses are much more pervasive than those of *mass(es)* which has a vaguer lexical meaning and more collocations to start with. In other words, the differences between its primarily lexical uses and its grammatical uses are not as significant as the differences attested between lexical and quantifying *bunch*.

Thirdly, rather than being a measure for the degree of grammaticalization, the proportions of attested quantifying uses in many cases just reflect the nature of the source semantics of N1. Surely, if the original meaning is very general, with lots of possibilities for N2 occurrences, chances are high that lexical uses will be attested in great numbers in the corpus. As such, the corpus data may not show the degree to which a specific size noun has grammaticalized, but a mere reflection of its polysemous nature as a lexical item. In addition to numbers – or maybe even instead of – we believe that context, spread and distance from source semantics need to be included in the equation.

One might argue that the semantic distance is indeed captured by the difference in number of quantifying uses (60.2% vs. 88.4%), but we do think that these percentages might hide a more substantial difference in degree of grammaticalization. Instead, we would like to argue that this cline represents the proportion of attested grammaticalized uses, but that it need not necessarily or accurately reflect degrees of grammaticalization. In order to do so, one would actually need a visual

⁷ Verwecken (this volume), for instance, has shown that Spanish *montón de* is the only size noun with unrestricted collocational possibilities, which has extended systematically to other syntactic contexts. However, it is not the SN which presents the highest proportion of grammatical uses (cf. 88% of grammaticalized uses for *aluvión* 'flood' in contrast to 68% for *montón*). According to her, the reason for this is related to source semantics: there are many more N2s that can be piled into a *montón*, but *avalanches* (*aluvión*) are restricted to a small number of N2, most of which are redundant and hence ellipted in context (e.g. snow, water). As a consequence, those uses that do occur as N1 de N2 construction will be quantifying uses and proportionally dominant, even if the N1 has not grammaticalized to a large extent.

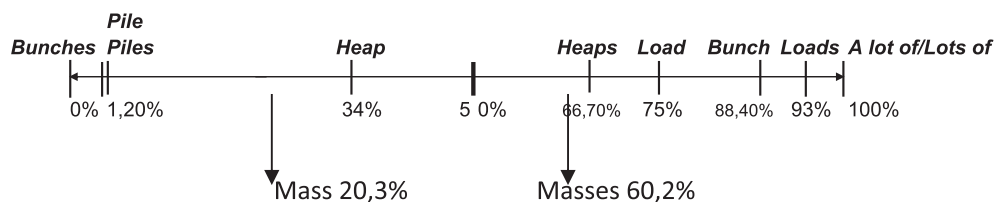


Fig. 2. Scale of grammaticality.

representation that also incorporates collocational spread, and the degree of semantic bleaching (i.e. the development from and the distance between the original and its current use).

Apart from the issue of how such a visual representation could be realized (possibly with a three-dimensional plot with quantificational/lexical uses on one axis, collocational spread via adjectives, adverbs and verbs on another and original versus current uses on a third), such an approach does raise a number of additional issues. While it would no doubt be a better representation of linguistic reality (which would better account for differences in the usage of SNs that are now more or less positioned on the same location, cf. *masses* vs. *heaps*), it is no mean feat to find objective parameters to measure these distances. Surely, extension to other contexts indicates further grammaticalization (see Section 4 below), but the order in which this spread takes place cannot be systematized at this stage, or at least not detailed enough to allow for better generalizations. While extension seems to evolve from concrete to abstract, it is not at all clear how the spread proceeds within these classes of nouns and what the catalysts are. Frequency and/or analogy may have a very important role to play here and more synchronic and diachronic research is needed to accurately map the spread within the large set of abstract nouns, for instance, bearing in mind their attested overall frequency. In addition, in those cases where vague semantics already allow for combinations with abstract or human entities, proportions and spread would need to be calibrated in order to measure degrees of grammaticalization. Such an approach would allow for a better representation of the path that has been travelled or the area that has been covered in comparison with the lexical item's original uses.

As a final note, attention should also be drawn to corpus bias. The proportion of quantifying versus lexical uses may also be affected by the corpora that are analysed. If a corpus mainly consists of spoken informal data, one may expect a positive impact on the proportion of quantitative uses. Conversely - and especially in the case of *mass* - the inclusion of written data, and more specifically, scientific articles may exponentially increase the number of lexical uses in certain contexts (e.g. when reference is made to the specialized scientific uses as in the mass of atoms/neutrons or planets or in political essays on the electoral behaviour of the populace). This, in combination with the fact that lexical *mass* is far more polysemous than the other N1s may lead to an obvious dominance of lexical uses as shown on the cline. However, the analysis of differently balanced data, may reveal different proportions for each of these size nouns and possibly another ranking on the cline.

