Quantificational variability effects with German *größtenteils* and implicit agents[1]

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Abstract. This paper investigates *quantificational variability effects* (QVE) with adverbs of quantity, focusing on German *größtenteils* and the QV-interpretations that arise with arguments of the main verb. I propose that these QV-interpretations are plausibly a result of *größtenteils* directly composing with the argument showing QVE. In the first part of the paper, I analyze the syntactic behavior and semantic contribution of *größtenteils* and show how the QVE with explicit arguments of the main verb can be captured. In the second part, the proposal is adapted slightly to be compatible with an event-based analysis of verbal meaning, and I show that the amended proposal and Bruening's (2013) account of short eventive passives suffice to capture QVE with *größtenteils* and implicit agents. As a consequence, the availability of such QV-interpretations cannot be taken as evidence for the view that implicit agents are syntactically represented (*pace* Alexiadou and Müller 2018; Müller 2019).

Keywords: quantificational variability effects, adverbs of quantity, German *größtenteils*, short passives, implicit agents.

1. Introduction

In this paper, I explore *quantificational variability effects* (QVE) that arise in connection with *adverbs of quantity* (e.g., English *for the most part*, *mostly*, *partly*; German *größtenteils*, *zum Teil*), focusing specifically on the semantic behavior of German *größtenteils* (≈ 'for the most part'). The term *quantificational variability effect* is used to describe the interpretation of an (in)definite DP (or other expression) for which, intuitively, a co-occurring adverb of quantification contributes exceptional quantificational force (e.g., Lewis 1975; Heim 1982; Berman 1991; von Fintel 1994; Hinterwimmer 2005). For *größtenteils*, this is illustrated in (1).

(1) Die Studierenden haben Hannah größtenteils gelobt.
the students have Hannah for-the-most-part praised
($\approx_{QVE}$ 'Most of the students praised Hannah.')

In one possible reading of (1), *größtenteils* intuitively quantifies over the set of students given by the definite plural *die Studierenden* 'the students', which leads to the QV-interpretation paraphrasable as 'Most of the students praised Hannah'.[2] The set of entities that is quantified over with *größtenteils* does not have to be provided explicitly, though, see (2).

(2) Hannah wurde größtenteils gelobt.
Hannah was for-the-most-part praised
($\approx_{QVE}$ 'Hannah was praised by most.')

In one possible reading of (2), *größtenteils* intuitively quantifies over a set of individuals evaluating Hannah, a set that is not provided by any overt constituent. Semantically, the reference

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[2]As I show in Section 2, *größtenteils* is rather flexible in terms of which *totality* it quantifies over. Hence, sentences with *größtenteils* are often multiply ambiguous. For instance, in (1), *größtenteils* can also be taken to quantify over situations, the result of which can be paraphrased as 'The students praised Hannah in most of the situations.'

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set of this quantification (see, e.g., Nouwen 2003) is the set of implicit agents of the short eventive passive: the people that praised Hannah are the majority of the set of individuals that *größtenteils* quantifies over. This means that, just as in (1), the quantification contributed by *größtenteils* in (2) intuitively provides the semantic value for an argument position of the main verb. Therefore, the reading paraphrased in (2) can be seen as a kind of QV-interpretation.

The current contribution has two goals. The first goal is to provide an overview over the quantificational behavior of German *größtenteils* and to present a new formal account that captures its semantic contribution in cases of QVE with DPs in argument position, as in (1). The second goal is to show that the QV-interpretation that arises in short eventive passives, illustrated in (2), can be captured compositionally without assuming that implicit agents are syntactically represented. This second part responds to the claim in the recent literature on German short eventive passives that the availability of such a QV-interpretation can be taken as evidence that the implicit agent *is* syntactically represented (see Alexiadou and Müller 2018, Müller 2019).

The paper is structured as follows. In Section 2, I discuss the semantic behavior of *größtenteils*. I present an overview of its quantificational behavior and give a formal account for QV-interpretations with (overt) argument DPs. In addition, I present two observations that suggest that adverbs of quantity, like *größtenteils*, have very different quantificational behavior from adverbs of frequency (e.g., English *usually*), which supports the main assumption made in that section that QV-interpretations with adverbs of quantity should not be modelled in the same way as QV-interpretations with adverbs of frequency. In Section 3, I turn towards QV-interpretations that provide the implicit agents of short eventive passives. I combine the account developed in Section 2 with an analysis of short eventive passives that takes implicit agents to only be semantically represented, and I show that this combination provides a reasonable first account of the data at the heart of Alexiadou and Müller's claim. Section 4 concludes the paper.

2. The adverb of quantity *größtenteils* and its quantificational behavior

For English adverbs of quantity, like *for the most part* and *mostly*, QVE have been explored mainly in the literature on embedded questions, see (3) (e.g., Berman 1991; Beck and Sharvit 2002; Lahiri 2000, 2002). QVE with definite DPs, as in (4), have been discussed as well, but have received much less attention (see Beck and Sharvit 2002; Nakanishi and Romero 2004; Endriss and Hinterwimmer 2007).

(3) John mostly knows who cheated.
($\approx_{QVE}$ 'For most subquestions to the question who cheated, John knows the answer to that subquestion.')

(4) For the most part, the students admire Mary.
($\approx_{QVE}$ 'Most of the students admire Mary.')

The paraphrases in (3) and (4) are based on the proposal by Beck and Sharvit (2002), who analyze adverbs of quantity as *partitive quantifiers* with a variable domain of quantification. In (3), the QV-interpretation arises as a result of *mostly* quantifying over subquestions of the embedded question *who cheated*, whereas in (4), *for the most part* quantifies over single students in the plurality of students denoted by *the students*. In general, Beck and Sharvit (2002) describe those DPs for which they observe QV-interpretations with adverbs of quantity as DPs

that "refer to entities with a plausible part/whole structure" (p. 132).[3]

Beck and Sharvit's proposal contrasts with Nakanishi and Romero's (2004) view, who argue that adverbs of quantity always quantify over subeventualities of a larger eventuality. This means that QVE with adverbs of quantity arise indirectly, similarly to the analysis of QV-interpretations with adverbs of frequency in, for instance, von Fintel 1994 and Hinterwimmer 2005. In Section 2.3, I present two observations regarding the different quantificational behavior of adverbs of quantity and adverbs of frequency that call into question a purely event-based analysis for adverbs of quantity. Therefore, the proposal put forth in the remainder of this paper follows the analyses by Beck and Sharvit (2002) and Endriss and Hinterwimmer (2007) and has at its core the assumption that these adverbs have a variable domain of quantification.

