

In Defence of Vaguely Restricted Composition

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Suppose we sought to specify C in the following schema:

(Special Composition Schema) For all $x_1 \dots x_n$, necessarily, $x_1 \dots x_n$ compose something iff $C(x_1 \dots x_n)$.

In other words, suppose we sought to describe the conditions under which composition takes place. This is Peter van Inwagen's "special composition question" [van Inwagen 1990: 21-32]. The thesis of *restricted composition* rejects two extreme answers to this question: *nihilism* (according to which C is never satisfied) and *universalism* (according to which C is always satisfied). Defenders of restricted composition – who say both that composition sometimes takes place, but deny that it always takes place – are faced with the charge that restricted composition entails the vagueness of composition, which is said to be impossible. Here I defend restricted composition against this objection, originally due to David Lewis [1986: 211-13] and elaborated by Ted Sider [2001: 121-32 and 2003].

The most straightforward version of restricted composition would be an answer to the special composition question – a specification of C in terms of necessary and sufficient conditions for composition. But restricted composition, as I understand it (and as its critics understand it), says something weaker than that necessary and sufficient conditions for composition can be given. It says that ' $x_1 \dots x_n$ compose something' is neither true for all $x_1 \dots x_n$, nor true for no $x_1 \dots x_n$. This is entailed by Daniel Nolan's suggestion that an answer to the special composition question might be given in the form of "a list of some necessary and some sufficient conditions" [Nolan 2006: 734-5]. And this is entailed by Ned Markosian's "brutal composition" view, on which "there is no true and interesting answer to" the special composition question, but according to which composition sometimes occurs and sometimes doesn't [Markosian 1998: 214]. It is entailed by the claim that while my pants and my jacket compose something (a suit), my pants and your pants do not. It is entailed by the claim that composite objects can be created and destroyed – for the destruction (e.g.) of a composite occurs just when some $x_1 \dots x_n$

compose something at some time, and then do not compose something at some later time. What I aim to defend, then, is this:

(Restricted Composition) For some $x_1 \dots x_n$, $x_1 \dots x_n$ compose something, and for some $x_1 \dots x_n$, $x_1 \dots x_n$ do not compose something.¹

This is a commitment of our ‘common sense’ metaphysic, if anything is – and it is a minimal commitment: it just says that composition sometimes occurs, and sometimes doesn’t [Cf. Markosian 1998: 237]. Given that restricted composition is entailed by some common sense truisms – such as that my suit exists, but not the sum of our pants, and that the parts of my suit didn’t compose anything when they were attached to back of several sheep – it would be sufficient defence of it to cogently critique objections to it. §1 presents the argument from vagueness for the conclusion that restricted composition is impossible. The argument says that the best theory of vagueness can’t make sense of restricted composition; in the remainder of the paper I argue that), non-standard logics (§2) epistemicism (§3), and the “linguistic theory of vagueness” (§4) can.

1. The Argument from Vagueness

Consider:

The exploding ship: Take a ship, composed of only indestructible planks (if you need to, suppose that the planks are like “Lego” pieces). At noon a careless seaman accidentally sets fire to the ship’s munitions, and the explosion tears the ship asunder, blowing it to smithereens. The planks are now (at t) strewn across a vast area of the ocean. They compose nothing.

When was the ship destroyed? When did it cease to exist? Speaking loosely we would say that it was destroyed at noon, or perhaps shortly after noon. But when *exactly* was the ship destroyed? It seems that the best we could do would be to specify an interval; there was a time when the planks composed something, and there was a later time when they composed nothing, and intervening between these times was an interval of time during which the planks came apart. But suppose we divide up the time between noon

¹ As noted, this thesis is not, as such, an answer to the special composition question; this perspicuous formulation makes the thesis of restricted composition contingent. It might be urged that theses of this kind (universalism, nihilism, restricted composition) are necessarily true, if true. In that case restricted composition could be restated by appending ‘possibly’ to each conjunct, and universalism and nihilism could be restated by adding ‘necessarily’.

and t into some extremely short (but still finitely long) intervals $p_1 \dots p_n$ (if you need to, take these to be intervals of exactly one picosecond). Was there an interval p_i such that during p_i the planks composed something and during p_{i+1} they did not? No. An explosion – the explosion of a ship, anyway – takes longer than that to occur. Intuitively, there was no sharp boundary between the times when the planks composed something and the times when they did not. We can expose what is puzzling about this case by noting that the following three plausible claims are inconsistent:

- (Ship1) At noon the planks compose something.
- (Ship2) There is no p_i such that during p_i the planks compose something and during p_{i+1} they compose nothing.
- (Ship3) At t the planks compose nothing.

Call this *the existential sorites puzzle*. The defender of common sense, of course, would like to maintain Ship1 and Ship3. There are ships, but no ‘sums of scattered planks’. But Ship2, for the reasons adduced above, is plausible as well. In general, common sense rules some things in, and some things out, but it does not provide us with a precise criterion to justify ruling in the things that it accepts, and ruling out the things that it rejects, and the destruction of a ship is just one unexceptional instance of this.

Opponents of restricted composition resolve this puzzle by denying Ship3 [Lewis 1986: 211-13, Van Cleve 1986: 145, Heller 1988, Sider 2001: 123-5, Sider 2004] or Ship1 [Merricks 2003: 32-8].² Before considering their reasons for doing so, however, consider another puzzle:

The rising sun: Imagine focusing your attention on one particular portion of the sky, close to the horizon, during the sunrise. At six o’clock that portion of the sky is red. The sky slowly changes colour, so that at t the sky is blue and (thus) not red.

