**The Mass-Count Distinction, Davidsonian Events and the Other Non-Nominal Domains**

Friederike Moltmann

CNRS-Université Côte d’Azur

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**Abstract**

There is an emerging view according to which countability is not an integral part of the lexical meaning of singular count nouns, but is ‘added on’ or ‘made available’, whether syntactically, semantically or both. This view has been pursued in order to deal with classifier languages such as Chinese as well as challenges to standard views of the mass-count distinction such as object mass nouns such as *furniture*. I will discuss a range of data, partly from German, that such a grammar-based view of countability receives support when applied to verbs with respect to the event argument position (and other non-nominal domains). Lacking a morphosyntactic mass-count distinction, verbs fail to specify events as countable (single) entities. Instead countability is made available only through the use of the event classifier *time* or else particular lexical items, such as frequency expressions, German *beides* ‘both’, or the nominalizing light noun *-thing*. At the same time verbs (or VPs) come with a conceptual content that individuates events as having a boundary (integrity) or not and thus they display a semantic mass-count distinction. The verbal domain of events in this way displays a ‘dual ontology’ that may arise from the ‘grammatical-conceptual divide’ in Isabel Roy’s and Bridget Copley’s terms. The paper will go through several options of how to make sense of the notion of ‘grammaticized individuation’, as Susan Rothstein called it, without, tough elaborating a more formal and philosophically grounded account.

The question when something is has unity and counts as one or a single thing is as much a metaphysical question as a linguistic one: whether something has unity or is a single thing should be the basis for the applicability of predicates of number and of counting. In our ordinary ontology, being a single entity or being one (or having unity) contrasts with being many or being a plurality ‘as many’. It also contrasts with mere ‘stuff’ or ‘matter’ or, more generally, with being neither a single thing or a plurality of things, that is, being neither one nor many. In many languages being a single thing and in that sense being countable is reflected in a morphosyntactic mass-count distinction among nouns. The morphosyntactic distinction goes to a great extent along with the (in)applicability of number-related predicates and count quantifiers and anaphora. Other languages fail to display a morpho-syntactic mass-count distinction and often mark countability through the use of classifiers (Chinese). But the notion of being a single object and thus countability is also tied to lexical-conceptual meaning or so it seems. Concepts like being a chair, a person, an animal, a murder, the destruction of a house seem to clearly go along with the notion of being a single thing. Yet, that is not reflected in the nouns of a language like Chinese. It also fails to be reflected in called object mass nouns like *furniture, personnel, cattle*, which are mass even though they apply to pluralities of single of this sort. These have been. Yet, despite their apparent referents, such mass nouns still behave mas mass nouns in a range of respects. Thus, the syntactic mass-count does convey a notion of unity that may diverge of the ontology at the level of reality or even cognition. Such diverges as well as the apparent arbitrariness of the choice of mass or count (English *vegetables* - German *Gemuese* (mass)) have led some researchers in linguistics to view the mass-count distinction as a distinction in what Rothstein calls ‘grammaticized individuation’. It is a considerable and still outstanding task to deal with such diverges between the ontology reflected in grammatical categories and the ontology reflected in conceptual meaning and in cognition, setting aside the ontology of the real.

 One issue that has not been systematically looked at is how entities classify with respect to countability when they are described by categories that do not display a morphosyntactic mass-count distinction. In English and related languages, these are verbs (with respect to the implicit Davidsonian event argument position), clauses (with respect to the content bearer they are meant to describe), and adjectives (with respect to the tropes qualities they describe). This paper will show in detail that at least in English and related languages such categories behave, roughly, like object mass nouns or nouns in Chinese, requiring classifiers for countability, rather than dividing into mass and count based on conceptual content or the nature of the things denoted. This, it appears, generalizes to non-nominal categories in general, such as clauses and adjectives: non-nominal categories classify as mass rather than dividing into mass and count with respect to the criteria that constitute the mass-count distinction. The paper will discuss ways of making sense of the intuition of grammaticized individuation in contrast to the level of ontology reflected in conceptual meaning, without tough, developing a detailed account.

**1. The mass-count distinction: criteria and approaches to its semanic content**

The mass-count distinction is first of all a morphosyntactic distinction among nouns in languages like English. Mass nouns do not come with the plural count nouns do. NPs with mass nouns as head require singular agreement with verbs, plural NPs plural agreement. In addition, mass nouns select mass quantifiers like much and little, whereas plural NPs select plural determiners like many and few. Mass NPs select the light noun amount and deal; count NPs the light noun number. Facts like these constitute the syntactic mass-count distinction. There are a range of further criteria for the mass count distinction, which are less obviously purely syntactic in nature, yet they form standard criteria associated with the mass-count distinction as well. These include anaphora like *another* and the applicability of *one of the* N (for a noun N) to count NPs but not mass NPs (*John bought rice / a book. Mary bought another*). Similarly among the N can be applied only to plural NPs, but not to mass NPs (*The book* / ?? *The rice was among the things John bought*.). They also include the understanding of predicates: predicates of shape and size and extent are applicable to the entire denotation of a singular count NP (*the big house, the great lake*), but not a mass NP (\* *the big wood*, \* *the big water*) (Moltmann 2004). A criterion that applies less strictly is that predicates like *count* and *rank* are unproblematic with plural NPs (*John counted / ranked the pieces of wood*), but hard to apply to mass NPs (*John counted* / *ranked* ? *the furniture* / ?? *wood*) (Moltmann 1997).

