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Introduction: Vagueness and Ontology

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Abstract The article introduces a special issue of the journal *Metaphysica* on vagueness and ontology. The conventional view has it that all vagueness is semantic or representational. Russell, Dummett, Evans and Lewis, inter alia, have argued that the notion of "ontic" or "metaphysical" vagueness is not even intelligible. In recent years, a growing minority of philosophers have tried to make sense of the notion and have spelled it out in various ways. The article gives an overview and relates the idea of ontic vagueness to the unquestioned phenomenon of fuzzy spatiotemporal boundaries and to the associated "problem of the many". It briefly discusses the question of whether ontic vagueness can be spelled out in terms of "vague identity", emphasizes the often neglected role of the difference between sortal and non-sortal ontologies and suggests a deflationary answer to the ill-conceived question of whether the "ultimate source" of vagueness lies either in language or in the world.

Keywords Ontic vagueness · Vague identity · Problem of the many · Spatiotemporal boundaries · Sortal concepts

1 Vagueness: Representational or Ontic?

If there is a minimal consensus on what the core phenomenon of vagueness is, then it is probably the view that vagueness is a semantic property of linguistic expressions. Vague terms, it is said, are tolerant to marginal changes, admit of borderline cases, give rise to the paradox of the heap and thus challenge bivalence. These are all properties of linguistic representations. Peirce and Russell have argued that non-linguistic representations, such as pictures and photographs, can also be vague. This view still accords with the common wisdom that all vagueness is representational.

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Every now and then, however, it has been suggested that in addition to semantic or representational vagueness, there might be an "ontological" or "metaphysical" kind of vagueness. Can worldly objects be vague? Russell has argued that the idea is absurd, since "vagueness and precision alike are characteristics which can only belong to a representation. They have to do with the relation between a representation and that which it represents" (Russell 1923, p. 85). Dummett has sung the same tune: "the notion that things might actually *be* vague, as well as being vaguely described, is not properly intelligible" (Dummett 1975, p. 111). Lewis too finds ontic vagueness absurd: "The only intelligible account of vagueness locates it in our thought and language" (Lewis 1986, p. 212). Later, he made the distinct and weaker claim that the ontology of vague objects is "unparsimonious and unnecessary", since the "problem it was made to solve might better be solved another way": We just "never quite made up our minds" what exactly a term that allegedly designates a vague object applies to (Lewis 1993, p. 169). Evans has devised a much-discussed one-page argument against the assumption of "vague objects", which proceeds via a reductio ad absurdum of the notion of vague identity (Evans 1978). Sainsbury rejects the "thesis of 'ontic vagueness'" on the grounds that, after searching far and wide, he found no "clear and substantive thesis to the effect that the world itself, as opposed to our language or concepts, is vague" (Sainsbury 1994, p. 63).

In recent years, however, a growing minority of philosophers have suggested that the idea of vagueness in the world is not absurd. The debate has evolved under numerous headings, such as "vague objects", "vagueness in reality", "vagueness in the world", "vagueness in nature", "ontic vagueness", "ontological vagueness", "metaphysical vagueness", "metaphysical indeterminacy", "worldly indeterminacy", "referential indeterminacy", "indeterminacy *de re*", "vagueness *in rebus*", "vagueness in nature", "mereological vagueness", "vagueness of composition", plus, deplorably, "vague identity", "indeterminate identity" and "vague existence".[1]

I do not wish to claim that all these phrases purport to designate the same phenomenon. The sheer multitude of labels illustrates that there is as yet no established terminology in this field. Probably there exists no unitary phenomenon of "ontic vagueness". Be that as it may, there are recurrent themes that suggest considerable coherence among the contributions to this volume—themes such as the problem of the many, the unintelligibility objection to ontic vagueness,[2] the notion of vague identity, the relevance of spatiotemporal boundaries and the search for an "ultimate source" of semantic vagueness.

2 The Unintelligibility Objection

The strongest objection to ontic vagueness is that it is *categorially absurd*, *incoherent* or *unintelligible*. The locus classicus of this objection is Bertrand Russell's paper on vagueness from 1923. Russell argues as follows:

[1] Almost all of these phrases can be found in the titles of the books and papers in the list of references. For an overview over the debate, see Sainsbury (1989), Zemach (1991), Tye (2000), Edgington (2000), Morreau (2002), Williamson (2003), Akiba (2004), Rosen and Smith (2004), Hyde (2008), and Barnes (2010).

[2] In this introduction, I will use the expressions "metaphysical vagueness" and "ontic vagueness" interchangeably.

> There is a certain tendency in those who have realized that words are vague to infer that things also are vague. We hear a great deal about the flux and the continuum and the unanalysability of the Universe […]. This seems to me precisely a case of the fallacy of verbalism—the fallacy that consists in mistaking the properties of words for the properties of things. Vagueness and precision alike are characteristics which can only belong to a representation, of which language is an example. They have to do with the relation between a representation and that which it represents. Apart from representation, whether cognitive or mechanical, there can be no such thing as vagueness or precision; things are what they are, and there is an end of it. Nothing is more or less what it is, or to a certain extent possessed of the properties which it possesses. (Russell 1923, pp. 84–85)

Attributing a property "which can only belong to a representation" to some nonrepresentational item is to commit a category mistake. Worldly objects, according to Russell, are just not the kind of things that vagueness can be predicated of. Now, what are Russell's arguments for this view? At the end of the quoted passage, we find three claims.

