

Norwegian *masse*: from measure noun to quantifier

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Abstract. For a little more than a century, a new quantifier has been developing in Norwegian: *masse* ‘a lot, lots, many, much’. The article compares the quantifier to its source noun *masse* ‘matter, mass, large amount’. The historical development is studied based on several corpora. The development of a new quantifier is seen in the larger picture of the variability of measure noun constructions and the tendency for certain kinds of measure nouns to grammaticalize into quantifiers.

1 Introduction

In spoken and informal written Norwegian, a new quantifier has been developing for a few generations, apparently since the decades around 1900. The newcomer *masse* ‘a lot, lots, many, much’ is advancing into the territory of the older quantifiers *mange* ‘many’ and *mye* ‘much’. Examples (1) and (2) show its use with a count and a noncount noun, respectively, while (3) illustrates that it can also be used as a quantifying adverbial:¹

- (1) *Jeg hadde drukket masse halvlitres*
I had drunk a.lot pints
‘I’d drunk lots of pints’
- (2) *Alle bruker masse tid på å bevise at Gud fins*
all use a.lot time on to prove that God exists
‘Everybody spends lots of time proving that God exists’
- (3) *Terry snakker masse om deg*
Terry talks a.lot about you
‘Terry talks a lot about you’

1 Sources of examples are provided after the main text. In the interlinear glosses, I use *a.lot* to translate the quantifier *masse* ‘a lot, lots, many, much’ and *lot* to translate the noun *masse* when it means ‘(a) lot’, alternatively *mass* when appropriate. Morphological abbreviations are kept to a minimum; the following are used when relevant: ABU = plural of abundance; C = common gender; M = masculine; N = neuter; PL = plural; PST = past tense; SG = singular; REFL = reflexive.

The origin of the quantifier *masse* is well known and quite transparent; it is the indefinite singular of the masculine noun *masse* ‘matter, mass, large amount’ used as a measure noun with the meaning ‘large amount’ (see Section 2). The use of this measure noun is illustrated with examples (4)–(6) parallel to (1)–(3):

- (4) *Jeg har truffet en masse mennesker*
 I have met a.M lot(M) human.beings
 ‘I’ve met lots of people’
- (5) *Det kan i hvert fall forårsake en masse hat*
 it can in every case cause a.M lot(M) hatred
 ‘At any rate, it can cause lots of hatred’
- (6) *De hadde spurt en masse og glodd nysgjerrig på ham*
 they had asked a.M lot(M) and stared curiously on him
 ‘They’d asked about lots of things and stared curiously at him’

Here, the only apparent difference between the quantifier and the noun is the use of the agreeing indefinite article *en* ‘a’. But we will see that there are other differences as well, which firmly establish the status of bare *masse* as a quantifier rather than a noun.

This article investigates the development of the new quantifier from a noun: How and when did it happen, and what is the reason for it? The analysis offered builds crucially on the semantics of the constructions involved, since the observed development needs to be understood as reanalysis that overrides overt morphosyntax.

Below, I will mostly write *masse_Q* for the quantifier, *masse_{MN}* for the noun in its measure-noun use/meaning, and *masse_N* for the noun when it is not a measure noun (see Section 2) or when it is not essential to differentiate between measure noun and non-measure noun.

2 Preliminaries

When an expression like *masse* develops historically from a noun into a quantifier, it crosses a major semantic divide: Whereas nouns designate conceptual things² (nominal entities), quantifiers designate conceptual relationships (relational entities). The change involves a significant semantic and syntactic restructuring.

The things designated by nouns are of three fundamental types: individuals (singular count nouns), count masses (plural count nouns), and noncount masses (non-count nouns). Many quantifiers combine with either plural count nouns or noncount nouns and specify the quantity of the count or noncount masses as wholes. Quantifiers meaning ‘one’, ‘every’ and some others combine only with singular count nouns. Quantifiers are in many ways similar to adjectives. But the latter combine freely with

² *Thing* is a term in the conceptual semantics of Cognitive Grammar.

all three types of nouns and specify some quality of individuals (as designated by singular count nouns or as members of the masses designated by plurals) or of arbitrary submasses of noncount masses. For instance, in *three black cats*, the quantifier specifies the cardinality of the count mass and the adjective specifies the colour of the members of that mass. And in *much black coffee*, the quantifier specifies loosely the volume of the noncount mass and the adjective specifies the colour of (the mass and) any given submass.

Measure nouns are a subclass of nouns. They are identified on the basis of their participation in measure noun constructions, also known as pseudopartitives (e.g. Kinn 2001) and under various other terms (cf. Brems 2011, p. 19–26), e.g. (7)–(8).

(7) *en mengde bøker*
 a.M lot(M) books
 ‘a lot of books’

(8) *noen glass med øl*
 some.PL glasses with beer
 ‘some glasses of beer’

These are binominal constructions, with a substance noun providing a mostly qualitative categorization of a referent and a measure noun contributing mostly quantitative information about the same referent – plus possibly some case or prepositional marking connecting the nouns (see below). In this article, I will speak about measure nominals and substance nominals as separate parts of measure noun constructions, although one of them will always be part of the other, depending on which noun heads the construction.

Faarlund et al. (1997, p. 238) make a useful distinction between secondary and primary measure nouns: Secondary measure nouns have a relatively clear qualitative meaning in addition to that of quantity, indicating shape (e.g. English *slice*, *drop*), configuration (*pile*, *herd*), or containment (*glass*, *barrel*). Primary measure nouns have more or less exclusively quantitative meaning: specific number (*million*, *dozen*), indefinite number (e.g. *number* in *a number of books*), conventional measures (*mile*, *litre*, *ton*), indefinite quantity (e.g. *amount* in *a large amount of sugar*). Some measure nouns are restricted to constructions where the substance noun is countable, while others are not. Norwegian *masse_{MN}* is a primary measure noun of indefinite (large) quantity without any restrictions on the countability of the substance nominal, as shown above by (4) and (5).