 It is a generally (though not universally) held view, that the morphosyntactic mass-count distinction has semantic content and thus comes with a semantic mass-count distinction. That distinction, intuitively described, consists in that singular count nouns describe entities as single things or as being one, whereas plural nouns describe entities as many things, and mass nouns as beings that are neither one nor many. There are very different views as to how that distinction is to be elaborated, though. A traditional view, going back to Aristotle and Jespersen, is that count nouns describe entities as being a unified wholes or as being an integrated whole (perhaps relative to a situation, Moltmann 1997). A notion of an integrated whole also played a role in cognitive grammar. Thus, Langacker (1987) takes count nouns to denote bounded regions in some dimension, where boundedness may be merely conceived or virtual (Langacker 1987). A different approach, initiated by Quine and subsequently adopted by the majority of formal semanticists, makes use of general mereological properties of noun extensions. Roughly, singular count nouns have atomic extensions (no proper parts of entities in the extension of the noun are also in the extension in the noun); mass nouns have cumulative extensions (the fusion of two elements in the noun’s extension is again in its extension); and divisive extensions (an element in the extension has proper parts that are again in the extension). Plural nouns extensions being the closure under an operation of forming sums or pluralities, also are cumulative. Yet there have also been views on which the semantic mass-count distinction bears a more intimate connection to the use of mass or count categories themselves. This kind of view is what Rothstein (2017) calls ‘grammaticized individuation’. It far from clear, tough, how to best understand such a view. Rothstein own proposal consists in positing a semantic type distinction, which is not a distinction in ontology or individuation. I will later discuss several options of how the view may be elaborated.

**2. Verbs and the mass-count distinction**

**2.1. Traditional views of a semantic mass-count distinction among verbs**

Verbs in European languages do not come with a morphosyntactic mass-count distinction.[[1]](#footnote-1) Yet, it has been customary to apply a mass-count distinction to verbs, verb phrases, or sentences, dividing them into mass (activities and states) or count (achievements and accomplishments). Semanticists generally make use of the extension-based approach to the mass-count distinction; philosophers have focused on ontological distinctions between events, processes, and states (Stout 2018). Drawing a mass-count distinction in the verbal domain served particular semantic purposes, such as to explain the applicability and understanding of adverbials such as *for an hour, in an hour* and *suddenly,* that is,parallelisms according to which *run to the house, eat an apple* and *drink the wine* are telic and side with count nouns, and *run,* *run toward the house*, and *drink wine* are atelic and side with mass nouns. (Vendler 1957, Mourelatos 1978, Verkuyl 1972, Bach 1986, Dowty 1979, Krifka 1998, Champollion 2017). Those parallelisms, which also play a role in cognition (Wellwood, Hacquard, and Pancheva 2012)

 In the following, I will show that verbs classify as mass (or ‘non-count’) with respect to the various criteria associated with the morphosyntactic mass-count distinction. This is not to deny that at same time, Davidsonian events are individuated on the basis of the conceptual content of verbs, in terms of conditions of integrity or boundedness or the absence of it or by aligning with particular mereological properties of extensions. The same generalization holds, it seems, for any category that fails to come with a morphosyntactic mass-count distinction, but seems to describe entities, such as sentences and predicative adjectives.

 Verbs do not specify events as countable in the sense of permitting the applicability of number-related expressions and in that sense specify events as single things. This, however, is independent of the question of the parallelisms between extensions of count and mass nouns to telic and atelic event predicates that have been drawn in the literature. When Bach (1986) proposed that the verbal domain of events divide into a mass and a count domain parallel to that of the nominal domain, the criteria were not so much countability, the applicability of number-related expressions. Rather his interest were extension-based properties of complex event predicates that could explain the applicability of non-number-related adverbials.

**2.2. Mass-count criteria for verbs**

**2.2.1. Choice of adverbial quantifiers**

**2.2.1.1. The light nouns *amount* and *deal* vs. *number***

Here is a first generalization regarding the classification of verbs as mass, rather than dividing into mass and count when it comes to their Davidsonian event argument position. Across languages, simple adverbial quantifiers are generally formed with expressions that in the nominal domain apply to mass nouns, not count nouns. For count expressions to apply to the event arguments of verbs, they require the noun *time,* a generalization that holds not just for English, but crosslinguistically for corresponding nouns such as German *Mal*, French *fois*, Italian *volta*, Spanish *vez,* and Mandarin Chinese *ci* (Moltmann 1997, chap. 7.2., Doetjes 1997). Thus, *amount*-NPs (as I will call them) such as *a little bit*, *a great deal* can act as bare NP adverbs, but *number*-NPs (as I will call them) such as *a large number* and *a couple* require the addition of *times*:

(1) a. John slept a little bit / \* a couple / a couple of times.

 b. Last week, Mary worked out a great deal / \* a great number / a great number of times.[[2]](#footnote-2)

 c. John and Mary argued a good deal / \* a great number / a great number of times.

 d. John jumped a bit / \* a couple / a couple of times.

 e. John worked out a little bit / a great number / a great number of times this year.

*A little bit, a great/good deal,* can act as adverbial modifiers whether the verb describes bounded events (*jump*) or unbounded ones (*sleep, work, work out, argue*).[[3]](#footnote-3) *A little bit* and *a great deal* are mass quantifiers that are NPs syntactically (Kayne 2005) and thus bare NP adverbs (Larson 1985) with *a little bit* having the structure [a [Qlittle [Nbit]]]). *A great / large number* and *a couple* are count NPs of the very same syntactic structure, but for them to act as adverbial quantifiers ranging over events requires the addition of *times*.