(a) "Things are what they are, and there is an end of it."—That's true enough.
(b) "Nothing is more or less what it is."—A truism, again, unless the allegedly obscure idea of vague objects is spelled out by the more obscure idea of "vague identity".
(c) "Nothing is […] to a certain extent possessed of the properties which it possesses."—The first part of this claim, i.e. that nothing is to a certain extent possessed of properties, is being disputed by the supporters of fuzzy logic, who assume degrees of property possession. The added relative clause, "which it possesses", however, turns the claim into a tautology. Objects have the properties they have to precisely the degree that they have them, whether that degree be 1 or 0 or some value in between.

It seems that far from providing a substantive argument against the possibility of ontic vagueness, Russell's unintelligibility objection does little more than remind us of a linguistic fact about the established use or meaning of the word "vague". The word has such heavy semantic connotations that it sounds odd to apply it to nonrepresentational items. The question is whether this oddity reflects some deeper mismatch. So let us change the wording: Few would deny that ordinary physical objects can have "fuzzy", "blurry" or "unsharp" boundaries, both spatially and temporally. These terms can apply to both representational and nonrepresentational items. As soon as we change the wording from "vague" to "blurred" and its cognates, the impression of categorial absurdity vanishes.

Both representational and nonrepresentational items can have fuzzy boundaries. "Boundary" is a key word, since spatial phenomena are its original area of application. Did I say "area of application"? Yes, the spatial metaphor permeates the semantic discourse. Assigning "extensions" to predicates is modelled on the activity of spatial demarcation, and so it is no accident that Frege compared concepts ("Begriffe") to areas ("Bezirke"). There seems to be no nonmetaphorical way to conceptualize the area of application of linguistic or mental representations. "Sharp-

edged", "clearly defined", "delineated", "outlined"—the topographical metaphor is everywhere. Frege went on to argue that ill-defined concepts are, strictly speaking, a *contradictio in adiecto*.[3] In other words, he denied that concepts can be vague on the basis of the topological analogy.

It seems that the unintelligibility objection does not go very deep. Plausibly, physical objects cannot be vague *in the very same sense* that linguistic expressions can be. A pivotal question in the debate on ontic vagueness is how the vagueness of linguistic expressions and the fuzziness of spatiotemporal boundaries *relate* to one another.

Another detail in the much-quoted passage from Russell deserves attention. Russell insists that "vagueness and precision alike" pertain only to representations. Hence, being precise cannot be a property of nonrepresentational items either. As a general characteristic of categorial absurdity, the logical feature of *surviving denial* has often been described in the philosophical and linguistic literature.[4] The implication of this feature for the defence of the representational view of vagueness, however, has often been overlooked. The unintelligibility objection works equally well against the view that, at bottom and independently of our conceptualizations, reality is precise. If worldly items cannot be vague for categorial reasons, then, say, elementary particles cannot be said to be precise or clean-cut either. Hence, those who reject ontic vagueness on the grounds that vagueness does not go that deep must state their view more carefully than Quine, who describes his ontology of physical objects as a "tight-packed and mostly nameless ontology of intrinsically precise entities" in an "elusive and recalcitrant but clean-cut reality" (Quine 2000, p. 424). Thus, he uses "precise" as an epithet of "entity" and "clean-cut" as an epithet of "reality". These locutions are deeply infelicitous, and Quine's explanation that, given the spatiotemporal identity condition for physical objects, each physical object "is uniquely identical to itself" (ibid.), is no remedy. Identity to itself cuts as little ice against ontic vagueness as Russell's observation that "things are what they are, and there is an end of it."

Note further that according to Russell, vagueness and precision alike "have to do with the relation between a representation and that which it represents", rather than being intrinsic features of representational devices. On this "relational" view, being vague and being precise are best seen as *adverbial* characterizations of representational operations: Objects are represented, specified, designated, described or singled out more or less precisely. Widespread as it is among the foes of vague objects, talk of "precise objects" is at best elliptical.

[3] "We may express this metaphorically as follows: the concept must have a sharp boundary. If we represent concepts on extension by areas on a plane, this is admittedly a picture that may be used only with caution, but here it can do us good service. To a concept without sharp boundary there would correspond an area that had not a sharp boundary-line all around, but in places just vaguely faded away into the background. This would not really be an area at all; and likewise a concept that is not sharply defined is wrongly termed a concept." (Frege 1903, p. 159 [§ 56]).

