Metaphysics First or Language First: The Notion of a Single Object

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1   Introduction

The notion of a single object or of being one is an important notion in metaphysics, and it is presupposed by any account of the notion of number in the philosophy of mathematics. The notion of being a single object contrasts with that of being a mere plurality, a plurality 'as many', as well as with the notion of mere 'stuff' or, as it is somewhat misleadingly called, a 'portion' or a 'quantity'.[1]

In philosophy, general attention has been focused on the notion of an object as such, rather than that of a single object.[2] There are two approaches concerning the notion of an object (as such). A metaphysics-first view takes objects to be given independently of language (and often leads to skepticism concerning whether language involves reference to objects at all). The second, language-first view takes the notion of an object to be defined on the basis of language, as in the Fregean definition according to which an object is what a referential noun phrase (NP) may stand for.

The notion of a single object has received much less attention than the notion of an object as such. The notion of a single object has a particularly obvious linguistic reflection, in the use of singular count NPs in English and the use of numeral classifiers in certain languages such as Chinese. In general, the use of a singular count NP is required for attributing number-related properties to an object. The use of a singular count NP is *in general* accompanied by the obtaining of worldly unifying conditions in respect of the relevant object. But this is not *invariably* so: we also find a range of uses of singular count categories that define single entities *without* such worldly unifying conditions being in place. In these cases, the choice of a count or non-count category appears arbitrary, or at least not grounded in the obtaining of worldly conditions. Linguists have referred to this phenomenon as 'grammaticized individuation' (Rothstein 2017) or 'language-driven ontology' (Moltmann 2021). Philosophically such cases seem particularly suited to an application of linguistic idealism, according to which, as applied here, single objecthood ought to be strictly shaped by our linguistic access to entities, not found in the world independently of that access. This means that the way in which the property of being a single object is conveyed in natural language should be viewed as the product of a mental/linguistic faculty, rather than as a mind- and language-independent property of objects. The salient fact here is that there is a range of linguistic devices whose *sole* purpose is to convey unity, and in fact to *impose* unity. There are two general approaches to the content of the mass–count distinction in natural-language semantics: the extension-based approach (which goes

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[1] The term 'quantity' for the elements in the extension of mass nouns is due to Cartwright 1970; see also ter Meulen 1981. 'Quantity', however, is a singular count noun and thus necessarily unable to stand for the same things as a mass noun, as will be discussed.

[2] An exception is Priest 2015, who gives an in-depth philosophical discussion regarding the notion of being one (but only in contrast to being many (pluralities as many), not to being one nor many (stuff)).

back to Quine) and the integrity-based approach (which can be traced to Aristotle). Neither of them, I will argue, captures the notion of a single object in its generality.

In the next section I will outline the general background regarding the relation between language and reality, where we may distinguish three views: first, what one might call the 'naïve view' of the relation between language and reality; second, more recent and still very common stances of skepticism regarding that relation, in particular Chomskyan skepticism (I will propose a way of addressing some of the Chomskyan examples); third, a re-emerging interest in connecting language and reality, such as Peacocke's (2019) project of the primacy of metaphysics and Gaskin's (2021) project of linguistic idealism. The present contribution examines a particular case to which linguistic idealism applies especially well, without necessarily endorsing the more radical view as such. As will be pointed out later on in the paper, the linguistic facts are actually complex, displaying multiple layers of absence or presence of single objecthood and requiring us to distinguish between *conceptually driven* and *syntactically driven oneness*.

2   Background: The relation between language and reality

This paper bears on the very general topic of the relation between language and reality. Briefly, three broad views can be distinguished concerning how language relates to reality. On an older, naïve view, which is at least that of ancient and medieval metaphysics and philosophy of language, but also of many philosophers afterwards (including Frege), language mirrors reality and is accordingly a guide to ontology. Frege's (1884) definition of an object (in a linguistically updated version) is a particularly clear manifestation of that view:

(1)   <u>Frege's definition of an object</u>
          An object is what a referential NP may stand for.
I will get back to the Fregean definition shortly.

Since the mid-twentieth century, there has been a significant shift toward a different view regarding language and reality. Given the wealth of highly derivative and suspect objects that natural language seems to introduce with its referential terms (typical students, windows, holes, flaws, problems, homes, etc.), many philosophers, taking metaphysics to be about what there really is, have turned away from language as a guide to ontology, focusing on foundational metaphysics instead without appeal to language, which on their view does not 'carve nature at its joints'.

Some linguists have also adopted a skeptical stance towards the relation of language to reality, most notably Chomsky (1986, 1998, 2013).[3] According to Chomsky, natural language abounds in referential NPs that fail to stand for objects when used by a speaker. For Chomsky, typical students, windows, holes, flaws, problems, and homes cannot be objects in the real world. One argument for this view, which Chomsky along with a significant literature following him deploys, appeals to apparently contradictory property attributions that entities such as towns, colleges, windows, books, and houses display (Pustejovsky 1995, Collins this volume). Thus, a book can be both interesting and heavy; one can enter through a window, but the window can also be replaced; a town can be destroyed, yet remain once it has been rebuilt.