2.1. Data: the quantificational behavior of *größtenteils*

This subsection provides an overview of the data, in particular the different types of formal objects that *größtenteils* can quantify over, and it addresses the question which of the possible quantificational configurations with *größtenteils* can be classified as QV-interpretations. Note that the paraphrases provided for the following examples capture only one possible interpretation for each of these examples; if an example is (multiply) ambiguous, the paraphrase only captures the interpretation that illustrates quantification over the type of formal object named in connection with that example.

To start out, we find that the types of examples discussed in Beck and Sharvit 2002 for English can be recreated for German *größtenteils*. It can quantify over single individuals that are part of a given plurality (1), over portions of a mass (5), over parts of a given single individual (6), and over subquestions of an embedded question (7).

(1) Die Studierenden haben Hannah größtenteils gelobt.
the students have Hannah for-the-most-part praised
($\approx_{QVE}$ 'Most of the students praised Hannah.')

(5) Der Reis ist größtenteils braun.
the rice is for-the-most-part brown
($\approx_{QVE}$ 'Most of the rice is brown.')

(6) Der Rock stinkt größtenteils.
the skirt smells-bad for-the-most-part
($\approx_{QVE}$ 'Most of the skirt smells bad.')

(7) Lisa weiß größtenteils, wer lachte.
Lisa knows for-the-most-part who laughed
($\approx_{QVE}$ 'For most subquestions of the question who laughed, Lisa knows the answer to that subquestion.')

In all of these cases, *größtenteils* quantifies over parts of a *totality* (or whole) that is denoted by an expression in the same clause (i.e., a definite DP or an embedded question). Hence, all of these cases count as different kinds of QV-interpretations.

[3] See Endriss and Hinterwimmer 2007 and Hinterwimmer 2020 for a more extensive illustration and discussion of the quantificational possibilities of *for the most part*.

The totality needed for the interpretation of *größtenteils* is not always contributed by another overt expression occurring in the same clause, though. We observe that *größtenteils* may quantify over subintervals of an inferred temporal interval, see (8), over parts of a contextually specified location, see (9), or over members of a set of events, see (10).[4]

(8) a. Did Lisa like the comedian?
b. Lisa lachte größtenteils.
Lisa laughed for-the-most-part
(≈ 'For most of the comedian's set, Lisa laughed.')

(9) A: What's the weather like in Norway right now?
B: Es regnet größtenteils.
it rains for-the-most-part
(≈ 'It's raining in most parts of Norway.')

(10) A: What does Lisa do in terms of housework?
B: Lisa kocht größtenteils.
Lisa cooks for-the-most-part
(≈ 'Most of what Lisa does in terms of housework is to cook.')

Since the totality needed for the interpretation of *größtenteils* in (8)–(10) is not contributed by an element in the same clause, these interpretations are not the result of QVE.[5]

In another type of example, *größtenteils* intuitively quantifies over the dimensions of a multidimensional adjective, see (11).

(11) Lisa ist größtenteils gesund.
Lisa is for-the-most-part healthy
(≈ 'Lisa is healthy in most respects.')

Whether this is an instance of QVE depends on whether or not the totality of dimensions are part of the truth-conditional contribution of the adjective (see, e.g., Sassoon 2013 for discussion).

Lastly, as we have seen in the introduction, we find short eventive passives containing *größtenteils*, where the adverb has an effect on who is understood as the implicit agent(s) of the short passive. In (2), *größtenteils* quantifies over single individuals that are members of an implicitly given set: for most of the members of the set, it is the case that they praised Hannah.

(2) Hannah wurde größtenteils gelobt.
Hannah was for-the-most-part praised
($\approx_{QVE}$ 'Hannah was praised by most.')

[4]Example (10) also has another temporal/situational interpretation that can be paraphrased as: "Lisa's task in terms of housework is to do the cooking in most of the cooking situations." I thank Frank Sode (p.c.) for discussion on this example.

[5]For English adverbs of quantity, Endriss and Hinterwimmer (2007) and Hinterwimmer (2020) propose that the totality is always contributed either by an overt or unpronounced/elided constituent in the same clause—a DP, PP, or CP. The German data presented in this section suggests that this is not the case for *größtenteils*. While one could argue that the PP *in Norwegen* 'in Norway' is an elided constituent of B's answer in (9), it is hard to see what the parallel unpronounced/elided constituents could be in (8) and (10). So, I tentatively conclude that the totality for German adverbs of quantity is not always contributed by a constituent in the same clause, and leave the necessary in-depth analysis to future research.

If the implicit agent is represented syntactically as a phonologically null DP, as argued for by Alexiadou and Müller (2018) and Müller (2019), the paraphrase in (2) is definitely that of a QV-interpretation. But if there is no DP that can be taken to contribute the totality for *größtenteils* (as I argue), it is not immediately clear that this is a case of QVE. As I show below in Section 3, example (2) can be analyzed as being the result of QVE, albeit a case of QVE where the totality is contributed via the passive operator PASS.

Given the extremely flexible semantics of *größtenteils*, there are few contexts in which the use of the adverb is infelicitious; these must be contexts/clauses where nothing can provide a plausible totality for *größtenteils* to quantify over. One example of this kind is given in (12).[6]

(12) #Der Ballon explodierte größtenteils.
the balloon exploded for-the-most-part
#'For the most part, the balloon exploded.'

The verb *explodieren* 'explode' describes a punctual and local one-time event, and the object that explodes cannot be affected just in part by the explosion. Therefore, there is no plausible totality that is either overtly given or inferred that could provide the parts for *größtenteils* to quantify over.

In sum, *größtenteils* quantifies over the parts of a given totality. It is flexible with respect to the type of totality involved (i.e., we find (sets/sums of) individuals, questions, times, situations, events, and locations), as long as the resulting quantification over subparts is compatible with the content of the co-occurring expressions.

2.2. A formal analysis of QVE with DPs in subject position

As shown above, *größtenteils* can quantify over a number of different types of totalities that are provided either contextually or by a constituent in the same clause. In this subsection, I focus exclusively on those cases where the totality is provided by an individual-denoting DP in argument position and provide a compositional analysis of the QV-interpretation that arises in connection with such a DP.

For my formal analysis of these cases, I build on the accounts for QVE with English adverbs of quantity proposed by Beck and Sharvit (2002) and Endriss and Hinterwimmer (2007). As introduced in the beginning of this section, the common core of their proposals is that the QV-interpretation arises in case the adverb of quantity quantifies over parts of a totality that is contributed by an expression in the same clause. The proposal for the contribution of *größtenteils* developed below shares this property with Beck and Sharvit's and Endriss and Hinterwimmer's proposals but differs from both in how this idea is spelled out in detail.

2.2.1. The syntactic configuration

Let us start out with the syntactic configuration that underlies QV-interpretations that arise with *größtenteils* in combination with argument DPs.