[4] "We might try to define the category-inappropriateness of a predicate to an individual directly as follows: an individual *i* and a predicate *P* are category-mismatched if, and only if, *P* and the denial of *P* are alike a priori rejectable for every adequate identifying designation of *i*." (Strawson 1970, p. 190)

3 Vague Identity

Some philosophers have tried to spell out the idea of vague objects in terms of "vague identity".[5] Here is one version: "The thesis that there can be vague objects is the thesis that there can be identity statements which are indeterminate in truth-value (i.e. neither true nor false) as a result of vagueness […], *the singular terms of which do not have their reference fixed by vague linguistic means*" (Garrett 1988, p. 134).

I dare say that of all nonrepresentational accounts of vagueness, the vague identity view is the least attractive, since it is the most vulnerable to the unintelligibility objection. Since I cannot discuss the various versions of the vague identity view in detail, a few offhand remarks must suffice here: First, you surely cannot make the identity relation vague by flanking the identity sign with terms that denote vague objects. A fortiori, you cannot make the identity relation vague, or demonstrate that it is vague, by precisifying the term on the right-hand side differently than the allegedly co-designating term on the left-hand side of the identity sign. Nor can you make identity vague by insisting that no precise object can be identical with a vague object. We knew before and independently of the problem of vagueness that this cannot be, since two objects are never identical to one another, while one object is always identical with itself, identity being that one-place relation that everything, be it vague or not, has to itself and to no other thing. As Lewis has aptly put it:

> Identity is utterly simple and unproblematic. Everything is identical to itself; nothing is ever identical to anything except itself. There is never any problem about what makes something identical to itself; nothing can ever fail to be. And there is never any problem about what makes two things identical; two things never can be identical. (Lewis 1986, pp. 19–23)[6]

Nor does it help to assume some object *a* is only "vaguely identical" with *b*. Here is an abbreviated version of Evans' argument: "For if *a* is only vaguely identical with *b*, something is true of it—that it is only vaguely identical with *b*—that is not true of *b*, so, by Leibniz's Law, it is not identical with *b* at all" (Noonan 2011, sct. 8).

Many defences of the vague identity view argue that identity statements with referentially indeterminate singular terms are indeterminate in truth value. Claiming, however, that such indeterminacy is a result of vagueness falls short of demonstrating that identity is a vague relation. The very fact that the indeterminacy in truth value can often be remedied by substituting referentially precise singular terms for the vague ones shows that the indeterminacy is not due to a vagueness of the identity relation.

Those vague identity theorists who insist, as Garrett does, that the indeterminacy in truth value is not due to linguistic vagueness, but rather to vagueness *in rebus*, still have to *argue* for their claim that identity is vague, instead of stipulatively defining that it is whenever identity statements about vague objects are indeterminate in truth value.[7]

[5] See for example Garrett (1988), Garrett (1991), Parsons and Woodruff (1995), Parsons (2000).
[6] See also Wittgenstein, *Tractatus*, 5.5303.
[7] For a more substantial treatment of the topic of vague, indeterminate or indefinite identity, see the contributions of Cobreros et al. (2013), Noonan (2013) and Weber (2013). See also the papers in the fourth part of Akiba's (2013) collection.

The reason that the idea of vague identity is so prominent in the literature on ontic vagueness is probably that the utterly simple and unproblematic relation of identity is regularly confounded with other relations—in particular, with persistence ("identity over time"), with the counterpart relation ("cross-world identity"), with co-reference of singular terms, with material or mereological composition or with some sortal-relative relation that is not identical to the one-place relation of identity. Rule of thumb: Whenever a proponent of "vague identity" invokes the Ship of Theseus, Tib and Tibbles, Jekyll and Hyde or fusions and fissions of persons, you can be pretty sure that he has changed the subject. All these conundrums "are wrongly reckoned as identity crises: they hinge not on the nature of identity" (Quine 1987, p. 91).

I am not claiming that such changes in subject always arise from inadvertent confusion. Some authors deliberately choose to speak of "vague identity" to move forward with the age-old problems of persistence over time or mereological composition. But they have to make the case. It is hard to see how the anticipated benefits of burdening the simple notion of identity with substantial ontological problems outweigh the disadvantages. *Identity*, just like *existence* and *truth*, is a basic concept in philosophy that should not be up for grabs.

Similar arguments from simplicity have been put forward against the notions of "vague existence" and "vague" or "gradual truth": Existence is too simple to admit qualifications, hence "vague existence […] is unintelligible" (Lewis 1986, p. 213).[8] Being true is a monadic predicate that does not admit of gradation or relativization to some parameter.[9]

Finally, it has been suggested to locate vagueness in the semantic relations of "designating", "denoting", "applying to" or "describing". If Harry is a borderline case of baldness, "Harry is bald" has an indeterminate truth value, it is said. Now instead of tracing this indeterminacy back to the vagueness of the predicate "bald", one could hold "that 'describes' expresses many different relations, some of which relate 'bald' to Harry, some of which do not" (Merricks 2001, p. 149).[10] The problems of this metalinguistic approach include the question of whether it leads to a vicious regress.[11]

4 Spatiotemporal Boundaries and the Problem of the Many

While it sounds odd to call objects "vague", physical objects of various kinds seem to have fuzzy spatial boundaries. Geography provides striking examples: Valleys,

[8] "There can be no borderline cases of existence, because an object has to *be there* to be a borderline case of *anything*, and if it's there it exists" (van Inwagen 2009, p. 6). Van Inwagen himself rejects what he calls "the sensible theory of indeterminacy (which denies that there can be indeterminate cases of identity and existence)", on the grounds that it "cannot accommodate a workable metaphysic of the material world" (ibid., 7). In particular, the sensible theory cannot adequately handle "the Special Composition Question: 'When are things proper parts—when do things together compose some larger whole?'" (ibid.). For a discussion of van Inwagen's view, see Noonan's paper in this issue.