When did the sky cease to be red? During the time between nine and t , but when, *exactly*? We are faced, as above, with an inconsistent triad (with the p_i denoting intervals between nine and t):

² This motivation for nihilism and universalism is similar to, but distinct from, the ‘problem of the many’ [Unger 1980]. The ‘problem of the many’ exploits vagueness in the notion of *parthood* – there do not seem to be sharp boundaries between those things that clearly are, and those things that clearly are not, parts of an ordinary composite object. The existential sorites puzzle raises a different problem, which exploits vagueness in the notion of *composition* (and hence of *existence*), which would arise *sans* the ‘problem of the many’. For defence of the claim that parthood is vague see van Inwagen 1990: 213-27, Tye 1990, and Morreau 2002.

(Sunset1) At nine the sky is red.

(Sunset2) There is no p_i such that during p_i the sky is red, and during p_{i+1} the sky is not red.

(Sunset3) At t the sky is not red.

Call this *the qualitative sorites puzzle*. As far as I know, no one has been so bold as to suggest that the lesson of this puzzle is that nothing has any property ('property nihilism'), or that everything has every property ('property universalism'). Everyone who encounters the qualitative sorites puzzle responds the same way: they say that the puzzle arises because of vagueness. Now, in describing the puzzles in the way that I did, I have tried my best to make it *seem* like the existential sorites puzzle and the qualitative sorites puzzle are of the same kind. I want to say: they *look* like they're the same puzzle, or closely related and significantly similar puzzles, and thus with closely related and significantly similar solutions. If we have anything like intuitions about whether a puzzle arises because of vagueness or not, then they come down squarely in favour of the idea that the existential sorites puzzle arises because of vagueness. This is significant, for it has seemed to most that the existential sorites puzzle does not arise because of vagueness, for (it is argued) the best accounts of vagueness can't say that the existential sorites puzzle arises because of vagueness. If this is true, then it might be reason enough to reject the appearance of kinship between the two puzzles as an illusion. So why not treat the existential sorites puzzle as arising because of vagueness? Opponents of restricted composition agree: to do so would require countenancing metaphysical vagueness, and metaphysical vagueness is impossible.

It seems to me there is good reason to accept the premise that metaphysical vagueness is impossible, on the grounds that it would be a "category mistake" to say that the world, or something in the world, or whatever, is vague [Cf. van Inwagen 1990: 231 and Williamson 1994: 249-50]. Just as it's only words (or strings of words) that are ambiguous, so it is only words (or strings of words) that are vague. It is we who are imprecise, and it is our words that are vague; if I am imprecise in speaking about my dinner it does not mean that my dinner is thereby imprecise (whatever that would mean), and if I use vague language to describe my dinner it does not mean that my dinner is thereby vague (whatever *that* would mean!). To say that the (non-linguistic) world and the (non-linguistic) things in it are vague is to make a category mistake, akin to calling a

group of attorneys general grammatical. ‘Attorneys general’ is grammatical, ‘attorney generals’ isn’t, and attorneys general hopefully don’t bother with such matters. Likewise ‘a heap of mashed potatoes’ is vague, but a heap of mashed potatoes is nothing short of delicious.

If the argument against treating the existential sorites puzzle as arising because of vagueness is to be resisted, then, it must come via resistance to its major premise: that treating the existential sorites puzzle as arising because of vagueness requires countenancing metaphysical vagueness. Why accept this premise? It is not because any vagueness means metaphysical vagueness. Everyone agrees that the qualitative sorites puzzle arises because of vagueness – because of the vagueness of ‘red’, in particular – and this doesn’t mean there is metaphysical vagueness.³ It might be suggested that if the *existential* sorites puzzle arises because of vagueness, then *existence* is vague. Some use the claim that ‘existence is vague’ to mean there is metaphysical vagueness. *That* doesn’t follow in any obvious way from the claim that the existential sorites puzzle arises because of vagueness. Consider the idea that if the qualitative sorites puzzle arises because of vagueness, then *redness* is vague. In whatever sense that’s true, it seems like it’s true that the claim that ‘existence is vague’ follows from the claim that the existential sorites puzzle arises because of vagueness. But if saying ‘redness is vague’ is unobjectionable in this context, then so is saying ‘existence is vague’, at least vis-à-vis worries about metaphysical vagueness.

The difference between the two puzzles, it is argued, comes from the fact that there is no terminology used to state the existential sorites puzzle that we can sensibly treat as vague. What we should like to say, if we go along with the intuition that the existential sorites puzzle arises because of vagueness, is that ‘compose something’ is vague. Just as the sky gradually goes from yellow to red, so the planks gradually go from composing something to not composing anything. But to say that ‘compose something’ is vague is to say that one of the basic pieces of logical vocabulary – the existential quantifier – is vague. For the planks compose something iff there is something that they compose. So we have arrived at the suggestion that the “idioms of quantification” (as Lewis calls

³ The realist about properties might wonder why. If ‘red’ refers to redness, how can ‘red’ be vague without redness inheriting its vagueness (or, at least, something like it)?

them) are vague – I’ll (sometimes) call this *the thesis of vague quantification*. We now have an account of how the sense in which the claim that the existential sorites puzzle arising because of vagueness requires entails that existence is vague. Just as ‘redness is vague’ means that the idioms of redness (as it were) are vague, so ‘existence is vague’ (in the sense that this is required by treating the existential sorites puzzle as arising because of vagueness) means that the idioms of quantification are vague. But both ‘redness is vague’ and ‘existence is vague’ are semantic claims, when understood in this way, not ontological claims.