[6] I thank Thomas Weskott (p.c.) for this example.

For the interpretation of English adverbs of quantity, Beck and Sharvit (2002) and Endriss and Hinterwimmer (2007) assume the same general, underlying syntactic configuration at LF: the adverb, the expression A that contributes the totality, and the scope B of the adverb occur in the configuration in (13).

(13) [A [*for the most part* [B]]] (Beck and Sharvit 2002: 133)

The proposals by the two pairs of authors differ in some of the specifics. First, Beck and Sharvit (2002) are not explicit regarding the question to which point in the structure *for the most part* adjoins; in contrast, Endriss and Hinterwimmer (2007) assume that *for the most part* is adjoined either to the vP or to the whole clause. Second, both pairs of authors assume that wherever *for the most part* sits in the structure, the expression A is raised to the position right above it—that is, the configuration in (13) is derived at LF. However, only Endriss and Hinterwimmer (2007) provide additional motivation for this movement: according to them, it is the result of a *mapping algorithm* that separates topical material from focal material at LF in order to structurally divide the material that is interpreted in the restrictor of the adverbial quantifier from the material that is interpreted in its scope (see Endriss and Hinterwimmer 2007: 25–26; see also Ebert and Hinterwimmer 2010 for discussion).

Is the configuration in (13) also a plausible underlying structure for QV-interpretations of German *größtenteils*? Looking at the surface order of *größtenteils* and the DPs that provide the totality, we observe that *größtenteils* has to occur linearly to the right of the DP, see (14). And if there is more than one DP that may contribute the totality, then the linear position of *größtenteils* determines whether the resulting sentence is ambiguous or not, see (15).

(14) a. Lisa hat den Apfel größtenteils gegessen.
Lisa has the apple for-the-most-part eaten
(≈ 'Lisa ate most of the apple.')
b. Lisa hat größtenteils den Apfel gegessen.
Lisa has for-the-most-part the apple eaten
(*cannot mean*: 'Lisa ate most of the apple.')
(≈ 'Most of what Lisa ate was the apple.')

(15) a. Die Kinder haben größtenteils die Äpfel gegessen.
the children have for-the-most-part the apples eaten
(≈ 'Most of the children ate the apples.')
(*cannot mean*: 'The children ate most of the apples.')
b. Die Kinder haben die Äpfel größtenteils gegessen.
the children have the apples for-the-most-part eaten
(≈ 'Most of the children ate the apples.')
(≈ 'The children ate most of the apples.')

So, judging from these ordering restrictions on the surface level, the configuration in (13) is arguably also found in German and is more explicitly observable than in English.[7]

Now, regarding the structural position of *größtenteils*, the question that arises is whether the

[7]The subject DPs in (14) and (15) are in the *Vorfeld* position from where they are plausibly reconstructed to some position lower in the clause. For the QV-interpretation with the subject DPs in (15), this is plausibly the position right above *größtenteils*.

pair in (15) arises as a result of variable syntactic placement of *größtenteils* or as a result of movement of the object DP. Since definite DPs in German can be scrambled to a position higher up in the structure, it would not be implausible to assume that *die Äpfel* in (15b) has been scrambled. Three contrasting sentences for which the surface order provides better clues as to where in the structure *größtenteils* may adjoin are given in (16).[8]

(16) A: What did Lisa tell you?
B: Dass größtenteils [$_{vP}$ wer was malte].
that for-the-most-part someone something painted
(≈ 'That most of the time someone painted something.')
B': Dass [$_{vP}$ wer größtenteils was malte].
that someone for-the-most-part something painted
(≈ 'That someone most of the time painted something.')
B": Dass [$_{vP}$ wer [$_{VP}$ was größtenteils malte]].
that someone something for-the-most-part painted
(≈$_{QVE}$ 'That someone painted most of something.')

In case the wh-pronouns *wer* (lit. 'who') and *was* (lit. 'what') are used as indefinite pronouns, as in (16), their surface positions correspond to their positions inside the vP/VP, since wh-indefinites are assumed not to undergo scrambling (e.g., Haider 2017). So, based on (16), it seems that *größtenteils* can adjoin to different points in the structure. It may adjoin to or above vP, as in B, inside vP, as in B', or inside VP, as in B". The answer B", which has a QV-interpretation, also provides further support for the assumption that the relevant structural configuration for QV-interpretations with *größtenteils* is as in (13); the adverb occurs directly below the position of the indirect object *was* (≈ 'something'), which provides the totality.

So, for QV-interpretations that arise from an interaction between an argument DP and *größtenteils*, I assume that *größtenteils* adjoins right below the base position of the DP inside the vP/VP. That is, the configuration in (13) is not created by moving the DP, but by adjoining *größtenteils* in the structural position necessary for it to compose with the denotation of the DP.

2.2.2. The denotation of *größtenteils*

I now turn to the analysis of the semantic contribution of *größtenteils*, keeping in mind the above results on the syntactic configuration that underlies QV-interpretations.

Let us again start out by looking at the proposals for *for the most part* by Beck and Sharvit (2002) and Endriss and Hinterwimmer (2007). Beck and Sharvit (2002) assume that the result of composing *for the most part* with its restrictor A and scope B in the syntactic configuration in (13) is as schematically given in (17), where $Cov(A)$ is a contextually given cover of the totality A, see (18).

[8]The availability of QVE with *größtenteils* and indefinite pronouns illustrated in (16) extends to other expressions that contribute existential quantification, like the German impersonal pronoun *man* that occurs in (i) in its existential use. Hence, QVE with *größtenteils* is not restricted to definite DPs.

(i) Man war größtenteils in legerer Sommerkleidung gekommen.
MAN was for-the-most-part in casual summer-dress come
(≈$_{QVE}$ 'Most of the people had appeared in casual summer dress.') (Zobel 2017: 370)

(17) Most $x[x \in Cov(A)][B(x)]$ (Beck and Sharvit 2002: 133)

(18) $Cov(A)$ is a cover of A iff $Cov(A)$ is a set of sets of parts of A, every part of A is in at least one set in $Cov(A)$, and $\varnothing \notin Cov(A)$. (Beck and Sharvit 2002: 132)

That is, Beck and Sharvit assume that *for the most part* quantifies over the sets of parts of A that are contextually given via $Cov()$. A sentence with a QV-interpretation thus conveys that most of the sets in $Cov(A)$ have the property denoted by the material B in the scope of the adverb. Beck and Sharvit do not analyze the exact contribution of *Most* further, and also leave world, situation, and/or event variables implicit. In comparison, Endriss and Hinterwimmer (2007) are more explicit regarding the denotation of *for the most part*, adopting and adapting the general idea behind the proposal by Nakanishi and Romero (2004). According to Endriss and Hinterwimmer (2007: 48), *for the most part* distributively quantifies over all subparts z of the majority y of the totality x (i.e., the denotation of A), see (19).