4. Beyond quantification: the road less travelled by

4.1. Degree modifiers in Brems (2011).

In the literature it has been noted that grammaticalizing expressions may extend beyond their original source construction. Collocational scatter, addressed in the previous section, is a sign of grammaticalization. In addition extension to increasingly more syntactic contexts is considered to be a symptom of further grammaticalization since it presupposes that reanalysis of the expression concerned has taken place (cf. Heine, 2003; Hopper and Traugott, 2003 and Himmelmann, 2004). Based on data from the Collins Wordbank and a set of Internet examples, Brems (2011) noted that some SNs have extended to degree modifier uses, modifying non-nominal elements such as comparative adjectives, verbs and adverbs (typically *more*), as shown in (34) to (38).⁸

(34) I'm **heaps better** than I was, although I have headaches 24 hours a day which *drains* me a lot. (CW-OZnews)

(35) "Love you loads!" (inscription on Jamie Oliver mug from the Cheeky mug collection)(36) With Crass they failed to notice it totally and we're like f ing **loads softer** than that. (CW-UKmags)

(37) The white blood cells will recognize it and produce **lots more** antibodies very quickly (CW-UKbooks)

(38) Still I'm sure that The Sultans of Ping **laughed loads** (CW-UKmags)

⁸ The term degree modifier overarches different types of modifiers. The first type consists of items which express degree on a scale upwards from an assumed norm. Further subcategorizations can be made here: besides *boosters*, which indicate a high point on a scale (e.g. *very*, *really*, *dead*, etc.), there are also *maximizers*, which denote the upper extreme of a scale (e.g. *completely*, *utterly*, *totally*). *Amplifiers* is sometimes used as a cover term for both subclasses (cf. Quirk et al. 1985). The converse of amplifiers are *downtoners*, which scale a property downwards and which can be divided in three subtypes: *compromisers* (e.g. *rather*), *diminishers* (e.g. *a little*, *slightly*), and *minimizers* (e.g. *barely*). *Intensifier* and *degree modifier* are two overarching terms for all subtypes of boosters and downtoners. See also Carita (1997, 2000) for further discussion.

Such degree modifier uses of SNs typically express the intensity and/or frequency of the adjectival, verbal or adverbial predicate. Verbs can be modified in terms of intensity, as in (35), or frequency, as in (38) *laughed loads* which means they frequently laughed (cf. [Langacker forthcoming](#), p. 11). Adjectives and adverbs are mostly modified in terms of the degree to which they apply, e.g. *loads softer*, which is also indicated by the comparative form of the adjective.

As the above examples show, in this extended use of *of* is typically lost. In examples from the Internet, however, we find coalesced forms such as *heapsa* in (39):

- (39) It looks like an original scan! **heapsa** good work for the effort u put into it! turned out **heapsa cool**. (<http://gallery.minitokyo.net/view/40937>)

Interestingly, whereas the corpus examples only modify comparative forms of adjectives, in (39) a non-comparative adjective is modified, i.e. *heapsa cool*. This use is very much restricted to very informal and spoken contexts.

In addition to adverbial uses, the corpus data in [Brems \(2011\)](#) also yielded a set of, what seem to be, elliptical NPs. These uses too do not feature *of*, but contrary to examples (34)–(39) the SNs in (40)–(42) still modify nominal referents, which have been elided, but can be filled in from the context.

- (40) I've been in **loads**. Yeah. Well tell me all about that then. Well like I've been in Annie. (CB-UKspoken)
 (41) Dr Cheung had asked him if he had a photo of Mom. He'd got **lots** (CWUKbooks)
 (42) I see her **loads** 'cos we've got a good view down the road. (CWUKspoken)

In (40) *loads* is short for *loads of musicals*, which can be derived from the reference to Annie later on. In (41) the noun being quantified is mentioned explicitly, i.e. *photo*. In (42) then, *loads* can be said to be elliptical for *loads of times*. The latter elliptical use seems to have conventionalized to such an extent that it almost looks like a degree modifier use with *loads* indicating the frequency with which the seeing occurs. Since the number of diachronic corpus examples of degree modifier uses found in [Brems \(2011\)](#) was so small, no strong hypotheses can be made as to how the adverbial uses of SNs developed. It is possible, however, that examples such as (40–42) were one kind of bridging context between the nominal modifier and non-nominal modifier use of certain SNs (also see [Denison, 2002](#)). That is also the main reason they have been mentioned here: not because they are extended uses per se (they still occur in similar, though ellipted syntactic contexts), but because entrenched elliptical uses may pave the way to 'real' extended uses.

All in all the study of extended uses of SNs is very restricted in [Brems \(2011\)](#) and consists of qualitative observations only backed up with corpus and internet examples which are not explicitly quantified. In this part of the paper we will study extended uses of SNs more systematically by looking at other synchronic corpus data and by expanding the analysis of internet data. If extension to increasingly more syntactic contexts is indeed a concomitant of advanced grammaticalization, then we hypothesise to find more extended uses for the SNs on the right hand side of the spectrum (*loads*, *bunch*, *load*, *heaps*) and fewer or no instances for *mass(es)*, *heap*, *pile(s)* and *bunches*. In the following section this hypothesis will be explored.

4.2. Additional data

4.2.1. Corpus data

The Collins wordbank data in [Brems \(2011\)](#) has been complemented with an analysis of elliptical uses and degree modifying uses in the COCA and BNC corpus, based on combinations of lexical queries (where the SN slot was filled by singular and plural of all SNs mentioned on the cline, except *a lot/lots*) and PoS-tagging: [*v**] + SN; SN + [*aj**]; SN + [*adv**]; SN + *././*; *!:/?* etc.⁹ The results after manual filtering are presented in [Table 7](#) below.