**2.2.1.2. *Many, few* vs *much, little***

The choice of *little* and *much* as opposed to *few* and *many* appears to fall under the same generalization:

(2) a. John jumped too much / \* too many / too many times.

 b. John slept / worked too little / \* too few / too few times.

 c. John stumbled many / \* a few / a few times times.

 d. John slept / worked little / \* too many / too many times.

 e. John was inattentive too little / \* too many / too many times.

There is a different explanation for the unacceptability of *many/few* as opposed to *little/much* as adverbial quantifiers, however. *Little/much* and *few/many* can both occur in argument position, but then display quite different readings. Both can be used anaphorically and non-anaphorically. When used non-anaphorically, *little/much* range over anything whatsoever, whereas *few/many* range over human beings only, a generalization that holds for other languages such as German and Italian as well:

(3) a. Little was achieved.

 b. Too much was wasted.

(4) a. Few believe that global warming isn’t a problem.

 b. Many believe in god.

*Few/many* as bare quantifiers in argument position are not constrained to range over human beings only when used anaphorically that is when they relate to a previously uttered NP or a salient set of objects (deletion under identity):

(5) a. John ate too many / too few.

 b. John ate too much / too little.

(6) a. She saw many.

 b. She knows little.

Thus, (5a) and (6a) have only anaphoric readings, but not so (5b) and (6b).

 This difference can be explained in terms of Kayne’s (2010) light noun theory. Light nouns can stay silent without there being an antecedent, whereas full nouns can stay silent only through deletion under identity. *Little / much* take as restriction the silent light noun THING (whose denotation is anything whatsoever), whereas *few/many*, on a non-anaphoric use, take the light noun PERSON.[[4]](#footnote-4) By contrast, when used anaphorically *many/few* come with a full noun that has been deleted under identity, in the presence of an identical antecedent noun (which would of course also be the case for anaphoric uses of *little/much)*. Thus, the reason why *few/ many* are unacceptable as adverbials is already due to the fact that they could neither take PERSON as a restriction nor be used anaphorically, taking a noun that has been deleted in the presence of an identical antecedent noun.

 Note that *a large number* and *a couple* do not take light noun PERSON. Thus we get only an anaphoric reading below:

(7) ?? A large number believe(s) in god.

The point thus remains that count quantifiers cannot act as event quantifiers without the addition of *times*.

**2.2.1.3. Cardinal and ordinal numerals**

Cardinal and ordinal numerals behave just like count quantifiers, not being able to act adverbially without the addition of the event classifier *times*.

 Bare cardinals do not form adverbials ranging over Davidsonian events, but need to combine with the classifier *time*, and that regardless of the Aktionsart of the verb, that is, even with achievements and accomplishments:[[5]](#footnote-5)

(8) a. \* John died only one.

 b. John died only one time / once.

(9) a. \* John jumped three.

 b. John jumped three times.

(10) a. \* John ran to the house four.

 b. John ran to the house four times.

 Will come to the meaning of the event classifier *time* shortly.

 Cardinals numerals like *many/few* displaying an anaphoric reading as bare quantifiers. Unlike *few/many*, as bare quantifiers, they do not permit a non-anaphoric reading. Thus (11) cannot mean that John saw one person (i.e., saw someone) or that John saw one thing (saw something):

(11) John saw three.

This means that the reason for the unacceptability of (8a, 9a, 10a) is already the impossibility for cardinals taking a light noun in order to function as bare NP adverbs.

 Ordinals, however, do make a case for the requirement of countability specification for verbs with respect to the event argument position. Unlike cardinals, *first, second*, *third* etc. *can* act as adverbials, in particular in sentence-initial position when ranking the proposition asserted in a list of others (*Third, John stumbled*). But ordinal numerals cannot act as adverbials ranking the described event in a list of events of the same type. For that, they need to combine with *time(s)*:[[6]](#footnote-6)

(12) a. ??? Mary stumbled third(ly).

 b. Mary stumbled a third time.

(13) a. ??? John married second(ly).

 b. John married a second time.

The reason for the inability of ordinals to act as adverbials without the event classifier *time* thus appears to be due to verbs not specifying Davidsonian events as countable.

**2.2.2. The event classifier *times***

By specifying countability and thus making count quantifier and numerals applicable, *time* has the semantic function of a numeral classifier, as has been noted in the literature (Doetjes 1997, Landman 2006, Tovena 2012).[[7]](#footnote-7) *Times* ensures the countability of event units on the basis of various conditions holding of those units events (in the context). They are illustrated in the examples below:

(14) a. John stumbled three times.

 b. John slept three times today.

 c. Mary worked out three times this week.

 d. John owned the painting three times in his life.

 e. John was attentive three times.

*Times* picks out event units on the basis of one of three conditions obtaining:

[1] having an inherent boundary or being an integrated whole, given the event concept as in (14a)

[2] being maximally continuous in time, as in (14b, c, d)

[3] occurring at contextually given occasions, as in (14e).

*Time(s)* fails to apply when no such individuating conditions obtain, for example, under ordinary circumstances, below:

(15) ?? John knew Bill a few times.

The countability made available by *-times* thus does not come for free, but needs to be grounded in conditions that come with the events being described. Times thus applies to a plurality of events consisting of events that are integrated wholes, either by having an inherent boundary or by being maximally continuous processes or states, or by occurring (once) at independently individuated occasions. In the second case, the events are mereotopolgical integrated wholes, by being maximally self-connected with respect to the relation of temporal continuity, that is, R-integrated wholes (Simons 1987, Moltmann 1997):

(16) The Notion of an R-Integrated Whole (Simons 1987, Moltmann 1997)

 For a non-formal relation R, x is an R-integrated whole iff

 It appears that even in the first case, *times* imposes a condition of temporal separation on the event units, though one event may closely follow another:

(17) John coughed three times.