However, the thesis of vague quantification is said to be impossible, by both defenders and opponents of restricted composition [Lewis 1986: 212, Sider 2001: 128 and 2003, van Inwagen 1990: 231, Markosian 1998: 223]. The argument for this (call it the *linguistic theory argument*) rests on two premises [Sider 2001: 128]. The *first premise* affirms the correctness of a “linguistic theory of vagueness” [van Inwagen 1990: 231, Sider 2001: 125-6]. This involves – but, as I argue below, cannot only involve – a rejection of metaphysical vagueness. The “linguistic theory” insists that vagueness results from “semantic indecision” [Lewis 1986: 212], where this is understood as requiring that for any vague expression “there are multiple possible meanings for that term, often called ‘precisifications’, no one of which has been singled out as the term’s unique meaning” [Sider 2001: 125]. As a consequence “it is only words ... whose extensions are established by some sort of boundary drawing ... that can be vague” [van Inwagen 1990: 231]. As we’ll see in §4, there is more to the “linguistic theory,” as well. The *second premise* claims that logical terms – including, in particular, the idioms of quantification – “lack multiple precisifications.” This is essential, for it does not follow from the linguistic theory alone that the idioms of quantification are not vague, as noted by Markosian [1998: 223]. But from these two premises, it follows that the idioms of quantification are not vague. If this is so, then the existential sorites puzzle cannot arise because of vagueness.

As argued above, it is a cost for a theory of vagueness if it can’t treat the existential sorites puzzle as arising because of vagueness. It’s a cost even if the theory is “usual.” In what follows I shall defend the thesis of vague quantification, against the arguments described here, on two fronts. First, I shall criticize the premise that treating the

existential sorites puzzle as arising because of vagueness requires countenancing metaphysical vagueness, on the grounds that there are alternative theories of vagueness that do not entail that there is metaphysical vagueness: theories based on non-standard logics (§2) and epistemicism (§3). Second, I'll argue that Sider and van Inwagen are wrong that we can't make sense of the idioms of quantification as vague, by appeal to the idea of multiple precisifications, and thus that the second premise of the linguistic theory argument is false (§4). So I'll have occasion to argue that three standard theories of vagueness can make sense of the existential sorites puzzle: non-standard logics, epistemicism, and the "linguistic theory."⁴ If all this succeeds, it vindicates the thesis of vague quantification – and blocks an essential premise in the argument from vagueness, against restricted composition.

2. Non-Standard Logics and Metaphysical Vagueness

I aim to show the following: (i) certain theories of vagueness based on non-standard logics, which offer solutions to the qualitative sorites puzzle, can be applied to the existential sorites puzzle, *mutatis mutandis*, (ii) that no additional problems would arise for these theories, given the extension, and (iii) that these theories do not require a commitment to metaphysical vagueness.

The theories I have in mind modify standard logic by (roughly) adopting additional truth-values, e.g. as in Tye 1994. With a continuum of values we can speak of 'degrees of truth', as in Edgington 1997. On a three-valued approach a sentence like 'At 6:00 the sky is red' would count as true, 'At t the sky is red' would count as false, and for penumbral intervals p , 'During p the sky is red' would take the third truth-value. On a continuum-valued approach 'At 6:00 the sky is red' would take a very high degree of truth, 'At 9:01 the sky is red' would receive a slightly lower degree, and so on, with 'At t the sky is red' receiving a very low degree of truth. (I'll only talk about a view on which there is a continuum of degrees of truth from now on.) Solutions to the qualitative sorites puzzle based on these modifications come in two types. On the first, the repeated

⁴ I ignore pragmatic solutions to the qualitative sorites puzzle [Greenough 2003, Weatherson 2005], and offer a promissory note: these accounts transfer to the existential sorites puzzle as well.

applications of modus ponens needed to show the inconsistency of Sunset1 – Sunset3 are illegitimate, for modus ponens does not preserve degree of truth, as q may be true to a lower degree than p and $p \rightarrow q$ [see Williamson 1994: 123-4]. On the second, Sunset2 isn't true to a high degree, as its instances aren't all true to a high degree – the sentence 'During p_i the sky is red, and during p_{i+1} the sky is not red' is true to a degree no higher than the degree of truth of its truest conjunct, and for penumbral p_i this will be an appropriately non-high degree [see Tye 1994: 287-88 and Edgington 1994: 311].

What's important for our purposes here is to note that the solution to the puzzle operates at the level of *sentences* – and thus there is nothing to prevent us from applying the solution to the existential sorites puzzle. The fact that the vagueness seems to 'reside' in the quantifiers makes no difference. On a continuum-valued approach 'At noon the planks compose something' would take a very high degree of truth, 'At 12:01 the planks compose something' would receive a slightly lower degree, and so on. The two proposed solutions are then available. If repeated applications of modus ponens are illegitimate in the case of Sunset1 – Sunset3, then they are illegitimate in the case of Ship1 – Ship3. And if Sunset2 isn't true to a high degree because it has instances that aren't true to a high degree, then we can just as plausibly say that Ship2 isn't true to a high degree because it has instances that aren't true to a high degree.