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[3] See also Pietroski (2017) and Collins this volume.

Chomsky's skepticism hinges on a particular presupposition regarding how reality is to be understood, namely as a (mainly) mind-independent physical domain containing entities that meet standard conditions of individuation.[4]These conditions include having a single location in space at a time and displaying consistency of property attributions. But recent developments in metaphysics provide responses to at least some of the challenges to referentialist semantics. These responses include theories of ontologically dependent objects, minor objects, and mind-dependent objects, plenitudinous or permissive conceptions of reality, theories of grounding that permit different levels of reality, and theories of possible, nonexistent, and fictional objects. Given such developments, a wealth of possibly highly derivative objects can no longer be regarded objectionable as such: we now have ontological theories regarding at least a good part of the examples that originally gave rise to skepticism about the connection between language and reality; these theories do not always adopt standard conditions of object individuation, of course.

Let us take an example that itself raises the issue of unity, though in a way that is orthogonal to the mass–count distinction, as we will see (Section 4.2.). This is the widely discussed example of the noun 'book', or more generally that of an artifact that permits multiple physical realizations. A referential NP with 'book' as its head permits apparently inconsistent property attributions, such as being interesting (a property of contents) and being heavy (a property of material objects), and these attributions may even occur in a single conjunction:

(2)   The book is heavy and interesting.

Assuming that properties of material objects and of contents cannot be had by the same 'real' entities, the conclusion of Chomsky and many other linguists following him is that 'the book' in (2) cannot stand for a single, 'real' object. A number of researchers thus take 'the book' to be polysemous, standing for both a content and a material object, or else to stand for a merely conceptual object. There are various proposals concerning how such a polysemy is possible with a conjunctive predicate as in (2), e. g. the view that book stands for an underspecified conceptual object, say a dot object in the sense of Pustejovsky 1995, that is to say, an entity that will be mapped onto a specific object when the relevant predicate is evaluated. Other arguments for the apparent polysemy of 'book' are based on the two different ways of counting books: as contents ('John read exactly one book') and as concrete copies ('There are three books on the shelf'). Furthermore, whereas the location of a particular concrete copy seems unproblematic, the book as an information object could not share that location, since it is abstract and thus lacks a location in space; moreover, it could not have multiple locations—the locations of all the material copies at the time.[5]

Contemporary metaphysics does not generally share the presupposition of linguists that reality divides into the material and the abstract. Metaphysicians rather have long recognized artifacts as mind-dependent objects that as such can bear both properties appropriate to material objects and content-related properties imposed by an act of creation (Ingarden 1931, Thomasson 1999). And proposals have been advanced to deal with the counting and the location problems. One of these proposals is Fine's (1999, 2020) notion of variable embodiment. Fine

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[4] Chomsky in fact extends his skepticism even to merely conceived objects as what a referential NP may stand for: even those could not actually be viewed as objects, on his view (Chomsky 1998, p. 17).

[5] See Liebesman and Magidor 2017 for further discussion of the counting problem with 'book' and an account of the apparent polysemy of 'book' based on principles of property inheritance.

takes a variable embodiment to be an object that comes with a 'form', which is a function mapping times to material manifestations of the object at those times. Thus, a book considered as a variable embodiment comes with a (partial) function mapping times at which the book exists to pluralities of concrete copies of the book. The concrete copies not only have a material constitution, but also a content, just like concrete artifacts in general. The book itself will inherit its location at a given time from its manifestation at that time, and thus it may come out multiply located—which need not be considered problematic. When counting a book, either the variable embodiment as such is counted or its manifestations at relevant times. Fine's notion of a variable embodiment thus provides a way of unifying objects that come with multiple realizations.

There is another argument, not discussed in the literature, to the effect that artifactual nouns like 'book' stand for single objects, rather than being polysemous, standing, in a way, for pluralities of content-based and material things. The argument is that for artifacts there are generally predicates that can hold only of the 'entire' object, not the material object or the content object as such. For books a case in point would be:

(3)   The book appeared last year.

Material objects do not 'appear' in the same sense, and contents do not appear either. Other predicates applying only to the book 'as a whole' are 'was reprinted several times', 'sells well' and 'was on the bestseller list' (disregarding e-books).[6]

There is one case in which predicates of artifacts have been discussed that could not be viewed as properties of the associated concrete physical (or mental) object or the information object: these are predicates of entities like requests and decisions, which are non-enduring products of acts of requesting and deciding, as Twardowski (1911) would say, that is, artifacts that lack a material realization (see also Ulrich 1967, Moltmann 2019). A request can be 'fulfilled', but neither an act nor a proposition can be 'fulfilled'. A decision can be 'carried out'; but neither a (mental) act nor a proposition can be 'carried out'.