The observation is that *times* is inappropriate if the events described below are simultaneous:

(18) a. Three times, John moved a limb.

 b. Three times John invited a classmate to his birthday party.

Times thus imposes two conditions on an event plurality: that its members be integrated wholes (in one of three ways) and be minimally separated in time:

(19) The Meaning of the Event Classifier *Times*

 For an event plurality ee, time(s)(ee) iff for each e’, e’ < ee, e is an integrated whole and

 for any e’, e’’, e’ < ee, e’’ < e, e’ and e’ do not overlap in time.

 However, not all event classifiers in natural languages impose a condition of temporal separation. Some languages have event classifiers that only pick out natural units in a structured event, rather than imposing a condition on temporal separation. An example is Mandarin Chinese ‘turn’-type classiﬁers, as in (ia, b), which contrast with ‘time’-type classifiers, as in (ic) (Huang /Ahrens 2003):

(20) a. (dale) play-ASP san three tang CL taijiquan Tai-Chi yihou after ta s/he shenti body

 shufu comfortable duo more le LE

 ‘S/he feels much better after performing three rounds of Tai Chi.’

 b. dale play-ASP san three bian CL taijiquan Tai-Chi yihou after ta s/he shenti body

 shufu comfortable duo more le LE

 ‘S/he feels much better after performing three rounds of Tai Chi.’

 c. dale play-ASP san three ci CL taijiquan Tai-Chi yihou after ta s/he shenti body

 comfortable duo more le LE

 ‘S/he feels much better after performing three times Tai Chi.’

(20a) with *tang* and (20b) with *bian* are reported to better than (20c) with the time-based classiﬁer *ci.*

 By requiring a numeral classifier for the application of count quantifier or numerals, verbs (with respect to their event argument position) pattern just like nouns in languages such as Chinese (on the common view).[[8]](#footnote-8) In Chinese, likewise, natural units in the denotation of nouns influence the choice of individuating classifiers (Cheng / Sybesma 1999).

**2.2.3. Frequency adverbials as unity-introducing expressions**

Frequency adverbials may seem to pose a challenge to the generalization that count quantifiers do not apply to Davidsonian events directly. Frequency adverbials appear to be count quantifiers able to modify verbs without the presence of *time(s):*

(21) a. John stumbled frequently.

 b. John worked out frequently.

 c. John was frequently inattentive.

However, frequency adverbials do not presuppose countability, but rather introduce it or, better, make it available, just like *times*. That is because the adjective *frequent*, from which *frequently* is derived, can modify event mass nouns as in (22a, b) and not just event plural nouns as in (22c), as noted in Moltmann (1997, Chap. 5.1., p. 142ff):

(22) a. the frequent rain

 b. the frequent fog in this region

 c. the frequent rainfalls

*Frequent(ly)* introduces countability on the basis of the same conditions as the unity-introducing classifier *times*: inherent boundedness of events (16a), maximal continuity (16b), and connection to contextually given occasions (16c). Semantically, *frequent* thus decomposes, roughly, into what is conveyed by the event classifier *times* and a count quantifier (though *frequent* has more of a generic reading than *many times*, which is restricted to particular occurrences).

 *Frequently* is not the only unity-introducing quantifier able to apply to mass categories. Thus, in German, *vieles* ‘many’ and *manches* ‘some’ are quantifiers that are syntactically mass by being singular and requiring singular verb agreement; yet semantically they are are count, counting contextualy well-distinguished units (Moltmann 1997, Chap. 5, 156ff). *Vieles* has the meaning of ‘many’, counting well-distinguished subquantities of a quantity. *Manches* semantically acts as a count quantifier with roughly the meaning ‘at least two’; *manches* presupposes a distance in time, location, or quality space among the subquantities it counts. As a metrical quantifier, it contrasts with *viel* ‘much’ and *etwas* ‘some’. The difference between *vieles / manches* and *viel* manifests itself with predicates like *compare* (on the internal reading), which require discrete units and are possible with the former, but not the latter:

(23) a. Anna konnte vieles / manches Holz nicht unterscheiden.

 Ann was unable many / some woord

 ‘Anna was unable to distinguish many / some pieces / sorts of wood.’

 b. ??? Ann konnte viel / etwas Holz nicht unterscheiden viel.

 Ann was unable to distinguish much / some wood

 ‘Ann was unable to distinguish much / some of the wood.’

(23a, b) illustrate how the units may be distinguished contextually or in virtue of the nature of the substance. For example, *vieles* and *manches* in (23a) count either units of wood that are well-distinguished from each other in the context or else different types of wood; by contrast, *viel* and *etwas* in (23b) only have a measurement reading. *Vieles* and *manches* thus are mass quantifiers which presupposes the discreteness of the domain they apply to and make predicates like *distinguish* (on the internal reading) available. Though *vieles* and *manches* do not apply as adverbials to events, they illustrate the possibility for a quantifier to convey the discreteness of its domain by way of its lexical meaning.

**2.3. The German quantifier *beides***

Like frequency expressions, German quantifier *beides* ‘both’ is an expression that introduces countability lexically, and as such applies to Davidsonian events. *Beides* is a quantificational expression that occurs both in argument position and as a floated quantifier. It is syntactically singular, requiring singular agreement of the verb:

(24) Beides ist / \* sind unmoeglich.

 both is / are impossible

 ‘Both is / are impossible.’

