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A Modal Argument against Vague Objects

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There has been much discussion of whether there could be objects *A* and *B* that are "individuatively vague" in the following way: object *A* and object *B* neither determinately stand in the relation of identity to one another, nor do they determinately fail to stand in this relation. If there are objects of this type, then we would have a genuine case of metaphysical vagueness, or "vagueness-in-the-world." The possibility of vague objects in this sense strikes many as incoherent. The possibility's very description not only seems to talk of two objects but, much worse, it seems to point to a feature that distinguishes them: unlike object *A*, object *B* is not determinately identical to object *A*. This suspicion of incoherence is voiced in the famous arguments given against the possibility by Gareth Evans and Nathan Salmon. But the status of those arguments and others is uncertain.[1] Here I present a new argument against vague objects — or more precisely, against the possibility of individuatively vague objects that satisfy an important and common additional condition that I will call "Democracy." Since my argument turns on a connection between what is indeterminate and what is possible, I call it "the modal argument." Before I present the argument (in section II) and refine it (in section III), I will motivate its target (in section I). For while there has been much debate about the coherence of vague objects, there has been less discussion of why one might be tempted to believe in them in the first place.[2] Ironically, the strong motivation we have for embracing vague objects is, I will argue, the very source of their impossibility.

1. For the original arguments see Evans, "Can There Be Vague Objects?," *Analysis*, 38 (1978): 208, and Salmon, *Reference and Essence* (Princeton: Princeton University Press, 1981), pp. 243–6. For the view that the arguments aren't conclusive see, for example, Richard Heck, Jr., "That There Might Be Vague Objects (So Far as Concerns Logic)," *The Monist*, 81 (1998): 274–96, Terence Parsons and Paul Woodruff, "Worldly Indeterminacy of Identity," *Proceedings of the Aristotelian Society*, 95 (1995): 171–91, Dorothy Edgington, "Indeterminacy de Re," *Philosophical Topics*, 28 (2000): 27–44, and Michael Tye, "Vague Objects," *Mind*, 99 (1990): 535–57 and "Vagueness and Reality," *Philosophical Topics*, 28 (2000): 195–209. See also Parsons, *Indeterminate Identity: Metaphysics and Semantics* (Oxford: Oxford University Press, 2000), which responds to these, as well as to a number of additional arguments against vague objects.

2. Less, but some: see, for example, Edgington, Parsons, and Tye, as well as Timothy Williamson, *Vagueness* (New York: Routledge, 1994), Ch. 9.

I. Why Believe in Vague Objects?

I should at the outset distinguish the putative possibility that is my concern here from an independent possibility that is sometimes said to involve "vague objects": the view that there are entities — call them "fuzzy objects" — with indeterminate spatio-temporal boundaries.[3] One might allow that there are fuzzy objects but none that is vague in my sense, if one maintained that all fuzzy objects are determinately distinct from any non-fuzzy object, and either determinately identical to, or determinately distinct from, any other fuzzy object. And one might allow that there are vague objects but none that is fuzzy. One might hold this if one were moved only by the example concerning numbers and sets that I'll give in a moment. Finally, one might hold that the world is indeterminate in both these ways — indeed, that it is sometimes indeterminate whether a given fuzzy object is identical to some other fuzzy object, or even to a given non-fuzzy object.[4] With this terminology in place, I now show how some familiar puzzle-cases might move us to believe in vague objects in my sense.[5]

EXAMPLE 1: I live at the very base of Mt. Toby, in Western Massachusetts. I've climbed its summit many times. I maintain, or would like to maintain, that mountains (at a time) are nothing more than hunks of rock and dirt — or, to speak microphysically, that mountains are just collections of molecules. But which collection is Mt. Toby: one that includes the molecules under my house or one that doesn't? I'm inclined to think that this question lacks a determinate answer, since geologists, maps, and town halls can provide none. There seems to be nothing in our concepts and nothing in the world that could answer this question. And so I wonder whether Mt. Toby is not only fuzzy (lacking, as it does, determinate spatial boundary) but also vague (in my sense): Mt. Toby doesn't seem determinately identical to any precise collection of molecules, yet it doesn't seem an entirely distinct type of entity, either.

EXAMPLE 2: Ten years ago, I acquired a used Volvo. Since then I've paid alarming sums to the local mechanic, who's replaced many, many parts. So many, in fact, that by repairing and assembling the discarded ones, she's fashioned a Volvo that looks and runs just like the one I now drive. I sometimes wonder whether the car I'm now driving or the one she's driving is the Volvo I acquired ten years ago. But this question also seems to lack a determinate answer, or at least I don't know how to go about answering it.

EXAMPLE 3: I have a favorite number — two. I would like to think that this number and all other natural numbers are just sets (or classes), since this identification would simplify ontological matters, and since I've been led to believe that certain progressions of sets can adequately function just as the natural numbers are meant to function. But which of the many candidate sets is the number two: is it, for example, $\{\{\emptyset\}\}$, or is it perhaps $\{\emptyset, \{\emptyset\}\}$? Here too, I suspect indeterminacy.

Cases such as these puzzle me and many others.[6] The examples differ

3. The distinction can be maintained even if one extends the notion of fuzzy object to cover entities with indeterminate boundaries of other types — compositional, psychological, aesthetic, and so on.

4. A proponent of the second possibility might hold that the first object is fuzzy not because it has a genuine property — "fuzziness" — that the second lacks, but rather because certain compositional predicates that yield (bivalent) truth-value when applied to the second object lack it when applied to the first.

5. But are fuzzy objects or the individuatively indeterminate objects I'm concerned with *properly* called "vague"? The question lacks a clear answer, but seems harmlessly terminological once we explicitly recognize why. On one hand, the objects of my concern are precisely those Evans famously argued against. On the other hand, they are not always, as the number–set example will show, surrounded by conditions that give rise to a sorites paradox; and this is often taken to be a central feature of "vagueness."

6. The first is an instance of the "problem of the many" (see Peter Unger, "The Problem of the Many," *Midwest Studies in Philosophy*, 5 (1980): 411–67) and of the "paradox of the 1001 cats" (see Peter Geach, *Reference and Generality* (Ithaca: Cornell University Press, 1980)). And the second is, of course, just a modern day Ship of Theseus.

   The third example is less familiar, and perhaps more controversial. It's an instance of a problem first raised by Paul Benacerraf (in "What Numbers Could Not Be," *Philosophical Review*, 74 (1965): 47–73) for a reductive view about numbers. And for all I hope to establish in the paper, it could simply be ignored. I include it, though, because it's useful in distinguishing fuzzy objects from individuatively vague objects (the number 2 is clearly not fuzzy); and moreover, it's an importantly different context in which we might reach for the latter. Crispin Wright pursues the interesting possibility that "class

in certain ways, and the associated puzzles might, in the end, admit of different solutions. However, in each case, puzzlement arises because we are simultaneously inclined to hold three claims, which I now state in admittedly rough and general terms.