Norwegian count nouns regularly exhibit paradigms with four inflectional forms (singular vs. plural and indefinite vs. definite). But measure nouns capable of referring to large quantities are also characterized by the formation of an additional inflectional

form, the abundance plural (Enger and Conzett 2016; Kinn 2004, 2005). Thus, Norwegian Bokmål *masse*_{MN} has the forms *masse* (sg. indef.), *massen* (sg. def.), *masser* (pl. indef.), *massene* (pl. def.), *massevis* (abundance plural).

As illustrated in examples (4) and (5) above, the measure noun and the substance noun in Norwegian measure noun constructions are often juxtaposed, with no marking of one noun being subordinate to the other. This is different from English, where most measure noun constructions involve the use of the preposition of (e.g. *two pounds of sugar*, *lots of people*).³ Koptjevskaja-Tamm (2001) shows that European languages commonly exhibit three kinds of marking in measure noun constructions: zero (juxtaposition), prepositional marking of the substance nominal (as in English), and case marking of the substance nominal (e.g. most Slavic languages). In some languages, two or more patterns exist alongside one another, partly in competition. This is the case in Norwegian, where besides juxtaposition there are constructions involving the prepositions *med* ‘with’ and *av* ‘of’ (Kinn 2001). There is much variation, depending mostly on properties of the measure nominal: noun meaning, inflectional form, and modification (see further Section 3 for the case of *masse*_{MN}).

3 The measure noun *masse*

Derived from a verb meaning ‘knead’, the Ancient Greek noun *mâza* ‘barley-bread, cake’ was borrowed into Latin as *massa* ‘lump, dough, bulk (of material)’. This word is found in various forms in European languages, including Spanish (*masa*), French (*masse*), English (*mass*), and German (*Masse*), in Swedish and Dutch (*massa*) and in Danish and Norwegian (*masse*). Into Danish, which was the written language of Norway for several centuries, it was borrowed as *Massa*, a form that was gradually replaced by *Masse*, cf. (9) and (10):

- (9) *Det er en Gift af en ubekiendt Natur, som omløber i*
 it is a poison of an unknown nature which runs.around in
Blodets Massa
 the.blood’s mass
 ‘It is a poison of an unknown nature which circulates in the blood mass’

- (10) *I en saa uhyre Sal med en saadan Masse Mennesker er*
 in a so immense hall with a.c such.c mass(c) human.beings is
det ligemeget ...
 it as.much ...
 ‘In such an immense hall with such a lot of people, it does not matter ...’

According to the modern dictionary *Bokmålsordboka* (*Bokmålsordboka* 2005, s.v. *masse*), *masse*_N now has four main meaning variants: (1) ‘(shapeless) matter, sub-

3 Numeral nouns are partly exceptions to this, e.g. *two million people*, but *millions of people*.

stance', (2) 'mass' (the physics notion), (3) 'large amount', and (4) 'most people, the masses' (when used in the definite plural).⁴ The first and second variants are illustrated in (11)–(12):

- (11) *en skvulpende, seig masse som kalles flytende metallisk*
 a.M sloshing viscous.M matter(M) that is.called floating metallic
hydrogen
 hydrogen
 'a sloshing, viscous matter called liquid metallic hydrogen'
- (12) *Bruk grafen til å bestemme solas masse*
 use the.graph to to decide the.Sun's mass
 'Use the graph to decide the mass of the Sun'

The third variant mentioned in *Bokmålsordboka* ('large amount') may be classified as a measure noun, and it is from this that *masse_Q* has developed. The noun is frequent as the head of compounds, e.g. *muskelmasse* 'muscle mass', *kokosmasse* 'shredded coconut', *fugemasse* 'grout' (lit. 'joint mass'), *folkemasse* 'crowd of people'.

As noted above, Norwegian measure noun constructions may be juxtapositional or employ either of the prepositions *med* 'with' and *av* 'of'. Since *masse_Q* has developed from indefinite singular *en masse*, the use of juxtaposition or a preposition after the indefinite singular *masse_{MN}* is more central here than that seen with other forms of *masse_{MN}*. Indefinite singular *en masse* (without further modification, or modified by an intensifying adjectival expression, typically *hel* 'whole' or *helvetes* 'helluva') is usually used in juxtaposition, illustrated in (4)–(5). The preposition *med* is sometimes used, as in (13), while the use of *av* is mostly restricted to contexts with other meanings of *masse_N*. But when *masse_{MN}* is (uncharacteristically) modified by a dimensional adjective, *av* still tends to be used, as in (14); the borderline between measure noun and other uses is here often quite fuzzy.

- (13) *Dette kommer selvfølgelig til å koste en masse med penger*
 this comes of.course to to cost a.M lot(M) with money.PL
 'This is going to cost lots of money, of course'
- (14) *[De] opplever som ... problematiske for en stor masse av*
 they are.experienced as ... problematic for a.M large.M lot(M) of
samtidige lesere
 contemporary readers
 'They are felt as problematic for a large number of contemporary readers'

⁴ Variant (4) might better be regarded as a version of variant (3), but will not be discussed further here.

Turning to the external agreement properties of measure noun constructions with *masse_{MN}*, it should be noted that it is the substance noun rather than *masse_{MN}* that determines agreement on adjectival predicate complements and predicate adjuncts. Two examples are provided in (15)–(16), where the adjectives (*verdiløse* and *kunnskapsmette*) agree with the substance nouns (*penges* and *studiner*, respectively). Agreement with *masse_{MN}* (*verdiløs*, *kunnskapsmett*) would, in my judgement, be ungrammatical.

- (15) *En viktig sideeffekt ... er at en masse svarte penger*
 an important side.effect ... is that a.M lot(M) black.PL money.PL
blir verdiløse
 become worthless.PL
 ‘An important side effect is that lots of black money becomes worthless’

- (16) *En masse yndige studiner veltet kunnskapsmette ... inn*
 a.M lot(M) graceful.PL female.students crowded knowledge.full.PL ... in
på bussen
 on the.bus
 ‘Lots of graceful female students crowded into the bus, their heads packed with knowledge.’