[9] I cannot argue for these bold Fregean claims here. For a defence, see Cappelen and Hawthorne (2009) and Keil (2010). See also Noonan (2013, p. 240): "The apparatus of first-order logic with identity—the truth-functional connectives, the quantifiers and the identity predicate—is not vague, so predicates constructed from this apparatus are not vague. So '$x=x$', '$\exists y(x=y)$' and '$x=y$' are not vague, i.e., are not referentially indeterminate. The first two predicates denote the property of existence and the last the relation of identity. Since this is so, there are no borderline cases of existence or borderline cases of identity."

[10] Merricks himself does not advocate this view.

[11] For a discussion, see Salmon (2010) and López de Sa (2013) in this issue.

mountains, plains, forests, deserts, dunes and the outback are not sharply demarcated from their surroundings.[12] For some reason or other, *mountains* have been the most-discussed example.[13] The indeterminacy in question has been described either in spatial or in mereological terms. Mereologically, the question is which parts compose a certain physical object ("vague composition", "vague constitution"). The spatial indeterminacy concerns the boundary between the physical object and its surroundings. Since the most questionable parts of mountains are those at their outer boundary, the distinction between mereological and spatial indeterminacy is often blurred in the literature.[14]

The question as to whether a certain area at the foot of a particular mountain belongs to this mountain or not concerns the vagueness of *individuation*. Mountains also illustrate vagueness of *classification*, insofar as the predicate "mountain" does not specify a minimum height or incline that would allow one to draw a sharp line between mountains and hills.[15]

The interest in ontic vagueness is partly motivated by what Peter Unger (1980) has dubbed the "problem of the many". Unger's example is that of a cloud. Clouds consist of swarms of water droplets, their density gradually diminishing towards the cloud's edge, if there is one. If it is indeterminate where exactly the edge of a certain cloud is located, then why not assume that a certain cloud-sized region is occupied by a multitude of partly overlapping clouds? Note that the problem of the many, unlike the paradox of the heap, concerns the individuation of ordinary objects, not their classification into kinds. What is at stake is not membership in the class of clouds, but rather which one of a multitude of partly overlapping perfect cloud candidates is identical with this particular cloud—the only cloud that common sense assumes to be in that particular region.[16] The heap paradox, by contrast, illustrates vagueness of classification: the question whether a certain object or arrangement of particles is to be classified as a heap or not.

Biology provides examples of spatial, temporal and mereological indeterminacy, since organisms are prone to fuzziness in various respects. Take tigers, which lose hair, ingest and digest, get born and die. Organisms are particularly challenging examples because, long before Kripke and Putnam developed their semantics for natural kind terms, Aristotle took biological species to be paradigms of natural substances. A natural kind term such as "tiger" is supposed to carve nature at its joints, as Aristotle's teacher would put it metaphorically. Kripke and Putnam

[12] For the topic of vagueness in geography, see for example Varzi (2001), Bittner and Stell (2002) and Galton (2003).

[13] In this volume, mountains figure prominently in the contributions of Noonan, Sattig and Weber.

[14] See for example Tye (1990, pp. 535–536): "I shall classify a concrete object *o* as vague […] if, and only if, (a) *o* has borderline spatio-temporal parts and (b) there is no determinate fact of the matter about whether there are objects that are neither parts, borderline parts, nor non-parts of *o*".

[15] "Thus take the general term 'mountain': it is vague on the score of how much terrain to reckon into each of the indisputable mountains, and it is vague on the score of what lesser eminences to count as mountains at all." (Quine 1960, p. 126)

[16] For a discussion of the problem of the many, see the contributions of Lowe (2013), Noonan (2013) and Sattig (2013). A radical reaction to the problem of the many is *existence monism*, which argues that since the ordinary objects that common sense commits us to are vague, and since the world cannot contain vague objects, the whole cosmos is but one large concrete object without proper parts. Lowe discusses and dismisses this view in his paper.

described the naturalness of natural kinds differently: The kind term "tiger" is a rigid designator which picks out, once its reference is fixed, the same object in each possible world.

Aristotle holds that a natural substance "does not admit of a more and a less".[17] One should expect that this non-gradability places severe restrictions on sorites arguments. It should be impossible to devise a sorites series of ever-so-small differences between tigers and non-tigers. However, it is anything but impossible. Tigers have gradually evolved from animals with a quite different DNA, i.e. from non-tigers. Those who assume or stipulate sharp cut-offs are committed to the view that there must have been a first tiger that was an offspring of non-tigers. They might go on to argue that if there was no first tiger in the course of evolution, then there are no tigers at all, since they could not have come into existence.