First, the table shows that the total number of extended uses is still fairly restricted. By way of comparison, the total number of extended uses for the 10 SNs involved in a total of more than 525 m words is less than half of the attested quantifying uses for *mass of* and *masses of* in the smaller Wordbank corpus. Most of these uses are still fairly colloquial and do not show the same degree of productivity that quantifying uses have. In addition, the bulk of attested uses is actually realized in the context of N2 ellipsis. As such, they do not present 'genuine' extended uses, though their appearance in these contexts may facilitate syntactic extension. Note also that no extended uses have been attested without their being uses of ellipsis for the same SN. In addition, SNs that display a relatively high number of ellipted uses, also feature more extended uses. Similarly, a low number of attestations of ellipted uses goes hand in hand with few attestations of extended uses. Still, this is not to imply that certain threshold values for ellipted uses need to be reached before the SNs spill over into other functions, nor does it necessarily imply a certain chronological order (first ellipted uses, followed by extended uses). Extended uses are also attested in contexts with very few ellipted uses: ellipted uses may very well serve as a catalyst, but need not be a necessary precondition. Forces of creative productivity (in speakers' idiolects) may also be at work simultaneously in these different contexts.

⁹ *A lot* and *lots* have been left out because extended uses have been acknowledged before in these contexts (see [Klein, 1998](#)).

Table 7
extended uses of SNs in COCA and BNC.

	Elliptical noun		Adjective		Adverb		Verb		Total		Total
	COCA	BNC	COCA	BNC	COCA	BNC	COCA	BNC	COCA	BNC	
<i>heap</i>	1	2	7	4	4	0	2	0	14	6	20
<i>heaps</i>	1	1	1	2	3	1	0	0	5	4	9
<i>pile</i>	0	0	0	0	0	0	0	0	0	0	0
<i>piles</i>	0	1	0	0	0	0	0	0	0	1	1
<i>load</i>	1	3	0	1	1	3	0	0	2	7	9
<i>loads</i>	1	88	1	3	4	21	3	4	9	116	125
<i>bunch</i>	63	4	0	0	19	0	5	0	87	4	91
<i>bunches</i>	0	0	0	0	0	0	0	0	0	0	0
<i>mass</i>	0	0	0	0	0	0	0	0	0	0	0
<i>masses</i>	0	3	0	0	0	0	0	2	0	5	5
Total	67	102	9	10	31	25	10	6	107	143	250
Freq/1m ^a	0.157	1.02	0.02	0.1	0.07	0.25	0.02	0.06	0.25	1.43	0.47
Total	169		19		56		16		250		0.47

^a For good measure, we have included frequencies per 1 m words, but the corpora themselves do not allow for a general comparison between American and British English as both the composition as well as the balance of included text types and representative samples thereof are too different. One possible solution would be to compare the spoken data only, but there too, internal variation differs extensively. In addition, extended uses have been attested in other text types as well, not just in spoken data.

Uses modifying an adverb (in most cases, the adverb was *more* see 55 to 59 below) account for roughly 20% of extended uses, while extended uses with verbs and adjectives occur in far fewer cases. Again, the data do not allow for an accurate description of the development of adverbial uses, but a fair number of examples of the possible bridging context from nominal to non-nominal uses could be attested, as illustrated in (43) and (44).

(43) Has he done **loads** this year? BNC 5 KSV S_conv

(44) "He was drinking a lot, eating **loads** and still losing weight. BNC 1 A17 W_pop_lore.

A closer look at individual SNs reveals a number of interesting tendencies. Most extended uses have been attested with *bunch* and *loads*. Plural *bunches* and singular *load*, however, hardly occur in such uses. In addition, extended uses of *bunch* typically occur in COCA and less so in the BNC, while the opposite is true for *loads*. *Heap* and *heaps* have some, though not many, extended uses and hardly any or none whatsoever have been attested for *mass* and *masses* and *pile* and *piles*. Examples for each category are presented below:

4.2.1.1. *Elliptical NP*. As mentioned above, some of the elliptical uses need not necessarily fall under the category of 'new' or extended uses, especially in cases where N2s are left out for reasons of redundancy, and hence easily recoverable from context, as in (45). In other cases as in (46) and (47), the recoverable N2 is generally semantically vague as in *loads/masses of things*. In (49), however, N2 can no longer be retrieved from context and there are at least a number of possible options (*questions, information, details, stuff, etc.*). In addition, such uses in the vicinity of verbs but without the explicit presence of the N2 may facilitate uses in other and new contexts, which is also why we have decided to include them here.

(45) You have to take 10 pitchers to get one. But we need **a bunch**. We have to take 15 or 20 instead of 10. COCA 13 1996 NEWS Denver

(46) Got **loads** to tell you, love Mario. BNC 31 KCF S_conv

(47) You've got to know all about sex Yeah, but I asked **a load** to Phil's dad. BNC 1 KCU S_conv,

(48) For 900 quid we're not talking about BCCI, are we? Yes, they will cost **heaps** to insure and sure, a big V12 will eat fuel, but let's be honest, the biggest single cost with any new car is depreciation, and you will not lose much sleep about that. (CB-Times).