Note that even if one inserts the preposition *med*, the adjective agrees with the substance noun; it is hard to find authentic examples, though. Using the preposition *av* does not seem natural in these examples.

4 The quantifier *masse*

In order to find early instances of *masse_Q*, I have searched in the collections of the National Library of Norway.⁵ I may have overlooked examples, but the oldest case of *masse_Q* that I have found is from a book translated from English, published in 1886. The quantifier is capitalized in agreement with its nominal origin and the orthography of 19th century Danish. The example is given in (17).

- (17) *Træstammen ... stod midt i Masse af halvraadne Stubber*
 the.tree.trunk ... stood in.the.middle in a.lot of half.rotten stumps
og Rødder
 and roots
 ‘The tree trunk stood among lots of half rotten stumps and roots’

It may be noted that the quantifier is followed by the preposition *af* (modern Norwegian *av*) ‘of’, which sounds slightly strange in (modern) Norwegian but is apparently the normal use of *masse_Q* in modern Danish (see below). In the next example that I

⁵ <http://www.nb.no/>

have found (also in a book translated from English) from 1907, *masse_Q* is followed by *med* ‘with’, see (18); this sounds acceptable in modern Norwegian, too.

- (18) *Nei tak, maa jeg be om noget lyst og livligt og*
 no thank may I pray about something bright and lively and
masse med sol!
 a.lot with sun
 ‘No thanks, may I ask for something bright and lively and lots of sun!’

Example (19) is from a book published in 1913, containing students’ songs from the period 1813–1913. The book does not tell the age of this particular song, but it refers to a “children’s help day”, a phenomenon occurring first in Kristiania (now Oslo) in 1906, which narrows the range of possible periods for the expression to 1906–13.

- (19) *Saa næste gang de masse smaa skal hjælpes, vil jeg*
 so next time the.PL a.lot small.PL shall be.helped will I
passe paa at faa en tiggerbøsse selv at drasse paa
 make.sure on to get a beggar.box self to haul on
 ‘So the next time the many small ones are going to be helped, I will make sure to have a beggar’s box to haul around myself’

Here, *masse_Q* is used in a definite noun phrase, a usage that appears to have gone extinct; at least, this is the only instance I have found of it, and it sounds strange to the modern speaker.

The oldest example that I have found of the typical use of *masse_Q* – in indefinite noun phrases without a following preposition – is from 1914 and used in a Norwegian novel, see (20). The next two, (21)–(22), are from translations from English and Swedish and published in 1916 and 1919, respectively.

- (20) *og Hans kommer hjem med masse skiddent tøy*
 and Hans comes home with a.lot dirty laundry
 ‘and Hans comes home with lots of dirty laundry’

- (21) *posten kom; med masse kort, pakker og brever*
 the.post came with a.lot cards packets and letters
 ‘the post arrived, with lots of cards, packets and letters’

- (22) *den lignet mest en liten dverg med masse rynker og stort,*
 it resembled most a little dwarf with a.lot wrinkles and large
sort skjeg
 black beard
 ‘it resembled most (of all) a little dwarf with lots of wrinkles and a large, black beard’

It would seem that the use of *masse* as a quantifier started to become conventionalized around 1900. Provided that the example from 1886 is not just a misprint, the development towards a quantifier had already started by then, and it is hard to estimate exactly when it began.

Norsk riksmålsordbok (1937-1957, vol. 2, part 1, s.v. *masse* I), whose first issues were edited before World War II, states that *masse_{MN}* (rather than the other meanings of *masse_N*) belongs to “familial” language. Further, it is noted that it may be used “uten ubest[emt] artikkel, følt som adj[ektiv]” – ‘without the definite article, felt to be an adjective’ (recall the semantic resemblance between adjectives and quantifiers, modifying different aspects of nominal meaning). One example of such usage is given in (23).

- (23) *han har hatt masse penger*
 he has had a.lot money.PL
 ‘he must have had lots of money’

In *Norsk referansegrammatikk* (Faarlund et al. 1997, p. 238) it is observed half a century later that *masse* may be used without the indefinite article *en* ‘a’, achieving “nærmest ren kvantorstatus” – ‘almost a pure quantifier status’.

It may be noted that the development of *masse_{MN}* into a quantifier is not an isolated Norwegian phenomenon, but is also found in Swedish and Danish. Swedish *masse_Q* is like Norwegian *masse_Q* in normally being immediately followed by the substance noun, while Danish *masse_Q* tends to be followed by *af* ‘of’, cf. (24) and (25), respectively.⁶

- (24) *Kände hur massa stearin rann på ryggen när jag sjöng*
 felt how a.lot stearin ran on the.back when I sang
 ‘(I) felt how lots of candle wax was running down my back as I was singing’
- (25) *Et velholdt feriehus med masse af charme*
 a well.kept holiday.house with a.lot of charm
 ‘A well kept holiday house with lots of charm’

See also Clerck and Brems (2015) for the grammaticalization of *mass(es)* of in English.

Being a noun, *masse_{MN}* is typically preceded by the agreeing indefinite article *en* and sometimes an agreeing adjective. Quantifiers, on the other hand, resemble adjectives semantically and may take degree modifiers if their semantics is suitable for that. Thus, while *masse_{MN}* may be modified by the agreeing adjective *enorm* ‘enormous’ in (26), *masse_Q* may be modified by the same adjective in the neuter singular form *enormt* ‘enormous(ly)’ as in (27); this form is the one that adjectives take when used adverbially.

⁶ I have not investigated the frequencies of these quantifiers.