Theories of vagueness based on non-standard logics, like all theories of vagueness, have been subject to criticism. Higher-order vagueness presents an especially pressing worry, as urged by Mark Heller [1996]. I claim only that these theories are an option, but I will say that we shouldn't put a lot of stock into the "incredulous stare" here. For some, the idea of a sentence being 'partially true', or the idea of one sentence being more true than another, warrants the "incredulous stare." But we are dealing with the sorites paradox here – we began with an "incredulous stare," as it were, directed at three deeply intuitive claims that appear to be simply and straightforwardly inconsistent. No one ever said it was going to be easy to solve the problem. More importantly, whatever resistance there is to these theories, it is not the result of extending these theories to cover the existential sorites puzzle. Indeed, the fact that these theories can be so extended – that they can do additional work for us – is a virtue that should be weighed against their vices.

Opponents of restricted composition sometimes suggest that these theories countenance metaphysical vagueness. Sider glosses the “linguistic theory” of vagueness by saying: “There is no vagueness ‘in the world’; all vagueness is semantic indecision” [Sider 2001:125], and van Inwagen writes that the “linguistic theory” “could be expressed metaphorically by saying that vagueness resides in language and not in the world” [van Inwagen 1990: 231]. This implies, of course, that approaches to vagueness described in this section *do* say that there is vagueness in the world [see also Heller 1988: 111]. Why think that they do?

I should emphasize that *if* these non-standard logical approaches countenance metaphysical vagueness, then they countenance it *sans* extension to the existential sorites puzzle. That, at least, is the implication of saying that the “linguistic theory” is the only theory on which there’s not metaphysical vagueness. So the objection here isn’t that non-standard logics can’t be used to defend restricted composition, it’s that non-standard logics can’t be used to do anything, because adopting a non-standard logic (according to which there’s a third truth-value, or according to which there are degrees of truth) is to commit yourself to metaphysical vagueness.

I can think of only one tempting reason to think that adopting degrees of truth (for example) would commit you to metaphysical vagueness. You might think that if the truth of a sentence *s* admits of degrees, then there must be some expression or expressions in *s* that refer to things that admit of degrees. The thought would be, for example, that if the truth of sentences of the form ‘*x* is red’ admits of degrees (i.e. that sentences of that form can be more or less true), then it must be that redness admits of degrees (i.e. that something can be more or less red). And, furthermore, you might think that if something admits of degrees, then it is vague. From these two premises (that countenancing degrees of truth requires countenancing degrees of something in reality, and that admitting degrees of something in reality requires admitting metaphysical vagueness), it follows that admitting degrees of truth requires admitting metaphysical vagueness. But both premises are false.

The second premise, I think, is obviously false. To say that a kind *F* admits of degrees is to say that something can be *more F*, or *more of an F*, or *F-er*, than something else. There is no clear connection between saying *that*, and saying that *F* (or the *Fs*) are

vague. You might think there's a connection between saying that, and saying that the *word* that refers to *F* is vague.⁵ And above I said that there is a non-metaphysical sense in which redness is vague, meaning that 'red' is vague. So you might think it follows from the claim that redness comes in degrees that redness is vague, in the sense that 'red' is vague. But, again, this is no metaphysical vagueness.

In this context the opponent of restricted composition, on the grounds that this involves metaphysical vagueness, faces a dilemma [Cf. Williamson 1994: 249]. The one horn says that metaphysical vagueness is a category mistake. If so, then neither the *semantic* claim that there are more than two truth-values, nor the *metaphysical* claim that some kinds admit of degrees, is a claim that countenances metaphysical vagueness. For neither claim makes a category mistake. The other horn says that metaphysical vagueness isn't a category mistake. But if not, then it isn't clear why we should put a blanket prohibition on metaphysical vagueness. If metaphysical vagueness has something to do with the notion of 'admitting of degrees', for example, then there can be no general ban on metaphysical vagueness, for there should be no general ban on kinds (or qualities, or substances, or whatever) admitting of degrees.

The first premise is also false. Consider sentences of the form 'x is a heap', and suppose the truth of these sentences admits of degrees. It is coherent to affirm this, and yet to deny that heapness (heaphood?) comes in degrees. A big heap is not *more of a heap* than a small heap; it is just a bigger heap, not a 'heapier' heap. The small heap partakes of "heapness" just as much as the big heap does. (Speaking metaphorically, though, we might say that the big heap is more of a heap than the small one, just as Captain Renault is just like any other man, only more so.) What this shows is that not all vague predicates denote kinds that admit of degrees.⁶

This has important consequences for the project of defending the thesis of vague quantification. For it might be thought, regardless of the viability of a theory of vagueness based on non-standard logic, that there is a deep connection between vagueness and the notion of 'admitting of degrees' – and, therefore, that the vagueness of

⁵ Though this is wrong, see [footnote 6].

⁶ Thanks to Josh Schechter for this point. Williamson makes the reverse point: a kind may admit of degrees when the word for it is not vague, e.g. 'acute' is not vague, but a 30° angle is more acute than a 60° angle [Williamson 1994: 126].

the quantifiers entails that existence admits of degrees. But we have just seen that this is not the case. So the defender of vague quantification need not claim that some things exist more than others.