4.2.1.2. *Modifying (comparative) adjective.*

(49) If you are an experienced player ... it's **heaps easier** to not get caught. COCA 1 2001 ACAD SportBehavior.

(50) Be **a heap safer** here where you got friends. Runners said they was about three days ride. COCA 1 1994 FIC Bk:TrappersMoon

(51) Yeah, that's right. Cos of fire and things. **Loads better**, really looking better. Oh right! BNC 2 KD5 S_conv

(52) Stop twisting my arm round I wanna go and I think that's **a load better**. pardon? is it alright? BNC 3 KB8 S_conv

4.2.1.3. *Modifying adverb (esp. more).*

(53) [...] even though it's about a full centimeter wider and **heaps more** versatile. GRIPES: Sluggish in short turns and at lower speeds. COCA 2006 MAG Skiing.

(54) We must stand watch and pray! The days are evil. The nights **a heap more** so. COCA 2 1992 FIC Bk:House1000Corpses

(55) [...] and our view was that by and large it wasn't a question of having to have **loads more** different screens we just needed them in different areas. BNC 9 KLV S_meeting

(56) Your subordinates turns in completed work ahead of time you react by giving him **a whole load more**, what may happen? BNC 3 AYJ W_commerce

(57) NEWS NewYorkTimes leading more normal lives.# "The good news is that there are **a bunch more** smiling faces in my clinic today than were there a year or two ago

4.2.1.4. *Modifying verb.*

(58) “You should go easy on her.” He nodded **a bunch**. “You should go easy in general. COCA 2006 FIC VirginiaQRev.

(59) Mrs. Mock thought **a heap** of Papa’s mother, Sarah, who was born on the plantation [...] COCA 1 1993 MAG AmHeritage (ambiguous: think a lot of/think highly of)

These results partially confirm the expected tendencies based on the grammaticalization cline presented in Fig. 2: *bunch* and *loads* (both on the right hand side of the spectrum) express the highest frequency of extended uses as opposed to *pile*, *piles*, *bunches* and *mass* on the left side of the spectrum. While more data are needed to fully support these apparent trends, this part of the corpus-based data does seem to reveal that a higher degree of quantifying SN uses facilitates the extension to other syntactic contexts, and uses as degree modifiers.¹⁰ The data, however, are not always that conclusive. *Heap*, *masses*, *heaps* and *load*, for instance, located more towards the centre display few uses, but do not seem to confirm the attested trend: despite its lower degree of grammaticalization, *heap* displays more extended uses than *masses*, *load* and *heaps* ($p = 0.0089$) which have more quantifying uses. In other words, some SNs with a fairly low number of quantifying uses (e.g. *heap*) do occur in extended contexts whereas others (*masses*, *load*) do not. This may again be related to the simplified representation shown in Fig. 2. While the number of quantifying uses for *heap* is lower, its collocational scatter is broader reflecting a higher degree of semantic bleaching for *heap*. If such aspects are included, then the observed phenomena would indeed corroborate ongoing trends with extended uses as the logical next step for *heap* (and not for *masses*, *load*, whose collocational development is limited). The appearance of ‘extended’ uses without the attestation of an ‘in-between’ quantifier use can be explained in several ways. Firstly, within a more traditional view of grammaticalization as a gradual process characterized by syntactic context expansion, we could simply assume that some stages may be unattested. This does not mean that they did not exist, but they left no traces in language material recorded in corpora. Secondly, these uses may rely on analogy.¹¹ In this view an adverbial construction is established on the basis of adverbial uses with *lot(s)* and *much/many*, into which other, appropriate, items can be inserted without them having to grammaticalize gradually as in the more traditional view. In order to check all possible language material available to us, the next section will discuss web-based data.

4.2.2. *Web-based data*

In view of the fact that extended uses are often part of very colloquial speech that tends to be underrepresented in corpora (including the large corpora under study), complementary web data have been examined. Our main interest was to gain further insight into the actual frequency and spread of such and other uses. To do so in a more or less controlled environment, we started from frequent combinations found in the corpora, i.e. specific comparative adjectives such as *easier*, *better* and the adverb *more*, and launched combined queries with all SNs, including those that did not have any extended uses in the corpus data. These queries were complemented with queries (for all SNs) in specific contexts where extended uses are expected to occur (e.g. frequent instances of hyperbolic language use with informally used adjectives such as *cool*, and more neutral but frequent equivalents *nice*, *funny*, etc.). Finally, extended/elided uses in a verbal context were looked for on the basis of attested instances with the intransitive verb *sleep* (3rd person singular simple past). In addition to these general ‘noisy’ queries, specific queries were carried out on the basis of combinations of the verb *be* (third person singular simple past) + SN + *easier/better/more/cool/funny/nice*, the combination of which yields little noise and an even better overview of productive uses for each of the SNs involved.

