Most historically

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Abstract

This paper investigates the trajectory of the quantificational use of *most* at the syntax-semantics interface. It starts out from the observation that the word originally had a meaning along the lines of 'largest (in degree)' and it discusses how it gained its current semantics of a superlative associated with *many*. It is proposed that the main development consists in a particular type of functionalization of co-occurring lexical material. *Most* in the relevant use incorporated the meaning of a noun meaning 'part'.

1. Introduction

The present paper investigates certain facts in the diachronic trajectory of the quantifier *most* at the syntax-semantics interface.[1] As is well-known, *most* has developed a use as a superlative morpheme attaching to certain gradable expressions, illustrated in (1a) with an adjective, and one that is quantificational, exemplified below in (1b):

(1) a. *The **most recent** studies supported the criticism.*
     b. ***Most studies** didn't seem to support the criticism.*

Most as a quantifying determiner has received a good deal of attention recently in synchronic terms for Present-Day English.[2] Interestingly, Hackl (2009) has argued that at the level of interpretation (i.e.

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[1] I thank the audience of the workshop "Language change at the syntax-semantics interface" at the 2012 Frankfurt *DGfS* for comments, and remain especially grateful to Doris Penka and an anonymous reviewer for spot-on and very helpful observations. Many thanks to the editorial team and Daniel Ferguson for valuable textual suggestions. Solely I am responsible for any shortcomings.

[2] I will use terms like quantifier and quantifying determiner rather descriptively to refer to the corresponding use of *most* in Present-Day English. On the analytical side, we will see immediately that a new line of research (cf. Hackl 2009) treats this item as decomposing into further building blocks at the level of Logical Form.

the level of Logical Form, LF), quantificational *most* behaves like a superlative rather than a quantifier in the sense of Generalized Quantifier Theory (cf. Barwise and Cooper 1981). A feature of this type of theory is that it treats quantifiers uniformly, as atomic elements, which, in simplified terms, establish relations between sets. For example, in (1b) above, the respective sets are the salient studies and the entities that did not seem to support the criticism. For such a sentence to be true, more than half of the studies (i.e. the entities of the first set) should have the property of belonging to the second set, too. A body of recent research has, however, questioned the unified character of several quantifiers in the sense of Generalized Quantifier Theory. Treating *most* as a superlative of *many*, as Hackl does (cf. also Bresnan 1973), thus falls into the same line of research. Importantly, in Hackl's (2009: 79) analysis then, *many* is treated "as a gradable modifier that modifies plural NPs ranging over pluralities that can be measured in terms of how many atomic parts they are composed of". Building the superlative on top of such a meaning, e.g. for a phrase such as *most mountains*, will then come down to comparing pluralities of mountains and taking the largest one among them. (We will consider Hackl's technical version of this in Section 4.)

A superlative-quantifier analysis is also attractive in that it offers a parallel of the quantifier to the other function of the same word in English, namely the analytical superlative of gradable expressions, as introduced above and discussed in Section 2. At the same time, it is worth keeping in mind that such a move involves a certain degree of complexity and a decomposition of the word that is not visible at the surfacing structure of the quantifier, but which is required for the purposes of semantic interpretation; cf. also Heim (1985, 1999), Szabolcsi (1986), among many others. Let me make clear that I do not see, at present, a practical way to decide the most intricate questions relative to the contemporary semantic analyses by going diachronic in this case. But the point I should like to make is a different one. If complex approaches such as Hackl's are on the right track, i.e. if some such complexity is required, then the immediate follow-up question enforced upon diachronists interested in modeling syntax and semantics is: how can the complex representations come about over time at all?

In exploring the question of how the quantifier *most* developed over time, I will take into account aspects of structure and meaning from pertinent lines of syntactic and semantic research. I take both to be necessary ingredients towards an explanation. However, the proposal will

be that a crucial ingredient towards capturing the trajectory is more concealed than what one might have hoped for (i.e. than something which might have been at the most direct intersection of structure and meaning). Thus, rather than deriving the semantic change solely from structure as tree-geometric properties applied to the realm of meaning (cf., e.g., Gergel 2009), a new (but *prima facie* very old) plot will be pursued here: functionalization of lexical material. This surely takes inspiration from several traditions, including that of grammaticalization. But I will propose to use a notion that feeds directly into the inventory of elements available in semantic interpretation (under relatively tight syntactic configurations). The turn towards what is functional has already been approached under a number of umbrellas, including those available in historical syntax and semantics (e.g., via loss of theta roles or via the tendency towards high types; as, say, in Roberts 1985 and von Fintel 1995, respectively). But theta roles are surely irrelevant here and the types will remain constant.

I will suggest inclusion of a mechanism of development to the known inventories and paths of change, which I will refer to as "ontological semantic functionalization". In a nutshell, *most* will be said to have undergone this type of change because a lexical item that it combined with before the change (namely a noun along the lines of 'part') was incorporated into the meta-language semantically and thus became an integral part of its entry after the change. As a preview illustration, we can imagine that a noun like 'part' can at some point change from its original lexical meaning – in this case as a more or less run-of-the-mill relational noun – to mean partitions in terms of the semantic ontology involved (e.g., pluralities of individuals) when it is combined with *most*:

(2)   MOST [part of [N]] → MOST [N]

N stands for a further noun that is usually combinable with MOST (part of) before and after the reanalysis. I use the notation MOST for the form available before and after the reanalysis. This form carries quite different meanings at the two stages. Crucially, in the reanalyzed structure-meaning mapping, a partition will be taken recourse to via the denotation of *most* itself. But no lexical item along the lines of 'part' needs to be spelled out as such for this to happen. The suggestion in (2) above is rather specific. There are some immediate ways to envision extensions, but given the scope of the paper, I will focus on *most* and only briefly touch

upon such extension possibilities (awaiting further case studies) in the final discussion part of the paper.