Suppose the first premise were true. Even if we now fell short of establishing that admitting degrees of truth requires metaphysical vagueness, wouldn't it be just as bad to admit that it requires countenancing degrees of existence? Van Inwagen and Nicholas J.J. Smith offer worthy proposals for a logic and semantics on which existence admits of degrees [van Inwagen 1990: 271-83, Smith 2005]. It isn't hard to come up with examples of things that, in some sense, seem to exist to a greater degree than others: bricks, for example, when compared to clouds. And I don't think there's any *grammatical* difficulty in saying that bricks exist more so than clouds. (It's more natural, perhaps, to say that some things are more real than others.) But I doubt there's a way to block the inference from 'x exists more than y' to both 'x exists' and 'y exists'. (This is not like 'x is taller than y', which doesn't entail that either of x or y is tall.) Now if existence comes in degrees, surely bricks have a higher degree of it than Pegasus. So bricks exist more than Pegasus, and so both bricks and Pegasus exist. This is bad news, on the face of it, but there's no need to go there – existence is vague (i.e. the idioms of quantification are vague), but doesn't admit of degrees.

3. Epistemicism

So far I have shown that theories of vagueness based on non-standard logics can account for the existential sorites puzzle, by endorsing the thesis of vague quantification, without any unhappy consequences. If those theories provide plausible accounts of the qualitative sorites puzzle, then they provide plausible accounts of the existential sorites as well. In this section I aim to show that the same is true of epistemicism: that (i) the epistemicist solution to the qualitative sorites puzzle can be applied to the existential sorites puzzle, *mutatis mutandis*, and that (ii) no additional problems arise for epistemicism, given the extension.

Epistemicism and the "linguistic theory of vagueness" share an assumption – the correctness of what Sider calls the "usual model of vagueness," on which "[w]herever

there is vagueness ... there must be different non-vague candidate meanings ‘in the neighborhood of’ the vague term” [2003: 137-8]. Where the “linguistic theory” says there is “semantic indecision” over which of these meanings is the meaning of the vague term, epistemicism says there is semantic decision – one of the candidate meanings is *the* meaning of the vague term, but we are incapable of making fine enough discriminations to determine which, and thus remain non-accidentally ignorant of the boundary between, for example, times at which the sky is red and times at which the sky is not red [Williamson 1994: 185-247]. The epistemicist resolves the qualitative sorites puzzle by denying Sunset2. But there is nothing in this theory that speaks against extending it to the existential sorites puzzle. Just as there is a boundary between times at which the sky is red and times at which the sky is not red, of which we are irredeemably ignorant, so there is a boundary between the times at which the planks compose something and times at which the planks compose nothing, of which are we irredeemably ignorant. Ship2 is false. Markosian defends something like this; concerning a series of cases (each differing from its neighbours only minimally in terms of spatial arrangement of simples, spatial and causal relations obtaining among simples, etc.), from a case in which composition intuitively occurs to a case in which composition intuitively doesn’t occur, he concludes that there exists “a pair of adjacent cases such that in one case composition occurs while in the other case it does not” [1998: 238]. Markosian does not go so far as to say that we are irredeemably ignorant of which pair flanks the boundary between composition and non-composition, but he is committed to the view that there is nothing in virtue of which composition takes place, in the one case, and not in the other. Regardless of the merits of this “brutal composition” proposal, it is clear that denying Ship2 in this way involves one in all *and only* the problems associated with the epistemicist solution to the qualitative sorites puzzle.

There may be a difference between the way in which the “usual model” is invoked in the case of ‘x is red’ and the way it needs to be invoked in the case of ‘x exists’. We can imagine, in the former case, establishing the meaning of the vague term by surveying those individuals that exist, and dividing them into two groups – those that are red, and those that are not. We can’t imagine, in the latter case, establishing the meaning of the vague term by surveying those individuals that exist, and dividing them into two groups –

those that exist, and those that are not. (I think this is what people mean when they say that “existence is not a predicate.”) The meaning of ‘ x exists’ is not given by partitioning a domain of discourse. Perhaps what would suffice for giving the meaning of ‘ x exists’ would be specifying a domain of discourse in the first place. Just as the epistemicist can say that the extension of ‘ x is red’ is a (classical, non-fuzzy) set, whose members we are not completely knowledgeable about, but which includes the sky at 6:00, but not the sky at t , so the epistemicist can say that the domain of quantification appropriate for giving a semantics for ‘ x exists’ is a (classical, non-fuzzy) set, whose members we are not completely knowledgeable about, but which includes something composed of the planks at noon, but nothing composed of the planks at t .

As with non-standard logics, I will have nothing special to say in defence of epistemicism. Again, I think the “incredulous stare” carries little weight here. Timothy Williamson offers powerful arguments for epistemicism, from the principle of bivalence [1994: 187-98]; the most compelling criticism of epistemicism, that I am aware of, is that of John Burgess, based on the idea of a necessary connection between meaning and use [2001, see also Williamson 1994: 205-12 and 1996]. The important point of this: none of the problems with epistemicism concern its ability to deal with the existential sorites puzzle.

4. Vagueness, Without Refuge

I’ve shown that epistemicism and theories based on non-standard logics can account for the existential sorites puzzle, by endorsing the thesis of vague quantification, without any unhappy consequences. This shows that the premise that the “linguistic theory of vagueness” is the only way to avoid a commitment to metaphysical vagueness is false. As well, we should take stock of what has been done by way of vindicating the thesis of vague quantification. Recall the appearance of kinship between the qualitative sorites and the existential sorites. Two prominent theories of vagueness support the idea that this appearance reflects reality. Suppose van Inwagen and Sider are right that the “linguistic theory” can’t provide a solution to the existential sorites puzzle. This now appears to be a serious cost for the theory, relative to the competition.