1. PARSIMONY. Talk of specific mountains, persisting cars, and numbers is, I think, perfectly meaningful and useful in explanation, prediction, and so on; and such talk answers to a world that is, for the most part, metaphysically independent of our representations of it. But I also have reductive or at least parsimonious ambitions when it comes to the putative entities at issue. I would like to hold that mountains (at a time) are collections of molecules, that numbers are just sets of a certain type, and that there have not been more than two persisting Volvos involved in the course of my interactions with my mechanic. I seek to reduce the number of entities (and types of entities) to which I am committed by holding that some of these putative entities are identical to one another.

It is not merely a tidy aesthetic that drives this metaphysical ambition. (For this reason "Parsimony" might be a misleading label, though I can think of none better.) If we can carry out these identifications, our explanations and understanding will also be more complete and satisfying. Identification allows the best possible explanation for a correspondence in properties, and it can lead us to notice and understand new correspondences. Successful identification also leaves us less to explain: it eliminates nomological danglers and softens explanatory gaps.

For these reasons Parsimony goes well with a broadly materialist outlook, though it also goes well with other outlooks. From the materialist perspective it is difficult to understand, for example, how Mt. Toby could be anything other than the things of which it is made. In fact, if we fail to carry out an identification, we will have difficulties explaining and understanding how and why mountains don't float entirely free above the many mountain-like collections of rocks or molecules that constitute them. There are things we can say — we might appeal to bridge principles or relations of supervenience, for example — but a successful identification is cleaner and better.

Parsimony also bears on the second and third examples, where questions of material composition and constitution aren't as obviously at play. My philosophical understanding would be clearer (as would my practical sense of the cars' historical ownership) if I could hold that there have been at most two cars over the past ten years, and if I could determinately say at all times which have been which. Similarly, difficult questions about the relation between numbers and sets would be reduced dramatically if they turned out to be one and the same.

2. DEMOCRACY. In each example there seems to be more than one equally suitable "candidate" for identification. Mt. Toby might adequately be identified with a collection of molecules (call it "*M*") that includes those molecules under my house, except that it might adequately be identified instead with the collection (call it "*M*-minus") that contains all molecules in *M* except for those under my house.[7,8] The car that I

and (natural) number have a certain sort of mutual *vagueness*" in *Frege's Conception of Numbers as Objects* (Aberdeen University Press, 1983), pp. 124ff. I investigate this possibility and Benacerraf's problem more generally in "Propositions, Numbers and the Problem of Arbitrary Identification," *Synthese*, 120 (1999): 229–63.

7. It's indeterminate, of course, exactly which molecules are "under my house." But we could, in principle, use precise terms to specify determinate collections to serve as candidates. And if the geologist, the map, or the town hall did manage to tell me whether my house determinately sits or fails to sit on Mt. Toby, we could always, in principle, raise the same problem by distinguishing collections, differing in membership only by one molecule, that are each compatible with such an answer.

8. The identification of Mt. Toby and *M* faces the additional obstacle that mountains and collections of molecules seem to have different temporal and modal identity conditions: while Mt. Toby's existence isn't threatened by the loss (at a later time or in a counterfactual scenario) of certain of its molecules, the same isn't clearly true of *M*. But this is controversial at the very least, and open to finesse in any case. Even if we allow that Mt. Toby could survive these loses, why couldn't *M*? Or better, why can't we introduce as a plausible candidate a "loose collection" of molecules — call it *M** — that has as a constituent, at a world and at a time, all those molecules Mt. Toby determinately has at that world and at that time, and then some (at least two) of those which Mt. Toby neither determinately has nor lacks. (Alternatively, we might construct *M** as a "5D" collection of the corresponding time-world stages.) *M** might give us metaphysical hives, but we can't cite temporal or modal divergence as a reason for prohibiting its identification with Mt. Toby. The independent

acquired ten years ago (call it "Original Volvo") could be identified unproblematically with the car I now drive (call it "Continuous Volvo"), except that it could also be unproblematically identified with my mechanic's current car (call it "Reconstructed Volvo").[9] The number two might be identified in Zermelo's way with the set {{ø}}, except that it might equally well be identified in von Neumann's way with the set {ø, {ø}}. In each of these cases, there seems to be nothing in our concepts and nothing in the world that favors one candidate over the other. According to Democracy, reality honors this appearance: there is no hidden factor in cases of this type that makes one candidate more suitable than the other for identification with our focal entity.

3. NECESSARY DISTINCTNESS.[10] In each example I hold that the candidates are determinately distinct from one another. Moreover, I hold that they are necessarily so. This is not because I hold fast to some general principle of the necessity of identity and distinctness. It is rather because the particular identities at issue aren't even *conceptually* possible for me; and it's difficult to believe that any theoretical advance will dispel this conceptual impossibility, since the distinctness of the candidates seems entailed by our concepts of them along with the framework that embeds these concepts.

In this way my attitude towards the distinctness of the candidates differs from my attitude toward the distinctness of, say, water and CO_2 (and certainly towards the distinctness of Pain and *D*-fiber firing). Along with the chemists, I hold that water is distinct from CO_2, and along with Kripke, I hold that this means that their distinctness is metaphysically necessary. But the identity of water and CO_2 is nevertheless conceptually possible for me in the following sense: I allow that some theoretical advance (I know not what, of course) might bring me to accept what I now believe to be metaphysically impossible — namely, that water and CO_2 are, in fact, identical, and necessarily so. In contrast, the identity of *M* and *M*-minus is not even conceptually possible for me because the concepts that pick out these two objects are drawn from the same cluster of mutually exclusive concepts. Distinctness from *M* seems entailed by the very concept of *M*-minus (and the framework that embeds these two concepts), while distinctness from CO_2 is not similarly built into our concept of water — or at least into our more or less pre-theoretic concept of water. So in this sense at least, the necessary distinctness of *M* and *M*-minus is *a priori*, while the necessary distinctness of water and CO_2 is not.

The combination of these three views leads to a puzzle. Parsimony moves me to try to identify with one another the various entities (and types of entities) in whose existence I believe. However, because of Democracy, I don't know how to proceed. I draw a blank when I consider which identity statement to endorse in the following pair:

> Mt. Toby is identical to *M*.
> Mt. Toby is identical to *M*-minus.

And which to endorse in these pairs:

> Original Volvo is identical to Continuous Volvo.
> Original Volvo is identical to Reconstructed Volvo.
>
> The number two is identical to the set {{ø}}.
> The number two is identical to the set {ø, {ø}}.

I can't see that there is anything in my concepts, nor anything out

obstacle posed by Democracy arises anew when we introduce a competing candidate, *M**-minus, which differs from *M** only in lacking, at some world and time, at least one of the molecules *M** determinately has there and then but that Mt. Toby neither determinately has nor lacks.