Now arguably, there is no fact of the matter as to which ancestor of present-day tigers was the first tiger. Biological evolution provides an unfailing source for little-by-little arguments. No one is prepared to tell exactly how much genetic change it takes to turn a tiger into an animal of a different species. As Simons summarizes the demarcation problems for species: "species, however defined, have vague boundaries, both synchronically owing to hybridization and ongoing speciation, and diachronically owing to genetic drift and genealogical continuity despite speciation".[18]

These problems concern the vagueness of classification of individuals into species. Individual animals also exemplify vagueness of individuation and give rise to the problem of the many. Just like clouds lose and gain water droplets, cats lose and gain hair. Geach's "paradox of the 1.001 cats" says that if the cat Tibbles is the only cat on the mat and has 1.000 hairs, then we may generate a multitude of partly overlapping candidates for being the only cat on the mat by plucking out hair after hair. Which of these candidates is identical to Tibbles, the only cat on the mat? Should we even assume that there is some unique "largest continuous mass of feline tissue on the mat" (Geach 1980, p. 215)? Sattig defends this maximality requirement, i.e. "that ordinary sortals are naturally construed as maximal, in the sense that if an object is a mountain, for example, then it lacks any large proper parts that are mountains".[19] An equally strong intuition, however, says that there is no fact of the matter as to where exactly Mt. Everest's boundaries lie. If its boundaries are not uniquely fixed, then how could there be a largest object that is uniquely identical to Everest?

5 How Are Representational and Ontic Vagueness Related?

The hotly debated question of whether there is such a thing as vagueness in the world seems relatively uninteresting, given the multiple and competing ways of spelling out the basic idea. So, if we set aside the ill-defined yes-or-no question for a moment, how should we proceed?

Even those who deny that all vagueness is representational often grant that vagueness is *first and foremost* a semantic phenomenon, or that semantic vagueness

[17] Aristotle, *Categories*, 3b32, transl. Ackrill.
[18] Simons (2013, p. 275), this issue.
[19] Sattig (2013, p. 217), this issue.

is a *paradigmatic kind* of vagueness. So it seems reasonable to take some widely accepted explication of semantic vagueness as a starting point, and then to investigate how the alleged ontic kind of vagueness relates to this phenomenon. One such widely accepted characterization is Grice's working definition:

> To say that an expression is vague (in a broad sense of vague) is presumably, roughly speaking, to say that there are cases (actual or possible) in which one just does not know whether to apply the expression or to withhold it, and one's not knowing is not due to ignorance of the facts. (Grice 1989, p. 177)

Grice's working definition is wide enough to capture not just degree vagueness, but also the "combinatory vagueness" of cluster concepts, as Alston (1967, 219) has called it.[20] But the definition is not entirely uncontroversial, despite its threefold caveat ("in the broad sense", "presumably", "roughly speaking"). Indeed, it cannot be uncontroversial since the last clause, that "one's not knowing is not due to ignorance of the facts", is not compatible with the *epistemic theory* of vagueness, which says that the speaker's uncertainty about what to say is due to his ignorance of *semantic* facts. I am inclined to hold, however, that if the only thing standing in the way of a general unified definition of vagueness is that it rules out epistemicism, then this counts against epistemicism rather than against the definition.

From this point of departure, a number of questions suggest themselves:

(a) Is vagueness a unitary phenomenon? Does it admit of a definition that encompasses all phenomena that are (sensibly) discussed under this heading? Is there a generic notion of vagueness of which all kinds of vagueness phenomena are species, or does talk of "ontic vagueness" perhaps rest on an equivocation?[21]

(b) Does the distinction between semantic and ontic vagueness admit of a neutral and unbiased characterization? Here is a suggestion: "Metaphysical vagueness is the case in which the object is not a linguistic one, and the property is not a semantic one. Linguistic vagueness is the case in which the object is linguistic and the property semantic."[22] This characterization leaves it open whether there is a generic notion of vagueness that underlies both cases. (Sainsbury suspects that there is not.)

(c) If ontic vagueness is not blatantly absurd, what kind of entities can be vague? The examples mentioned above (mountains, clouds, animals) are all physical objects. Further candidates that have been discussed are kinds, properties, relations, propositions, states of affairs, sets and worlds. In addition, *mereological* relations have been held to be possibly vague (composition, constitution, parthood), as has the *logical* relation of identity and the *metaphysical* properties, for lack of a better term, of existence and truth.