But my aim is to vindicate the thesis of vague quantification, regardless of one's preferred theory of vagueness. So in this section I aim to show that the second premise of the linguistic theory argument is false: we can solve the existential sorites puzzle within the framework provided by the "linguistic theory of vagueness."

The "linguistic theory" appellation is meant to apply to a family of views, including standard supervaluationism [Fine 1975, Keefe 2000], the contextualisms of Lewis [1970: 228-9 and 1979: 244-46], Soames [1999: 203-27], and Fara [2000], subvaluationism [Hyde 1997], and Braun and Sider's semantic nihilism [2007]. These views are all based on something like the following thought:

(Precisification Requirement) Whenever the language we use to talk about some aspect of reality is vague, we shall always be able to imagine a plurality of alternative precise languages ('precisifications'), which we could have used to speak truly about that aspect of reality.

However, I shall argue that defenders of the "linguistic theory" make an assumption in addition to the precisification requirement – and it is this additional assumption that must be abandoned to give an account of the existential sorites puzzle.

Consider, as an exemplar of the "linguistic theory," the familiar supervaluationist account of the qualitative sorites puzzle. Vagueness here resides in the predicate 'x is red'. Assume the meaning of a predicate $F(x)$ is provided by specifying the set of all x such that ' $F(x)$ ' is true. Then we can characterize precisifications of 'x is red' by specifying various (classical, non-fuzzy) sets of individuals $R_1 \dots R_n$. Given some penumbral interval p (an interval during which the sky is neither clearly red nor clearly not red), the sky during p will be a member of some of the R_i , but not others. We define truth and falsity on a precisification (for sentences of the form 'x is red') as follows: 'x is red' is *true on R* iff x is a member of R , and *false on R* otherwise. (We might say that the members of R_i are those individuals that could be truly described as 'red' if R_i were the meaning of 'x is red'.) We then define notions of 'supertruth' and 'superfalsity': a sentence is *supertrue* iff true on all precisifications of the expressions that comprise it, and *superfalse* iff false on all such precisifications. Finally, we can give a formal definition of truth: a sentence is true iff supertrue, false iff superfalse, and neither true nor false otherwise. A solution to the qualitative sorites is obvious. Sunset2 is superfalse,

because on each precisification of ‘ x is red’ there is some p_i such that during p_i the sky is red, and during p_{i+1} the sky is not red, and therefore false.

Why won’t this work for the existential sorites puzzle? In §3 I said the epistemicist may maintain that the domain of quantification appropriate for giving a semantics for ‘ x exists’ is a (classical, non-fuzzy) set, whose members we are not completely knowledgeable about, but which includes something composed of the planks at noon, but nothing composed of the planks at t . The difference between epistemicism and the “linguistic theory” is the idea of “semantic indecision” – where the epistemicist had *one* (unknowable) precisification for ‘is red’, the supervaluationist has many. Applying this thought to the existential sorites, we would need to appeal to many domains of quantification, where the epistemicist appealed to only one. We would need, in other words, various (classical, non-fuzzy) sets of individuals $D_1 \dots D_n$, where, for any penumbral interval p , some of the D_i will contain something composed of the planks during p , and some won’t. The definition of truth on a precisification would then have to look like this: a sentence of the form ‘The planks compose something during p ’ is *true on D* iff there exists some element of D that the planks compose during p . But we have reached disaster for restricted composition: given a penumbral interval (during which the planks neither clearly compose something nor clearly don’t), ‘The planks compose something during p ’ should be true on some D_i , but from the definition of truth on a precisification just given, it follows from this that *there exists something that the planks compose during p* . The supposedly penumbral case of existence has become the real thing.

It is tempting to try to resurrect the idea of a plurality of domains of quantification by putting logical constructions in their place – in place of the set of individuals D_i (whose existence entailed the existence of a ship we didn’t want to countenance the existence of) we might appeal to a set of (possibly empty) names, or a set of possible objects [Smith 2007], or a set of sets of putative parts [van Inwagen 1990: 277]. But this is out of line with the precisification requirement, which said that the precise alternative languages could have been used to speak about *the same aspect of reality* that we use our actual vague language to speak about. Ships are one thing, names of ships, possible ships, and sets of ship parts are quite different things altogether. Like McX, I never confuse ships

with names, or with possibilia, or with sets of ship parts. And although I suppose I can imagine speaking precisely about sets of ship parts using the same words that I actually use to speak of ships, this is too far from the kind of alternative precise language that the “linguistic theory” had in mind. Lewis’ metaphorical “indecision” couldn’t refer to our being indecisive about whether to use the idioms of composition to talk about actual material things, on the one hand, or to talk about words, or possibilia, or logical constructions, on the other. In whatever sense we are “indecisive,” we are indecisive over different ways *of talking about material things*.