Overall, the present paper has the following subdivisions. Section 2 outlines the issues with *most* descriptively on the basis of the key points in historical development, after which Sections 3 and 4 will develop the analysis by exploring the pertinent syntactic and semantic aspects, respectively. Given the crucial role of the interface in a compositional enterprise, there will naturally be some interaction between the two areas of grammar, and hence also between the respective sections (i.e. they cannot be 'pure' in that sense). Finally, Section 5 contains additional discussion.

2. Approaching the issues of *most* descriptively

The status of *most* is clear from the beginning of the attested historical records in Old English insofar as it has always been a superlative of some sort morphologically. This might represent impressionistic first motivation for a superlative-like analysis coming from the historical camp, but things need to be sorted out. A number of issues become particularly interesting; for example, when we ask which meaning exactly *most* is and was a superlative marker of, i.e. tracing it back during its recorded history.

Two larger issues need to be distinguished in this connection already. The first one has to do with what is currently known as the morphological nature of *most* itself, specifically as a "free" morpheme and alternative exponent to -*est*. This happens in connection with a class of adjectives that are characterized as prosodically long in current English in those cases in which *more* is used in the analytical comparative (see, e.g., Embick 2007 for an account of the morphological facts). However, this distribution was not in place in Old English. (For instance, Ælfric systematically uses synthetic superlatives in his grammar.) Its historical origin as well as its regularization have been, nonetheless, the subject of numerous studies, and they remain outside the scope of this paper (cf. González-Diáz 2008 for recent comprehensive discussion and the references cited there).[3]

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[3] I leave a discussion of adverbial uses aside in this paper for space reasons. One might simplistically assume for the time being that the relevant facts are parallel, but the issue is of interest for further research.

The second issue, of immediate relevance to the present study, is the historical trajectory of *most* feeding into its function as a quantifier. In this connection, theoretical explorations are scarce, at least to my knowledge. The historical description of English studies, however, reflected for instance in the *Oxford English Dictionary* [OED] already offers intriguing hints: among the original meanings translations such as 'greatest in size, stature, bulk, or extent' are available. Extensions go on towards 'greatest in intensity, most important, most principal', and others. Some Old English examples from *The York-Toronto-Helsinki Parsed Corpus of Old English Prose* (YCOE; Taylor et al. 2003) and the epic poem of Beowulf are given in (3) for illustration. Middle English examples from *The Penn-Helsinki Parsed Corpus of Middle English* (PPCME2; Kroch & Taylor 2000) are in (4). Notice that both singular and plural nouns could be modified by *most*. (NP word order with regard to Old English is discussed in Section 3.)[4]

(3)   a.   *þæt se ðe gyt ne mæg þa **mæstan beboda** healdan*,
          that he who yet not may the highest commands observe
          'who may not yet observe the highest commands'
          (coaelhom,+AHom_20:6.2912)
      b.   *þætte **þara wundra mæst** wæs*
          that the.GEN wonders.GEN biggest was
          'that was the biggest wonder/ (of the wonders)'
          (coorosiu,Or_6:2.135.4.2839)
      c.   *Gesloh þin fæder **fæhðe mæste***
          caused-by-fighting your father feud greatest
          'Your father caused the greatest feud'
          (Beowulf, 55: VII.459)

(4)   a.   *her kynred & þei that had ben frendys wer now*
          Her kindred & those who had been friends were now
          *hyr **most enmys**.*
          her biggest enemies

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[4] Corpus IDs of data from the PPCME2, PPCEME, and YCOE follow the standard conventions of these corpora (cf. the section 'Sources' preceding the references in this paper for URLs with pointers to file names and documentation); reference to other sources is provided in the traditional way, e.g. by page number, joined by the chapter and verse number for Beowulf (vowel length is not marked in the data).

(CMKEMPE,2.14)

b. *But this me semeth is the* **moste merueylle**
but this me seems is the biggest wonder
þat euere I saugh,
that ever I saw
(CMMANDEV,128.3108)

Originally conveyed, then, was a fairly watered-down meaning indicating a high degree on a scale. To keep variation that is momentarily less relevant or even distracting to a minimum, we may observe that we are essentially dealing with 'largest' (cf., e.g., Einenkel 1904 on the relationship of *mæst* and *mycel,* 'great, large, much, etc.'). To strengthen this simple view, we can adduce some direct contemporary evidence from Ælfric's grammar. The Old English grammarian considered *mæst* a superlative adjective, more specifically the counterpart of Latin *maximus* (Ælfric 1880: 16). As a consequence, the issue will be to model syntactically and semantically the reanalysis going from a relatively regular adjective in the superlative, with the meaning along the lines of 'largest', towards a quantifying determiner with the intricate superlative-like denotation which it reveals in Present-Day English.