9. The first identification would be unproblematic if the replaced parts were scattered, or simply destroyed, while the second might be unproblematic in the absence of Continuous Volvo — if, for example, I had kept Original Volvo in my garage and, over the course of ten years, slowly disassembled it, giving one part a week to my mechanic, who slowly reassembled them in her garage.

10. Only the *actual* distinctness of the candidates is needed to motivate vague objects, which is the goal of this section. However, this seems the right place to motivate as well the stronger claim that the candidates are *necessarily* distinct, since this will play a role in the modal argument that is to follow.

there in the world, to favor one over the other of the paired identity statements. Yet the distinctness of the candidates and the transitivity of identity bars me from holding that both sentences in any pair are true.

Now, as I've already hinted, an appealing way to escape this puzzle might be to hold that the problematic identity statements are shrouded in indeterminacy: they have some truth-value other than truth or falsity, or as I will prefer to say, they lack truth-value altogether.[11] This seems a promising way of respecting Parsimony (the focus entities are not, at least, held to be determinately distinct from the candidates), while also honoring Democracy (no arbitrary identification is drawn with one but not another of the distinct candidates). But where could this indeterminacy come from? How might it work?

A popular answer — "representationalism" — would be that the indeterminacy here arises entirely from the way we represent the world, and not at all from the world itself. On this view, the indeterminacy resides in some individuative indecision, indefiniteness, or imprecision in our concepts of a mountain, of a car over time, and of a number; and this conceptual indeterminacy is connected to (and explains) a referential indeterminacy in the expressions we use putatively to pick out these entities. According to the representationalist, the world as it exists independently of our representations of it contains no imprecision or vagueness: the indeterminacy arises entirely from the way we conceive of an individuatively precise world, and the way we talk about it. Our conceptual scheme and our linguistic practice fail to guide us — they remain silent or lead us in conflicting directions — when it comes to the individuation of mountains, persisting cars, and numbers, at least when we wonder about these entities in unconstrained explanatory contexts.

Careful work has been done to show how we might understand individuative indeterminacy as arising entirely from our conceptual and linguistic representations.[12] But however it is fleshed out, representationalism clashes with a sense — stronger in some of us than others[13] — that, in these cases at least, our representations seem to us from the inside to be determinate in their reference. If we were to honor this intuition fully and straightforwardly, an additional constraint would block the representationalist way of understanding the indeterminacy, which we had hoped would lead us out of the puzzle.

4. REFERENTIAL DETERMINACY. When we use the names and individual concepts in the examples at hand, it seems that we determinately secure a grip on a unique referent. I don't seem to speak imprecisely when I thump the rocky summit of Mt. Toby with my hand, invoke the mountain's name, and wonder aloud whether my house sits upon it. The referential link is literally there to see. How could there have been referential indeterminacy ten years ago when, just after acquisition, Original Volvo broke down and I cursed it by name, threatening its future as we languished road-side? And how can there be any indefiniteness about the object of my affection as I lie awake at night pondering the many unique and delightful features of my favorite number, two? To say that my words and concepts are referentially indeterminate in these moments seems to clash not only with semantic phenomenology — with the untutored referential presuppositions and intentions that attend my spoken and unspoken uses of these representations — but also with a pre-theoretic world-view according to which the entities we seem to traffic in daily (mountains, cars, even numbers) answer straightforwardly to our talk about and unproblematic counting of them. All of this is violated if a common singular representation is held to be referentially grounded in more than one exotic-seeming entity, as on the view that our concept of Mt. Toby shifts between *M* and *M*-minus.

11. This difference won't matter for our purposes.

12. The most popular accounts deploy the method of supervaluation, which was first applied to vagueness by Kit Fine in "Vagueness, Truth and Logic," *Synthese*, 30 (1975): 265–300. Two prominent supervaluationist treatments of the "problem of the many" example are David Lewis's "Many, but Almost One" reprinted in *Papers in Metaphysics and Epistemology* (Cambridge: Cambridge University Press, 1999), pp. 164–82, and Van McGee's "'Kilimanjaro,'" *Canadian Journal of Philosophy*, supp. vol. 23 (1997): 141–98.

13. In the cited articles, Edgington and Tye nicely defend what I here call Referential Determinacy.

Now, the implicit and inchoate intuitions of semantic phenomenology and folk-metaphysics can be severely misguided, of course. And we may certainly choose to reject Referential Determinacy in the end. But surely our philosophical scheme should honor it *other things being equal*.

With Referential Determinacy on board for the moment, we can now see how we might be moved to embrace vague objects. A promising escape from our puzzle is to hold that the problematic identity statements are indeterminate in truth-value, but Referential Determinacy makes unattractive a thoroughgoing representationalist explanation of how this might be so. But then, unless something is to give, we need another understanding of the indeterminacy. And that's how we might come to situate the individuative vagueness in the world itself. When I wonder, for example, whether Mt. Toby is identical to *M*, I take myself to have a determinate referential grip on a unique mountain (Referential Determinacy), as well as on a unique collection of molecules, and I'm moved to see them as one and the same (Parsimony). But I also have a determinate referential grip on the distinct collection, *M*-minus (Distinctness), and just as much reason to identify Mt. Toby with it (Democracy). Since it seems arbitrary to choose *M* over *M*-minus, but non-parsimonious to hold that Mt. Toby is a third entity distinct from each of these, I am moved to hold that Mt. Toby and *M* neither determinately stand, nor determinately fail to stand, in the relation of identity to one another. If this is coherent, then we can honor all four desiderata at once.

In each of our examples, the inclination to posit indeterminacy is motivated in part by Democracy — the view that there are too many equally suitable candidates for identification. The modal argument I will now stage tells only against the possibility that individuatively vague objects exist when Democracy obtains.[14] Moreover, the necessary distinctness of the candidates must also be in place, though this is less of a potential limitation. To mark these qualifications, I call the entities under consideration "democratically vague objects," though I drop the qualifier where there's no danger of confusion. Although the modal argument doesn't rule out the possibility of non-democratically vague objects, I will argue, in section IV, that if are any individuatively vague objects, many if not all of them will be democratic. In that last section, I will also canvass the variety of ways that philosophers have, in effect, resisted the case I've just made for vague objects. For now, I leave this case rough and general: none of the four claims is rigorously formulated, and my statement of their cumulative force glosses over delicate issues concerning the nature of composition, persistence, and abstract objects that might bear differently on our examples.

In the end, we might — we *must*, if the modal argument is sound — abandon one or another of the four claims that motivate belief in vague objects. What I have tried to show in this section is that doing so invites a not insignificant clash with some intuition or philosophical inclination. We may ultimately learn to live with such a clash, but we need to do so only if the existence of democratically vague objects is shown to be impossible. If such objects are possible we can honor all four inclinations at once.