Contemporary metaphysics no longer presents a univocal picture of reality as a physical domain containing objects individuated in terms of their unique spatio-temporal location. Instead, it recognizes a rich panoply of various sorts of ontologically dependent objects; more generally it recognizes different levels of grounding, as well as mind-dependent and social objects of various sorts; not to mention views involving even more permissive or plenitudinous conceptions of reality.[7]

There has also been a renewed interest in establishing a close connection between language and reality. Thus Peacocke (2019) advocates the primacy of metaphysics, arguing that the metaphysics of a domain is involved in the explanation of the meaning of sentences concerning that domain. Peacocke's view is a metaphysics-first view, based on the assumption of a language- and mind-independent reality consisting of domains of objects and their properties. By contrast, Gaskin (2021) advocates a linguistic idealism according to which, roughly, reality is shaped throughout by our linguistic access to it. Gaskin's view is a language-first view, in the sense that reality is partly constituted by how we describe it through language.

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[6] Further arguments against polysemy have been put forward by Brody and Feinman 2023.
[7] For the latter see Hawthorne 2006, Eklund 2008, Schaffer 2009.

The contribution of this paper falls within a language-first view, without, though, necessarily endorsing the radical version presented by Gaskin.

3   The notion of a single object

We can now turn to the main topic of this paper, the notion of a single object. Let us first review Frege's notion of an object, repeated below:

> (4)   <u>Frege's definition of an object</u>
>
>   An object is what a referential NP may stand for.

Here I have replaced Frege's 'name' by 'referential noun phrase (NP)', a notion well-established in linguistics. Definite and indefinite NPs may be referential NPs, but whether an occurrence of an expression in a sentence is a referential NPs depends also on its syntactic position as well as on whether the predicate is existence-entailing ('exist', 'think about', 'imagine' are not existence-entailing, 'tree'; 'house', 'sleep', 'run', are existence-entailing). A further criterion for status as a referential NP is support of anaphora. Here care needs to be taken to distinguish ordinary pronouns that can be used anaphorically ('it', 'he', 'she') and special NPs, such as 'that' and 'the same thing', which can be used with a reifying force, as we will see (Section 4.2).

As mentioned, Frege's definition of an object does not define the notion of a single object, but just the notion of an object, a being, as one may say. That is because on Frege's definition, semantic values of definite mass and plural NPs come out as objects as well. Definite plural and mass NPs as in (5b, c) are generally considered referential NPs of the very same sort as singular count NPs as in (5a):[8]

> (5)   a. The house is on fire.
>
>   b. The students collaborate.
>
>   c. The water is in the bottle.

Philosophers when discussing Frege's definition of an object generally take that definition to define single objects. In fact, contemporary semantic analyses of definite plural and mass NPs generally just treat their semantic values as single entities. This holds for extensional mereological theories of the semantics of plurals and mass nouns (Link 1983, Ojeda 1993, Champollion and Krifka 2019), as well as non-extensional, integrity-based mereological theories (Moltmann 1997, 1998). On both sorts of semantic theories, the definite NP 'the students' stands for the sum of the contextually relevant set of students and the NP 'the water in the bottle' for the maximal portion of water in the bottle. For the semantics of plurals, this contrasts with plural logic, which posits genuine plural variables for pluralities ('as many') (McKay (2006), Yi (2005, 2006), Oliver and Smiley (2013), and Moltmann (2017). For mass nouns, it contrasts with a recent proposal to use genuine mass variables for the quantities, distinct from individual variables (McKay 2017). See Section 5.

Extensional mereology takes the semantic values of singular count, plural and mass NPs to be (single) entities in three domains each ordered by its own part relation: the count-noun-specific part relation applying to individuals ('subatomic parts'), the plural-specific part relation

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[8] For an overview of linguistic research on the mass count distinction see Doetjes 2012 and Pelletier and Schubert 2012. For empirical, especially crosslinguistic research on the mass-count distinction, see the edited volumes of Moltmann 2019 and Filip 2020.

applying to sums of individuals, and the mass-specific part relation applying portions or quantities, which are the entities taken to be in extension of mass nouns:

(6)   a. The domain of individuals: $(D, <)$, where $<$ represents the count-noun-specific part relation

b. The domain of pluralities: $(SUM_{<p}(D), <_p)$, where $<p$ represents the plural-specific part relation

c. The mass domain: $(M, <_m)$, where $<_m$ represents the mass-noun-specific part relation

Here $SUM_{<p}(D)$ is the closure under sum formation of the domain D, with respect to the plural noun-specific part relation. On this account, pluralities and quantities are treated as single entities on a par with individuals, even though three distinct domains with their category-specific specific part relation are distinguished. The same holds for the integrity-based theory of Moltmann (1997, 1998), which does not need to distinguish between three different part relations of for individuals, pluralities, and quantities.

The problem with mereological semantic theories of plurals and mass nouns is that the semantic values of definite plural and mass NPs do not semantically act as single objects or as 'one'.