From the trajectory undergone in English I take one fact to be particularly noteworthy already during the Old English period and continuing during Middle English; namely, the co-occurrence of the precursors of *most* (i.e. *mæst* and its variants) with nouns meaning 'part'. The typical noun used in Old English and well into the Middle English times is *dæl* (and variants of it), but the French loan *part* (once more with variants) then takes over during Middle English. This is illustrated with early and late Middle English examples, respectively, in (5).

(5) a. *scheome is þe* **meste del** *as seint austin seið of ure*
     Shame is the largest part as St. Augustin says of our
     penitence.
     penitence
     (CMANCRIW-1,II.246.3552)

  b. *… killed þe* **most part** *of Cristen men in þat cyte.*
     Killed the most part of Christian men in that city
     (CMCAPCHR,72.1201)

Even current *most* still gives some indication of its earlier meaning and this relevant (as we will see: also frequent) early co-occurrence pattern with partitional nouns in the expression *(for) the most part*, meaning clearly '(for) the largest part'. Notably the noun is in the singular in this relic. In general, Present-Day English *most* cannot mean 'largest', 'highest' etc. as it was able to do at earlier stages; and in general, it cannot co-occur with singular (count) nouns any longer either.

A quantificational meaning in conjunction with plurals on the other hand is very clearly visible from the Early Modern English period onwards, as illustrated in (6) with examples from *The Penn-Helsinki Parsed Corpus of Early Modern English* (PPCEME; Kroch et al. 2010).

(6)   a. *Wheras through **most Counties of this Realme** Horstealinge is growen so co~mon,*
        (STAT-1580-E2-H,4,810.6)
    b. *it followeth wel in order to speake of the defect, which is in Publique Lectures: Namely, in the smalnesse and meanesse of the salary or reward which in **most places** is assigned vnto them: whether they be Lectures of Arts, or of Professions.*
        (BACON-E2-H,2,3V.124)
    c. *and it is so made, that a man may walke vpright in **the most places**, both in and out.*
        (JOTAYLOR-E2-H,1,133.C1.159)

What (6b) and (6c) show in addition is that one and the same noun appearing with *most* could be used with, or without, the definite article. (We return to an open issue of the definite article briefly in Section 5.)

Having presented some of the basic linguistic distributions descriptively, we will investigate next the syntax and semantics of the constructions presented over time.


3. Syntactic options for *most* and partitive constructions

This section investigates the change in structural status undergone by *most*. We focus on modeling the minimal structure that is visible or independently required and complement it where necessary.

3.1. Foundations, exploring first possibilities for the quantifier *most*

If *mæst* with its variants was a run-of-the-mill gradable adjective in the superlative, then its surface syntax was without further complications that of a modifier (Bresnan 1973; Bhatt and Pancheva 2004; Embick 2007; Beck et al. 2010, among others).[5] That is, the basic input structure to the syntactic change will be as represented in (7) below.

(7)   Basic function of early English lexical *most* – modification:
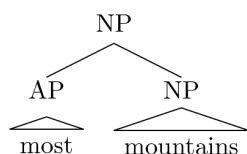
The representation shows the bare scaffolding, with the AP non-projecting in the nominal domain. As far as the linearization is concerned, the word order of modifiers in Old English is predominantly prenominal in general and, according to Fischer et al. (2000: 46), "the most frequent order resembles that of the present-day language". Exceptions with postnominal word order are well known in general too, especially from poetry. Even though Fischer et al. do not discuss *most* specifically, their observations seem to carry over to its linearization; cf. the examples in (3a) and (3c) above for illustration of pre- and postnominal patterns (the prenominal pattern clearly dominates).[6] The word order in (3b) is quite usual in Old English texts given that the genitive indicating the comparison class of a superlative adjective could precede the adjective itself.

The next relevant question for now is what the original minimal structure turned into syntactically. If the reanalyzed *most* turned into a quantifier, then a simple hypothesis would be to treat it as a head, as in (8) below. (Supplementary dominating determiner-like structure such as the determiner *the* can also be syntactically added, quite independently.)

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[5] Cf., e.g., Gergel (2010) and the references cited there for discussion of and comparison with other approaches.

[6] Genuine postnominal *mæst* appears to be rare even in Old English poetry (e.g. the example in (3c) above is the only one I could find in Beowulf). There are numerous examples of nominal constituents preceding *mæst* in general, but such nominal constituents typically denote the comparison class.

(8)   Function of re-analyzed *most*: quantificational head?

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              QP
             /  \
            Q    NP
            |    /\
          most  mountains
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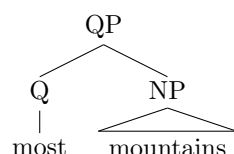
       Restricting attention to the basic structures given in (7) and (8), respectively, a first question arises as to whether there is a broader kind of grammatical mechanism that could be responsible for the transition from one to the other. Let us explore this question next.

       Structural regularities in syntactic change have been argued for some time now to be relevant in a wide range of case studies (cf., e.g., notably Roberts and Roussou 2003; van Gelderen 2004 for recent studies). Van Gelderen (2004: 11), for example, has explored the structural preference of heads over time and captured this tendency in the following principle, which lends itself to consideration given the structures we have seen for *most*:

(9)   *Van Gelderen's Head Preference or Spec to Head Principle:*
        Be a head, rather than a phrase.