While the data we will be dealing with are unmistakably (and unavoidably) noisy, rough and partial, they will allow us to point out a number of tendencies and raise a number of questions with respect to attested uses of SNs and their respective position on the grammaticalization cline. Table 8 below presents an overview of these queries for each of the SNs in combination with the selected lexical items. The numbers in the first row present the total number of results yielded by the Google search and give a very rough indication of how productive these uses are for each of the SNs. Surely, the actual number of accurate hits will be much lower (due to noise and replicated websites), but the substantial differences (rather than the actual numbers) partially reflect the difference in productivity between the different SNs. For instance, the vast difference between the number of hits for ‘slept a bunch’ with 16,600 rough hits and the number of hits for ‘slept a mass’, with 28 hits already indicates a different degree of productivity between the use of ‘slept a bunch’ and ‘slept a mass’.¹²

The second row represents the actual number of genuine extended uses in the first 100 instances that were attested after manual filtering. These results present further proof for the general tendencies in the ‘rough’ data. Going back to the instances with ‘slept a mass’ and ‘slept a bunch’, for instance, the table shows that 82 out of a 100 instances of ‘slept a bunch’ are genuine

¹⁰ The data, however, are too scattered to systematically examine the dynamics behind this spread, i.e. the order of contexts to which these uses are extending. While extension to the elliptical context seems the most logical next step (supported by the attested frequency), followed by uses modifying the adverb *more* (similar to *much/many* or *a lot/lots*), there are not enough data and too much individual variation between SNs for a detailed study of how this spread comes about.

¹¹ This may, in fact also apply to quantificational uses. For instance, it may not be surprising that *loads* and *lots* are very similar in terms of their quantification potential (see their position on the cline), which may be fuelled by their phonological similarity, as also observed by an anonymous reviewer.

¹² In some cases, however, the impact of noise on actual number will be higher than others: some of the plural SNs could also be the third person singular of the verb as in *heaps*, *piles* and *load*. The asterisk * indicates that the query excludes the word *than* to eliminate scientific articles on planets and stars (*planets with a mass more than ...*); ***piles more*: mainly used as a verb (*piles more pressure* on).

Table 8
Extended uses in web data.

	easier	better	more	cool	nice	funny	sleep
<i>heap</i>	85,600	109,000	688,000	578	4,560	1,100	2,630
	96	91	92	13	0	4	12
<i>heaps</i>	139,000	499,000	1,410,000	101,000	55,000	31,800	6,230
	96	97	72	92	93	97	92
<i>pile</i>	6,970	10,300	104,000	1,540	6,160	6,180	251
	40	41	51	0	0	0	4
<i>piles</i>	1,190	5,160	98,200	3,120	3,220	1,150	108
	0	2	0**	0	0	0	0
<i>load</i>	143,000	188,000	3,660,000	225,000	189,000	17,600	270
	42	48	72	0	2	1	23
<i>loads</i>	224,000	651,000	15,000,000	15,400	25,600	14,900	15,500
	72	94	96	1	1	0	97
<i>bunch</i>	160,000	103,000	14,400,000	47,100	111,000	29,100	26,600
	98	94	92	0	0	0	84
<i>bunches</i>	1,550	8,420	33,500	912	2,180	1,070	116
	74	89	72	2	0	4	70
<i>mass</i>	5	25,000	516,000	18,700	3,360	3,160	28
	0	1	4*	6	0	1	0
<i>masses</i>	7,150	26,600	137,000	8,200	23,100	16,100	99
	7	1	3	0	0	0	8

examples of extended/elliptical uses, while none of the attestations with 'slept a mass' yielded genuine examples. In similar fashion, other extended uses will be verified and commented on.

Table 9 present the results of a more specific query including simple past 'was' in combination with one of the size nouns and one of the lexical items *easier/better/more/cool/nice/funny*. This specific query (which yields little noise) further supports observed tendencies and gives a more accurate insight into patterns of productivity of extended uses in this specific constellation. In the following paragraphs the data from these tables will be compared with the corpus results. Observations will be subdivided into two main categories: 1) instances of convergent evidence, i.e. either the presence or absence of extended uses in the corpus data is confirmed by the presence or absence of extended uses in the web data. 2) divergent evidence, i.e. the presence or absence of extended uses suggested by the corpus data is not corroborated by the web data.

Convergent evidence will be dealt with first. Attested instances of extended uses in the corpus data are always corroborated by web data. In other words, those size nouns which had the highest number of extended uses in the corpus data confirm this trend and display the highest number of extended uses in the web data. *Loads* and *bunch*, for instance, which had the highest number of extended uses in the corpus data also yield very high frequencies in the web data. The spread across syntactic categories is quite similar too: although *bunch* does occur with comparative adjectives, the adverb *more* and in verbal contexts, both web and corpus data show that combinations with non-comparative adjectives are still rare. In a similar fashion, some of the size nouns with few extended uses in the corpus data have few extended uses in the web data too. This is mainly the case for *a pile/piles* and *a mass/masses*, although it should be noted that *a pile/piles* and *masses* do occur with comparative adjectives and adverbs, see examples below, though to a lesser extent than *loads* and *bunch*.