*Beides* can act as an anaphor and as a floated quantifier, relate only to a mass DP, as in (25a), not a count DP, such as the collective DP in (25b):

(25) a. Hans trank den Wasser und das Bier. Er hat beides schnell getrunken.

 John drank the water and the beer. He has both quickly drunk

 ‘John drank the wine and the beer. He drank both quickly’.

 b. Hans traf ein Ehepaar. \* Beides ist Amerikaner.

 John met a couple. both is American

 ‘John met a couple. Both are Americans.’

The antecedent of *beides* needs to stand for two descriptively distinguished subquantities. This also holds when *beides* acts as a floated quantifier with a mass NP:

(26) a. Das Gold und das Silber kostet beides zu viel.

 the gold and the silver cost both too much

 ‘The gold and the silver cost both too much.’

 b. Hans kaufte Wasser und Bier. Das war beides sehr billig.

 John bought water and beer. it was both very cheap

 ‘John bought water and beer. They were both very cheap.’

 c. Der Schmuck in den zwei Schachteln kostet beides 100$.

 the jewelry in the two boxes costs both 100$

 ‘The jewelry in the two boxes is both 100$.’

*Beides* generally triggers a distributive interpretation of the predicate, as in (20a, b). *Beides*, moreover, makes number-related predicates applicable to mass NPs, that is, predicates that ordinarily cannot apply to mass NPs, such as *count, list*, and *enumerate*:[[9]](#footnote-9)

(27) Das Wasser und das Salz, Hans hat das beides / \*das mitgezaehlt / mitaufgelisted.

 The water and the salt, John has it (both) with counted : with listed

 ‘The water and the salt, John has that both / that counted / listed too.’

*Beides* thus introduces countability by way of its lexical meaning, similarly to *frequent(ly)*, *vieles* and *manches*. What is important in the present context is that *beides* can relate to Davidsonian events introduced by a conjunction of VPs, either as a floated quantifier of the mass pronoun *das*, as in (28a, b), or just anaphorically, as in (28c):

(28) a. Es blitzte und donnerte. Das hat beides nicht lange gedauert.

 It lightened and thundered. it has both not long lasted.

 ‘There was lightning and thunder. They did not last long.’

 b. Hans schrieb einen Brief und unterzeichnete ihn. Er hat das beides gestern gemacht.

 John wrote a letter and signed it. he has both yesterday made

 ‘John wrote a letter and signed it. He did it both yesterday.’

 c. Maria tanzte und malte. Beides hatte sie gerade gelernt.

 Mary danced and painted. both had she just learned

 ‘Mary danced and painted. She had just learned both.’

The ability of *das beides* to relate to Davidsonian events again shows that that verbs do not convey countability, but permit the application of an expressions that does, making available a plurality of two distinct entities based on the content of the event description.[[10]](#footnote-10)

**2.4. The light noun *–thing***

NPs with the light noun *–thing* (as in *something, everything, nothing*) appear to present counterexamples to the generalization that number-related expressions cannot directly apply to verbs with respect to their event argument position:

(29) a. John did two things: read a book and take a walk.

 b. John continued two things: reading and talking.

In (29a, b) two things appears to range over the event denotations of VPs, with *-thing* acting as a noun standing for anything whatsoever, including Davidsonian events. However, *-thing* appears to be like a numeral classifier in that it can apply to a mass domain, but when used as a count noun, it maps such a domain onto a countable one (Moltmann 2022). Below, we see that *one thing* can range both over mass noun denotations and plural denotations:

(30) a. Mary forgot one thing, the medicine.

 b. There is one thing Mary did not eat, the beans.

*-Thing* in general has a reifying force, which allows it to map entities that do not count as single entities to those that do (Moltmann 2016, 2022).

**2.5. Selection of relative pronouns in German**

The prediction that verbs classify as mass when it comes to criteria for the syntactic mass-count distinction is also supported by the choice of relative pronouns. German has two kinds of relative pronouns: w-pronouns (*was*) and d-pronouns (*der, die, das*). The generalization argued for in Moltmann (2022) is that light mass NPs (which contain the silent light noun THING) select w-pronouns, whereas light count NPs (with the silent count noun PERSON) select d-pronouns

(31) a. alles / nichts / etwas / das, was / \* das

 ‘all / nothing / something that / that’

 b. jeder, der / \* was

 ‘everyone who / what’

The observation then is that verbs always select w-pronouns rather than d-pronouns, regardless of their Aktionsart:

(32) a. Hans lachte / fiel, was / \* das er selten tut.

 John laughed / fell, what / that he rarely does

 ‘John laughed / fell, which he does rarely’.

 b. Maria tanzte und sang, was / \* das sie beides lange nicht mehr getan hatte.[[11]](#footnote-11)

 Mary danced and sang what / that she both long not more done had

 ‘Mary danced and sang, which she both had not done for a long time.’

This is a further indication that verbs classify as mass syntactically regardless of their lexical content and semantic environment.

**3. Event nouns and pluractionality**

While verbs do not come with a mass-count distinction and thus classify as mass (or non-count), event nouns as nouns do come with a mass count distinction and thus may specify events as countable. Deverbal nominalizations that are count thus do more than just pick up an event argument of a verb: they are unity-introducing like all count nouns. As with countability markers in general, the choice of mass or count for a deverbal nominalization is not arbitrary, but generally depends on how events are individuated on the basis of conceptual meaning. This involves ontological distinctions between events in the narrow sense, processes, and states (Barner/Wagner/Snedeker 2008). Deverbal event nominalizations that are mass generally are based on process or activity verbs (*laughter, rain, sleep*), whereas deverbal event nominalizations that are count are chosen either on the basis of verbs that describe events in the narrow sense (achievement or accomplishment) (*jump, crossing, death*) or else on the basis of event-individuating conditions obtaining, such as maximal temporal connectedness (*walk, speech, workout*).