- (26) *de har en enorm masse nyttig informasjon*
 they have a.M enormous.M lot(M) useful information
 ‘They have an enormous amount of useful information’
- (27) *Lenken gir også tilgang til enormt masse info*
 the.link gives also access to enormous.N a.lot information
 ‘The link also gives access to an enormous amount of information’

In the oldest corpus that I have used (cf. Section 4), the demonstrative adjective *saadan* ‘such’ (modern: *sånn*) is used in front of *masse*_{MN}, as in (28), showing the nominal status of *masse*. Modern *masse*_Q is preceded by the demonstrative adverb *så* ‘so’, as in (29), demonstrating the change from measure noun to quantifier:

- (28) *jeg skrev en saadan Masse Breve til ham og Broderen om*
 I wrote a.M such.M lot(M) letters to him and the.brother about
alverdens Smaating
 all.the.world’s little.things
 ‘I wrote such a lot of letters to him and his brother about all kinds of little things’
- (29) *da så hun så masse rare ting*
 then saw she so a.lot strange things
 ‘then she saw so many strange things’

5 A corpus study of *masse* as a measure noun and as a quantifier

In order to look closer into the development of *masse*_Q through time, I have used corpora of primarily fictional literature. The focus on such genres is motivated by the fact that *masse*_{MN}, and in particular *masse*_Q, are typical of informal language. To investigate the stylistic value of these words, the newest fiction corpus is compared with corpora from other genres: newspapers, journals (thematically specialized, but not necessarily academic), and laws and official reports. Laws and official reports are very formal genres where informal language is unlikely to be used, while thematic journals are intermediate in formality between laws and reports and fiction. Newspapers are mostly informal. The studied corpora are as follows:

- *Tekstsamlingen* ‘The Text Collection’ (TxtC), comprising primarily fiction, but also letters and other genres, mostly from the 19th century;⁷
- subcorpora of The Oslo Corpus of tagged Norwegian texts (Bokmål) (OsloK): novels from (a) 1937, (b) 1957, (c) 1977, and (d) laws and Official Norwegian Reports (NOUs) from the period 1981–95;⁸

7 www.dokpro.uio.no/litteratur

8 www.tekstlab.uio.no/norsk/bokmaal

- subcorpora of The Lexicographic Corpus for Norwegian Bokmål (about 1985–2013) (LBK): (a) fictional literature, (b) national, regional, and local newspapers, and (c) journals.⁹

These corpora were searched for tokens of *masse* and *Masse*. The search in the lexicographic fiction corpus was limited to 500 randomly selected hits, while the other searches included all hits in the specified (sub)corpora. The hits were collected in a spreadsheet and categorized semantically and syntactically. First, the tokens were categorized as *masse_Q*, *masse_{MN}* or other uses of *masse_N*.¹⁰ Second, the tokens of *masse_Q* and *masse_{MN}* were categorized according to the type of substance nominal: singular, plural or none (including adverbial uses and cases of an implicit substance nominal).

The quantitative results of the corpus studies are summarized in Tables 1 and 2. While *masse_{MN}* accounts for less than half the tokens in the oldest texts and *masse_Q* is absent, together they amount to about 90% in all the later fictional corpora as well as modern newspapers. In modern laws and reports, there are very few cases; the other meanings of *masse_N* dominate completely. The corpus of journals takes an intermediate position.

	19th c.		1937		1957		1977	
	N	%	N	%	N	%	N	%
<i>en (A) masse_{MN}</i>	82	43.9	23	74.2	13	65.0	31	68.9
+ sg.	24	12.8	5	16.1	2	10.0	12	26.7
+ pl.	51	27.3	11	35.5	7	35.0	11	24.4
other	7	3.7	7	22.6	4	20.0	8	17.8
<i>masse_Q</i>	–	–	5	16.1	5	25.0	9	20.0
+ sg.	–	–	2	6.5	3	15.0	5	11.1
+ pl.	–	–	3	9.7	1	5.0	4	8.9
other	–	–	–	–	1	5.0	–	–
SUM <i>masse_{MN+Q}</i>	82	43.9	28	90.3	18	90.0	40	88.9
Other <i>masse_N</i>	105	56.1	3	9.7	2	10.0	5	11.1
SUM total	187	100.0	31	100.0	20	100.0	45	100.0

Table 1: *Masse* in corpora of mostly fiction up to 1977. The labels + sg. and + pl. refer to the number of the following substance nominal. There are no examples of prepositional measure noun constructions.

⁹ www.hf.uio.no/iln/tjenester/kunnskap/sprak/korpus/skriftsprakskorpus/lbk/

¹⁰ The ‘rest’ category includes cases of *den* (adjective) *masse* ‘the (adjective) amount/mass’, especially in 19th century texts. This use is not a precursor of *masse_Q*, which is used virtually exclusively in indefinite phrases. Further, it is particularly difficult to differentiate between measure and non-measure use of *masse_N* in these cases.

There are no examples of *masse_Q* in the oldest texts, but it has a clear presence in 1937 fiction with about a sixth of the *masse* tokens, growing to more than half in the latest period of fiction (as well as journals) – and more than two thirds in modern newspapers. There is only one example in the modern laws and reports, i.e. less than 1%. While there are more tokens of *masse_{MN}* than of *masse_Q* up to 1977, the opposite holds in all the modern corpora except for laws and reports.

As noted above, *masse_{MN}* is used with both count (plural) and noncount (singular) substance nominals, and *masse_Q* continues this flexibility. However, there is a tendency towards differentiation in relative numbers. *Masse_{MN}* clearly prefers plural substance nominals over singulars, and the tendency seems to have grown stronger over time, with plurals almost twice as frequent as singulars. *Masse_Q* seems to have gone from a weak preference for plural substance nominals in 1937 fiction to a weak preference for singulars in the youngest texts – the difference between the singular and the plural is small, but remarkably similar across genres.

	Fiction		Newspapers		Journals		Laws/reports	
	N	%	N	%	N	%	N	%
<i>en (A) masse_{MN}</i>	186	37.2	46	22.5	96	20.0	2	1.9
+ sg.	55	11.0	12	5.9	24	5.0	–	–
+ pl.	102	20.4	*25	12.3	***61	12.7	2	1.9
other	29	5.8	9	4.4	11	2.3	–	–
<i>masse_Q</i>	263	52.6	139	68.1	251	52.2	1	0.9
+ sg.	119	23.8	67	32.4	***113	23.5	–	–
+ pl.	107	21.4	**61	29.9	105	21.8	1	0.9
other	37	7.4	11	5.9	33	6.9	–	–
SUM <i>masse_{MN+Q}</i>	449	89.8	185	90.7	347	72.1	3	2.8
Other <i>masse_N</i>	51	10.2	19	9.3	134	27.9	103	97.2
SUM total	500	100.0	204	100.0	481	100.0	106	100.0

Table 2: *Masse* in modern corpora of different genres. The labels + sg. and + pl. refer to the number of the following substance nominal. *This number includes one prepositional example with *med*. **This number includes one prepositional example with *av* in clefting of the substance nominal, where this preposition is compulsory. ***Each of these numbers includes two prepositional examples with (noncompulsory) *av*.