- (61) This recipe is **masses easier** and quicker than the full-blown real thing, yet it tastes very close to it. You can serve it unashamedly – and wait for compliments. <http://www.whitings-writings.com/recipes/cassoulet12.htm>, accessed 14 April 2014.
- (62) I ordered a made-to-measure dress for my wedding which I was told would arrive by the end of March. It didn't arrive, and I didn't hear anything until June, when a dress arrived which was most definitely NOT made to my measurements - it was **masses too big**. They made another one, which was wrong, and then adjusted it, and it is now too small. [http://www.freeindex.co.uk/profile\(choola\)_127759.htm](http://www.freeindex.co.uk/profile(choola)_127759.htm)[http://www.freeindex.co.uk/profile\(choola\)_127759.htm](http://www.freeindex.co.uk/profile(choola)_127759.htm), accessed 14 April 2014.
- (63) I feel **masses better** today. <http://www.scottishslimmers.com/index.php?showtopic=29382>, accessed 14 April 2014
- (64) Adam and Robert are not identical, and from the start they looked quite different, and had very different personalities. Adam was bigger, with a broader face and blond hair. He was very strong! He seemed more laid-back and self-contained, and he also **slept masses** in the first few days. http://community.babycentre.co.uk/post/a7573005/my_birth_story_first_week, accessed 14 April 2014.
- (65) **Cried masses** to see poor Purds gamely limping back to her box but she does seem a lot better tonight after a jab from the vet. I go back to a previous post. ...www.horseandhound.co.uk/forums/showflat.php/Cat/0/Number/.../an/.../4, accessed 14 April 2014.
- (66) I find scales **masses easier** on piano than on flute, and I'm *miles* better at the flute! But everyone is different smile.¹³[www.sweetmedia.us/tag/web/In caCHE](http://www.sweetmedia.us/tag/web/In%20caCHE), accessed 14 April 2014.
- (67) "It's **a pile easier** than taking notes." . <http://arlenetaylor.org/index.php/health/5120-a-brain-friendly-lifestyle.html>, accessed 14 April 2014.
- (68) my 1330 engine produces 95bhp, that extra power gets you there quicker, so you need to stop quicker, an extra 40bhp also generates **a pile more** heat as well. <http://www.fatblokeracing.org/suggestions.shtml>, accessed 14 April 2014.

¹³ Note also the creative use of *miles* in *miles better* as a degree modifier.

Web data for *load* and *loads* partially corroborate the observed trends in the corpus data. *Loads* shows more extended uses than *load* and also features in a verbal context (with 97 hits for *slept loads* and only 27 for *load*), a trend which could also be observed in the corpus data. Only *loads* seems to have spread to adjective uses, see (69), though be it infrequently.

(69) South Park is **loads funny!** <http://pedroleite.wordpress.com/2008/03/>, accessed 14 April 2014.

Instances of divergent evidence are presented in the data for *heap/heaps*, *a load* and *bunches*. While the corpus data showed more extended uses for *heap* than for *heaps* (20 vs. 9), the web data reveal a completely different picture. Not only do we get a much higher number in terms of rough counts, the filtered examples also show that *heaps* shows a wider spread in use. Whereas *heap* is still restricted to comparative contexts, *heaps* is attested with non-comparative adjectives and in verbal contexts as well, as shown in the examples below.

(70) she's **heaps funny** and makes class and band **heaps enjoyable** :) <http://au.ratemyteachers.com/suzanne-oyston/25755-t>

(71) **Ate heaps, laughed heaps, swam heaps** - slept a little! And caught some fish. Perfect weekend. JK,JM, MilleJo,Greg + Gem ... October 2006 ..., accessed 14 April 2014. www.houseboatsonshoalhaven.com.au/normal.asp?pageid, accessed 14 April 2014.

Since *heaps* is situated on the right side of the grammaticalization cline (as opposed to *heap*), the spread and frequency of these extended uses might be regarded as the logical next step in the grammaticalization process, but one which wasn't captured by the corpus data.

Unlike the corpus data, the web data seem to suggest that *load* does have a fair number of extended uses, especially in contexts with comparative adjectives and the adverb *more*.

(72) Stop twisting my arm round I wanna go and I think that 's **a load better**. pardon? is it alright? BNC 3 KB8 S_conv, accessed 14 April 2014.

In the corpus data, no extended uses of *bunches* could be attested, but the web-based data show that such uses cannot be ruled out. Similar to *bunch*, extended uses have not yet spread to non-comparative adjectives, but with comparative adjectives and the adverb *more*, a considerable number of genuine cases could be attested in the filtered examples. This also applies to combinations with *sleep* (with 70 genuine uses out of 100 examples). Examples are presented below:

(73) Yeahhh, its **bunches funny**, and the scene about an oyster had me in tears laughing. www.wewatchmoviesfree.net/.../watch-shes-out-of-my-league-online-free.html, accessed 14 April 2014.

(74) 28 Nov 2004 - + everybody loves you + everybody would be veery saad if they lost YOU as a friend because your **a hella bunches cool** person, accesse 14 April 2014.