Let us first go through some of the standard criteria for the mass–count distinction. One important criterion for singular count nouns is that they come with a plural; mass nouns don't. Equally important is the applicability of cardinal and ordinal numerals to count nouns, but not mass nouns:

(7)   a. the first house, one house, a number of houses

b. * the first wood, * one wood, * a number of wood

A related criterion is the applicability of number-related predicates such as 'is one of them' or 'are numerous', which are strictly excluded with mass NPs:

(8)   a. Joe is *one of* the children at this school.

b. The students are *numerous*.

(9)   a. ??? The rice was one of the meals offered in the evening.

b. ??? The rice was numerous, so everyone got a portion.

One question that the criteria of the applicability of number-related modifiers and predicates leaves open is whether they are based on syntactic or semantic selection. The mass–count distinction, after all, could just be on a par with gender in languages like German, involving relatively arbitrary category selection that serves the purpose of syntactic agreement (Bale/Gillon 2021).

But there are number-related linguistic phenomena relating to the mass–count distinction in English that can hardly be viewed as a matter of syntactic agreement. One of them is the applicability of verbs of counting, listing, and ranking, that is, verbs describing cardinal- and ordinal-number-related actions (Moltmann 1997, 2016). It can be observed that predicates like 'count', 'list', and 'rank' are impossible with mass nouns like 'wood' or 'gold' (even in a situation in which there are clearly distinct piles of wood or gold); by contrast, 'count' not that bad with collective NPs like 'class', on the internal reading (according to which we are concerned with the members of the group rather than the group as a whole), though 'count' is worse with 'orchestra' or 'art collection':

(10)   a. John counted / listed / ranked the students

b. John (?) counted / ?? listed / ?? ranked the class.

b. ?? John counted the wood / gold.

c. ?? John counted the orchestra / art collection.

The constraints on the application of predicates of cardinal- and ordinal-number-related actions are clearly not syntactic but semantic in nature.

There is another phenomenon relating to the mass–count distinction that can clearly only be semantic in nature, and that is the understanding of existence predicates. (11a) and (11b) can be used to deny the existence of an object, a concrete object in (11a), an abstract object in (11b). Now plural NPs and mass NPs do not permit a reading denying the existence of an object beyond the plurality or the stuff itself (Moltmann 2016):

(11)　a. The house Bill mentioned does not exist.

　　　b. The round circle does not exist.

(12)　a. The buildings do not exist.

　　　b. The set / sum / collection / fusion of the buildings does not exist.

(13)　a. The rice does not exist.

　　　b. The portion / quantity of the rice does not exist.

(12b, 13b) can be used to deny the existence of single entities that are sets, sums, collections, portions, and quantities. By contrast, (12a) and (13a) cannot be used to deny the existence of single entities, call them 'quantities' or 'sums', as single entities beyond the 'stuff' or the individuals that make them up. That is, (12a) cannot be used by a philosopher, say, to deny the existence of a set, sum, collection, or fusion, unlike (12b). Likewise, (13a) cannot be used to deny the existence or portions or quantities, as entities distinct from the rice itself. Without there being a fundamental semantic distinction, the different ways in which existence predicates are understood could hardly be explained.

The different interpretations of existence predicates show that the distinction between singular count NPs and plural/mass NPs is truly a semantic distinction. A singular count NP refers to a single object whose existence can be denied as a thing beyond what makes it up (material or stuff, individual members).

The most common approaches to the mass–count distinction do not actually capture that distinction, and they come with other serious difficulties. Let us briefly turn to those approaches and their problems.

4　Standard views of the mass-count distinction

Two main approaches in contemporary natural-language semantics to the content of the mass–count distinction can be distinguished. Given the close connection between a singular count noun and the notion of being a single object, these are also two corresponding approaches to the notion of a single object, as opposed to pluralities and quantities: the extensional mereological approach and the integrity-based approach.

4.1　The extensional mereological approach

The extensional mereological approach is the most common approach in linguistics, though it goes back to Quine (1960). On that view, single objects are defined as atoms relative to a concept (or predicate), as entities that fall under the concept, but do not have any proper parts that also fall under the concept:

(14)   *x* is a single object = *x* is an *atom* relative to a concept (predicate) *C*, i.e.,
        C(*x*) and for no *y*, *y* < *x*, *C*(*y*).

What distinguishes singular count nouns from both plural nouns and mass nouns is that all elements in the extension of singular count nouns are atoms.

The extensional mereological approach makes use of distinct part relations for the domains of individuals, pluralities, and quantities. The extension of a plural noun N_{pl} is defined as the closure under sum formation (with respect to the plural-specific part relation) of the extension of the singular count noun N. Plurals nouns thus can have non-atoms in their extension (pluralities of more two or more entities from the extension of the singular noun). Mass nouns are generally contrasted with singular count nouns as not containing atoms in their extension. The latter condition faces a well-known problem, the minimal-parts problem. Thus, the extension of 'water' does contain atoms given that parts of individual H_2O molecules are no longer water. Responses to that problem include weakening the condition characterizing mass nouns as non-atomic, by, for example, requiring that mass nouns are not perceived as containing atoms or that mass nouns do not necessarily contain atoms.[9] The difficulty with those responses is that they won't deliver an account of the intuitive notion of a singular object, which is simply not something falling under a mass noun.