II. The Modal Argument

The possibility of democratically vague objects can be specified schematically as follows:

14. Exactly which objects should we call "individuatively vague"? If we count as individuatively vague any object that figures both in an indeterminate identity statement and also in a state of affairs that satisfies the three conditions set out at the beginning of section II, then objects such as *M* and {{ø}} will count as vague objects. (Indeed, in the case of sets and numbers, all sets will count as individuatively vague objects, since all could figure in some ω-sequence.) But it is odd to say this, since these objects (*i. e.*, the "candidates") seem sharp, or potentially sharp, in every way — spatially, temporally, compositionally, conceptually, and so on. We might reserve the label for objects that figure in more than one indeterminate identity statement of this type — that is, objects determinately picked out by a term that can play the role of "*A*" in the schema at the start of section II. But this too might be overly permissive, since certain intuitively sharp entities might enter into more than one such identity statement. Even if we can't, in the end, restrict the label "individuatively vague" so that we get the intuitively correct results, this seems just a problem of labeling.

i. Naming expression "*A*" determinately (and rigidly) has a sole referent; "*B*" determinately has a sole referent, and so does "*C*".

ii. The entities *B* and *C* are necessarily distinct.

iii. The statements "*A* is identical to *B*" and "*A* is identical to *C*" lack determinate truth-value.

Condition (*i*) captures Referential Determinacy. Condition (*ii*) articulates Necessary Distinctness. And condition (*iii*) allows us to honor Democracy and Parsimony simultaneously: we don't play favorites by arbitrarily identifying *A* with *B* and not *C*, for example, but we avoid holding that *A* is a determinately distinct entity in its own right. The following substitutions would make our three examples instances of this possibility:

A	***B***	***C***
Mt. Toby	*M*	*M*-minus
Original Volvo	Continuous Volvo	Reconstructed Volvo
2	{{ø}}	{ø, {ø}}

The modal argument against this possibility runs in two stages. The first stage establishes a link between metaphysical indeterminacy and possibility: if, in a case of Democracy, we really have good reasons for holding that it is indeterminate whether two objects are identical, then we have good reasons for holding that it is possible that they are determinately identical. The second stage shows that if this is indeed possible then, where Necessary Distinctness obtains, these objects — "both" of them — are determinately distinct in actuality from any object that is necessarily distinct from either. If both stages of the argument are successful, then the assumption that there are democratically vague objects leads to a contradiction. The argument is presented in stripped-down form in this section, and fleshed out in the next, where I respond to three objections.

Stage One. Assume a case of democratic vagueness in which it is

indeterminate whether *A* is identical to *B*, and it is also indeterminate whether *A* is identical to *C*. Let's focus on the first indeterminacy. If it is indeterminate whether *A* is identical to *B* then it must be possible that *A* is identical to *B*. Why? Well, if this were not even possible — if there were no possible world in which *A* is determinately identical to *B* — then we would have no reason for saying, at least for the cases I've discussed, that it is indeterminate whether (and not simply false that) *A* is identical to *B*.

Recall the initial motivation for positing democratic vagueness. The cluster of explanatory ideals I labeled "Parsimony" moves us to identify *A* with *B*, but Democracy poses an obstacle — namely, *C*. *B* is a perfectly suitable candidate for identification with *A*, except that *C* is as well. If it weren't for the existence of *C* then we could — and would — identify *A* and *B*. But then it seems that *A* and *B* could have been identical, at least in a world without *C* — or more exactly, in a world without any other equally suitable candidate for identification with *A*.[15]

We might argue here from a dilemma: either it is possible that *A* and *B* exist without any other competing candidate, or it isn't. If it isn't, then we lose the motivation we had for claiming that it is indeterminate whether *A* and *B* are identical. Why? Well, if every world in which *A* and *B* exist is also inhabited by *C* or some other candidate, then we are not invoking a form of metaphysical modality when we say that we could identify *A* with *B* if it weren't for *C*. If *B*'s candidacy is necessarily

15. There are two (non-exclusive) ways in which the existence of *C* and the existence of a suitable candidate other than *B* might come apart. First (and less importantly), *C* might exist but have diminished status as a candidate for identification with *A*, and so not pose an obstacle to *B*'s identification with *A*. (This is at least conceptually possible, though it's difficult to think of an example.) Second, even in a world in which *C* doesn't exist, *B*'s determinate identification with *A* might be blocked by the existence of some further entity, *D*, that now vies for identification.

This second condition may, in fact, apply to our mountain example. Presumably *M*-minus can exist without *M* — for example, in a world that lacks molecules from the complement of *M*-minus in *M*. But it's not obvious whether *M*-minus is thereby cleared for determinate identification with Mt. Toby, since there may now well be new molecules around to figure in alternative competing candidates.

dogged by *C* or some other candidate, then in what sense is *B* an "otherwise suitable" candidate for determinate identification with *A*? A candidate X is a potential X, but in what sense is *B* a potential *A* if there is no metaphysical "otherwise" — no possible world — in which *B* is free to be determinately identical to *A*? And if *B* is not a metaphysically genuine candidate for identity with *A*, then why should we hold that the identity of *A* and *B* is indeterminate instead of holding simply that *A* and *B* are determinately distinct? It seems, then, that if we are to have genuine motivation for claiming that it is indeterminate whether *A* and *B* are identical, we must allow that it is possible that *A* and *B* exist without *C* or any other competing candidate.

We are moved, then, out onto the other horn of the dilemma. Consider now a possible world in which *A* and *B* exist without any competing candidate. If it is any good at all, the motivation we have for claiming that it is indeterminate whether (and not simply false that) *A* and *B* are identical in the actual world will move us to hold that *A* and *B* are determinately identical in this alternative world. Remember that it is the existence of *C* that makes the choice of *B* seem arbitrary in the actual world — but *C* doesn't exist in this alternative world, and neither does any other competing candidate. So, it seems that, in democratic cases of this type, any good reason we have for holding that the relation of identity neither determinately holds nor determinately fails to hold of two objects is also a reason for holding that it is possible for the two objects to be determinately identical.

Stage Two. Assume now that it is possible that *A* and *B* are determinately identical — that is, that there is a possible world in which *A* is identical to *B*. This would be a world in which *B*, and hence *A*, is distinct from *C* (wherever *C* exists) because, by Necessary Distinctness, all (accessible) possible worlds are such that *B* and *C*, wherever they co-exist, are distinct from one another. Moreover, like the actual world, the world under consideration is, presumably, a world in which *B* is *necessarily* distinct from *C*: whatever reasons we have for holding that it is actually true that *B* is necessarily distinct from *C* apply at this non-actual world as well. This world differs from actuality in that *A* is determinately identical to *B*, but this alone shouldn't affect our reasons for holding that *B* and *C* are necessarily distinct.[16] Since *A* is identical to *B* in this world, *A* is, by Leibniz's law, necessarily distinct from *C* in this world. But if this other-worldly necessity speaks about the condition of the actual world — and why wouldn't it? — it must actually be true that *A* is determinately distinct from *C*. And this contradicts our initial assumption that it is indeterminate whether *A* is identical to *C*.