(19) $[\![\textit{for the most part}]\!] =$
$\lambda P_{\langle e,\langle s,t\rangle\rangle}\lambda x.\exists s\exists y\,[y \leq x \wedge |y| > \frac{1}{2}|x| \wedge \forall z[z \leq y \rightarrow \exists s'[s' \leq s \wedge P(z,s')]]]$

The predicate P in the scope of *for the most part* is stated to apply to all subparts z of y.

So, the general idea behind the analyses by Beck and Sharvit (2002) and Endriss and Hinterwimmer (2007) is basically the same: the totality is cut up into parts, and the property in the scope applies to most of these parts. The two proposals differ, however, in their assumptions regarding the size of the parts. For Beck and Sharvit (2002), the parts are determined by a contextually given cover, hence each part involved in the quantification may contain one or more atomic parts of the totality. And the predicate B in the scope is applied to each of the parts as a whole, which means that the predication in the scope may be collective or distributive depending on B. In contrast, the denotation proposed by Endriss and Hinterwimmer (2007) requires the predicate P in the scope of *größtenteils* to apply to *all* subparts z of the majority y, which means that the quantification in the scope is necessarily distributive.

Returning to German *größtenteils*, we find that QV-interpretations can involve collective predication, see (20).[9]

(20) Die Schüler haben größtenteils das Klavier in den Nebenraum getragen.
the students have for-the-most-part the piano in the next-room carried
(≈ 'Most of the students carried the piano to the next room.')

Example (20) is true if most students carried the piano to the next room individually (i.e., with a distributive interpretation), but it is also true if the majority of the students collectively carried the piano as a group. Endriss and Hinterwimmer's (2007) proposal in (19) cannot capture the second possibility and is, hence, too restrictive for *größtenteils*.

[9]The compatibility with collective predication may distinguish QVE with *größtenteils* from QVE with *for the most part*. Nakanishi and Romero (2004) argue that the quantification contributed by *for the most part* is necessarily distributive. That is, (i) can only be read in such a way that each boy in the majority of the boys lifted the piano by himself (p. 458). The direct translation of (i) into German in (ii) does not share this restriction.

(i) For the most part, the boys lifted the piano. (*collective, ✓ distributive)

(ii) Die Buben haben größtenteils das Klavier angehoben. (✓ collective, ✓ distributive)

Example (20) can also be used to show that Beck and Sharvit's (2002) schematic proposal is not quite right for *größtenteils*, either. In (17), the meta-language quantifier *Most* is taken to quantify over the members of a contextually provided cover of A. This quantification is true if most members satisfy the predicate B in the scope. Taking quantification with *größtenteils* to involve the members of a cover leads to trouble, though. Consider the scenario in (21).

(21) The music room at the local high school will be renovated. The music teacher asks 6 students to help her carry the instruments to another classroom. Four students carry the piano, one carries the guitar, and one a box with smaller instruments.

In this scenario, the QV-interpretation of (20) is true: four out of six students (collectively) carried the piano. A salient cover of the students that is directly provided by the scenario comprises the individuals and groups that formed in order to carry the different instruments. If this cover is chosen, however, (20) is predicted to be false: there is one set of multiple students for which the members collectively carried the piano and two singleton sets for which the members each carried other instruments. So, it is not the case that *carried-the-piano* is true for most members of the cover.

There is no straightforward way to solve this problem. One possible attempt to fix the problem would be to assume that the cover that is used as the basis for quantification is sensitive to the predicate B in the scope of *größtenteils*—in the sense that all atomic parts of the totality that belong to groups to which B does not apply are grouped together. In the scenario in (21), the resulting cover would only have two members: the group carrying the piano and the group containing those students that did not carry the piano. Hence, even if the potential covers were restricted in this way, (20) would still be predicted to be false. Another possibility would be to assume that the cover that is used as the basis for quantification has to consist of singleton sets. That is, for (20), the members of the cover would be sets containing one student each. Quantifying over the members of this cover, we would be able to capture that four out of six students is a majority. However, the sentence would still be predicted to be false in (21): splitting up the set of students into singleton sets would make it impossible to capture the collective reading since the predicate B would only be applied to single students.

In sum, the discussion of (20) showed that QV-interpretations with *größtenteils* are compatible with collective predication, and that the quantifier contributed by *größtenteils* has to be independent of the internal structure and other properties of the minor part of the totality. This means that neither proposal in Beck and Sharvit 2002 and Endriss and Hinterwimmer 2007 can successfully capture the behavior of *größtenteils*.

I propose that the quantification expressed by *größtenteils* in the case of QVE with argument DPs is best captured as in (22), which is essentially the denotation proposed for partitive *most* by Matthewson (2001) (see also Crnič 2009):[10]

(22) $[\![\textit{größtenteils}]\!] = \lambda P_{et}.\lambda x.\exists y\,[y < x \wedge \mu(y) > \mu(x) - \mu(y) \wedge P(y)]$

So, *größtenteils* takes as its arguments a predicate P and a totality x and conveys that there is a majority y of x to which P applies. The order of arguments, $\lambda P_{et}.\lambda x.\ldots$, fits the syntactic configuration needed to derive QV-interpretations with argument DPs argued for in Section 2.2.1 and is the reverse from what we would assume for adnominal *most*:

[10]The function μ maps its argument to its contextually relevant measure, see the discussion in Crnič 2009.

(23) [DP [*größtenteils* [<predicate>]]]

The ambiguity between the collective and the distributive reading has to be captured independently via optional modification of the predicate P, as proposed for partitive *most* (see, e.g., Nakanishi and Romero 2004; Crnič 2009). Since this is orthogonal to the goals of this paper, I will from now on gloss over all issues of plural predication.

At this point, two restrictions of the proposal in (22) need to be addressed. First, (22) cannot be used to capture those cases in which the totality x is provided contextually. And second, as indicated by the semantic types, the denotation proposed in (22) is only applicable if the predicate P in the scope of *größtenteils* has exactly one open argument position. Given the present assumptions about the syntactic behavior of *größtenteils* and verbal denotations, this means that (22) can only be used if the totality is contributed by the highest (or only) argument DP of the verbal predicate.[11] Thus, at this point, we are forced to assume that *größtenteils* is polysemous between the denotation in (22), other denotations that are compatible with verbal predicates with two or more open argument positions (e.g., for QV-interpretations with direct objects), and a denotation where x is filled contextually. As stated above, I set aside cases where the totality is provided contextually, but I will come back to the second issue in Section 3.2.

2.2.3. An example

Combining the results on the syntax and semantics of the QVE cases, I provide a compositional analysis for the sentence in (24).