 Pluractionality is an apparent marking of event plurality on verbs, which can be found, for example, in some Native American languages (Hendersen 2019, Cabredo-Hofherr 2021). The existence of pluractionality might suggest that verbs in the relevant languages display a morphosyntactic mass-count distinction, with some verbs being on a par with plural count nouns with respect their event argument position. This would be perfectly compatible with the generalization that verbs when they lack a morpho-syntactic mass-count distinction classify as mass rather than count: countability may in principle be conveyed by other categories than nouns. However, this does not actually seem to be what the research on pluractionality shows. According to Doetjes (2008) pluractionality consists less in the marking of countability, but of a general ‘increase’ of eventuality, not distinguishing between amount and number. If that is correct, then countability would in fact be reserved to nouns, as Doetjes suggests.

**4. Making sense of the grammar-based approach to unity**

Given the generalizations in the preceding sections, verbs in languages like English and German are on a par with nouns in classifier languages like Chinese (given the common view).[[12]](#footnote-12) That is, verbs in the languages in question fail to specify events for countability: for Davidsonian events to allow for the application of number-related expressions requires the use of a classifier, which specified countability generally on the basis of unifying conditions such as boundedness, maximal temporal contiguity or connectedness to particular individuals or occasions.

 Such grammar-based countability appears to involve a level of what Rothstein (2017) calls ‘grammaticized individuation’, rather than the individuation of entities (as single entities or unified wholes) at the level of conceptual content or the level of (language-independent) cognition, or of course reality. Whereas unity in cognition generally can be read off unifying conditions of integrity of one sort or another, this is not the case for the level of ‘grammaticized individuation’, where unity is not always derivable from actual or perceived unifying properties of entities (or from mereological properties of the extension of the expression used to refer to it (atomicity)). The notion of unity as conveyed by count nouns and classifiers is not tied to the property of being an integrated whole and the notion of a bounded event in particular. This matches findings in cognitive science: the cognitive division of entities into objects and stuff has been shown to precede the acquisition of language and is independent of the mass-count distinction as such (Chierchia 2015).

 Yet individuation at the level of conceptualization or cognition plays a role in semantics. It plays a role for the applicability of predicates like *count* to object mass NPs (*count furniture*); it plays a role in the possibility of distributive readings of predicates of size and shape when applied to object mass NPs (*large furniture, round hardware*). It also plays a role for the understanding of mass quantifiers like *little*, *much* or *more* which with verbs like *jump* may still ‘measure’ by counting ‘atomic’ events (Wellwood/Hacquard/Pancheva 2012, Barner/Snedeker 2005). Thus, counting bounded events is involved in (33):

(33) John jumped more than Mary.

However, mass quantifiers when applied to telic verbs do not always count individual events, but may measure them instead, for example in (34):

(34) John inhaled more than Mary.

 The question is how to make sense of grammaticized individuation as a level that plays a role in semantics for the application of numerals and other number-related expressions. If an entity is conceived as a single thing or if that entity is in fact a single thing, how can the use of language make a difference as to whether the thing counts as a single thing for the purpose of the application of number-related expressions? Let me go through some options in most general terms, focusing on their applicability to Davidsonian event arguments of verbs.

 First, there is a syntactic account of grammar-based countability, namely Borer’s (2015) theory of the mass-count distinction. On that theory, count DPs have a different syntactic structure than mass DPs, namely the very same structure as classifier DPs containing a classifier phrase. In English, that phrase is headed by a silent feature IND, which is spelled out as singular *a* or else plural morphology. Implicit event arguments of verbs should likewise require a classifier phrase, which now would be part of adverbials and be headed by *time(s).* One problem with this theory is that won’t account for the possibility of countability being made available by particular lexical expressions such as frequency expressions. Another issue is that the proposal would be unable to account for countability playing a role for semantic (rather than syntactic) selection, as would be need for predicates *is one of the* N, *is among the* N, and predicates of shape and size.

 Rothstein (2010, 2017) proposes an account of grammar-based countability, assigning count NPs and mass NPs different semantic types. The idea is that count nouns involve relativization to a contextually given set of entities, which serves to ensure that the referents the count noun be atoms with respect to that set (which allows referents of *fence* to be atomic in a context even if they have proper parts that are fences). By construing countability as contextual atomicity, Rothstein’s theory would allow for semantic selection. But like Borer’s theory, Rothstein’s does not allow for lexical expressions like *frequent* conveying countability. Types generally are taken to be associated with syntactic categories, not individual lexical expressions. There is also a general question why atomicity (with respect to a set, concept and perhaps context) should even capture the notion of being a single thing. (Moltmann 2025). There is nothing wrong with a single thing having a proper part of the same sort that is also a single thing, and thus countable. There is no difficulty counting Russian dolls and attributing infinity to the number of lines on a piece of paper or the amounts of water in a glass. The association of countability (single objecthood) with atomicity with respect to a concept or set in fact makes little sense, common, though, it is in semantics. At the same time, unity is not tied to the notion of an integrated whole, it is not clear how to understand it. There is not much of an answer can be found in the philosophical literature either. Perhaps, unity when it is not grounded in conditions of integrity should be viewed as mind-dependent, constituted by a cognitive act of unification. Count nouns such as *amount*, *quantity, portion, collection, configuration, constellation* thus may convey unity as something merely conceived or virtual. This would be much in the spirit of cognitive semantics. Thus, Langacker (1987) allows the, for him, unifying feature conveyed by count nouns, boundedness in some dimension, to be virtual, dependent on a cognitive operation. In what follows, I will therefore take unity to be simply represented by a predicate U, without analysing it further, in the context of this paper at least.