So, if each stage of the argument is successful, the modal argument establishes that our initial assumptions lead to contradiction. It seems we must give up at least one of the four claims that move us to believe in vague objects.

16. I rely here upon the condition I labeled Necessary Distinctness and not upon (contraposing) a general principle of the necessity of identity. Necessary Distinctness holds of pairs of entities to which the considerations I gave when introducing it (in section I) plausibly apply. (Necessary Distinctness plausibly holds of the "candidates" in our three examples: it very plausibly applies to {{ø} and {ø, {ø}}, and to *M* and *M*-minus; with somewhat less certainty to Continuous Volvo and Reconstructed Volvo.) The modal argument would, I think, go much faster in both its stages if the general necessity of identity were in place. (I thank an anonymous referee for emphasizing this point.) And indeed, someone who steadfastly holds the principle will have little need for much that follows (most notably my reply to the third objection in section III).

    However, the friend of vague objects is unlikely to accept a blanket reliance upon the general necessity of identity. And neither, I think, should an agnostic following the argument wherever it leads. For one thing, it's not clear how the general principle plays out here: from determinate distinctness do we infer the determinate impossibility of identity, or rather the claim that it's not determinate that identity is possible, or something in between? The logic of negation and conditionality is (even more) unsettled when indeterminacy is at play.

    More importantly, the necessity of identity has been questioned, of course, even for entirely determinate matters. (The *locus classicus* is Allan Gibbard's "Contingent identity", *Journal of Philosophical Logic*, 4 (1975): 187–221.) So philosophers sensitive (or stubborn) enough to entertain the possibility of vague objects will wonder why a principle already in question should be adopted as a premise in a realm where many otherwise compelling inferences are up for grabs.

    The modal argument is meant to be partly dialectical and, in any case, non-formal throughout. Nevertheless, in the next section I try to secure the inferences of this second stage in an extended counterpart framework.

III. Objections and Replies

I now flesh out the modal argument by replying to three objections. The first challenges the central inference of stage one. The second charges that the notion of what is possible is applied ambiguously across the two stages. The third challenges inferences central to stage two.

OBJECTION 1. One might challenge stage one of the argument by pointing out that we do not always infer possibility from indeterminacy. This is a reasonable challenge, but in order for it to work, we need some reason for thinking that the inference doesn't hold in the type of case I'm considering — for resisting my argument that the reasons (a mix of Parsimony and Democracy) for holding that it is indeterminate whether *A* is *B* are also reasons for holding that their determinate identity is possible. One might point to certain cases in which the inference fails, but these are all relevantly different from the case at hand.

We might hold that some sentence, S, lacks truth-value because it is ill-formed, nonsensical, or meaningless. In this case, we might not allow that S is possibly determinately true because this suggests that it can be evaluated, and the use of S does not, and could not, succeed in making a claim to truth. (To disallow this possibility is not, of course, to disallow the possibility that S might, under different linguistic conventions, be used successfully to assert a true proposition.) But the sentence we are considering, "*A* is identical to *B*," is not ill-formed, nonsensical, or meaningless.

We might hold, in a related vein, that some sentence, S, lacks truth-value because it contains ambiguous expressions that lack determinate reference or extension. Here too we might not allow that S is possibly determinately true because no determinate claim about the world is yet being made, and when disambiguated S might make a claim that could not be true. But this also can't serve as a model of the case at hand because there's no place to situate the ambiguity or imprecision. Referential Determinacy is in place, and this ensures that "*A*" in our scheme is not ambiguous or referentially imprecise in this way.

Since the indeterminacy here is putatively metaphysical, we need a metaphysical reason, and not a semantic or epistemic reason, for holding that it is not determinately possible that *A* and *B* are identical. But the only metaphysical analogy I can think of also fails: we might hold that some sentence, S, lacks truth-value because it concerns the future, and so none of the conditions that will act as S's truth-makers have yet occurred. And we might not want to allow that S is possibly determinately true if S is a non-contingent statement that cannot turn out to be true — for example: "The first person born in the 22nd century will be both a girl and a boy." But, of course, "*A* is identical to *B*" does not concern the future in this way. And we don't regard metaphysical possibility as asymmetrically "open" in the same way as time.

If we hold that meaningless, ambiguous, or future-directed sentences lack truth-value, we do so because we think these sentences cannot (or cannot yet) be evaluated: no determinate claim is being made, or the world is not yet in a position to play its role in determining truth-value. So, it is understandable that in these cases we might resist drawing inferences about what is and is not metaphysically possible. But democratic vagueness is a form of metaphysical vagueness: the indeterminacy here putatively stems not from a mismatch in the way our representations hook up to the world, but rather from the nature of the world itself. And if, as the friend of vague objects maintains, it's clear what state of affairs we're picking out when we say that the identity of *A* and *B* is indeterminate, then we should be able to draw inferences about its modal status — or at least this should be no more difficult here than with other states of affairs.

Perhaps the modal claim is indeterminate because, in this case, modality itself is indeterminate in some way. But how is this possibility to be fleshed out? On one hand, certain modal properties might neither determinately hold nor determinately fail to hold of certain states of affairs. But we have no reason (other than blocking the modal argument) to hold that this is so of the modal matters under consideration here. On the other hand, indeterminacy in modal matters might reside in us: perhaps our relatively unrefined conceptual scheme is silent about (or conflicted by) a mix of various refined modal properties that

are at play. But this view also lacks motivation in this case. Why should we hold that our concepts aren't up to the task of representing and evaluating the modal matters at work in the modal argument?

OBJECTION 2. Perhaps the modal argument slides illegitimately between epistemic possibility and metaphysical possibility. One might worry that while I've provided good reason to hold that it's epistemically possible — that is, compatible with all that we know — that *A* is determinately identical to *B*, I haven't established that the identity is metaphysically possible. And the modal argument succeeds only if stage one establishes that the identity is a genuine, metaphysical possibility.

The modal argument is, indeed, implausible if the modalities and the indeterminacy are understood epistemically. To see this, consider the following unsuccessful epistemic version of the modal argument:

> *Stage one:* It's epistemically indeterminate (*i. e.*, uncertain) whether *A* is identical to *B*. Therefore, it's epistemically possible that (*i. e.*, for all we know) *A* is identical to *B*.
>
> *Stage two:* But then, it's epistemically possible that *A* is distinct from *C*. Moreover, it's epistemically possible that it's epistemically necessary (*i. e.*, for all we know, we might come to know) that *A* is distinct from *C*. But we don't now know this, since it's epistemically indeterminate whether *A* is identical to *C*.