(24) Der Rock stinkt größtenteils.
the skirt smells-bad for-the-most-part
(≈ 'Most of the skirt smells bad.')

To start out, I assume that the DP *der Rock* 'the skirt' and the finite verb *stinkt* 'smells bad' are reconstructed into their base positions inside the VP at LF.

(25) [$_{VP}$ the-skirt [*größtenteils* [$_{V}$ smells-bad]]]

For the subject DP and the predicate, I assume the simplified denotations in (26) (ignoring eventualities, times, worlds, and contexts).

(26) a. $[\![\textit{der Rock}]\!] = \iota z(\text{skirt}(z))$
b. $[\![\textit{stinkt}]\!] = \lambda x.\ \text{smells-bad}(x)$

Composing the denotation for *größtenteils* in (22) with those of the predicate and the subject DP, we derive the QV-interpretation for (24) in (27).

(27) $\exists y\,[y < \iota z(\text{skirt}(z)) \wedge \mu(y) > \mu(\iota z(\text{skirt}(z))) - \mu(y) \wedge \text{smells-bad}(y)]$

In words: There is an individual y that is a proper part of the skirt, the measure of y exceeds the measure of the skirt without y, and y smells bad.

[11] This restriction does not apply to Endriss and Hinterwimmer's proposal for *for the most part* in (19) because the adverb is taken to only attach to two positions in the clause. And since Endriss and Hinterwimmer also assume that the expression contributing the totality x is moved to adjoin right above *for the most part*, it is ensured that the expression in the scope of the adverb is of the right type.

In this case, the measure function μ plausibly measures the amount of material (i.e., the cloth) in *y* and the remaining, minor part of the skirt. This means that (27) can also be summarized as expressing "A major part of the material of the skirt smells bad."

2.3. Adverbs of quantity vs. adverbs of frequency

To conclude section 2, I present two observations that highlight the differences in the quantificational behavior of adverbs of quantity (e.g., *for the most part*) and adverbs of frequency (e.g., *usually*) that suggest that these two classes of adverbs of quantification and their QVE should not be analyzed in a parallel way.[12]

The first observation is due to Ebert and Hinterwimmer (2010). They observe that adverbs of frequency are sensitive to the temporal structure of their restrictor and scope in a way that is not mirrored by adverbs of quantity or individual quantifiers, see (28).

(28) a. *The people who lectured at the conference last summer are usually Japanese.
b. Most (of the) people who lectured at the conference last summer are Japanese.
c. For the most part, the people who lectured at the conference last summer are Japanese. (Ebert and Hinterwimmer 2010: 143)

Ebert and Hinterwimmer identify the tense mismatch in the relative clause (= past tense) and the main clause (= present tense) as the reason for the unacceptability of (28a). They propose that QVE with adverbs of frequency cannot arise in case the material that is interpreted in the restrictor (i.e., the relative clause) and the scope (i.e., the main predication) contribute incompatible temporal information. This is corroborated by the fact that (28a) becomes fully acceptable if the present tense copula *are* is exchanged for past tense *were*. Notably, the corresponding sentences containing an individual quantifier (28b) or adverb of quantity (28c) are not restricted in this way.[13]

Ebert and Hinterwimmer take the sensitivity of adverbs of frequency to temporal information as evidence that these adverbs exclusively quantify over situations, which means that QV-interpretations with these adverbs arise indirectly as a side-effect of quantifying over situations. Conversely, they take the insensitivity observed with adverbs of quantity as evidence against a parallel, situation-based or event-based account for QV-interpretations with these adverbs.

Ebert and Hinterwimmer's observation for English also translates to German *größtenteils* and the adverb of frequency *meistens* 'mostly/usually', compare (29) to (28a)/(28c).

(29) a. #Die Leute, die dort vortrugen, sind meistens aus Japan.
the people who there presented.PST are.PRS usually from Japan

[12] At least for English, some adverbs of quantification can be counted as members of both classes (e.g., *mostly*, see Lahiri 2000). So, if the arguments provided are on the right track, then these adverbs are polysemous.

[13] This difference in sensitivity to the temporal structure is illustrated further by the pair of sentences in (i), which also contrast the two types of adverbs.

(i) a. John usually knows who came to the party (??yesterday evening).
b. For the most part, John knows who came to the party (yesterday evening).
(Endriss and Hinterwimmer 2007: 47)

In case the embedded question is restricted to a specific party with a temporal adverbial, the sentence with the adverb of frequency *usually* turns odd, while no comparable change in interpretation is observed for the adverb of quantity *for the most part*.

b. Die Leute, die dort vortrugen, sind größtenteils aus Japan.
the people who there presented.PST are.PRS for-the-most-part from Japan
($\approx_{QVE}$ 'Most of the people who presented there are from Japan.')

So, if Ebert and Hinterwimmer's argument is on the right track, *größtenteils* in (29b) plausibly does not quantify over situations or events, but over individuals.

The second observation contrasting the adverb of quantity *größtenteils* and adverb of frequency *meistens* concerns QVE with definite singular DPs.

(30) a. Lisa hat den Apfel größtenteils gegessen.
Lisa has the apple for-the-most-part eaten
($\approx_{QVE}$ 'Lisa ate most of the apple.')
b. #Lisa hat den Apfel meistens gegessen.
Lisa has the apple usually eaten

Example (30a) describes a single situation of Lisa eating most parts of a single apple. This QV-interpretation is readily available without special contextual support. In contrast, (30b), out of the blue, makes the impossible claim that in most situations of some unspecified type, Lisa ate the entirety of the same apple. The oddness of (30b) disappears if the sentence is placed in a context that ensures that there is a different unique apple for each situation quantified over; for instance, if we quantify over all situations containing lunch made by Lisa's mum, which always included an apple (see Hinterwimmer 2005). In such a context, (30b) describes a series of events involving different, contextually unique apples and states that in most situations, Lisa ate that apple. That is, unlike for *größtenteils* in (30a), for which the QV-interpretation ranges over parts of the same apple, the QV-interpretation of (30b) (once it is contextually licensed) ranges over different apples that covary with the different situations. So, the contrast between the two sentences in (30) also illustrates that QV-interpretations with adverbs of frequency always go hand in hand with quantification over different situations of a common type, while QV-interpretations with adverbs of quantity involve quantification over parts of a whole.

3. QVE with *größtenteils* and implicit agents

Having provided a proposal for the quantificational behavior of *größtenteils* in cases of QVE with overt argument DPs, I now turn to the question whether the availability of QVE with *größtenteils* and implicit agents, as in (2), can be taken as evidence for the view that implicit agents are syntactically represented.

(2) Hannah wurde größtenteils gelobt.
Hannah was for-the-most-part praised
($\approx_{QVE}$ 'Hannah was praised by most.')