 Verbs display the conceptual-grammatical divide, just like object mass nouns such a *furniture* and *personnel* (Roy / Copley 2020). However, there is a way of viewing object mass nouns that could make sense of their mass status. Object mass nouns, on that view, describe pluralities of objects by involving different dimensions, one of which is foregrounded whereas the other consists of individual objects with their shape and boundary. The foreground involves features of function, purpose, and context, rather than the features of individuals of that make their boundaries. It would be features of the former sort that would constitute the sort of homogeneity that defines the content of mass nouns, and thus would be responsible for an intuitive contrast between *faculty* and *faculty members*, *fruit* and *pieces of fruit* etc. An account of that sort would not be available, though, for Davidsonian events: the conceptual content of telic verbs describes events as having a boundary just as much as the corresponding nominalization.

 Making use of the feature U, as a primitive feature of being a single entity, there are two options of how to make sense of grammar-based countability semantically. One of them, pursued in Moltmann (2021), is based on a particular, plenitudinous ontological view: for any entity that is a single entity there is also one minimally different from it by not being a single entity (by being described by a non-count expression). In that ontology, what is described as ‘the loaf of bread’ and ‘the (same) bread’ would be different entities, as would be ‘the portion of rice’ and ‘the (same) rice’, and an event described by a verb and an event described by *time* + verb would be different as well. Using a count noun, classifier, or lexical item conveying unity means selecting a unified whole, rather than its non-single correlate.

 A less ontologically involving option is to make use of a particular kind of representation that keeps exactly track of the information that is given about an entity, in particular regarding whether an entity has the feature U of being a single thing. Let’s say that such a representation consists in a situation (or situation type) *s* which represents the referent of an NP either as having U or not, depending on whether the NP involves a classifier, a singular count noun or specific lexical expressions conveying countability. Predicates like number words will then apply not just to an entity, but to an entity x relative to a situation s, the pair <x, s>. On that view, roughly, (singular) *time* would denote a (partial) unit-introducing function, mapping an event e and a situation s, to a pair <e, s> as follows:

(35) [*time*](e)= <e, s>, where S’ = {s | s⎥⎥- <U, e>}, if e is bounded, maximally continuous in

 time or connected to a contextually given occasion.

Here < is a part-of relation and ⎥⎪- is the relation of exact truthmaking of Fine (2017), which captures the relation of a situation representing exactly the content of a sentence or structured proposition <U, e> (that is s⎥⎪- p just in case s makes p true and is wholly relevant for the truth of the structured proposition p). Similarly, *beides* would be a unity-introducing expression of roughly the following sort:

(36) The semantics of the German mass pronoun *beides* ‘both’

 For an entity e and a situation type S,

 [*beides*](e) = <e, s>, where s ⎪⎥- <AND <U, e1>, <U, e2>>, for distinct entities e1 and

 e2 such that e = e1 ⊕ e2 and e1, e2 have a boundary or are maximally connected in s.

Here ⊕ is the operation of formation of forming pluralities, mapping an entity to their sum or more generally the plurality of their parts.

 The semantics of plural nouns will involve sum formation of but of both individuals and sums. Thus for a plural noun Nplur, for entities x and x’ and situations s and s’, if N(x, s) and N(x’), then Nplur(x⊕x’, s⊕s’). A predicate like among would then apply to two pairs <x, s> and <x’, s’>, where x and x’ are pluralities of fusions of entities that have unity in s and s’ respectively. As formulated here, the distinction between mass and count nouns looks like a type distinction (mass nouns apply to entities, count nouns to pairs consisting of entities and situation), but the proposal can easily be cast in such a way that all predicates apply to individual-situation pairs, with count expressions like *time* involving a mapping of a pair <e, s> to a pair <e, s’>, where s’ is minimally different from s in that e has U in s’.

**5. Other non-nominal domains**

Not only verbs, but also other non-nominal categories fail to display countability regardless of the nature of their denotations. One such category is clauses.[[13]](#footnote-13) Verbs taking clausal complements take *amount-*NPs, but not *number*-NPs, though they accept *–thing*-NPs (even in the plural):

(37) a. John assumes that he will succeed and become famous.

 b. John assumes a great deal / amount.

 c. ?? John assumes a great number / a couple.

 d. John assumes many things.

Clauses in German also choose w-pronouns, not d-pronouns:

(38) Hans glaubt, dass es regnen wird, was / \* das Mary auch glaubt.

 ‘John believes that it will rain, which Mary believes too.’

Similar observations can be made for adjectives in predicate position and NPs that are used non-referentially (intensional NPs and pure quotations), and that even if the entities they stand for appear to form a countable domain of propositions, properties, or expression types. This again supports the generalization that countability for the purpose of the application of number-related expressions requires an explicit specification of countability and does not come for free.

 Another non-nominal category displaying the same behavior is adjectives. Adjectives as complements of copula verbs do not support plural anaphora when conjoined; they can be replaced only by mass quantifiers or quantifiers with the light noun *thing* and take *wh*-relative pronouns, rather than. D-pronouns in German:

(39) a. Hans wurde erfolgreich, was Bill auch wurde.