6 The larger picture: the variability of measure noun constructions

The modern Norwegian juxtapositional measure noun construction stems from an older construction with a genitive-marked substance nominal (e.g. Old Norse *alin vaðmáls* ‘(an) ell of frieze’ with -s marking the genitive). Like the prepositional con-

structions, this older construction appears to show that the substance nominal is subordinate to the measure noun. On the other hand: “The structure of juxtapositional pseudopartitives [...] has been what we may call a classic problem: Are such expressions headed by the measure noun or by the substance noun?” (Kinn 2001, p. 2; cf. Diderichsen 1957, p. 241–242; Teleman 1969, p. 22–36; Lødstrup 1989, p. 83–86; Delsing 1993, p. 200–223).

Indefinite juxtapositional expressions have no phrase-internal structure showing subordination of one noun to the other. Phrase-external evidence can primarily be found in agreeing adjectival predicates (and, in Nynorsk and some dialects, perfect participles). It is hard to find good evidence from usage, since the combination of indefinite subjects and predicate complement constructions is infrequent. But the available evidence seems to point to a difference between primary and secondary measure nouns. Faarlund et al. (1997, p. 240, 769–70) note that in constructions with a primary measure noun, as exemplified in (30), the substance noun tends to trigger agreement; recall that this is the case for constructions with *masse*_{MN}. In my judgement, agreement with the substance noun is the only option in this case, as for other primary measure nouns (of specific number, e.g. *million*; of indefinite number, e.g. *rekke* ‘series, number’; of conventional measures, e.g. *liter* ‘litre’; and of indefinite quantity, e.g. *masse*).

- (30) *En mengde sardiner var råtne/?*råtten*
 a.M quantity(M) sardines be.PST rotten.PL/rotten.SG
 ‘A lot of sardines were rotten’

In constructions with a secondary measure noun, as in (31), the measure noun tends to trigger agreement, according to Faarlund et al. According to my intuition, agreement with the substance noun is still the preferred option in (31), although agreement with the measure noun is more acceptable here than in (30).

- (31) *En boks sardiner var råtne/?råtten*
 a.M tin(M) sardines be.PST rotten.PL/rotten.SG
 ‘A tin of sardines was rotten’

Hankamer and Mikkelsen (2008, p. 326) report that an attempt at collecting acceptability judgements of similar agreement options for Danish produced inconclusive results, which made them leave out such data; arguably, the vacillation may be regarded as evidence for variable structure. In light of their origin in genitival constructions, juxtapositional constructions appear partly to have undergone reanalysis, i.e. from (simplified) [N [N]] to [[N] N], and the reanalysed structure seems to be more strongly conventionalized for primary than for secondary measure nouns. Vacillation in agreement may then be accounted for as due to variation between the old and the new structure

(see e.g. Delsing 1993). The development from [N [N]] to [[N] N] may be regarded as an indication of ongoing grammaticalization of the measure noun (see Section 8).

At first sight, prepositional expressions appear to have the (simplified) structure [N [P [N]]]. But such constructions, too, exhibit vacillating agreement properties, see (32) and (33).

(32) *En mengde med sardiner var råtne/?*råtten*
 a.M quantity(M) with sardines be.PST rotten.PL/rotten.SG
 ‘A lot of sardines were rotten’

(33) *En boks med sardiner var råtne/råtten*
 a.M tin(M) with sardines be.PST rotten.PL/rotten.SG
 ‘A tin of sardines was rotten’

Recall from Section 3 that prepositional constructions with *en masse med* exhibit substance noun agreement. Agreement with the substance noun and vacillating agreement is found also in English, viz. in the agreement inflection of verbs in the present tense (plus *was/were*), e.g. as in (34)–(36) (cf. Langacker 1991, p. 88–89). Similar properties have been documented for Spanish prepositional measure noun constructions, e.g. (37), where the finite verb *acercan* agrees with *personas* rather than with *aluvión* (Delbecque and Verweckken 2014, p. 94–95).

(34) A lot of students were in the room

(35) A bunch of carrots was in the sink

(36) A bunch of students were in the room

(37) *Un aluvión de personas se le acercan*
 a flood of persons REFL him approach
 ‘A flood of persons approach him’

The adjectival or verbal agreement with the (apparently subordinate) substance noun in the apparent structure [N [P [N]]] is not straightforwardly accounted for. It might be regarded as semantic agreement, i.e. agreement that disregards the syntactic structure. Such an account could be extended to juxtapositional measure noun constructions: It would then not be necessary to assume that reanalysis had taken place there; the structure would be [N [N]] regardless of agreement properties. This seems to be the view of Faarlund et al. (1997, p. 769–770).

However, several researchers on English and Spanish have argued that substance noun agreement is evidence that syntactic reanalysis has taken place even in prepositional structures (e.g. Delbecque and Verweckken 2014; Traugott and Trousdale 2013). That is, there has been a change from [N [P [N]]] to something like [[N P] N], e.g. [[a

bunch of] *students*]. A different structure, [[N] [P N]], was proposed for Norwegian by Kinn (2001, p. 216–220), where the substance noun is the head and the preposition has become a head marker. Both analyses would account for external agreement properties, but the internal structure of the constructions is in both cases somewhat obscure.