Alexiadou and Müller (2018) and Müller (2019) argue that this is the case. Their argument goes as follows. They assume that QVE with adverbs of quantity do not differ from QVE with adverbs of frequency, and that QVE with adverbs of frequency arise as a result of *unselective binding* (i.e., the adverbial quantifier binds an individual variable contributed by a DP; see Heim 1982; Lewis 1975). Hence, in order to express quantification over individuals in examples like (2), *größtenteils* has to bind a variable, which has to be contributed by the implicit agent since the QV-interpretation of (2) concerns the agents who did the praising.

It should already be evident from the discussion in the previous section that this argument is based on faulty premises. First, as we have seen in Section 2.3, the quantificational behavior of adverbs of quantity differs from that of adverbs of frequency. So, using analyses for adverbs of frequency in an argument about adverbs of quantity is not admissible. And second, unselective binding is not the only way in which QV-interpretations with adverbs of quantification could arise. As mentioned in Section 2.3, Ebert and Hinterwimmer (2010) provide arguments for an analysis of QVE with adverbs of frequency that takes the QV-interpretation to arise indirectly as a result of quantification over situations (see also von Fintel 1994; Hinterwimmer 2005). And the analysis of QVE with *größtenteils* proposed in Section 2.2 is based on the assumption that QV-interpretations with *größtenteils* arise fully compositionally. So, Alexiadou and Müller's argument in favor of implicit agents being syntactically represented fails.

But, given the QV-denotation proposed for *größtenteils* in (22), maybe a similar argument for the syntactic representation of implicit agents could be made based on the assumption that *größtenteils* composes with whatever provides the totality x.

(22) $[\![\textit{größtenteils}]\!] = \lambda P.\lambda x.\exists y\,[y < x \wedge \mu(y) > \mu(x) - \mu(y) \wedge P(y)]$

That is, one could argue that in order for the argument slots of *größtenteils* to be filled appropriately, there must be something, a syntactic object, that provides the right semantic object that can fill the second argument slot λx.

In the remainder of this section, I show that combining a version of the denotation in (22) (adapted for event predication) with standard assumptions about the syntax and semantics of passivization (which do not include a syntactically represented implicit argument) suffices to derive a reasonable first account for the QV-interpretation of sentences like (2). That is, even if we assume that the QV-interpretations with adverbs of quantity arise fully compositionally, the observation that we find QVE with implicit agents does not provide conclusive evidence that implicit agents are syntactically represented.

3.1. The syntax and semantics of short passives

For the syntax and semantics of short passives, I adopt the analysis in Bruening 2013. Syntactically, Bruening assumes that a short passive is formed with a specifier-less VoiceP (i.e., without a syntactically represented agent) that is dominated by a PassP that is headed by the passivization operator PASS, see (31).[14]

(31) [$_{PassP}$ PASS [$_{VoiceP}$ Voice [$_{VP}$ DP V]]]

Semantically, the head of the VoiceP, Voice, introduces the agent role of the event described by the material in the VP, which is taken to denote an agent-less event description (type vt) following Kratzer (1996), see (32).

(32) $[\![\text{Voice}]\!] = \lambda P_{vt}.\lambda x.\lambda e.\text{AGENT}(x,e) \wedge P(e)$ (see Kratzer 1996)

Hence, the result of Voice composing with the denotation of the VP is a function of type $\langle e, vt\rangle$. PASS then combines with the denotation of the VoiceP and existentially closes the agent role

[14]Note that the VPs in the structures in (31) and (34) represent the structure of a German VP.

introduced by the Voice head, leaving the event variable e to be existentially closed higher up by an operator in the AspP, see (33).

(33) $[\![\text{PASS}]\!] = \lambda P_{\langle e,vt\rangle}.\lambda e.\ \exists x[P(x)(e)]$

From these ingredients and the structure and parts in (34), we derive the interpretation for the short passive *Hannah wurde gelobt* 'Hannah was praised' in (35).

(34) a. [$_{PassP}$ PASS [$_{VoiceP}$ Voice [$_{VP}$ Hannah praise]]]
b. $[\![\text{VP}]\!] = \lambda e.\ \text{THEME}(\text{Hannah}, e) \wedge \text{praise}(e)$

(35) $\exists e \exists x\,[\text{AGENT}(x,e) \wedge \text{THEME}(\text{Hannah}, e) \wedge \text{praise}(e)]$

In words: There is an event e and an individual x such that x is the agent of e, e is a praising, and the theme of e is Hannah.

3.2. Adapting the denotation of *größtenteils* for event predication

Before we can derive the QV-interpretation for short passives, the denotation proposed for *größtenteils* in (22) needs to be adapted so that it is compatible with event predication. In order to understand what needs to be adapted exactly, let us take another look at (24), for which the QV-interpretation was derived in Section 2.2.3.

(24) Der Rock stinkt größtenteils.
the skirt smells-bad for-the-most-part
(≈ 'Most of the skirt smells bad.')

If we assume that *stinkt* 'smells bad' takes two arguments, an individual and an eventuality, the denotation proposed for *größtenteils* in (22) runs into trouble, since the additional argument slot of *stinkt* (= P) would not be filled appropriately.

(36) $[\![\textit{stinkt}]\!] = \lambda x.\lambda e.\ \text{smells-bad}(x)(e)$

(22) $[\![\textit{größtenteils}]\!] = \lambda P_{et}.\lambda x.\ \exists y[y < x \ \wedge\ \mu(y) > \mu(x) - \mu(y) \ \wedge\ P(y)]$

To remedy that, I propose the amendment to (22) in (37).

(37) $[\![\textit{größtenteils}]\!] = \lambda P_{\langle e,vt\rangle}.\lambda x.\lambda e.\ \exists y[y < x \ \wedge\ \mu(y) > \mu(x) - \mu(y) \ \wedge\ P(y)(e)]$

Using this amended denotation, the denotation derived for the VP in (25) is as in (38).

(25) [$_{VP}$ the-skirt [*größtenteils* [$_{V}$ smells-bad]]]

(38) $\lambda e.\ \exists y[y < \iota z(\text{skirt}(z)) \ \wedge\ \mu(y) > \mu(\iota z(\text{skirt}(z))) - \mu(y) \ \wedge\ \text{smells-bad}(y)(e)]$

The event variable e of (38) is existentially closed in a subsequent step by an aspectual operator in AspP, leading to the following QV-interpretation for (24) (ignoring times, worlds, and contexts): There is an event e and an individual y such that y is a proper part of the skirt, the measure of y exceeds the measure of the skirt without y, and e is an event of y smelling bad.