       The question is whether a similar line of reasoning can be applied systematically in the present case. The pre-reanalysis structure containing *most* functions as a modifier as discussed (and not as a specifier). Specifically, the constituent containing *most* is a non-projecting daughter in the nominal that hosts it before the change, i.e. in a configuration like (7). However, van Gelderen already stated that the key difference in the principle is between heads and phrases (not necessarily just specifiers). Given the blurry line between some specifiers and other non-projecting elements (especially in minimalist bare-phrase structure terms), one could thus attempt to extend the principle of change to what it already states; namely to get us towards heads, and hence projecting structures from non-projecting ones (whether specifiers or not). Under such a view, there would

be a generalized tendency of producing projecting elements in the process of language change.

Even though this type of thinking geared towards developing syntactic heads may offer interesting generalizations in many cases, there is an issue if we try to apply its fullest extension to the case study at hand. From a semantic point of view, a head-based structure as in (8) above predicts a meaning for *most* in the sense of Generalized Quantifier Theory.[7] At least for Present-Day English *most*, such a prediction is undesirable (this being precisely the point of Hackl 2009 for Present-Day English). The problem of the head-based analysis in the present case is the following. The semantics of a superlative in the major analyses (cf. the introduction and section four for more details) requires several building blocks, i.e. a base and landing site for the quantifier and a position for the predicate in the LF representation. This is not a configuration that is characteristic of head movement in any manner, but it is one that produces the correct truth conditions for a wide range of cases (hence its adoption here). I cannot rule out entirely that a head-based type of structure relying on a quantifying head might have been appropriate at some intermediate stage. (I could, for example, not reproduce/find the kind of more subtle discriminating experimental evidence Hackl uses synchronically for the diachronic stages.[8]) But what emerges is that the head-based structure cannot be the whole story of diachronic development, given its undesired outcome for today's grammars at LF. Given modern conceptions of grammar as interface-bound, we can hence not adopt the possibly more straightforward (and all things being equal, more attractive) narrow-syntactic account and need to search further.

One particularly strong tool in diachronic analysis (when applicable) is the preference of non-movement over movement structures (i.e. some version of *Merge-over-Move*). For example, Roberts and Roussou (2003) and van Gelderen (2004) show how in a broad panorama of relevant cases that involved head, but also phrasal movement at earlier stages, reduction to non-movement, or the minimalist *First Merge* for that matter, neatly accounts for the respective trajectories. Gergel (2009) moreover shows a way how this kind of thinking can be transferred, to a large extent, to the level of LF in the sense of compositional semantics –

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[7] Thanks to Doris Penka (p.c.) for pointing this out.

[8] Specifically, Hackl (2009) uses a series of three experiments based on verification tasks that can (naturally) only be applied with living speakers.

once again: when the premises are met. But let us consider whether the premise is met in the history of *most*. For the case study at hand, there is no convincing movement dependency in the pre-reanalysis surfacing syntax. Hence I cannot see loss of syntactic movement as an explanation for the developments. The quality of *LF* movement in the case of *most*, on the other hand, which by standard semantic assumptions exists in superlatives (Heim 1985, 1999; Szabolcsi 1986), is slightly more twisted with regard to its applicability for our diachronic case study. (It will be addressed with regard to historical explanatory potential in Section 4 below.)

To summarize so far: One could seek to model the syntactic change as head-based, but one would in this case end up with a largely inadequate LF structure. Given that the current interest lies in finding the closest correlate at the interface, we cannot adopt this modeling (successful in other areas) for the case of *most*. The even more general and hence attractive principle based on Merge-over-Move cannot be applied syntactically in our case either, given that there is no relevant movement dependency to start with.

3.2. Partitive constructions: tightening beyond the functional-lexical line?

Before turning to the necessary semantic aspects of *most* in the next section, there is a syntactic line of thought the basic elements of which I will introduce next.[9] In doing so, I will draw on the syntax of partitive constructions (PCs; cf. van Riemsdijk 1998; Corver and van Riemsdijk 2001). Recall from the description of *most* the co-occurrence of the pre-reanalysis item with nouns meaning 'part' at different stages of the language. Such nouns are, in fact, classical introducers of PCs.

A central piece of motivation for the study of PCs has been the fact that the functional-lexical divide has not in all cases been a satisfactory distinction already within synchronic generative studies. One side of the problem is that certain lexical categories have long been sensed to have functional characteristics (while still not being functional all the way through). We can immediately observe that if this type of blurry border arises synchronically, then it also becomes potentially relevant to language change. Specifically, if semi-functional elements become available, then they could also offer a potential source for creating a pool of functionalized elements over time.

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[9] Thanks to Jutta Hartmann (p.c.) for bringing this up.

PCs are in simplest terms combinations of two nominal projections. The label has not only been used to describe actual part-denoting nouns (though they also appear under the label) but also for other types of nouns (including container nouns, quantifier nouns, measure nouns, and others). PCs are more specifically classified as direct (DPCs) when they are not mediated by a preposition or genitive case; and as indirect (IPCs), when they are. Van Riemsdijk (1998) gives the following Dutch examples, for illustration of DPCs and IPCs respectively:

(10)   a. *een plak kaas*
           a   slice cheese
       b. *een bus met toeristen*
           a   bus with tourists
           (van Riemsdijk 1998: 12)

A structurally higher noun is not as innocent syntactically as one might have taken it as a lexical noun. In particular, such nouns in DPCs quite naturally induce especially tight structures synchronically. Corver and van Riemsdijk (2001) note, for instance, the inadequacy of the mere functional-lexical distinction when it comes to such nouns. Their key distributional characteristic consists in displaying properties of a single projection even though they take a second projection as a complement. (This is surely reminiscent of the extended-projection type of conception that arose with combinations of a lexical element and a functional projection on top of it.)