 ‘John became successful, which Bill became too

 b. John became \* many / many things that I don’t like.

There is an issue whether predicative adjectives denote properties or qualities or rather particularized properties, that is, tropes. But regardless of that, the generalization, it is safe to say, is that non-nominal categories classify as mass rather than count.

**6. Outlook**

There has long been a view that countability as conveyed by count nouns and classifiers does not reflect lexical content or the individuation of objects, but is added on and thus contributes to a level to grammaticized individuation. The prediction of the view when applied to syntactic categories that fail to display a mass-count distinction are very clear: such category cannot convey countability in that sense. Given various criteria that go along with the mass-count distinction, we have seen that verbs in fact classify as mass, rather than count, despite the fact that that the conceptual content of verbs reflects the distinctions of events into bounded events and unbounded processes and states). That distinction that reflects countability at the level of conceptual or cognitive individuation, and as such plays a role in semantics as well. Davidsonian events thus display a dual ontology that can go along with the grammatical-conceptual divide.

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1. This does not seem to hold for languages with pluractionality markers on verbs. I will come to the phenomenon of pluractionality later (Section 6). [↑](#footnote-ref-1)
2. *A great deal* for some speakers sounds better with verbs than *a great amount*; the latter is generally fine with event nouns, though:

(i) a. ? John worked a great amount

 b. great deal / amount of work

 c. a good deal / amount of arguing

The same holds for German *eine Menge* ‘a great amount / number’:

(ii) a. eine Menge Arbeit

 a amount work

 ‘a great amount of work’

 b. ?? Hans hat eine Menge gearbeitet.

 John has an amount worked

 ‘John has worked a great amount.’ [↑](#footnote-ref-2)
3. There are some restrictions regarding the verbs to which *much* and *little* can apply, depending on the nature and the structure of the events described. For example, *much* and *little* are rather bad with stative verbs (as opposed to adverbials like *strongly* or *well*):

(i) a. ??? Mary believes little / too much that it will rain tomorrow.

 b. ??? John knows French too much.

They are also bad when applied to verbs describing bounded events:

(ii) ??? The bird died little.

But if the verb is sufficiently neutral, *little* can also apply when a single achievement is described:

(iii) Little happened, only the bird died.

Mass quantifiers in general require some degree of homogeneity of the domain to which they apply. The fact that there are constraints on the domain to which event mass quantifiers can apply does not go against the generalization that verbs go with mass quantifiers rather than count quantifiers. [↑](#footnote-ref-3)
4. See also Moltmann (2022) on the light nouns PERSON and THING. [↑](#footnote-ref-4)
5. *Once* and *twice* obviously are morphological composites, composed of a number root *on-* and *tw*- and morpheme *–ce*. *Once* and *twice* have been analysed by Kayne (2015) as containing silent *time*, as *on-time-ce* and *tw-time-ce*. Kayne argues that the morpheme *–ce* is a preposition ‘at’ and silent *time*, which, Kayne argues, is singular even with *tw*, a numeral classifier. Note that other languages use instead of morphologically complex *once* and *twice* syntactically complex adverbials (French *une fois, deux fois*, Italian *una volta, due volte* etc). [↑](#footnote-ref-5)
6. In English, ordinals can occur adverbially ranking an even participant with respect to other individuals playing the same thematic role with respect to the same type of event:

(i) a. John entered first.

 b. Mary died third.

However, here *first* and *third* act as subject-oriented secondary predicates, not as event predicates, just like *fully dressed* and *poor* below:

(ii) a. John entered fully dressed.

 b. Mary died poor. [↑](#footnote-ref-6)
7. *Time(s)* also exhibits syntactic properties characteristic of individuating classifiers, such as not allowing adjectival modifiers (Cheng/Sybesma 1999):

(i) a. ??? John stumbled three unusual times.

 b. ??? We met three beautiful times. [↑](#footnote-ref-7)
8. Cinque (2006) argues that temporal measure words such *years* and *days* also act as numeral classifiers in English. [↑](#footnote-ref-8)
9. Plural anaphora in German, by contrast, won’t permit a conjunction of mass NPs as antecedent:

(i) a. Hans trank das Wasser und das Bier. Er trank es (beides) / ?? sie schnell.

 ‘John drank the wine and the beer. He drank it both / them quickly.’

 b. Hans kaufte Reis und Salad. (Das) beides / ?? Sie brauchte er fuers Mittagessen.

 John bought rice and salad. that both / them needed he for lunch

 ‘John bought fruit and salad. He needed both / them for lunch.’

That is because German plural pronouns require a plural antecedent syntactically (Moltmann 2022). [↑](#footnote-ref-9)
10. *Beides* differs from plural anaphora, which cannot take conjoined verb or VPs as antecedents, including in English (Geis 1975):

(i) ??? Hans oeffnete die Tuer und schloss das Fenster. Er tat sie vor einer Stunde.

 ‘John opened the door and closed the window. He did them an hour ago. [↑](#footnote-ref-10)
11. Note in (32b) the floated mass quantifier *beides.* [↑](#footnote-ref-11)
12. Bale and Gillon (2021) show that there are some quantifiers in Chinese that do not require classifiers. But this may just mean that countability may be specified lexically, as with frequency adverbials and German *beides*. [↑](#footnote-ref-12)
13. It has been argued that clauses sometimes are headed by a DP-node (Kastner 2015), but this does not entail countability marking. [↑](#footnote-ref-13)