The amended proposal in (37) inherits the restriction of (22) addressed in Section 2.2.2 that the totality has to be contributed by the highest (or only) argument DP of the verbal predicate. However, with the introduction of event predication, there is now a way to give a uniform

analysis for QV-interpretations with all types of argument DPs. The key is to adopt a Neo-Davidsonian analysis for verbs and their arguments: the verb only has an event argument and all argument DPs are related to this event argument via relational semantic roles contributed by operators in the verbal structure (cf., e.g., Champollion 2010). For instance, in a Neo-Davidsonian analysis, (39) has the underlying verbal structure in (40).

(39) Lisa hat den Apfel größtenteils gegessen.
Lisa has the apple for-the-most-part eaten
(≈ 'Lisa ate most of the apple.')

(40) [Lisa [AGENT [the-apple [*größtenteils* [THEME [eat]]]]]]

For AGENT and THEME, parallel contributions similar to the denotation proposed by Kratzer (1996) for the Voice head would work:

(41) a. $[\![\text{AGENT}]\!] = \lambda P_{vt}.\lambda x.\lambda e.\text{AGENT}(x,e) \wedge P(e)$
b. $[\![\text{THEME}]\!] = \lambda P_{vt}.\lambda x.\lambda e.\text{THEME}(x,e) \wedge P(e)$

Assuming further that *essen* 'eat' denotes a predicate of events (type *vt*), it is possible to compose the QV-interpretation for (39)—and other cases where the totality is not contributed by the agent DP—without the need to adapt the proposal in (37) for verbal predicates of different arity. For (39), the QV-interpretation derived in this way is given in (42).

(42) $\exists e\,[\text{AGENT}(\text{Lisa},e) \wedge$
$\exists y\,[y < \iota z(\text{apple}(z)) \;\wedge\; \mu(y) > \mu(\iota z(\text{apple}(z))) - \mu(y) \;\wedge\; \text{THEME}(y,e) \wedge \text{eat}(e)]]$

In words: There is an eating-event e such that Lisa is the agent of e, and there is an individual y that is the theme of e and is a proper part of the apple, and the measure of y exceeds the measure of the apple without y (i.e., y is "most of the apple").

3.3. The QV-interpretation with implicit agents

Let us now turn to the QV-interpretation of (2). When *größtenteils* occurs in a short passive with a QV-interpretation, I propose that it adjoins inside the VoiceP between the PASS-operator and the Voice-head. Hence, the underlying structure for the sentence in (2) is as in (43).

(2) Hannah wurde größtenteils gelobt.
Hannah was for-the-most-part praised
($\approx_{QVE}$ 'Hannah was praised by most.')

(43) [$_{PassP}$ PASS [$_{VoiceP}$ *größtenteils* AGENT [$_{VP}$ Hannah [THEME [praise]]]]]

Given this syntactic structure, we can straightforwardly derive the QV-interpretation for (2) using the denotation for the VP in (34b), for AGENT in (41a), for *größtenteils* in (37), and for PASS in (33), listed below for convenience:

(34b) $[\![\text{VP}]\!] = \lambda e.\ \text{THEME}(\text{Hannah},e) \wedge \text{praise}(e)$

(41a) $[\![\text{AGENT}]\!] = \lambda P_{vt}.\lambda x.\lambda e.\text{AGENT}(x,e) \wedge P(e)$

(37) $[\![\textit{größtenteils}]\!] = \lambda P_{\langle e,vt\rangle}.\lambda x.\lambda e.\exists y\,[y < x \;\wedge\; \mu(y) > \mu(x) - \mu(y) \;\wedge\; P(y)(e)]$

(33) $[\![\text{PASS}]\!] = \lambda P_{\langle e,vt\rangle}.\lambda e.\exists x\,[P(x)(e)]$

The result of the two steps of composition needed to get to the denotation of the VoiceP, are given in (44) and (45).

(44) $\lambda x.\lambda e.\ \textsc{agent}(x,e) \wedge \textsc{theme}(\text{Hannah},e) \wedge \text{praise}(e)$

(45) $\lambda x.\lambda e.\exists y\,[y < x\ \wedge\ \mu(y) > \mu(x) - \mu(y)\ \wedge\ \textsc{agent}(y,e) \wedge \textsc{theme}(\text{H},e) \wedge \text{praise}(e)]$

Next is the crucial step: composing the denotation of the VoiceP in (45) with the contribution of PASS. The first argument of PASS has to be of type $\langle e,vt\rangle$, which is exactly the type of the functional expression in (45). So, composition proceeds without a problem resulting in the denotation for PassP in (46).

(46) $\lambda e.\exists x\exists y\,[y < x\ \wedge\ \mu(y) > \mu(x) - \mu(y)\ \wedge\ \textsc{agent}(y,e) \wedge \textsc{theme}(\text{H},e) \wedge \text{praise}(e)]$

After the event argument is existentially closed at the level of AspP, we arrive at the following QV-interpretation for (2) (ignoring times, worlds, and contexts): There is a praising-event e and individuals x and y such that y is a proper part of x, the measure of y exceeds the measure of x without y, and y is the agent of the praising event e for which the theme is Hannah. In other words, we derive that (2) states that an entity y praised Hannah, and that this entity y is the majority of another entity x.

The result in (46) already captures the QV-interpretation of (2) reasonably well. In addition to the information that is explicitly encoded in (46), we can conclude that y is a plurality of intentional individuals from the information provided by the verbal predicate and the part-whole relation between y and x. Only intentional individuals can be agents of events, so y has to be either a single intentional individual or a sum/group of intentional individuals. And since a single intentional individual cannot be the majority of any plural individual, y is plausibly a plurality of at least two individuals.

There are, however, two aspects of (46) that are not (yet) optimal. First, the formula in (46) does not capture that all individuals that are part of y plausibly praised Hannah individually—that is, that e is plausibly a plurality of praising-events with different single agents. This is arguably an effect of distributive plural predication, which I intentionally set aside (see Section 2.2.2). I assume that the formalization in (46) can be extended to capture distributivity with respect to the agent role and that the contribution of *größtenteils* is not intrinsically restricted to there being just one praising-event for all members of y.

Second, a real worry with respect to (46) is that existential closure of x makes the quantificational part of the statement about y trivially true. Mereologically speaking, any plurality of individuals—except the plurality of all individuals—is part of some larger plurality of individuals for which it makes up the majority. So, as a result of x being existentially quantified, the contribution of *größtenteils* seems to reduce to conveying that the implicit agent is a plurality of intentional individuals. This is not what the sentence in (2) conveys, though. Intuitively, (2) conveys that the majority of some plurality of individuals praised Mary who were in a position to praise Mary. That is, the totality x seems to underlie some contextual restriction, an observation that is not captured by the formula in (46). I believe that part of this contextual restriction can be attributed to contextual domain restriction of the existential quantifier contributed by PASS. While some short passives convey that someone or other performed the action described by the main predicate, as in (47), we also find short passives for which the existential

quantification is intuitively restricted to a contextually given set of individuals, as in (48).