Nevertheless, that we can’t give a supervaluationist semantics for the idioms of quantification – which I think the argument above proves – doesn’t show that the “linguistic theory” can’t make sense of quantificational vagueness. To show that we would need to assume (on behalf of the “linguistic theory”) not only the precisification requirement, but also that, in every case of vagueness, is possible, in principle, for us to give, in precise terms, a characterization of the precisifications required by the precisification requirement. Sider, for example, insists on a non-vague “background language” in which we can precisely describe the aspects of reality about which we have been indecisive:

Assuming *one* bit of language – the quantificational bit – to be non-vague, one can give non-vague descriptions of precisifications of the *rest* of the language, which *can* be taken to be vague. But once the precision of the quantificational portion of language is challenged, this neat picture breaks down. No refuge from vagueness remains in which to characterize precisifications. [Sider 2003: 139-40]

To again use supervaluationism as an exemplar, since truth is defined in terms of supertruth, and supertruth in terms of truth on a precisification, it follows for the supervaluationist that if ‘true in English’ is precise we must be able to give a semantics, in precise terms, for the various precisifications of our vague expressions. There may be other motivations for the requirement that precisifications be precisely characterized.⁷ In any case, if Sider’s argument is sound, the notion of precision must enter into the “linguistic theory” twice: *first* in the precisification requirement, and *again* in a commitment to the following:

⁷ Some are attracted to the idea that any non-vague reality must be describable in precise terms. This idea merits discussion, but to my ear it has the ring of the (dubious) principle that all reality must be knowable – i.e. it seems like it insists on a special connection between reality and our means of representing it. See §5.

(Precision Requirement) Whenever we imagine a precisification of our language, we shall be able to characterize that precisification in precise terms.

The precision requirement is not entailed by the precisification requirement. The latter requires that we recognize alternative precise ways of speaking truly. The precision requirement asks us to do something more: it requires that we speak precisely in characterizing these alternatives. But as opponents of metaphysical vagueness rightly remind us, something non-vague can be described in vague terms. We can imagine a precise language L , and recognise that we could have used L to speak truly about some aspect of reality, without (for example) giving a precise semantics for L . In general, our ability to imagine a language L with a certain feature does not require that we be able to (for example) give a semantics for L in a meta-language that also has that feature.

Furthermore, our ability to recognize truth in L is greater than our ability to give a formal semantics for L (including a definition of truth in L). Most people can recognize truth in English without being able to provide a (precise) formal semantics for it. Depending on what you think about the prospects for (precise) formal semantics, we may be able to recognize truth in English even though no one will provide a (precise) formal semantics for it. The possible languages required to make sense of the idioms of quantification as vague – with their precisifications of the quantifiers – are the same: we can recognize them as ways of speaking truly, without the ability to represent their semantics formally.

I propose, then, that we keep the precisification requirement, and reject the precision requirement. Sider is right that there is no refuge from vagueness, but this doesn't doom the prospects of satisfying the precisification requirement for the idioms of quantification. Here's what we can say:

Just as “no one has been fool enough” to specify exact boundaries for the outback, so no one has been fool enough to specify exactly those things that we count as elements of our (implicit) domain of quantification. No one has been fool enough to specify an interval p_i such that the planks compose something during p_i but not during p_{i+1} . But such a specification could have been made – we can imagine a possible history of the use of our language on which people (more or less) uniformly affirm the sentence ‘During p_i the planks compose something, and during p_{i+1} they compose nothing’, and where their affirmation is appropriately connected to the aforementioned history of use. (In other

words, their commitment to the sharp boundary is not merely accidentally in line with convention.) These speakers take the sentence ‘During p_i the planks compose something’ to be clearly true and the sentence ‘During p_{i+1} the planks compose something’ to be clearly false. Call the language these people speak L_i . If I’m right that these are possible ways our language could have been used, then the “plurality of alternatives” part of the precisification requirement is met. Now consider all the L_p such that (i) ‘During q the planks compose something’ is clearly true (in our language) only if speakers of L_p take it to be clearly true, and (ii) ‘During q the planks compose something’ is clearly false (in our language) only if speakers of L_p take it to be clearly false. Call these *precisifications of our language*. Given a suitable historical story, it is intuitive that speakers of admissible precisifications speak truly (more or less) about the explosion of the ship. With the precision requirement rejected, there is no reason to resist this intuition.⁸ This satisfies the “speak truly” part of the precisification requirement. A corollary of this is that (for the most part) any sentence speakers of L_p take to be clearly true is true. It follows from all this that no sentence is clearly true in our language unless true on all precisifications of our language. But seemingly plausible Ship2 is not true on any precisification of our language. Therefore, it’s not clearly true.

How is disaster averted? Just as it doesn’t follow from the fact that ‘The sky is red during p ’ is true on R_i that the sky is red, it doesn’t follow from the fact that ‘The planks compose something during p ’ is true in L_p that the planks compose something during p . All this only once we are no longer required to give a formal semantics for L_p .

Now I’ll concede that this solution to the existential sorites available to the defender of the “linguistic theory” is austere. It does not have the formal impressiveness of her solution to the qualitative sorites. Sider calls the view “unattractively quietist,” on the grounds that “we can say nothing at all to make [quantificational] vagueness intelligible” [2003: 140]. I would deny the “nothing at all,” but agree that we can’t say as much as we can say in the case of predicate vagueness. But we can say enough: we can accomplish the requisite acts of imagination, noting the possibilities of precision, none of which are

⁸ The intuition is charitable. Being uncharitable is always an option – but it’s no more plausible here than it would be in the case of ‘ x is red’. If we’re prepared to be charitable and say that we could have spoken truly about redness in one of the precise languages described above, then we should be charitable in this case as well. And dropping the precision requirement keeps us out of trouble. For the relevance of charity in this context see §5 and Hirsch 2005.

actual. An urgent issue, in this context, is that of how much we expect out of a ‘solution’ to sorites paradoxes. The supervaluationist’s formalism is appealing, but I don’t know that *that* is what ‘solves’ the qualitative sorites puzzle. It is not as if those who worry about that puzzle are thinking: ‘What I seek is a formal semantics for English on which Sunset2 comes out false’. The idea of “semantic indecision” is doing all the work here – but that idea can do the same work on the existential sorites puzzle.