There are other well-known problems for the extensional mereological account. They include the difficulty applying the account to the following types of nouns:

(15)   a. Entity nouns: 'entity', 'being', 'thing'
        b. Sequence-type nouns: 'sequence', 'line', 'fence'
        c. Collection nouns: 'collection', 'sum', 'group',
        d. Portion nouns: 'portion', 'quantity', 'amount'
        e. Part nouns: 'part'

A part of an entity is still an entity and thus the count noun 'entity' is not atomic, and since the sum of two entities is again an entity, 'entity' is cumulative (Moltmann 1997, p. 19, 1998 p. 81) Likewise, a part of a sequence may still be a sequence (Rothstein 2017). Furthermore, a part of collection may still be a collection, and so for portions and parts.

One may argue that ordinarily definite NPs with a noun of one of these classes as head are used in contexts in which they refer to a unique (often maximal) object in the context. This seems supported by the way uniqueness of the referent is understood in the following examples:

(16)   a. The sequence he wrote down is short.
        b. The fence he had built is white.
        c. The portion of wine in the bottle is small.

In fact, there is a proposal in the literature capturing that generalization about ordinary uses, namely Rothstein's (2017) account of count nouns.[10] Rothstein proposes that count nouns are

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[9] See Pelletier and Schubert 2012 for discussion.

[10] Zucchi and White 2001 address a related issue, the fact that NPs like 'a sequence', 'a twig', etc. do not lead to homogenous predicates that would allow for the application of *for*-adverbials, as in (ia). They also note that 'some peas' does not lead to a homogenous predicate, as in (ib):

        (i)   a. ??? 'For two hours, John constructed sequences/ ??? a sequence'
                   b. ??? For one hour, John ate some peas.

Their formal proposal does not target the mass–count distinction, but rather the interaction with temporal measure adverbials, and (ib) makes clear that the phenomenon is in fact a distinct one.

to be relativized to a contextually given set, so that atomicity will have to obtain just with respect to that set rather than the entire extension of the count noun. This also means that count nouns are type distinct from mass nouns, and it is that type distinction that, on Rothstein's account, ensures the selection of numerals (not atomicity as such). The fact, however, is that NPs with a noun of one of the classes in question can also be used so as not to describe atoms relative to a contextually given set. Thus, (17) is perfectly fine semantically:

(17) Looking at this line on the paper, there are in fact infinitely many lines on the paper.

Natural language as such does not exclude such uses count nouns, and it is a task for semantic theory to account for them. In fact, the association of the notion of an atom with countability or being a single object is problematic in the first place: even if there infinitely many lines, they are still countable, as in fact it was just stated. Similarly, there is no problem counting subportions, subquantities, parts of fences and walls, etc.

4.2   The integrity-based approach

The second approach makes central use of the notion of having a boundary, a form, a structure, or some other form of integrity for the notion of a single object. The notion of form or of an integrated whole goes back to Aristotle and has been revived by Simons (1987) against the background of the then dominant extensional mereology.[11] Inspired by Simons (1987), the notion of an integrated whole was applied to the mass–count distinction and a great range of other natural- language phenomena in Moltmann (1997, 1998, 2006). The integrity-based approach to the notion of a single object says, in one form or another, that being one mean being an integrated whole (of one sort or another). Of course, an important question is what is an integrated whole? There are different notions of integrity, which include notions of form, of having a boundary, and of function. As discussed in Simons (1987), it is hard (if it is even possible) to give a general definition of an integrated whole. A very simple notion of an integrated whole should suffice as an example, namely the notion of an entity consisting of maximally connected parts, an R-integrated whole (Simons 1987).[12] x is an R-integrated whole if and only if: for any y and x, if $y < x$ and $z < x$, then $yR'z$ and for no y, $\neg y < x$, there is a z, $z < x$ such that $yR'z$, where R' is the transitive closure of R. A special case of an entity with maximally connected parts is the sum of entities sharing a particular property, a notion I will come back to later.

An integrity-based account of the content of the mass–count distinction says that count nouns, but not mass nouns, convey properties of integrated wholes such as having a boundary or form. Such an account found already in cognitive semantics (Langacker 1987). The situation-based variant of integrity-based approach says that count nouns but not mass nouns convey properties of integrity relative to a situation (Moltmann 1997, 1998).

The integrity-based approach relativized to a situation offers an account of sequence-type nouns in that maximal sequences will come out as integrated wholes in a situation not

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[11] The notion of form is also central in the work of Neo-Aristotelian metaphysics, e.g., Koslicki 2015.