(75) Matt & Kristen - 1 year down, **bunches more** to go! » Jesse Daniels ... jesseandgena.com/.../matt-kristin-1-year-down-bu ... In cache, accessed 14 April 2014.

Further proof from a different context supports these extended uses of *bunches*. Very rough results on the hyperbolic expression of emotions in the typical 'I love you' or 'thanks' phrase, illustrated in (76) to (79), show a relatively high frequency of *bunches* as well, which makes them more similar to size nouns which are on the right hand side of the cline (e.g. *heaps*, *loads* and *bunch*) than to those on the left (*pile(s)* and *mass(es)*). Note also that these examples confirm non-extended uses of *pile(s)* and *mass(es)*.

(76) You are tooo cute Banaid, I **love** you **bunches n bunches!** Funny, I just re-read this the other day and didn't notice anything different ... www.myspace.com/pick_me_pick_me, accessed 14 April 2014.

(77) We are seeing traffic on the blog and it is keeping me going! **Thanks bunches** for stopping by. walkingwithms.blogspot.com/, accessed 14 April 2014.

(78) Exact Google queries, accessed 08 January 2014:

"Thanks bunches": 432,000 hits¹⁴

"Thanks a bunch": 8,900,000

"Thanks a load": 147,000

"Thanks loads": 438,000

"Thanks a heap": 553,000

"Thanks heaps": 2,440,000

"Thanks a pile": 1,970

"Thanks piles": 42,100

"Thanks a mass": 2,320

"Thanks masses": 2,860

¹⁴ Such uses have become quite entrenched and even appear on greeting cards: see <http://www.google.be/search?q=%22thanks+bunches%22&hl=nl&client=firefox-a&hs=dpt&rls=org.mozilla:nl:official&prmd=imvns&tbm=isch&tbo=u&source=univ&sa=X&ei=HHztSxKcyp8APFmDiwDQ&ved=0CFEQsAQ&biw=1264&bih=883>.

(79) Exact Google queries, accessed 08 January 2014:

- "I love you bunches": 952,000 hits
- "I love you a bunch": 1,480,000 hits
- "I love you a load": 7 hits
- "I love you loads": 3,790,000 hits
- "I love you a heap": 2,510 hits
- "I love you heaps": 1,240,000 hits
- "I love you a pile": 4 hits (one of which includes a metapragmatic comment 'I love you a pile? What the hell does that mean?')
- "I love you piles": 12 hits
- "I love you a mass": 0 hits
- "I love you masses": 6 hits

If we compare the information gained from extended uses based on web data with their position on the grammaticalization cline, a number of additional comments can be made.

First, while no quantifying uses of *bunches* were attested in the corpus data, the extended uses in the web data seem to suggest a leap from lexical to modifying uses without quantifying uses. This is probably not the case. First, while no quantifying uses were attested in the corpus data, this does not imply that no quantifying uses can be attested whatsoever. Secondly, searches in the web data were restricted to extended uses, i.e. not the typical N1 of N2 quantifying uses. This obvious void, i.e. the attestation of quantifying uses of *bunches* in web data can easily be addressed by carrying out a number of specific queries which prove the existence of quantifying uses. If we take combinations of *bunches* with uncountable (abstract) nouns (love, pain, work, room etc.), a fair number of instances crop up, as illustrated in (80) to (85)¹⁵:

- (80) Umm, I'm in a **whole bunches of pain**, not only did he did the complete hydrodistension, but he burned off the endo in the ureters, health.dir. groups.yahoo.com/ ... / ..., accessed 14 April 2014.
- (81) A messed up knee on the first day:(He is in **bunches of pain** and is grouchy as a bear.
- (82) Did **bunches of work**. Teachers got on my nerves. Slept in class. Laughed a lil. Came home. Pretty boring huh? Shout out to all my gurlz. preciousme08.xanga.com/373819572/item/, accessed 14 April 2014.
- (83) A whole *bunch of poo* hits the fan in your life and causes **bunches of stress**. All of a sudden you can't get enough sleep. answers.yahoo.com/ ... /index?qid ..., accessed 14 April 2014. (84) Great car. Gets amazing gas milage. **Bunches of room** in the trunk and for any passengers in the back seat. www.autotrader.com/.../lubkesca ..., accessed 14 April 2014.
- (85) You know that after drinking **bunches of beer** you have to wait in line to relieve yourself? www.mykoweb.com/.../recipes/mycochef02.html, accessed 14 April 2014.

Table 9

Extended uses in "was SN + extended context".