Objection: “The supervaluationist apparatus for predicates is a powerful formalism. It’s rash to jettison it in favour of your non-formal vindication of the precisification requirement.” Reply: I don’t propose that we jettison the formal apparatus as a means of characterizing precisifications of predicates. Although Sider says that we need to assume the quantifiers are precise to give a characterization of predicate precisifications, this is wrong. Suppose the idioms of quantification are vague, as I’m claiming, and suppose this vagueness is inescapable. This is no bar to using those idioms while describing various ways of using predicates precisely. There’s no reason why the supervaluationist, for example, needs to assume the precision of the quantifiers to tell her story about ‘*x* is red’, which I glossed above.

Objection: “Above you claimed that you’d show that the “linguistic theory of vagueness” can treat the idioms of quantification as vague. But all you’ve shown is that a related idea – which you call the “precisification requirement of the linguistic theory” – is consistent with the claim that the idioms of quantification are vague. Indeed, one of the things the “linguistic theory of vagueness” says (by definition) is that logical and mereological vocabulary isn’t vague.” Reply: The defender of the “linguistic theory” should not adopt this stance, on pain of begging the question. It’s fair enough that the thesis of vague quantification is incompatible with the theory that there’s no vague quantification. But what reasons are there to accept *that* theory? There is a *prima facie* reason to accept the thesis of vague quantification: the existential sorites puzzle. We need reasons – like Sider’s arguments, considered here – to reject the thesis. Though van Inwagen seems to build the thesis of logical (and mereological) precision into what he calls the “linguistic theory” [1990: 231] others don’t [Sider 2001: 125 and 2003: 137-8, Nolan 2006: 721-2]; for them the precisification requirement is always that of multiple precisifications, and the precision of logic (and mereology) is a supposed *consequence* of

that precisification requirement. Thus Lewis' rhetorical question: "What would be the alternatives between which we haven't chosen?" [1986: 212].

5. Conclusion

Suppose I'm right that there is vagueness without refuge (in the case of the idioms of quantification). I've maintained that there is refuge from the vagueness predicates. What makes for the difference? The issues here are bigger than they look. As Sider notes, the question of whether we can imagine multiple meanings for the idioms of quantification brings us to the issues of conceptual relativity, familiar from Hilary Putnam's later work, and these bring us forthwith to the question of whether and to what extent the world is independent of thought and language. Sider offers a second argument against the thesis of vague quantification – or perhaps more than one argument, depending on how we individuate arguments. He writes that precisifications of the idioms of quantification look a lot like Putnam's "conceptual schemes," concerning which Putnam maintained that "the logical primitives themselves, and in particular the notions of object and existence, have a multitude of different uses rather than one absolute 'meaning'." [Putnam 1987: 19] Sider, on the other hand, maintains that "the existence of things is univocal, not relative to conceptual schemes or linguistic frameworks," [2001: 130, also xvi-xxiv] and in his recent paper argues that the idioms of quantification do not admit of precisification because "existence is a unique natural kind" [2003: 143].⁹ This premise, Sider argues, "gels with a nice picture of the ready-made world as consisting of a domain of objects and their natural properties and relations" [2003: 144]. Putnam (and others) would obviously disagree that the picture is "nice." But this brings us to an objection to restricted composition that is distinct from, but related to, the argument from vagueness considered here. It is the charge that any restriction on composition would be *arbitrary*, in some objectionable sense.¹⁰ For

⁹ The argument requires the premise that natural kind terms do not admit of precisification. Sider bases this premise on the "best candidate" theory of meaning. Some paradigm natural kind terms – the names of biological species, for example – seem to admit of precisification.

¹⁰ Sider mentions "brute fact[s]" that are "hard to stomach" [2001: 124] and complains of "unanticipated powers of humans to draw metaphysically arbitrary lines" [2001: 131]; for critical discussion of Sider's worries about "arbitrariness," see Nolan 2006: 725-27.

example, a defender of common sense will include my suit in her ontology, but will exclude the sum of my pants and your jacket – even when our jackets are slung over the back of the dining room chairs, while we converse on the veranda. The present causal and spatiotemporal relations between my pants and my jacket, on the one hand, and those between my pants and your jacket, on the other, are just not different enough to warrant a difference in composition. The difference, it seems, resides in *us* – in the way we deploy the concept of a ‘suit’, or in our practices of manufacturing and our conventions of clothes-ownership. Considerations like this lead James Van Cleve to argue that “[t]he factors that guide our judgments of unity simply do not have ... ontological significance,” and furthermore that to maintain “that what objects there are depends on our conceptual practices ... intimate[s] a form of idealism or conceptualism that is” unacceptable [1986 :145, Cf. van Inwagen 1990: 6-13].¹¹

I bring this up both to gesture in the directions that a further defence of restricted composition would have to go, as well as to show that the issue appears to hinge on some big questions in metaphysics. But whether existence is a natural kind is not a matter of logic. That the question of the existence of suits and ships that can be created and destroyed involves us in the question of the mind-independence of the world is, perhaps, surprising. In any case, I say we should focus our attention there, and away from concerns about vagueness.*

¹¹ [Discussion of author’s paper]

* [Acknowledgements]

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