The exact analyses of constructions headed by the substance noun will not be discussed in further detail here, since the focus is on structures where a former measure noun has become a quantifier (in terms of its word class, not just its function). What matters is that there does appear to be a change going on which switches head status from measure noun to substance noun, and which, in prepositional constructions, renders the status of the preposition unclear. This change is evidently a reanalysis whose semantic motivation is strong enough to override the quite transparent previous [N [P [N]]] structure.

If the agreement of constituents external to the measure noun construction had been the only evidence for the restructuring, one might have argued that we are dealing with purely semantic agreement, and that the measure noun construction is always headed by the measure noun. However, in Norwegian there is also evidence from internal structure that there is more going on.

Not only adjectival predicate complements but also a nominal-internal plural determiner (definite article, demonstrative) may in some cases agree with a plural substance noun — ‘across’ the measure noun and (if present) a preposition. To demonstrate this, the Norwegian opposition between single and double definiteness must first be presented.

The term ‘single definiteness’ is used primarily about nominal constructions with a definite article followed by a quantifier and/or an adjective and an indefinite noun. This is mostly a conservative feature of written Bokmål, but is nevertheless common when followed by certain restrictive modifiers, especially restrictive relative clauses. An example is given in (38), where *spørsmål* is indefinite. The article *de* and *spørsmål* agree in number, but disagree in definiteness.

- (38) *de mange vanskelige spørsmål (som styret stiller)*
 the.PL many.PL difficult.PL questions that the.board asks
 ‘the many questions (that the board is asking)’

More commonly, the noun is in the definite form, yielding ‘double definiteness’. This is exemplified in (39), where *spørsmålene* is definite. The article *de* and the noun *spørsmålene* agree both in number and in definiteness.

- (39) *de mange vanskelige spørsmålene (som styret stiller)*
 the.PL many.PL difficult.PL the.questions that the.board asks
 ‘the many questions (that the board is asking)’

Examples (38) and (39) involve the quantifier *mange* ‘many’ modifying the substance noun with respect to its quantity. The distinction between single and double definiteness is also found in measure noun constructions. With two nouns involved, there are in principle two candidates for definiteness inflection in double definiteness and for the definite article to agree with.

Numeral nouns are the class of measure nouns apparently most prone to develop into quantifiers (see Section 8). They exhibit several constructional patterns and will serve to illustrate some essential points below. In single definiteness, the form of the nouns provides no clue to which one is the head, since both are indefinite, as shown for juxtapositional and prepositional measure noun constructions, respectively, in (40) and (41):

(40) *alle de millioner mennesker som følger med på fotball*
 all.PL the.PL millions human.beings that follow with on football
 ‘all the millions of people that follow football’

(41) *alle de millioner av mennesker som trenger hjelp*
 all.PL the.PL millions of human.beings that need help
 ‘all the millions of people that need help’

In double definiteness, the numeral noun may be definite and the substance noun indefinite, showing the headhood of the former, exemplified for juxtapositional and prepositional measure noun constructions, respectively, in (42) and (43):

(42) *alle de millionene mennesker som ønsker å se Ham*
 all.PL the.PL the.millions human.beings that wish to see Him
 ‘all the millions of people that wish to see Him’

(43) *alle de millionene med mennesker som verken kan lese
 eller skrive
 nor write*
 ‘all the millions of people that can neither read nor write’

However, it is probably more common to have the numeral noun in the indefinite and the substance noun in the definite form, thus with the latter as head, as shown for juxtapositional and even for prepositional measure noun constructions in (44) and (45), respectively:

(44) *alle de millioner menneskene som er preget etter
 kommunismen*
 all.PL the.PL millions the.human.beings that are marked after
 thecommunism
 ‘all the millions of people that are marked as a result of communism’

- (45) *alle de millioner av menneskene som er på flukt fra*
 all.PL the.PL millions of the.human.beings that are on flight from
denne meningsløse krigen
 this meaningless the.war
 'all the millions of people that are on the run from this meaningless war'

Constructions with numeral nouns allow an indefinite measure noun in the singular to appear between a plural article and a definite plural substance noun, as illustrated in (46) and (47):

- (46) *Det hersker stor spenning blant de ett tusen*
 it rules great excitement among the.PL one.N thousand(N)
bøndene i Fjellregionen
 the.farmers in the.Mountain.Region
 'There is much nervous anticipation among the farmers of the Mountain Region'
- (47) *... bør i alle fall to av de en million eggene i*
 ... ought in all cases two of the.PL one.M million(M) eggs in
denne rogn vokse opp
 this roe grow up
 'should at least two of the one million eggs in this roe grow up'

These data confirm the rather vague indications from agreement data and indefinite measure noun constructions: The substance noun can be head, and headhood status may even override the prepositional marking.

The situation described for numeral nouns is far from common to all definite measure noun constructions. Most juxtapositional expressions show the measure noun to be superordinate, e.g. (48) in which the determiner *de* agrees with the measure noun *literne*). An expression like (49), with singular *den* agreeing with the substance noun *vinen*, is quite ill-formed. Prepositional expressions typically also have a structure indicating that the measure noun is the head, e.g. (50) with agreement between determiner and measure noun.

- (48) *de tre literne vin*
 the.PL three the.litres wine
 'the three litres of wine'
- (49) **den tre liter vinen*
 the.SG three litres the.wine
- (50) *de tre literne med vin*
 the.PL three the.litres with wine
 'the three litres of wine'

Apparently, double definiteness involving a substance noun requires that it and the article (or demonstrative) both be in the plural, and the measure noun must – if it is not a numeral noun – be in the abundance plural. Such expressions are not very common, and not everybody finds them quite acceptable. But it is my intuition – built on two decades of interest in abundance plurals – that they are becoming steadily more conventional; (51)–(55) provide illustration and give an impression of the kind of structure we are dealing with.