This argument doesn't reach any troubling conclusion, much less a contradiction, because, for one thing, we uncontroversially allow that for all we know, we might come to know a proposition whose negation is at present epistemically possible for us. But epistemic and metaphysical modality differ inferentially on just this point. We're inclined to infer from the metaphysical possibility that a given proposition is a metaphysically necessary truth that that proposition is actually true[17] — indeed, necessarily so. This is because whatever reasons make that proposition a necessary truth in a world that is like ours when it comes to matters of metaphysical modality presumably make it a metaphysically necessary truth in our world. Epistemic analogues to this inference are entirely implausible: the fact that for all we know we might come to know a given proposition does not, of course, imply that that proposition is true — nor that its negation is not at present an epistemic possibility for us. So, while the argument's first stage seems uncontroversial when it's read epistemically, a metaphysical reading is needed in order for the second stage even to get off the ground.

One reply to all this is simply to lean on stage one of the argument, as well as the reasons given in response to the last objection for affirming that it establishes a metaphysical possibility. Even without doing this, one might point out that epistemic possibility (if that's all that's really been established) is, after all, a defeasibly reliable guide to metaphysical possibility — and we have no reason to doubt its reliability here. However, a stronger, dialectical reply is that the friend of vague objects who pushes this objection will be hoist by her own petard. To hold that it's an epistemic possibility that *A* is determinately identical to *B* is to hold that, for all we know, *A* is actually identical to *B*. But the vague ontologist doesn't believe this. She has philosophical reasons for holding that *A* neither determinately stands nor determinately fails to stand in the relation of identity to *B*. Philosophically motivated belief often falls short of knowledge, of course, and the vague ontologist does well to be humble. But embracing the epistemic possibility that *A* is identical to *B* is not the same as allowing that one might be mistaken in holding that this isn't determinately so.[18]

17. This inferential difference is reflected in the fact that it is plausible to model metaphysical, but not epistemic, modality with the Brouwerian axiom: $P \rightarrow \Box\Diamond P$. I will say more about this inference in responding to the third objection.

18. One might object that the distinction between epistemic and metaphysical possibility can't be drawn so strictly drawn here. Perhaps the individuative indeterminacy at issue is characterized by (or even consists in) the fact that our examples would provoke a characteristic response of thoroughgoing uncertainty — "drawing a blank" — in thinkers who are nevertheless suitably competent and well-situated epistemically. If so, the vague ontologist might be able to maintain that the indeterminacy of the relevant identities is not itself determinate, and this might serve as a way of avoiding my response.

I thank an anonymous referee for suggesting this intriguing possibility, and for connecting it to Crispin Wright's recent use of "quandaries" to characterize vagueness. (See, for example, "On Being in a Quandary: Relativism, Vagueness, Logical Revisionism," *Mind*, 110 (2001): 45–98, and "Vagueness: A

It might be complained that I've been burying the wrong epistemic possibility. Perhaps the slide to metaphysical possibility isn't from the epistemic possibility that A is determinately identical to B, but rather from the epistemic possibility that it is metaphysically possible that A is determinately identical to B. But this is even less worrying, for the considerations I raised aren't of a type to support merely modal open-mindedness: if they support this second, more complex epistemic possibility, they do so indirectly, by means of showing that the metaphysical possibility it embeds is highly plausible. And even if I'm wrong about this — even if I've established merely that it's epistemically possible that it's metaphysically possible that A is determinately identical to B — I have, at the very least, established that the first stage of the modal argument is epistemically possible. The friend of vague objects will find little comfort in that.

OBJECTION 3. One might question the inferences I draw in the second stage of the argument, even when the modal notions involved are given their proper metaphysical interpretation. Things start uncontroversially enough with the claim that the reasons we have for holding that B and C are necessarily distinct seem entirely general, and so should apply in any world that shares our metaphysical backdrop — including, it would seem, one in which A and B are determinately identical.[19] But hesitation might set in with the further claim that A must also be necessarily distinct from C in the world in which A and B are identical. Leibniz's Law uncontraposed gives us this result unproblematically when it is applied in that other world.[20] But we're concerned here with the modal features A has in the actual world; and one might worry that we make some substitution error when we infer from A's possible identity with an object (*i.e.*, B) which is essentially (and so, necessarily necessarily) distinct from C that A actually and determinately has the property of being possibly necessarily distinct from C. Moreover, even if we allow that A has this modal property, we might hesitate to conclude from this that A is actually distinct from C.

To articulate these worries more perspicuously, we might represent stage two of the modal argument as follows:

1.	$\Diamond A = B$	*conclusion of stage one*
2.	$\Box\Box B \neq C$	*Necessary Distinctness of B and C is general*
3.	$\Diamond(A = B \;\&\; \Box B \neq C)$	*from (1) and (2), derivable in T*[21]
4.	$\Diamond(A = B \;\&\; \Box A \neq C)$	*from (3), embedded substitution (?)*
5.	$\Diamond\Box A \neq C$	*from (4), derivable in T*
6.	$A \neq C$	*from (5), Brouwerian inference (?)*

The first hesitation concerns the inference from (3) to (4), which I have labeled "embedded substitution"; while the second concerns the inference from (5) to (6), which I have labeled the "Brouwerian inference"[22] since it would be secured (in a framework uncomplicated by counterparts) by the Brouwerian axiom that characterizes the modal system

Fifth Column Approach," in J. C. Beall (ed.), *Liars and Heaps* (Oxford: Oxford University Press, 2003), pp. 84–105.) This might, indeed, be a fruitful way to understand the individuative indeterminacy here, though I don't at present see how the details would go, and whether such a view could ultimately sidestep the modal argument. Of course, such an approach won't help the vague ontologist who doesn't want to develop her view in this way. And indeed, Wright, at least, presents his view as an alternative to the type of *in rebus* approach that is really the target of the modal argument. (See particularly his "Vagueness: A Fifth Column Approach.") So, I think the modal argument is better seen as another reason (in addition to those Wright gives) for disfavoring the *in rebus* account. It is, in any case, beyond the scope of this paper to explore this type of view here.

19. So I don't rely here upon the possibly controversial S4 axiom to derive $\Box\Box B \neq C$ from $\Box B \neq C$.

20. One criticism of Evans's argument is that it relies on the contrapositive of Leibniz's Law, and when we traffic in indeterminacy, such contraposition is not assured. (See, for example, Edgington, "Indeterminacy *de Re*," and Parsons and Woodruff, "Wordly Indeterminacy of Identity.") I'm agnostic about the success of this criticism, but as far as I can tell, it doesn't afflict the modal argument: since the argument employs two objects, B and C, that are positively and plausibly held to be necessarily distinct from one another, it requires only an application of Leibniz's Law uncontraposed. Of course, this is also why the modal argument is not as general as those of Evans and Salmon.

21. I take as uncontroversial here the basic modal system T (sometimes called M), which requires only that the accessibility relation be reflexive.