What about the combination *most part + NP₂* in the history of English with regard to PCs? Given that the second NP can only be introduced via a genitive or, after the loss of morphological case, only via a preposition, the input sequence patterns more closely with the IPC rather than the DPC according to the basic definition given above. This categorization can be supported on the basis of two further diagnostics. DPCs are claimed to be able to transmit the same case to the lower noun which they assign to the higher one and they do not allow intermediate determiners. This is different for early English 'part' constructions. Example (11) shows that even though the superordinate NP is assigned the accusative, the lower one displays the genitive (and it moreover has an intervening determiner):

(11) a*nd þone   mæstan   dæl   þæs   folces   ofslogon*.
      and the.ACC largest.ACC part.ACC the.GEN people.GEN killed
      'And (they) killed the biggest part/most of the people.'
      (cocathom2,+ACHom_II,_4:36.213.828)

The major output sequence after the reanalysis, *most + NP,* cannot be regarded as a PC according to the definition any longer, but for a trivial reason; namely, that it only has one overt nominal. In narrow syntax, two possibilities in relationship to PCs become available. One would be to assume that the construction still invariably has a noun 'part' in it, but that it is silent. Under this scenario, an IPC will have shifted to a DPC given that the overt nominal does not require introduction via a preposition or case. A second possibility, however, is to assume that the construction has been more radically reduced altogether: there is no invariably projected zero noun in it. On either possibility, we have a clear tightening of syntactic structure, as *most* changes from a lexical gradable adjective towards a quantifier. For the first option to become viable, evidence would be required to support a silent noun invariably projected with *most* in Present-Day English. I am not aware of such evidence. Hence I will adopt the second option (i.e. without a zero noun in the quantifier), given that the semantics after the reanalysis (including the relevant type of partitioning) will be projected by *most* itself at LF. A stipulation of a silent noun in the reanalyzed structure will thereby become superfluous.

4. Semantic options in change and increased functionalization

Our starting issue was how the quantifier *most* could develop into what it is. In order to approach the answer, we will consider more closely the basic semantic properties in current grammars, and we will raise the question of how a transition to such properties can be modeled diachronically.

According to a line of research in theoretical linguistics going back to Bresnan (1973) and revived recently for example in the work of Hackl (2009), the quantifier *most* can be best modeled in Present-Day English grammar intuitively as the superlative of *many*. (It is thus not an atomic element in the sense of Generalized Quantifier Theory.) Slightly more technically, a movement analysis is typically suggested, in which the superlative *-est* moves at the level of LF for type reasons. The constituent

containing the superlative (and also containing a covert comparison class C) is an operator of semantic type $<<d,<e,t>>, <e,t>>$. After movement, the superlative thus binds the degree variable of type $<d>$ available in the degree slot of the base adjective itself.

On the empirical side, the possibility of creating two distinct interpretable structures via movement correlates with the availability of two readings for superlatives in general. The two types of superlative readings for lexical adjectives are available in (12), drawn from Heim (1985).

(12)   *John ate the biggest apple.*
  a. John ate an apple that is bigger than any other apple.
  b. John ate a bigger apple than anyone else.

The meaning paraphrased in (12a) is referred to as the absolute reading while the one in (12b) is known as the relative reading. An advantage of the movement analysis is that it does not have to assume different lexical entries for the root adjectives or the *-est* operator. By taking recourse to different positionings at LF of what is plausibly one and the same operator in conjunction with the same entry of the adjective, it accounts for the ambiguity of superlatives. According to Hackl and others, this carries over underlyingly to *most*, as indicated in (13) (cf. Hackl 2009: 79, following the movement analysis of Heim 1985, 1999 and Szabolcsi 1986).

(13) a. [John climbed [the [-**est** C]$_i$ [d$_i$ -many mountains]]]
   b. [John [-**est** C]$_i$ [climbed [the d$_i$ -many mountains]]]

On the reading with the LF in (13a), John climbed a set of mountains whose cardinality is higher than that of its Boolean complement, i.e. John climbed more than half of the relevant mountains. Hence, according to Hackl, pluralities of mountains are compared here in terms of how many atomic parts they have.[10] On the relative reading, schematized in (13b), John climbed more mountains than any other salient individual. (The comparison class C includes such individuals here, whereas pluralities were compared in the former case.) The corresponding LF-tree geometry is as follows. In the first LF, the superlative undergoes only short movement and

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[10] *The* in (13a) cannot be interpreted as a definite on the Heim/Szabolcsi analysis, but it must be interpreted as an indefinite due to the lack of uniqueness.

stays within the DP domain, while in the second it moves somewhere to the edge of VP. Superlative *most* distinguishes itself from other adjectives in that it does not have an absolute reading. But note that it does have another interpretation in addition to the relative one, namely the proportional one introduced above and which is equivalent to 'more than half' (cf. Hackl 2009 for some discussion of possibilities as to why the make-up of readings is distinct in superlatives with *most*).