(47) Die Universität wurde angezündet.
'The university was set on fire.' (→ by someone or other)

(48) Hannah wurde gelobt.
'Hannah was praised.' (→ by one of the people evaluating her)

Taking the context dependency of PASS into account, the contextual restriction observed for x in (2) can be reframed as the requirement that in case of QVE, the existential quantifier has to be contextually restricted. I will leave further investigation of this question to future work.

In sum, the analysis for QVE with *größtenteils* from Section 2 and Bruening's account for short passives can not only be combined straightforwardly, the result is also a sensible first attempt at capturing the QV-interpretation of sentences like (2). Hence, QV-interpretations with *größtenteils* that involve the implicit agents of short passives cannot be seen as evidence that implicit agents are syntactically represented.

4. Conclusion

This paper started out with a new formal analysis for the semantic contribution of the German adverb of quantity *größtenteils* in cases of QVE with argument DPs. Following the general idea behind the analyses for QVE with English adverbs of quantity by Beck and Sharvit (2002) and Endriss and Hinterwimmer (2007), I proposed that *größtenteils* directly composes with the argument DP and quantifies over the parts of the totality contributed by that DP. The specific implementation of this idea for German *größtenteils* differed in both the syntactic and semantic details from the extant proposals for English. I showed that *größtenteils* plausibly does not have a fixed syntactic position but can adjoin directly below the DP with which it combines; and regarding its semantic contribution, *größtenteils* seems to be the direct adverbial counterpart to partitive *most* as analyzed by Matthewson (2001) and Crnič (2009).

In the second part of the paper, I extended the account to cases of QVE with implicit agents of short eventive passives. The motivation for this was to argue against the claim by Alexiadou and Müller (2018) and Müller (2019) that the availability of these QV-interpretations is evidence for the view that implicit agents are syntactically represented. I slightly adapted the proposal put forth in the first part of the paper to make it compatible with event predication in a Neo-Davidsonian event semantics. I then showed that the adapted proposal can be combined with the analysis of short passives in Bruening 2013 in such a way that the QV-interpretations observed by Alexiadou and Müller can be derived without assuming a syntactically represented implicit agent. This result, of course, does not show that the implicit agent cannot be syntactically represented. However, it shows quite clearly that there is no semantic necessity for the implicit agent to be represented in order to capture QVE with *größtenteils* and implicit agents.

References

Alexiadou, A. and G. Müller (2018). Externe Argumente und quantifikationale Variabilität im deutschen Passiv. In A. Wöllstein, P. Gallmann, M. Habermann, and M. Krifka (Eds.), *Grammatiktheorie und Empirie in der germanistischen Linguistik*, pp. 511–548. Berlin: De Gruyter.

Beck, S. and Y. Sharvit (2002). Pluralities of questions. *Journal of Semantics 19*, 105–157.

Berman, S. (1991). *On the Semantics and Logical Form of Wh-Clauses*. Ph. D. thesis, University of Massachusetts, Amherst, MA.

Bruening, B. (2013). By-phrases in passives and nominals. *Syntax 16*, 1–41.

Champollion, L. (2010). *Parts of a Whole: Distributivity as a Bridge between Aspect and Measurement*. Ph. D. thesis, University of Pennsylvania.

Crnič, L. (2009). On the (non-)cumulativity of cumulative quantifiers. In M. Prinzhorn, V. Schmitt, and S. Zobel (Eds.), *Proceedings of Sinn und Bedeutung 14*, pp. 117–133. Vienna.

Ebert, C. and S. Hinterwimmer (2010). Quantificational variability effects with plural definites: Quantification over individuals or situations? *Journal of Semantics 27*, 139–176.

Endriss, C. and S. Hinterwimmer (2007). Quantificational variability effects with plural definites: Quantification over individuals or situations? In S. Ishihara, M. Schmitz, and A. Schwarz (Eds.), *Interdisciplinary Studies on Information Structure (ISIS) 8*, pp. 1–59. Universitätsverlag Potsdam.

von Fintel, K. (1994). *Restrictions on Quantifier Domains*. Ph. D. thesis, University of Massachusetts, Amherst, MA.

Haider, H. (2017). *Mittelfeld* phenomena: Scrambling in Germanic. In H. van Riemsdijk and M. Everaert (Eds.), *The Blackwell Companion to Syntax, Vol. III*. Oxford: Blackwell.

Heim, I. (1982). *The Semantics of Definite and Indefinite Noun Phrases*. Ph. D. thesis, University of Massachusetts, Amherst, MA.

Hinterwimmer, S. (2005). *Q-adverbs as Selective Binders: The Quantificational Variability of Free Relatives and Definite DPs*. Ph. D. thesis, Humboldt-Universitt zu Berlin.

Hinterwimmer, S. (2020). Nominal vs. adverbial quantification. In D. Gutzmann, L. Matthewson, C. Meier, H. Rullmann, and T. Zimmermann (Eds.), *The Wiley Blackwell Companion to Semantics*.

Kratzer, A. (1996). Severing the external argument from its verb. In J. Rooryck and L. Zaring (Eds.), *Phrase Structure and the Lexicon*, pp. 109–137. Dordrecht: Kluwer.

Lahiri, U. (2000). Lexical selection and quantificational variability in embedded interrogatives. *Linguistics and Philosophy 23*, 325–389.

Lahiri, U. (2002). *Questions and Answers in Embedded Contexts*. Oxford: Oxford University Press.

Lewis, D. (1975). Adverbs of quantification. In E. Keenan (Ed.), *Formal Semantics of Natural Language*, pp. 3–15. Cambridge University Press.

Matthewson, L. (2001). Quantification and the nature of crosslinguistic variation. *Natural Language Semantics 9*(2), 145–189.

Müller, G. (2019). Can unaccusative verbs undergo passivization in German? In J. Brown, A. Schmidt, and M. Wierzba (Eds.), *Of Trees and Birds: A Festschrift for Gisbert Fanselow*. Potsdam: Universitätsverlag Potsdam.

Nakanishi, K. and M. Romero (2004). Two constructions with *Most* and their semantic properties. In *Proceedings of NELS 34*, pp. 453–467.

Nouwen, R. (2003). *Plural Pronominal Anaphora in Context: Dynamic Aspects of Quantification*. Utrecht: LOT Publications.

Sassoon, G. W. (2013). A typology of multidimensional adjectives. *Journal of Semantics 30*, 335–380.

Zobel, S. (2017). On the (in)definitenes of impersonal pronouns. *Linguistica 56*, 363–374.