22. I so label the inference despite its tenuous connection with the actual L. E. J. Brouwer. See G. Hughes and M. Cresswell, *An Introduction to Modal Logic* (London: Methuen and Co., 1968), p. 58, fn. 37.

B.[23] These hesitations are reasonable, but I will argue that, although one can describe a logical framework that can be used to challenge the suspect inferences, they are, in the end, justified by metaphysical and dialectical considerations.

To flesh out these worries we might extend a counterpart framework so as to model the modal features of indeterminately identical individuals. According to this framework, an object's modal properties are determined by the non-modal properties had by its counterparts at other possible worlds. It won't matter for our purposes whether these counterparts are regarded as world-bound individuals in the manner of Lewis, or as representations of individuals in the manner of Stalnaker and others.[24] What does matter is, first, that the counterpart relation — the relation that determines which other-worldly entities determine an individual's modal properties — needn't be an equivalence relation; and second, that the framework can indeed be coherently extended in the ways I will explicitly and implicitly extend it so as to model the mix of *de re* indeterminacy and modality that is at work in the argument. Since I think this framework offers the best line of response for the vague ontologist, I take objections to these points ultimately to tell in favor of the modal argument.

Consider the following model with two possible worlds, each accessible to the other,[25] and four world-bound objects. World @ contains objects *A*, *B*, and *C*; while world *W* contains only object *D*. *A*, *B*, and *C* stand to one another in the manner of the possibility we've been stalking: *B* and *C* are determinately distinct, but it is indeterminate both whether *A* is identical to *B* and whether *A* is identical to *C*. *W* is meant to be a world that makes it true in @ that *A* and *B* are possibly determinately identical, so *A* and *B* each has *D* as its counterpart at *W*.[26]

But what, if anything, does *D* have as a counterpart in @? One answer — perhaps the most natural and straightforward — is that *D* has *B* as a counterpart in @. Call the counterpart relation that gives this answer "Beta". However, an alternative answer, given by counterpart relation "Alpha," is that *A* serves as *B*'s counterpart at @.[27] I will discuss later whether *D* might have both *A* and *B*, or neither, as counterparts.

It may seem odd to treat Alpha and Beta as distinct counterpart relations, since they differ only regarding relata that are not themselves

23. In what follows, however, I will scrutinize the inference by modeling it as a restriction on a counterpart relation, *not* as a restriction on the relation of inter-worldly accessibility.

24. For these contrasting views of counterparts see, for example, David Lewis, *On the Plurality of Worlds* (Oxford: Basil Blackwell, 1986), and Robert Stalnaker, "Counterparts and Identity," reprinted in his *Ways a World Might Be: Metaphysical and Anti-Metaphysical Essays* (Oxford: Oxford University Press, 2003).

25. I assume worldly inter-accessibility because I see no advantages (and several perils) in toying with the accessibility relation in addition to the counterpart relation. Nevertheless, someone suspicious of the counterpart framework might implement some of the maneuvers I will discuss in an accessibility relation that is not universal (*i. e.*, each world accessible from any other), which I take to be a default in our thinking about metaphysical modality.

26. Since *W* lacks a counterpart for *C*, our model instantiates the version of this possibility that is treated in the more plausible second horn of the dilemma set out in stage one of the modal argument. However, the points I will make would apply to a variant model in which we added to *W* an object, E, to serve as *C*'s counterpart (and to have *C* as its counterpart at @).

    The ensuing discussion will consider the modal status of *D*'s distinctness from *C*, and this may seem odd since *C* doesn't exist in *W*. But this is really no odder than considering whether I would be identical to Santa Claus if he existed (no), or to a possible philosopher otherwise similar to me who finished typing this sentence one second earlier (yes). The status of *D*'s distinctness from *C* is plausibly construed, in our framework, as a question about the relation between any counterparts of *D* and *C* that might inhabit the same world.

27. As the framework is designed to allow, neither counterpart relation is (determinately) an equivalence relation: if we assume that Alpha, for example, is reflexive, then it will be neither symmetrical (since *A* is not the counterpart of its counterpart at *W*) nor transitive (since *A*'s counterpart at @ — *i. e.*, *A* itself — is not determinately identical to the counterpart of its counterpart at *W*).

    In fact, the vague ontologist has additional reasons for giving up transitivity. Suppose we extend our model to include a world, *W**, that makes true *A*'s possible determinate identity with *C* by containing one individual, F, that serves as a counterpart for both *A* and *C*. If *B* has *D* as counterpart, *D* has *A* (as it does under Alpha), and *A* has F, transitivity would make F a counterpart of *B*. But this would make it true that *B* and *C* are possibly identical, since *C* also has F as a counterpart at *W**. And this would not only commit the vague ontologist to the possibility of contingent distinctnesses (as opposed to mere contingent "indeterminate distinctnesses"), but it would violate Necessary Distinctness.

determinately distinct from one another. However, I think any oddness here comes with the territory, and doesn't reflect any problematically distorting feature of the framework. In extending to cases of individuative indeterminacy a framework developed to model determinate (if not always necessary) identities and distinctnesses, I assume, first, that the names in question uniquely pick out individuals even if they're not always individuatively distinct from one another (*i.e.*, Referential Determinacy holds), and, second, that these individuals have a robustness that allows us to talk about them modally without losing this referential grip. But all of this is built into the possibility under consideration.

With these different counterpart relations now in view, one might charge that the argument in stage two seems plausible only because it shifts between them. If we regard Alpha and Beta as semantically bound to occurrences of "*A*" and "*B*" respectively, then a problematic shift from Beta to Alpha takes place when we infer (4) from (3). However, the binding here seems merely pragmatic, since it seems that we can scrupulously keep just one relation fixed and talk, for example, about the modal features of *A* in a model that abides by Beta. So a cleaner, and I think better, formulation of the objection is that a pragmatically-driven shift from Beta to Alpha in our interpretation of the argument covers up assumptions that are revealed as disputable once we hold just one of these counterpart relations constant throughout. If Alpha is in place from the beginning then (2) is not determinately true; while if Beta is held in place until the end then the Brouwerian inference fails. On either counterpart relation "embedded substitution" — that is, the inference from (3) to (4) — is entirely valid.

This, I think, is the best way to challenge stage two of the modal argument. And my response will be that neither Alpha nor Beta is a plausible counterpart relation for the type of case under consideration: I'll argue first that Beta is superior to Alpha, but then that Beta too is inadequate — and precisely because it conflicts with the Brouwerian inference.