If we tried to approach the development of the quantifier *most* as the loss of an LF-movement dependency over time, we would run into a problem. It is not explanatory. Such a movement account fails (as a diachronic explanation) for a different reason than the syntactic movement account. The reason is that not only adjectives such as 'highest' or 'largest' (close to the meaning of *most* in Old English) are plausibly accounted via movement at LF, but also the quantifier *most* of Present-Day English itself requires LF movement. So, it is reasonable in this case to assume that a movement dependency is available semantically (recall that in terms of surface syntax the problem was we had no obvious movement). However, there is no *loss* of such a LF dependency to predict anything in this case, movement being available quite in parallel both in the old and the new LF of *most*.

Let us turn now to the key element in the semantics of *most* and *many* in the approach of Hackl (2009). Crucially, the quantifier needs to be able to measure pluralities in the denotation of the noun in some way, e.g., via the cardinality function. This is the main point where I take the innovation during the historical process to be located, descriptively and technically. Here is why. In descriptive terms, *most* was closest to a superlative of *mycel*, 'much' in its old sense of 'great in size', as described in Section 2. That is, it meant essentially 'largest' and not yet 'most' in general, as noted by Einenkel (1904: 129). In slightly more technical terms, a relatively normal gradable adjectival predicate was available semantically in Old English (to which the superlative operator could attach in the usual manner). But no reference to pluralities was necessitated before the change. It was not required by any hard-wired grammatical requirement in pre-reanalysis *most*, nor in many cases even possible, e.g., when the adjective modified a singular noun.

The change from the gradable adjective to the quantifier is relatively thorough in the grammar in the sense that the new meaning almost entirely replaces the old one. (As usual in grammar change, the issue of the discrete grammatical option is orthogonal to the spread and

regularization of the ultimate new form, the latter being rather gradual in its appearance; cf. Kroch 1989 for discussion). At the same time, a number of propitious key ingredients were in place in the pre-reanalysis form, as we have seen. Analyses that treat the quantifier *most* as a superlative make us in fact understand this even better, given that a relatively watered-down gradable property could specialize on a very exclusive use over time. As for the specific mechanism how this could have happened, the suggestion for the grammatical development of *most* is given in (14) below.

(14) An item undergoes **ontological semantic functionalization** diachronically *iff* it changes from compositionally combining with an originally lexical item *I* at a time t_1 towards incorporating a variant of *I* induced in the meta-language of semantic interpretation at a subsequent time t_2.

Note that the lexical item *I* is one that happens to be in the proximity of the actual item in question and the two combine as separate items, e.g., an adjective like 'largest' and a noun like 'part'. It is only later, when the quantificational 'most' is entrenched in the grammar, that 'part' has shifted into the meta-language, namely in the lexical entry of the quantifier itself. Specifically, I thus suggest that the key to the development of the quantifier *most* in theoretical terms is the semantic-ontological functionalization that arises from the combination with the nouns that originally conveyed the meaning 'part'. This includes all its exponents (*dæl, del, parte, parti,* etc.). The combination then becomes part and parcel of the denotation of the quantifier itself after the change, as summarized in the schema in (15), repeated from above:

(15)   MOST [part of [N]] $\rightarrow$ MOST [N]

In terms of the notation, MOST is used in the schema above only as shorthand for the surfacing form. It conveys the complex quantifier meaning after the reanalysis while it stands in for the superlative of the gradable predicate (essentially 'largest') before the reanalysis.

In view of what we observed, it might strike us as unusual that one noun (what is more: in the singular) should have played a major role historically in producing a relatively complex expression, a key component of which must have now access to quantification and pluralities. But the

suggestion is supported on closer inspection by several arguments coming from different areas.

First, the proposal models this change more accurately than alternative suggestions that we explored (and the shortcomings of which we have seen). While it is true that we are dealing with a noun, recall also that it is a partitive one. The pre-reanalysis adjective 'largest' can thus fit in precisely to measure the partition. And the functional notion of partition is exactly what is required after the alteration in meaning is encoded grammatically, i.e. at times at which *most* patterns as the superlative of *many*. As mentioned, the quantifier *most* decomposes into a superlative, i.e. *many* and *-est*, the denotations of which following Hackl (2009) are as follows:

(16) $[[MANY]](d)(A) = \lambda x.[A(x) \& |x| \geq d]$

(17) $[est](C)(D)(x)=1$ *iff*
        $\forall y \in C$ $[y \neq x \rightarrow$ max $\{d: D(d)(x)=1\}>$ max $\{d: D(d)(y)=1\}]$

Recall that Hackl treats *most,* like *many*, as a gradable expression that modifies plural NPs. Pluralities can be measured in terms of how many atomic parts they are composed of, i.e. via the cardinality function (cf. $|x|$ above). In prose, (16) then states that the base quantifier *many* is a property of pluralities, the cardinality of which is larger than a standard d. The form *most* then builds on the superlative as in (17), by requiring the plurality x of which it is true to be more numerous than any other plurality from the contextual restriction C that is distinct from x.