Was SN	easier	better	more	cool	nice	funny
<i>A heap</i>	37,900	190,000	1,120,000	0	0	0
<i>Heaps</i>	20,500	90,800	94,500	31,700	15,400	37,500
<i>A pile</i>	1	2	3	0	0	0
<i>Piles</i>	0	58	104	0	0	0
<i>A load</i>	21,800	171,000	7,570,000	0	0	0
<i>Loads</i>	19,200	93,900	261,000	6	6	65
<i>A bunch</i>	59,500	116,000	10,200,000	0	0	1
<i>Bunches</i>	55	175	102	0	0	0
<i>A mass</i>	0	0	3	3	0	4
<i>Masses</i>	1	76	433	0	1	0

In view of this, the extended uses of *bunches* in the web data may not be that surprising after all and reflect the (emergence of) quantifying and extended uses of plural *bunches*, a process which has also been attested – though be it at an earlier stage – for many of the other plural forms of SNs. Still, the web data also reveal that *heaps* shows the highest degree of collocational scatter, displaying highly frequent uses with comparative and non-comparative adjectives, despite its centre right position on the grammaticalization cline and the few attestations of extended uses in the corpus data. In other words, highly frequent quantificational uses do not seem to be a precondition for extended uses. Interestingly, the opposite seems to be the case as well: while *loads* is located more to the right than *heaps* is, there are fewer extended uses in fewer contexts. In short, frequent quantifying uses do not guarantee extended uses.

At this stage, it is still unclear why these patterns emerge for each of these SNs. Extensive diachronic research is needed to lay bare the dynamics of these processes of change and renewal. Processes of analogy might be at work (overruling the need for semantic bleaching) in constructionalization networks (see Norde et al., 2014) or blocking effects may temporarily rule out

¹⁵ Upon revision of this article, a number of quantifying uses were also attested in Mark Davies' GloWbe corpus.

(1) by forgetting about the unfairness and the unpleasantness of the sitch, and by not wasting bunches of time trying to find someone to blame. (US B jobjenny.com)

(2) Tractors and combines would be great were they run by electricity. Bunches of torque at your fingertips.(US G cleantechnica.com)

intensifying uses: as long as *heaps* has not worn out as an intensifier, speakers may not feel the need to resort to other hosts (e.g. *loads* and *bunches*) to express this function.

In any case, the attestations listed above do show that corpus data, no matter how extensive, sometimes fail to grasp emergent uses for lack of informal genres and text types. In addition, the extended uses that emerge from the data make it even more complicated to determine the right position of each of the SNs on the grammaticalization cline in Figs. 1 and 2. Despite fewer quantifying uses, *heaps* does seem to have more extended uses than *loads* and *bunch* for instance. In addition, the exact location of these SNs on the cline is also partially determined by the data one examines: corpus data reveal few grammaticalized uses for *bunches*, for instance, but web data show that these cannot be ruled out entirely, though most of the general tendencies are confirmed by the data.

The extensive analysis presented above shows the intricate complexity of the SNs' behaviour in present-day English and presents us with quite a number of challenges for the future. A lot remains to be said about the way in which degrees of grammaticalization can and should be measured and represented and diachronic data analysis is needed to fill the voids that are still present.

5. Conclusion

Even though a lot of attention has been paid to the grammaticalization of size nouns, this paper has shown that the inclusion of different kinds of data and parameters leads to a number of important descriptive and theoretical insights the repercussions of which exceed the present case study. By extending the study of size nouns to *mass* and *masses* of some generalizations of previous studies were confirmed, such as the fact that plural SNs typically display higher frequencies of grammatical uses, whereas it also pointed out the limits of certain parameters of grammaticalization. Since *mass* and *masses* have vaguer source semantics than *bunch* and *load*, for instance, delexicalization, operationalized as collocational broadening, is difficult to apply: in their lexical uses, *mass* and *masses* of combine with various kinds of nouns (concrete/abstract and (un) countable) and hardly any extension to new kinds of nouns is attested in their quantifier use. Despite the relatively high percentage of quantifier uses of *masses* of, a closer look at the collocational range of these uses shows that they are mostly restricted to concrete nouns. High percentages on a grammaticalization cline may hence hide certain aspects of the grammatical use that seem to go against its position on the scale. In other words, the case study of *mass/masses* of makes clear that in order to correctly assess the degree of grammaticalization of an expression several aspects need to be taken into account and that one should be careful not to over-interpret percentages of grammatical uses at face value.

The case study on extended uses gives rise to similar observations and questions. How can degrees of grammaticalization be measured more accurately? Can we maintain that grammaticalization is (always) a gradual and step by step process? As the case study on extended uses showed, some SNs do not seem to have a productive quantifier use, yet do display extended uses. Even if the attestation of certain uses largely depends on the type of data used, this leaves the possibility that certain steps in grammaticalization processes may be skipped or can at least remain undetected. This leads to the question of whether the extended uses of SNs such as *bunches* of and *masses* of are in fact the result of grammaticalization processes, or whether they rely on analogy. In the latter scenario, the slots in the adverbial construction of SNs that did grammaticalize gradually into quantifiers and extended uses (see Brems, 2011), such as *lot(s)*, could then be filled with appropriate material that has not necessarily undergone a complete process of grammaticalization.

Obviously, diachronic corpus research is needed to test the hypotheses above. However, one recurring methodological problem will be that more conversational and informal contexts are often missing in diachronic corpora. Still, in view of the short life-span of some of these extended uses and the need for hyperbolic expressiveness in language, we daresay that in the future, data covering a limited time span in massive and recently compiled 'more colloquial' web- and blogbased corpora (GloWbe, to give just one example) can be used to trace processes of analogy and to fill the caveats of missing data in more linear processes of grammaticalization.

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