[12] What unifies a whole may also be function or purpose, see Schaffer and Rosen 2017.

containing their proper parts, the integrity-based correlate of Rothstein's (2017) account of context-relative atomicity. However, statements like (17) pose the same problem as for the extensional mereological account. Moreover the integrity-based account still faces problems with collection nouns and portion nouns when their application does not require any worldly or perceived integrity as below:

(18)   a. the sum of this pen and the Eiffel Tower

           b. the lower-half portion of the water in the glass

           c. the quantity of wood from which this chair and that table are made

In such cases no worldly or even perceived integrity conditions seem to be required for the referent counting as one.[13]

One might suggest stronger conditions on unity, such as conditions permitting re-identification over time. However, sentences conveying re-identification over time do permit mass NPs (Cartwright 1970), illustrated below:

(19)   a. This is the same gold that that we looked at yesterday.

           b. This is the same piece / amount of gold that we looked at yesterday.

(20) The very same material was used for the chair and then later for the table.

The most natural reading of (19a) and (20), though, is a kind reading of the mass noun (which turns it into a count noun). However, portion reading of such examples, though harder to get, do not seem to be excluded.

One might suggest that a stronger condition could ensure that the object in question is a single object, namely a condition imposing the 'form' or function that goes with variable embodiments. But in fact, variable embodiments need not be single objects. For again, mass NPs can stand for variable embodiments, e.g., 'faculty', 'medical staff', allowing for predicates comparing manifestations over time:

(21)   a. The faculty / medical staff has increased.

           b. The organization of the material has changed.

The integrity-based approach also shares certain problems with the extensional mereological approach. Both the extensional mereological approach and the integrity-based approach have difficulties with types of mass, so-called object-mass NPs such as 'clothing', 'footwear', 'police force', 'faculty'.[14] Object-mass nouns denote, it seems, pluralities of individuals (single things). Yet object-mass nouns pattern with other mass nouns at least in the more syntactic respects (no plural, no selection of count determiners). The choice of object–mass nouns instead of count nouns is to an extent arbitrary, both within a particular language and across languages, as the following alternations in English indicate: 'clothes' – 'clothing',

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[13] Some of the nouns in (15) require (contextually given) integrity conditions to obtain on ordinary uses. Thus, the singular count noun 'thing' generally requires the entities it applies to be integrated whole of some sort, as illustrated by the following contrast (Moltmann 1998, p. 87):

  (i) a. ?? This thing is apple.
      b. This thing is an apple.

This also holds the singular count noun *part* ('The sauce is part of the meal', ?? 'This sauce is a part of the meal').

[14] Cohen 2020 shows that object mass nouns by no means constitute a marginal class. They may in fact be formed in a productive way morphologically, as is the case in French.

'shoes' – 'footwear', 'police force' – 'policeman'/'-woman', 'faculty' – 'faculty members', a point emphasized by Chierchia (1998, 2015) and Rothstein (2017).

There is an alternative to using singular count nouns for conveying the notion of a single object, namely so-called individuating classifiers (Doetjes 2012, Cheng and Sybesma 2005). Languages such as Chinese that fail to have a syntactic mass–count distinction use individuating classifiers instead of count nouns. But classifiers are also used in languages with a syntactic mass–count distinction, for example in English 'head of cattle' and 'amount of wine', 'head' and 'amount' act like individuating classifiers.

On the basis of the data given above, we may say that the following generalization holds. For referring to something x as 'one thing', x need not fulfill any conditions of integrity or atomicity whatsoever. Anything can be conceived or referred to as a single thing. Similarly, any plurality of however well-individuated things can be referred to as a mere 'quantity' with a suitable mass noun. The use of a singular count noun suffices for picking something out as a single thing or defining something as a single thing.

In fact, this view is further corroborated by the existence of particular devices in at least some languages, which can serve the purpose of singularizing a plurality or quantity. In English we have the light noun 'thing', used as a singular count noun as below:[15]

(22)   a. John thought of only *one thing*, his children.
          b. John forgot *two things*: the water and the wine.
          c. Joe ate only *two things*, the peas and the nuts.

In (22a) the light noun 'thing' introduces a single thing on the basis of a plurality, in (22b) it introduces single things on the basis of two portions, and in (22c) it introduces single things on the basis of two pluralities.

There is also an expression in English that, in one of its uses, has the very opposite effect, namely dissolving the unity conveyed by a singular count noun. This is the adnominal modifier 'whole' as in the examples below (Moltmann 1997, 2005):

(23)   a. The whole collection is expensive.
          b. The collection is expensive.

On the relevant reading 'whole' has the effect in (22a) of stating that each of part the collection is expensive. This reading is not available for (22b), and that is because distributive readings of predicates are generally excluded with NPs referring to single entities.

Recall also that for a range of entities, the choice of an (object) mass noun or a plural noun appears rather arbitrary, within a language and across languages.