What we have capitalized on, then, is an internal property of the lexical entry (namely of being able to quantize partitioning of pluralities), not anything that relates to the here orthogonal positioning of the building blocks *many* and *-est* via LF movement. That is, this particular development does not rely on the loss of a movement dependency. By using this type of analysis a number of ingredients turn out to be positioned quite advantageously for the transition from the pre-reanalysis to the post-reanalysis meaning, e.g., the semantic types and the movement possibilities. All that it takes, in essence, is a semantic catalyst mechanism, then, to get us from one meaning to the next.[11]

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[11] I have focused on the proposed use of partitional nouns within the limits of this contribution. At the same time, just like in well-known cases of syntactic change, it would seem dogmatic to exclude other co-contributing factors (cf., e.g., Denison

Second, it becomes a good possibility that a noun that was particularly frequently co-occurring with the superlative adjective *most* should have played a major role. Some first relevant figures of co-occurrence based on the Penn-York-Helsinki series of historical corpora are given in (18).

(18) PROPORTIONS OF *DÆL/PART*-NOUNS in tokens with *most*
 preceding a noun (YCOE, PPCME2 and PPCEME):
 Old English: 50/264 = 18.9%
 Middle English: 41/159 = 25.7%
 EModE-E1 (1500–1569): 41/75 = 54.6%
 EModE-E2 (1570–1639): 40/79 = 50.6%
 EModE-E3 (1640–1710): 36/88 = 40.9%

E1–E3 are the standard Helsinki sub-periods of the Early Modern English period with the years indicated. Given that a superlative adjective could occur with a variety of nouns, the proportion of one single noun co-occurring with it is strikingly high. The tendency also seems to be in a rough ascending trend up to Early Modern English. A first hint for the full functionalization of the quantifier *most* may then be the point at which the frequency starts declining (the transition between the periods E2 and E3 of Early Modern English).

Third, recall that the syntax already contributes an input structure to the change via the partitive construction that has a particular potential to tightening (hence re-analysis), and which can then be operated on by the semantics. While the specific type of syntactic configuration (PC) has been introduced in Section 3 above, let us consider the issue from a reversed angle here. Specifically, consider a type of change that did not happen. The adjective *most* was clearly not the only one to be able to denote meanings along the lines of a high degree on a scale and build a superlative of it. Superlative adjectives such as 'greatest', 'highest', 'widest' and several others have precursors already in earliest Old English (others like 'biggest' or 'largest' are only attested from early Middle English, for independent

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1993 for discussion of a series of possibilities in the genesis of *do*-support). For example, while I do not assume null nouns to be available in the Present-Day English representations of *most*, as stated in the main text, I cannot exclude their presence in Old English, where evidence in the grammar might have been available.

historical reasons). However, none of them (or similar ones) gave rise to quantifiers like *most*. Note also that adjectives are in general a potential source for quantifiers (von Fintel 1995; Haspelmath 1995) and adjectives denoting a large degree would also have the relevant lexical input to the change. Such adjectives did not, however, seem to have co-occurrence rates with partitional nouns anywhere as high as *most*. A plausible hypothesis is hence that, in English, the co-occurrence with partitional nouns might have been a relevant factor conducive to the relatively tight syntactic relationship and semantic interpretation.

Finally, let me emphasize that the development suggested has not been thought of as a generalization over how quantifiers develop. This should not be too surprising, given that the starting synchronic observation was that *most* does not comply with Generalized Quantifier Theory following recent semantic approaches. It is beyond present scope to compare *most* with other quantifiers (which might, or might not, have been more well-behaved from the perspective of Generalized Quantifier Theory), but from a historical perspective, we can adduce one more piece of evidence that *most* behaves distinctly from lexical adjectives but also from some (uses of) quantifying determiners such as *every*, *some* and *no*. Specifically, patterns with *one* (anaphora) have not been adopted by *most* at all. The difference is that while the mentioned quantifiers gave rise to forms such as *some-one, every-one, no-one*, *most* failed to do so (cf. *most-one). This may indicate that while *most* has been functionalized, this did not happen on a par with all quantifiers.[12]

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[12] Issues remain and one could blame the gap of *most* in the anaphora paradigm on the plurality required by *most*. But adjectives (which are classical licensers of anaphora, Lobeck 1995) can adjust to this apparent obstacle, cf. *(the) red ones* vs. **(the) most ones*. This additional detail may then reinforce the view that *most* has been functionalized historically in a different manner and is not a lexical adjective. However, note that *most* can participate in structure-sharing and ellipsis, similarly to other quantifiers; cf. *most but not all cats* or (i) for an example of nominal ellipsis from the last period (E3) of the Early Modern English corpus:

(i)   *Though in many Schooles I observe six a clock in the morning to be the hour for children to be fast at their Book, yet in **most_**, seven is the constant time, both in Winter and Summer, against which houre, it is fit every Scholar should be ready at the Schoole.*
    (HOOLE-E3-P2,238.38)

5. Summary and discussion

After giving a short summary and listing certain questions for further research, the present section discusses the following issues which are mostly outside the strict scope of the paper: parameters, ontological enrichment, restrictiveness and completeness of theories of semantic change.

In this paper, we have followed a synchronic observation, based principally on Hackl (2009), that the quantifier *most* is on closer inspection decomposable as a superlative of *many* in synchronic terms. Diachronically, we observed that the word originally meant 'largest' in Old English and raised the question of how the change could be modeled in modern conceptions of syntax and semantics. The path ultimately supported was that in this case, on the one hand, relatively little happened. For instance, there was no loss of a movement dependency in either syntax or semantics that would explain the change. On the other hand, the quantificational overall structure did, however, seem to incorporate a partitive structure into its hardwired semantics, which in turn may have been promoted in particular by the co-occurrence with relational nouns meaning 'part'. This may be a relatively moderate case of ontological enrichment (we will mention more radical possibilities below).