- (51) *Alle forgreiningene og de tusenvis av lungeblærene*
 all the.branchings and the.PL thousand.ABU of the.alveoli
renses og holdes åpne
 are.cleaned and are.held open
 ‘All the branches and the thousands of alveoli are kept clean and open’
- (52) *men av alle de tonnevis av skytespillene på markedet er*
 but of all.PL the.PL ton.ABU of the.shooting.games on the.market is
det veldig lite som genuint interesserer meg
 it very little that genuinely interests me
 ‘but among all the tons of shooting games on the market, there is very little that genuinely interests me’
- (53) *man må bruke traktor på de milevis med grusveiene opp*
 one must use tractor on the.PL mile.ABU with the.gravel.paths up
til bondelandet
 to the.farm.land
 ‘one has to use a tractor on the miles of gravel paths up to the farm land’
- (54) *Det eneste problemet vil være desentraliseringen og alle de*
 the only the.problem will be the.decentralization and all.PL the.PL
drøssevis med nettverkene
 ton.ABU with the.networks
 ‘The only problem will be decentralization and all the tons of networks’
- (55) *alle de massevis av produktene som inneholder billige raffinerte*
 all.PL the.PL lot.ABU of the.products that contain cheap refined
planteoljer
 plant.oils
 ‘all the tons of products that contain cheap refined plant oils’

It seems quite clear in these examples that there is agreement between the definite plural article *de* and the definite plural substance noun, in spite of the intervening preposition.

The examples in (51)–(55) all have double definiteness. Single definiteness is quite common, provided that there is a restrictive modifier, typically a relative clause, as in (56):

- (56) *Vi har jo kun besøkt et fåtall av alle de
 we have of.course only visited a minority of all.PL the.PL
 hundrevis av campingplasser som finnes i vårt langstrakte
 hundred.ABU of camp.sites that exist in our long-stretched
 land
 country*

‘Of course, we’ve only visited a small minority of all the hundreds of camp sites that there are in our long-stretched country’

If there is no restrictive modifier (e.g. if the relative clause of (56) were left out), the result is stylistically clearly marked (conservative). This shows that it is the substance noun that partakes in the single vs. double definiteness distinction and is the head of the measure noun construction.

This rather long discussion has demonstrated that some measure nouns are subordinate to the substance noun of measure noun constructions. Importantly, as shown in Section 3, this holds for *masse_{MN}*.

7 The larger picture: changes in measure noun constructions

To gain a better understanding of the synchrony of measure noun constructions, it is useful to start with constructions that may be assumed to precede them diachronically. Discussing English measure noun constructions, Langacker (1991, p. 88) notes that some of the measure nouns (i.e. those here called secondary measure nouns) “have an interpretation in which they designate a physical spatially-continuous entity that either serves as the container for some portion of a mass (*bucket, cup, [...]*), or else is constituted of some such portion (*bunch, pile, [...]*)”. Norwegian measure noun constructions with *med* ‘with’ and *av* ‘of’ illustrate well the two conceptions of quantity described by Langacker. The use of *med* clearly evokes the conceptual relation between a container and its content, while the use of *av* evokes the relation between an object and its constitutive material (see Kinn 2001, p. 174–179).¹¹ But neither of these conceptions are inherently quantifying. Nonquantifying uses illustrating this may be *ei lommebok med 300 kroner* ‘a wallet with 300 kroner’ and *ei jakke av skinn* ‘a jacket (made) of leather’. In such cases, the syntactic structure is unambiguous (simplified: [N [P [N]]]). The relations denoted by the prepositions are understood literally, and the

¹¹ Kinn (2001, p. 172–174) argues that the use of *med* in Norwegian has an additional relevant meaning that motivates an observed stronger preference for it in constructions of length and time, namely that of the relation between something accompanied and its accompaniment.

nouns involved are not coextensive.¹² The nominals may appropriately refer to wallets and jackets, but not to kroner and leather.

In measure nouns constructions, however, the nouns are coextensive, or as Kinn (2001, p. 5–6) says, they are weakly coreferential. In that work, it is regarded as a defining characteristic of measure noun constructions that the nominals refer to the same entity but categorize it in different ways. Thus, in (57), the ‘lot’ and the students are the same entity. In (58), the litres and the wine are the same. The measure noun refers to the mass by specifying its quantity,¹³ while the substance noun provides qualitative information. The weakness of the coreferentiality lies in the difference in semantic substructures of the nouns. For instance, in (59), the collective of kilos and the collective of potatoes are the same whole entity, but the individual kilos and the individual potatoes are different entities. Verwekken (2015), dealing with Spanish, analyses measure noun constructions in a very similar way to Kinn (2001).

(57) *en masse studenter*
 a.M lot(M) students
 ‘a lot of students’

(58) *to liter (med) vin*
 two litres (with) wine
 ‘two litres of wine’

(59) *fire kilo poteter*
 four kilos potatoes
 ‘four kilos of potatoes’

The coreferentiality of both nouns is evident in Norwegian pairs like (60) and the closely synonymous (61). The prepositions *med* and *i* are converses, the former relating a container to a content and the latter relating a content to a container. But here, the containment is metaphorical; container and content are the same.

(60) *litervis med vin*
 litre.ABU with wine
 ‘litres of wine’

(61) *vin i litervis*
 wine in litre.ABU
 ‘litres of wine’

¹² Assuming the jacket has a lining etc. in other materials.

¹³ Secondary measure nouns also contribute some qualitative information.

The quantity of the substance is contributed more or less clearly by the measure noun. Secondary measure nouns do not specify an accurate quantity, but they tend to have a typical size associated with them, and this is how they come to be able to serve a quantifying function. Further, “these size implications can be foregrounded through pragmatic enrichment, to the detriment of the lexical meaning” (Brems 2011, p. 108–109). Some English measure nouns, like *bunch*, which have until recently been secondary measure nouns with a fairly clear qualitative meaning (e.g. *a bunch of carrots*), have developed a more general quantitative meaning, i.e. have become primary measure nouns (e.g. *a bunch of students*, *a bunch of rubbish*). The further this development goes, the more quantifier-like the measure noun becomes, and the more head-like the substance noun becomes.