(d) If ontic vagueness is not blatantly absurd, then what exactly is the relation between semantic and ontic vagueness? Can they be explicated independently

[20] For an explication of combinatory vagueness, see also Hyde (2008, 16–19).
[21] See Sainsbury's afterword to his paper in this issue for a brief discussion of this topic.
[22] Sainsbury (2013, p. 235), this issue.

from one another? Are both phenomena species of a common genus or is their relation asymmetric? If it is asymmetric, can ontic vagueness be explicated via semantic vagueness, or vice versa?[23] Is ontic vagueness assumed *in addition to* or *in elucidation of* semantic vagueness? Is one of the phenomena the *source* of the other? Do the semantic and the ontic view *compete* as explanations for the speaker's uncertainty about what to say? On a widespread version of the view that both theories give competing explanations for the same phenomenon, the situation is this: While ontic theorists hold that, say, the singular term "Mt. Everest" denotes a vague object, semantic theorists hold that there are many precise objects (or rather precisely *located* objects), it being indeterminate which of these objects we are using the term to refer to.[24]

(e) Intuitively, paradigmatic cases of ontic vagueness involve ordinary objects which are poorly individuated on account of their fuzzy spatiotemporal boundaries. The problem of the many pertains to this kind of vagueness of individuation. Now, does the distinction between the vagueness of individuation and that of classification either mirror or cut across the distinction between ontic and semantic vagueness? Is all ontic vagueness ultimately related to spatiotemporal and mereological indeterminacy, or has it additional and independent sources?

(f) Should the dispute between the semantic and the ontic view perhaps be described as a disagreement about the ultimate *source* of vagueness?

I am well aware that this list of questions and topics is anything but systematic. For the remainder of this introduction, I will confine myself to addressing the question of what the "source" of vagueness is. Since the source question also has implications for most of the other topics, the discussion may well shed some light on them too.

6 The Source Question

In the literature on ontic vagueness, claims are frequently made about vagueness being "due to", holding "by virtue of" or "deriving from" some non-semantic source. Put in this crude way, it is far from obvious what the source question aims at. Sometimes it is presented as a claim about what explains what: "Even the most militant foe of vague objects should be able to grant the point that somehow, facts about what the world is like *help explain* why we have vague expressions and not only precise ones."[25] Sometimes the source question is framed in causal terms: Sainsbury (1994, p. 79) has theorists of ontic vagueness claim "that our language is vague *because* the world is vague". Barnes and Williams (2010, p. 108) suggest that "metaphysical indefiniteness" is just indefiniteness which has a metaphysical source, a "source in the non-

[23] The latter view is rare. Merricks (2001, p. 151) comes close to it: "I think linguistic vagueness does justice to the intuitions that standardly motivate it only when understood as a species of metaphysical vagueness."

[24] See for example Lewis (1986, pp. 212–213): "The reason it's vague where the outback begins is not that there's this thing, the outback, with imprecise borders; rather, there are many things, with different borders, and nobody has been fool enough to try to enforce a choice of one of them as the official referent of the word 'outback'. Vagueness is semantic indecision."

[25] Eklund (2013, p. 176), this issue.

representational world", in contrast to a semantic or an epistemic source. Similarly, retracting his earlier claim that ontic vagueness is not properly intelligible, Dummett (1981, p. 440) writes that it is "not apparently absurd to suppose […] that the physical world is in itself such that the most precise description of it that even omniscience would yield might yet involve the use of expressions having some degree of vagueness".

Note that Williams's and Barnes's negative characterization of ontic vagueness as not being attributable to a semantic or epistemic source[26] leaves open the question of whether the phenomenon exists or whether the notion is even intelligible. Dummett, on the other hand, seems to be in search of a metaphysical reason for the *ineliminability* of vagueness. Similarly, Noonan argues that referential indeterminacy is not always due to semantic indecision because "sometimes there may be nothing that we can do, even in principle, to secure reference to one thing rather than another", and we still fail to secure a determinate reference to a unique object.[27]

Let us assume that theorists of ontic vagueness wish to make a substantial claim about the ultimate source of semantic vagueness. "Source" talk is elusive and multiply ambiguous. I will resist the temptation to put forward an own elucidation of source talk. Let us instead consider the source question as posed in a familiar argument *against* ontic vagueness. Garrett challenges the view that Mt. Everest is a vague object as follows:

> Everest may have fuzzy spatial boundaries; but it does not follow that Everest is a vague object. It is open to us to identify the ultimate source of Everest's fuzzy boundaries as our vague sortal, *mountain*. The vagueness of this concept implies that, in general, it is vague where a mountain ends and a valley begins. (Garrett 1991, p. 350)

This sounds like an attractive line to take: Mt. Everest is a mountain. The general term "mountain" is a sortal term. Everest cannot have sharper spatial boundaries than the sortal term "mountain" allows competent speakers to draw. Sortal terms, unlike mass terms, supply a principle of counting, it is said. It is only the sortal character of the predicate "mountain" that allows us to determine where, in a chain of mountains, the first mountain ends and the next one begins. If a sortal term is vague, it does not provide enough help for demarcation and counting.

Obviously, this identification of "the ultimate source of Everest's fuzzy boundaries", put forward as an argument against ontic vagueness, hinges on the sortal characterization of Mt. Everest as a mountain.

[26] For similar explications of "ontic vagueness", see Hawley (2001, p. 104) and Barnes (2010, p. 604). For a brief discussion of these negative characterizations, see López de Sa (2013), this issue.

[27] Noonan (2013, p. 243), this issue. He continues: "To successfully refer requires not only that we engage in reference-fixing activities but also that there be eligible referents. But, even once we have done everything that we can do, there may still be ties in eligibility, and so referential indeterminacy. And such referential indeterminacy will be properly classified as *ontic* rather than semantic, for it will be the world, and not us, that is not playing its part" (ibid.).