Referring to something as a single entity or not is thus a matter of using a particular linguistic category or expression, rather than picking up on an independently available individuation of an entity as a single thing or not a single thing. This matches general intuitions in fact: there does not seem to be anything in the world that renders a piece of clothing a single thing or just 'clothing'. It can be conceived either way. This then supports a view of linguistic idealism about the notion of a single object: referring to something as a single thing does not mean referring to something through a property of being one, but rather introducing something as a single thing. Being one does not require any constitutive conditions, albeit it often does go

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[15] See Moltmann 2022 on the 'reifying' force of special quantifiers like 'one thing'.

along with them. Being an integrated whole facilitates being conceived and referred to as one, but this is neither necessary nor sufficient.

There are some semantic processes for which integrity (of a particular sort) and being a single object align. For example, the choice of count or mass nominalizations of verbs generally depends on the Aktionsart of the verb, rather than being arbitrary (Barner, Wagner, and Snedecker 2008). Another example is the meaning of 'time' as a classifier for events: when applied to non-telic verbs, 'time' generally selects maximal temporally continuous states / activities as countable event units (Moltmann 1997, chap. 5):

(24)   a. John slept a few times today.

b. Joe lived in Paris a few times in his life.

Integrity aligned with countability can also be achieved by the use of descriptions.

(25)   John ate the chocolate and the honey. He ate them / both quickly.

Them and *both* in (25) pick out maximally connected quantities based on sharing a property, quantities that classify as single entities.

Conversely, there are places in natural language semantics where lacking integrity and not being a single object align. One such phenomenon, the semantic process going along with the conversion of certain count nouns into mass nouns, has been called 'the universal grinder' (Pelletier and Schubert 2012). Thus, turning the count noun a*pple* ('many apples') into a mass noun *apple* ('more apple') goes along with the loss of integrity:

(26)   a. Joe put more apples into the salad.

b. Joe put more apple into the salad.

But the existence of such semantic processes does not mean that single objecthood and integrity as such coincide.

5   Consequences for semantic theory

What does the distinction between objects that are one, objects that are many, and objects that are neither one nor many mean for formal semantics? The question has been addressed in the literature, but mainly for the case of the distinction between plurals and singular count nouns. Thus, a number of philosophical logicians have argued against the mereological account of plurals on which definite plurals stand for sums (or sets). They argued instead that definite plurals involve genuine plural reference, reference to several entities at once. This goes along with the use of genuine plural variables in plural logic, variables that may take as values several entities at once (McKay 2006, Oliver/Smiley 2013, Yi 2005, 2006). There has been much less formal work on mass nouns in that respect, except for McKay 2017). Thus, McKay (2017) proposes a logic for mass reference and quantification, which makes use of distinctive variables for 'stuff', as distinct from quantities, which are single entities.

We have seen that whether something is referred to as a single object or not is to some extent arbitrary. This leaves two options as to what that means for the conception of reality itself. First, one may adopt a plenitudinous conception of reality, according to which reality will consist both in the single object and the same thing lacking unity. Second, one may adopt a version of linguistic idealism according to which being one is imposed through the use of language, such as by the use of a singular-count category or numeral classifier. There is one piece of support in favor of the latter. This is the generalization that reference to single objects without the use of a singular count noun or classifier is basically impossible. That, however, is

not what one would expect if the world itself made available single objects as readily as it made available their correlates that lack single objecthood. After all, definite descriptions can be incomplete and need not convey all of the essential properties of the intended referent. If a single object was just as much available as its non-single counterpart, then a definite description should be able to pick out a single object when just the information about its being a single thing was missing. But that is impossible: a mass NP in general cannot be used to refer to a single thing. This indicates that single objecthood is introduced, not selected. That is, uses of count nouns and classifiers introduce unity; they do not pick it up. Here linguistic idealism comes in: the notion of a single object is not grounded in reality, but in language / the mind. Linguistic idealism provides an explanation of why the mass–count distinction displays what has been called 'grammaticized individuation' (Rothstein 2016) or a level of 'language-driven ontology' (Moltmann 2021).

6   Complications: multiple levels

We have seen that count-noun uses and uses of classifiers set up entities as single things, in part, but not always, based on conditions of integrity. The linguistic facts, however, are more complex than we have indicated so far. Natural language semantics displays not just a single level of language-driven ontology, but multiple levels. In particular, individuation conveyed by language may take place at the conceptual and the lexical level, allowing for mismatches at the two levels. This is part of a more general grammatical–conceptual divide, mismatches of individuation displayed by grammar and by lexical content, which appear in a range of linguistic phenomena (Copley and Roy 2022).

One example of the involvement of the two levels with respect to the notion of unity are object–mass nouns such as 'furniture', 'police force', 'faculty'. Object–mass nouns are mass nouns syntactically, yet they appear to stand for single entities, 'composing entities', as I will call them. There are generally count nouns available for the composing entities (even if of a more specific sort: 'chair', 'table' for 'furniture'). With object–mass nouns the mass category does not erase the level of countability of the composing entities. But object–mass nouns themselves do not permit numeral modifiers:

(27)   a. * many furniture, police force
         b. * The furniture is numerous.

The countability of the composing entities is apparent in various ways. One of them is the marginal applicability of predicates of counting:

(28)   ? John counted the furniture / the police force / the faculty.