There are interesting questions emerging from our brief investigation calling for further research on the topic addressed. First, the proportional reading is the one that most naturally relates to the diachronic connection made via partitivity. A closer inspection of the diachronic trajectory of the relative reading will be required. Second, the claimed role of the definite article in Present-Day English also requires a further look into the past. While it has been observed above that versions of *most* with and without the definite article could alternate historically, there seems to be – from what I have gathered so far – an imbalance at all times in English. Specifically, there is no time at which there was, say, an obligatory presence of the definite article with quantificational *most* as is the case with *(die) meisten*, 'the most' in German (or even a slight majority of examples). On the contrary, examples containing the definite determiner appear to be a minority at all historical major periods up to Early Modern English (and I could not extract a reading correlation for the few examples found[13]). More

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[13] For example, (6c) above had *most* with the definite article and, from the context, a clear generic reading. As an anonymous reviewer points out, there is a(n

generally, a comparison with German could reveal further restrictions and/or generalizations.

Given that the suggestions made have been an exploration of the possibilities available in syntax and semantics for *most*, and not about any particularly broad generalizations, it is useful to raise the question: Can larger theoretical constructs such as parameters possibly play a role towards deeper insight? In the spirit of Roberts (2012), we can note that while the notion of a syntactic parameter may appear as harder to construe in minimalist terms than in earlier versions of generative syntax, there are interesting possibilities of raising the issue of a parameter feasibly also from a diachronic perspective (cf. also the lines of syntactic research outlined in Gianollo, Guardiano and Longobardi 2008). At the same time, choosing and motivating any particular parameters is frequently a difficult issue. In addition, it is conceivable that complexities increase if one tries to integrate parametric possibilities of composition at LF into the accounts (as would be required also for *most*). A desideratum quite generally would be for syntactic work to take interpretation seriously and vice-versa (cf. van Gelderen, this volume, on the possible role of interpretability in language change).

Singular parametric options in semantic terms have been insightfully pioneered by Chierchia (1998), amongst others. It may, nonetheless, seem a particularly daunting task at present to ascertain a particular set of semantic parameters as general linguistic properties (rather than singular options), out of which then, say, the full diachronic trajectory of constructions like those involving *most* will follow as such. Nonetheless, there is beginning work conducted on a broader scale pertaining to the possible general options at least in the domain of gradable constructions (cf. Beck et al. 2010; Tiemann et al. 2012, as well as references cited there).

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additional) puzzle in current English, in that *most NP* is used only in generic readings and to neutralize the latter *most of the NP* is used. The issue may be related to the old genitive, but also to the nature of partitive constructions more generally, and it is worth to be addressed by future research. Returning to the distribution of the definite, cases of coordination with superlative lexical adjectives may also be of interest in a fuller discussion; cf. (i) where the definite resists insertion despite its availability in the conjunct:

(i)   *But it is very vnlike to be true, and yet reported in _ most places, and in **the best places**.*
        (GAWDY-E2-P1,27.66)

A hope for future work in terms of the development of motivated parameter theories can therefore only be that the insights of compositional semantics will also find a place in them.

The issue of functionalization that has been suggested here can be viewed against a wider background of variation in combinatorial possibilities at LF, up to fundamental ontological variation. It is conceivable that certain lexical entries or combinations are not available in all languages, and similarly: not at all times in a given language (cf. von Fintel and Matthewson 2008 for a discussion and overview of what should count as universals in semantics, even though the focus is synchronic there). If one agrees with the general idea of semantic variation, then diachronic ontological functionalization can bring in additional combinatorial possibilities and complexities – sometimes wholesale, sometimes only in smaller corners of a language. A note is in order regarding the term "ontological" that I have used. It simply hints at the extreme case in which the ontology of semantic objects is enriched. But of course smaller steps are possible, as we have seen. Furthermore, it is also possible that the import is absorbed more directly into the grammar (and not via a combination with another noun, as was the case with *most*). One particularly extreme case would be that of a new semantic type being imported into the grammar. A point raised for example in Beck et al. (2010) or Bochnak (2013) has to do with the very ontology of degrees. From the comparative angle of such works, it is imaginable that a language lacks degrees at a certain point in time but that it could develop them diachronically.

While semantic parameters in the sense of compositional construction of meaning are a relatively new area of investigation, a number of mechanisms and tendencies have been proposed in recent years for semantic change independently of parameters; cf. especially the conventionalization of side-meanings in a compositional set-up and the solving of "semantic equations" (Eckardt 2006). Work of this type offers not only a useful foundation, but an important specific beginning given that compositionality itself restricts some options in change. We might nonetheless want to make diachronic investigations even more restrictive; for example, by naturally putting the syntax into the compositional panorama and gleaning structural paths, where they are available. But it is likely that not all developments in semantics are fully and solely structure-

based (as we have seen above[14]). That is, it may still be worth finding out more about piecemeal developments including different types of functionalization – be it only for the sheer reason of describing as many types of developments as possible before moving towards a more complete understanding of the full range of possibilities of change at the interface.

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[YCOE]

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[14] Cf. Gergel and Beck (2013) for a different diachronic investigation at the syntax-semantics interface based on a combination of structural and non-structural factors.

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