7 Sortal and Non-sortal Ontologies

The importance of sortality for the debate on vague objects has only recently come into sharper focus.[28] The reason is probably that our broadly Aristotelian common sense ontology of sortally specified objects is built into the categorial structure of natural languages, while non-sortal ontologies are philosophers' constructions that strike the common man as being strange. As Peirce once famously put it: "ordinary men live so completely within the house of the Stagyrite that whatever they see out of the windows appears to them incomprehensible and metaphysical".[29]

Let us rehearse a pivotal difference between sortal and non-sortal ontologies. For Aristotle, "*being an individual* goes with *being of a substantial kind F*" (Furth 1988, p. 205). Aristotelian "first substances", i.e. concrete particulars, are always of a certain kind; they are *constitutionally offy*, as Austin might have said. For Aristotle, any first substance (*prote ousia*) is either a rabbit, a man, a star or some other well-individuated particular, the principle of individuation being included in our mastery of the kind term. Quinean "physical objects", on the other hand, are not sortally specified. They are defined as material contents of spatiotemporal regions, "however ragged and discontinuous".[30] They do not come in kinds and hence do not pose problems of classification or individuation. Quinean physical objects have crystal-clear identity conditions, "being identical if and only if spatiotemporally coextensive" (Quine 1985, p. 167). They are not susceptible to vagueness simply because every arbitrarily chosen part of a physical object is by definition again a physical object. The same holds for aggregates. Quine allows for unrestricted composition of physical objects.

Since Aristotelian substances always come in kinds, they are countable. Physical objects as such are not. The question as to how many physical objects there are in my home office has no determinate answer, pending some sortal characterization of the objects. Pencils, books and atoms are countable, physical objects are not, "physical object" not being a sortal term. The boundary of a physical object is located exactly where we draw it, and we draw it by specifying its spatiotemporal coordinates. In doing so we cannot hit or miss any mark because whichever coordinates we choose, we will by definition have singled out some physical object. Accordingly, every Aristotelian substance is by definition a physical object, but not vice versa. Quine's monocategorial ontology of physical objects is "a tight-packed and mostly nameless ontology" (Quine 2000, p. 424). Too tight perhaps: It has been argued that Quine is committed to a Dummettian "amorphous lump" conception of reality.

I submit that regarding the question of whether objects can be vague, the deep divide is between two competing understandings—or types—of ontology: between a sortal ontology of Aristotelian substances and a non-sortal ontology of Quinean physical objects.[31] As regards vagueness, Quine (1976, 497) argues that since the

[28] See for example Sattig (2010) and Sattig (2013), in this issue.
[29] Charles S. Peirce, *Collected Papers* vol. 1, Cambridge: HUP 1931, vii.
[30] "Let us understand a physical object […] simply as the aggregate material content of any portion of space-time, however ragged and discontinuous." (Quine 1976, p. 497)
[31] See Eklund's distinction between a "robust" and a "deflationist" conception of ontology: "The robust ontologist holds that there are real metaphysical joints in nature. The deflationary ontologist, by contrast, subscribes to the 'picture of reality as an amorphous lump' as Michael Dummett puts it" (Eklund 2008, p. 383).

"liberal notion of physical object spares us the pointless task of demarcating bodies", the undisputed vagueness of sortal classifications can be kept out of ontology—in his austere sense of "ontology". To be is to be the value of a bound variable, the variables being unconceptualized physical objects and classes thereof. Quine's reluctance to draw finer ontological distinctions within the category of physical objects corresponds to his distinction between the ontology and the "ideology" of a theory.[32]

Now how exactly does the difference between these two kinds of ontology relate to the dispute between a representational and a metaphysical understanding of vagueness? According to Eklund, "the semantic theorist holds that indeterminacy affects not objects themselves but objects as represented; the metaphysical theorist denies precisely this".[33] Eklund's juxtaposition of "objects themselves" and "objects as represented" has a Kantian ring, which is at odds with the Aristotelian notion that natural substances are constitutionally offy quite independently from being mentally or linguistically represented. Eklund's talk of "objects themselves" is committed to the modern idea that objects do *not* come in kinds, because in the absence of a non-conventional *ordo naturae*, classification is a conceptual activity of minded creatures. Similarly, Sainsbury explains the fruitlessness of his "attempts to find an intelligible and controversial thesis of ontic vagueness" by the fact that we "cannot think of our world except through our concepts, so there is no intelligible notion of our world independently of our concepts" (Sainsbury 1994, p. 79). If objects are *constitutionally* offy, however, their being offy is how they *are*, rather than due to how we *think of* them.

This disparity in the understanding of "objects themselves" has implications for the quarrel between semantic and ontic theorists. Those who advocate vague objects typically presuppose sortal ontologies with constitutionally offy objects. If that presupposition is not shared, both parties tend to talk past each other: While the semantic theorist holds that "objects themselves" in the *non*-offy sense, e.g. Quinean physical objects, cannot be vague, the ontic theorist holds that ordinary offy objects, e.g. mountains, can be. That is, the ontic theorist does not declare those things to be vague that the semantic theorist denies can be vague. Remember that Unger's nihilistic conclusion from the problem of the many was that there are no "ordinary" things (Unger 1979).