Predicates of counting, though, become less acceptable if the mass noun conveys overall structure or function:

(29)   a. ?? Mary counted the décor / the furnishing.
         b. ?? Joe counted the content of the bowl.

'Décor' and 'furnishing' can be object–mass nouns, if what they apply to is composed of well-individuated entities. 'Content' and 'target' are relational nouns and describe their referent in relation to another entity, and their referent may be composed of well-individuated entities. Yet predicates of counting are difficult to apply. Obviously, the reason is that these mass nouns convey weak conditions of overall integrity (involving, say, distribution or function) which

makes the composing entities less accessible. Note that singular count nouns hardly accept predicates of counting, including relational nouns as in (29b):

(30)   a. ?? John counted the orchestra.

          b. ?? Mary counted the target of the flashlight / the topic of conversation.

Another way in which the countability of the composing entities of object–mass nouns matters involves quantitative comparison:

(31)   There is more furniture in this room than in that room.

The comparison in (31) appears to be based on counting, rather than on measuring volumes. That means that the composing entities have a countable status even though no count noun has been used, and that countability can be established at a conceptual level beneath the countability conveyed by syntactic categories or functional expressions (classifiers). How is this fact to be understood? Concepts may convey properties defining integrated wholes, and these may, but need not, attribute the additional property being one. 'Furniture' describes collections of integrated wholes and in the context of (31), those integrated wholes count as single things. Yet that will not suffice for the application of numerals.

There is another range of cases where countability is established at a conceptual level, not by the use of a singular count category, and that is syntactic categories that lack a mass–count distinction, such as verbs, *that*-clauses, and predicates (Moltmann 1997). In general, in these cases, natural language chooses mass quantifiers and numeral classifiers, rather than treating the category in question as either mass or count depending on conceptual content. This is illustrated for event quantifiers below:

(32)   a. John fell three times /* three.

          b. John slept three times / * three.

(33)   Mary fell too much during practice, but not as much as Sue.

Even though a mass quantifier is used in (33), its evaluation is based on counting events, not measuring them (say intensity of falls).

Another case of a mismatch is the German quantifier 'beides' ('both'). 'Beides' applies to pluralities of two only, yet syntactically it is singular and can apply only to an antecedent than is mass, such as a conjoined mass NP, not a plural NP. 'Beides' below applies to two maximal portions as countables, like 'thing', but unlike 'two things' in (22b), 'beides' stays singular:

(34)   Hans trank das Wasser und den Wein. Er hat beides (sing.) schnell getrunken.

          'John drank the water und the wine. He drank both quickly.'

'Beides' here relates to two portions that count as single entities due to the fact that they are described as maximal portions falling under the property given by the description and thus count as integrated wholes. The mass status of 'beides' and its antecedent is further supported by the fact that 'beides' in (34) can be replaced by 'das beides' ('that both'). 'Das' is a mass pronoun syntactically, taking 'das Wasser und den Wein' as its (mass) antecedent.

To sum up, natural language displays unity at different levels; at a conceptual level, where unity may be overridden by conditions of integrity, at the level of the use of descriptions, and at the level of syntactically imposed unity (through the use of singular count nouns or numeral classifiers). Conceptually conveyed unity enables the application of predicates like 'count' and comparatives based on counting; description-based unity enables the application of German 'beides'; and syntax-driven unity enables the application of numerals and of such

predicates as 'numerous' and 'is one of them'. While unity when conveyed syntactically is strict; conceptual meaning and definite non-singular count descriptions may, but need not, be connected to unity. When they are so connected, unity is added to conditions defining integrated wholes.

Mismatches in countability at different linguistic levels pose a significant challenge for a formal semantic analysis. If they require positing multiple ontologies at once, then, it seems, standard compositional semantics has to be significantly revised.

7   Conclusion

The more linguistics and the natural sciences have developed, the more the connection of language to reality seems to have become obscure. Philosophers and linguists alike tend to presuppose a conception of a mind-independent reality that is remote from what appears to be reflected in natural language, leading Chomsky and other linguists to the view that referential NPs do not serve to pick out objects at all. Linguistic idealism sheds a very different light on the issue. If reality is shaped throughout by our linguistic access to it, apparent discrepancies between language and reality are to be attributed to the level or type of language, rather than a general disconnect between language and reality. This paper has not endorsed linguistic idealism and its consequences for debates about natural-language semantics as such. Its aim has rather been to show that the notion of a single object needs to be understood as a notion imposed by the use of natural language (including possibly its conceptual or descriptive level), rather being found in reality as such. The fact that the notion of being a single object in natural language so obviously applies without conditions of integrated wholes being in place supports the idea of a unity-conveying mental faculty rather than that of a language- and mind-independent property. Language displays unity as linguistically imposed even if at a conceptual level it generally aligns with real (worldly) integrity. In particular, unity is a notion that is not strictly dependent on worldly or even merely perceived conditions of integrity being in place. The notion of a single object thus gives a particularly striking piece of support for linguistic idealism.

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