The observed facts have explanatory power in relation to diachrony. The coextensiveness of the nouns explains why it matters little in terms of reference whether one or the other noun heads the referring expression. A reversal in head status between measure noun and substance noun corresponds to a subtle figure–ground reversal in the conceptual semantics of the measure noun construction — a metonymic shift. Given that the nouns are coextensive, the preposition in prepositional measure noun constructions (*med* or *av* in Norwegian, *of* in English) is of little referential importance. This explains why the clear syntactic hierarchy of such structures may be overridden in a semantically-based reanalysis, promoting the substance noun to head status and demoting the measure noun.

As the data and discussion above have shown, *masse*_{MN} is among the demoted primary measure nouns in constructions involving the indefinite singular *en masse* and partly the abundance plural *massevis*.

8 From primary measure noun to quantifier

Constructions with primary measure nouns that have become subordinate to the substance noun in some cases continue into a development where the measure noun loses noun properties and instead acquires the modifier properties of a quantifier. One measure noun that has wholly undergone such a development is the predecessor of *ti* ‘ten’ (now only a quantifier; compare modern Norwegian *seksti* ‘60’ to Old Norse *sex tigr* [six tens]). The larger numeral nouns *hundre* ‘hundred’ and *tusen* ‘thousand’ exhibit some uses where they may be regarded as quantifiers, and so does *par* ‘couple’ (Kinn 2000). *Masse* is perhaps the youngest example.

The developments described above for Norwegian *masse* exhibit a number of characteristics of grammaticalization (see e.g. Lehmann 2015). When *masse*_N develops the meaning variant of *masse*_{MN}, this is a case of desemanticization or bleaching. It is also a case of paradigmization when the noun enters into the paradigm of measure nouns (which is rather large, but very much smaller than the paradigm of nouns in general). When *en masse* and *masse* come to be used as adverbial quantifiers and quantify

over predicates in addition to nominal entities (as in (3) and (6) above), this is context expansion, which according to some theorists (e.g. Himmelmann 2004) is typical of grammaticalization. Paradigmatization continues with the development of a quantifier, since the class of quantifiers is rather limited compared to that of measure nouns. This downgrading change involves loss of nominal properties (i.e. decategorialization), namely gender, inflection for number and definiteness. But it also involves gain of the adjectival property of gradability (accepting degree modifiers). The developments have led to divergence (the expression *masse* belongs to different categories) and layering (*masse_Q* is a young member of a paradigm together with e.g. older *mye_Q* ‘much’ and *mange_Q* ‘many’).

Although the development from *masse_{MN}* to *masse_Q* may be regarded as a natural diachronic change, it also illustrates the piecemeal nature of language change. The development from a meaning of ‘(shapeless) matter, substance’ to a purely quantitative meaning and further from noun to quantifier appears to have started not many generations after it was borrowed. The measure noun *mengde* ‘lot, quantity’ is similar in meaning and much older (derived from *mang(e)* ‘many’) but does not appear to be developing a quantifier variant. The different fates of *masse* and *mengde* may however not be accidental. Although both *en masse* and *en mengde* mean ‘a lot’, a difference comes out if we look at their use with adjectives. *Mengde_{MN}* is modified by adjectives of both large and small size (*en stor mengde* ‘a large number/amount’, *en liten mengde* ‘a small number/amount’). *Masse_{MN}* is infrequently used with adjectives of size (*stor masse* and *liten masse* typically refer to great and small mass in the physics meaning). Instead, it tends to be used with intensifying adjectives (*en hel masse* ‘a whole lot’, *en helvetes masse* ‘a helluva lot’), which only go upwards. Thus, while the size meaning of *mengde_{MN}* is manipulable in both directions, *masse_{MN}* normally indicates only large amount. In that sense, the inherent meaning of *masse_{MN}* makes it a better candidate for quantifier-hood than *mengde_{MN}*.

9 Conclusion

The Norwegian quantifier *masse* ‘a lot, lots, many, much’ has developed from the measure noun *masse* ‘matter, mass, large amount’. The development must probably have begun in the late 19th century, and the use of *masse* as a quantifier seems to have become conventionalized in informal language during the first few decades of the 20th century. In contemporary Norwegian, it is quite frequent, but it is still limited to informal language and hardly found in more formal text types such as laws and governmental reports. The development of a quantifier from a measure noun has been shown to be facilitated by the inherent variability of measure noun constructions, where semantically motivated reanalyses demote measure nouns from heads to quantifying modifiers. Such demotion may be regarded as a first step towards grammaticalization from noun to quantifier.

Acknowledgements

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Appendix: Sources of examples

- [1-6] LBK, fiction
- [7-8] Author's examples.
- [9] *Norske Intelligenssedler*, 1773, from nb.no
- [10] *Den Norske Rigstidende*, 1819, from nb.no
- [11] LBK, newspapers
- [12] LBK, textbooks
- [13] LBK, newspapers
- [14] LBK, journals
- [15-16] Norsk Aviskorpus (NAK), avis.uib.no
- [17] George Manville Fenn, *Et dobbelt Problem* (translated from English, anonymous translator), from nb.no
- [18] George de Horne Vaizey, *Huset ved veien* (translated from English by Ingeborg von der Lippe Konow), from nb.no
- [19] Adam Hiorth, "Barnehjælpsdag" in *Det Norske studentersamfunds viser og sange gjennom hundrede aar: 1813-1913*, from nb.no
- [20] Julli Wiborg, *Ragna*, from nb.no
- [21] George de Horne Vaizey, *Darsie* (translated from English by Ingeborg von der Lippe Konow), from nb.no. Found by one of the anonymous reviewers.
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- [34-36] Langacker (1991).
- [37] Delbecque and Verwecken (2014).
- [38-39] Author's examples.
- [40] shop.flammeforlag.no
- [41] www.adventist.no
- [42] www.verdidebatt.no
- [43] paeliassen.no
- [44] unitedforumet.no
- [45] nettavisen.no
- [46] www.rettet.no
- [47] fiskeribladet.no
- [48-50] Author's examples.
- [51] LBK
- [52] www.gamereactor.no
- [53] vgd.no
- [54] www.diskusjon.no

- [55] www.helhetligliv.no
 [56] bobilverden.no
 [57–61] Author's examples.

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