So it seems that the answer to the question whether vagueness can be ontic depends crucially on what kind of ontology we are dealing with. Wondering where the spatiotemporal boundaries of a particular object are located, or how its mereological composition is restricted, only makes sense within a sortal (neo-)Aristotelian ontology in which all particular objects belong to certain kinds. In a non-sortal ontology of unspecified physical objects, and *a fortiori* in an "amorphous lump" conception, indeterminacy questions cannot arise.

Note, however, that the above considerations are limited to the case of concrete particulars. They cannot be extended in a straightforward way to the alleged vagueness of abstract entities such as properties, propositions or states of affairs. My

[32] A theory's ideology, "to give a good sense to a bad word", rests in its predicates, which determine "what ideas can be expressed in it", whereas the theory's ontology is simply "the range of the variables of quantification of the theory" (Quine 1953, p. 131). Given this distinction, it is obvious why a sortal ontology is no option for Quine. It makes no sense to ask whether values of variables are sortal in character or not. Sortality is an attribute of terms or concepts, not of entities.

[33] Eklund (2013, p. 171), this issue. See also Sainsbury (1994, p. 79).

restriction is motivated by the pivotal role of spatiotemporal boundaries in the debate on ontic vagueness. No treatment of ontic vagueness will be satisfactory that fails to explain how ontic vagueness is related to the phenomenon of fuzzy spatial boundaries and to the problem of the many.

8 The Source Question Revisited

Since a non-sortal ontology leaves no room for vagueness, the source question can only arise in a sortal ontology. Let us now take a second look at Garrett's comment on the source question. In "identify[ing] the ultimate source of Everest's fuzzy boundaries as our vague sortal, *mountain*", Garrett suggests that the alleged vagueness of a sortally characterized object depends asymmetrically on the semantic vagueness of the corresponding sortal predicate. But how are we to understand this dependence? In what way is the vague sortal "the ultimate source of Everest's fuzzy boundaries"? Surely not in the way that it *makes* boundaries fuzzy that were previously sharp or that would have been sharp if we had only refrained from picking out the object by linguistic means.

As an answer to the source question, Garrett's appeal to the vagueness of sortal predicates cannot be the whole story. Even those who stick to the view that all vagueness is representational need a more informative account of how this feature of linguistic representations relates to non-linguistic features of the represented reality. There seem to be non-linguistic reasons why many sortal terms cannot have sharply defined extensions in a world like ours, that is, in a world with a topography of valleys and plains that are not made for counting, in a world where rivers flow, flowers wither and mountains erode, where clouds form out of the blue, change shape and disperse again, where animals get born and die, ingest and digest, lose hair and occasionally become bald, where even biological species are no bastions of stability, since natural selection is daily and hourly scrutinising the slightest variations, silently and insensibly working to disrupt the well-ordered, static Aristotelian ontology.

Now mountains, clouds and cats are sortally specified entities, of course, and those who favour a non-sortal ontology will not be impressed by disruptions of an alleged *ordo naturae* that they consider to be man-made anyway. But it is not true that the order of nature has its source *solely* in arbitrary human classification schemes. Mountains, clouds and cats consist of swarms of particles, but these swarms exhibit patterns and recurrent structures. While sortal predicates are man-made, such patterns and structures—mountainous, cloudy, feline—are not. They supervene on the way that matter is distributed in spacetime.

Imagine by contrast a world in which all physical objects have simple geometrical forms—sharp edges, hard surfaces, no hair, no metabolism, no erosion, no shape shifting, and so on. Imagine a Lego world: just Lego bricks and the void. In such a world, predicates are still *intensionally* vague, i.e. they cannot rule out the *possibility* of borderline cases, but as long as their extensions are clear-cut, no non-philosopher will care.[34]

[34] The Lego example is vulnerable, though, to the Platonic argument that no physical surface is perfectly flat, no brick ever cubic, no edge ever straight. Regarding sharp boundaries, a Lego world is still infinitely worse off than a Pythagorean world of numbers. Hence, some idealisation is necessary to make the example work.

In a non-sortal ontology of unspecified physical objects, demarcation problems do not arise; hence, vagueness gains no traction. In an idealised Lego world, there is no room for extensional vagueness. In our common sense ontology of mountains and clouds, cats, bald heads and heaps, vagueness is ubiquitous, which gives rise to the source question. But does the question have a clear meaning, let alone a clear answer? I think not in the crude way that it is put in disputes about ontic vagueness. The question of vagueness's ultimate source—our representations or the things themselves? language or the world?—verges on being silly. Forget about representation for a moment and think of language as a tool: Sugar tongs are perfect tools for gripping sugar cubes. Now if you try to grip powdered sugar with sugar tongs, and it doesn't work that well, then who is to blame, the sugar or the tongs?

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