If *A* is *D*'s counterpart in @, then although *B* is necessarily distinct from *C*, it is possibly possible that this distinctness is indeterminate; and this seems reason enough to balk at (2). But why sanction Alpha metaphysically? We might try out different answers for the different examples, but when it comes to sets and collections of molecules it's difficult to see how Alpha honors their seeming essentiality of constitution. We would have to countenance not just sets or collections with indeterminate membership or constitution, but such entities whose membership (indeterminate or otherwise) can vary modally. But perhaps this can be modeled by "intensionalizing" fuzzy sets, which we may want anyway in order to model our extended counterpart relations.[28]

In any case, there are more general considerations that tell against choosing *A* over *B* as *D*'s counterpart in @. To the extent that the counterpart relation is fixed by similarity, Beta would seem superior to Alpha, since *B* is constitutionally (and where relevant, spatio-temporally) indistinguishable from *D*, while this is not determinately so of *A*. There are, by contrast, no respects in which *A* is more similar to *D* than *B*.

Beta is also superior because it captures an individuative asymmetry which I can state only in terms that are admittedly metaphorical. *A* is individuatively pulled in two incompatible directions — towards *B* and towards *C*; while *B* is pulled in just one — towards *A*. One is inclined to say that the indeterminacy in these cases derives at root from *A*: *B* is game for identification, while *A* is torn and resists. Putting aside its relation to *A*, *B* is individuatively settled and secure. *B*'s determinate distinctness from *C*, for example, follows from its particular constitution, as well as from the type of entity that both it and *C* are. So, *B* wouldn't be *B* if it were not distinct from *C*; and *B* is embroiled in indeterminacy only because *A* can't be squared unequivocally with this distinctness.

This asymmetry should be reflected modally. *W* is a world in which *C* doesn't exist, and so doesn't draw *A* away from identification with *B*. But *A*'s otherwordly identity with *B* amounts to its acceptance of *B*'s

28. For fuzzy sets see Lofti Zadeh, "Fuzzy Logic and Approximate Reasoning", *Synthese*, 30 (1975): 407–28.

essential features, including its determinate distinctness from *C*. And this feature should stick to *A* modally if it is genuinely and fully identified at any point with *B*. In this respect, *B* and *C* are individuatively magnetic, while *A* is not.

None of these considerations is decisive, but they collectively favor Beta over Alpha, especially since there seem to be no considerations that tell the other way. Now if we instead apply counterpart relation Beta to our model, the argument is sound through line (5), but (6) can be consistently denied. Beta's anti-symmetry allows this: since *A* is not determinately the counterpart of its counterpart, what is possibly necessarily true of *A* — including determinate distinctness from *C* — needn't actually be true of it. So the Brouwerian inference fails under Beta. However, although Beta does better than Alpha at modeling cases of democratic vagueness, it too is inadequate. Beta fails to capture *A*'s complete modal footprint (in ways I'll articulate), and so it fails to honor the robustness as an individual that the vague ontologist claims for *A* — that is, for things like Mt. Toby, Original Volvo, and the number 2.

By invoking a logically flexible counterpart relation, the vague ontologist can deny the particular Brouwerian inference from (5) to (6) while maintaining a symmetric inter-world accessibility relation, and thereby honoring the general Brouwerian constraint that actuality be a way that any metaphysically counterfactual variation on it might have been. This is important, I think, for we should hold constant the real world's metaphysical backdrop — the cluster of conditions that obtain as a matter of metaphysical necessity — as we consider various ways it might have been, and then consider variations on these variations. However, this constraint properly applies not just to worlds in general, but also to the individuals that populate them.

Certain things might have been different, including the individuative indeterminacy of *A* and *B*. But any condition that is revealed to us as metaphysically necessary when we consider this possibility (or any possibility) should be reflected in the actual world and all parts of it to which this feature pertains. If it's in the nature of *B* and *C* that they be distinct — if it follows from their particular constitutions and the type of entities they are — then this should be held in place as we consider different ways they might be contingently. That Beta honors this for *B* and *C* is one respect in which it is superior to Alpha; but Beta does not honor this for *A*, which we are also regarding here as a robust individual. If, as stage one concludes, there is some world in which *A* is fully and determinately identical to *B* — and if distinctness from *C* falls out of the nature of this otherworldly fusion of *A* and *B* (*i.e.*, out of *D*) — then this feature should be reflected in all actual-world aspects of this fusion. This includes all things that have been otherwordly fused in *D*.

We could plausibly deny the Brouwerian inference (and the more general Brouwerian constraint on worlds) if *W* served as a "sharpening" of @ — specifically, as one way of resolving *A*'s referential indeterminacy. But that's not the situation under examination. According to the vague ontologist, @ already represents the real world, with all the determinacy it actually has. So *W* isn't a way that our representation of the real world might be made more determinate; it's rather a way the real world might have been different.

My response here negotiates a delicate dilemma: I first gave reasons for favoring Beta over Alpha, but I then claimed that these are not enough to justify *B*'s serving as the sole counterpart to *D* in @ — they are not sufficient to sanction *A*'s not also serving as a counterpart. So perhaps we should consider the possibility that *D* has both *A* and *B* as counterparts in @.[29] But if we apply to our model a counterpart relation, Gamma, that honors this, what do we say about (2) — the claim that *B* and *C* are necessarily necessarily distinct? The vague ontologist might like to say that (2) is indeterminate since it gets conflicting answers for different counterparts of *D* in @. And this would block the (determinate) force of stage two. But while cases of democratic vagueness

29. The possibility that *D* has no counterpart at @ is ruled out by the general Brouwerian constraint combined with the great similarity of *B* to *D*. Other than avoiding the modal argument, why would we rule out *B* (or *A*, for that matter) as a legitimate candidate counterpart of *D*?

traffic in indeterminacy, we have no reason to hold that they involve a counterpart relation that is indeterminate in this way. Moreover, this indeterminacy is properly modeled not with Gamma, but with an inconstancy between Alpha and Beta. In fact, Gamma nicely honors the reasons I gave for thinking that *D* should simultaneously and determinately have both *A* and *B* as counterparts in @. But these reasons also dictate that the necessary features of *D*, such as its distinctness from *C*, should reflect back on both *A* and *B* — so that (2) is true. And this can't be consistently carried through under Gamma, since our model starts with the assumption that the identity of *A* and *C* is indeterminate.

In the end, the extended counterpart framework helps us bring out, but not side-step, a conflict lurking within democratic vagueness. As we continue to refine our model in order to articulate this putative possibility, we are pushed towards Gamma as the most plausible counterpart relation for the situation at hand: it allows, first, that *A* and *B* are each full-fledged individuals, even if their mutual individuation is indeterminate; second, that where they are determinately identical, they are — or "it is" — distinct from *C* by nature; and third, that this modal fact bears on *A* as well as *C*. But all of this conflicts with the initial assumption that *A* is not determinately distinct from *C*. Since we can't avoid the problem by invoking the extended counterpart framework, and since I don't see any more promising framework, I strongly suspect that the problem is unavoidable. Stage two stands.

IV. The Upshot

The modal argument against vague objects is different from those of Evans, Salmon, and others, and to my mind more convincing. If it is sound, Mt. Toby, Original Volvo, and the number two are not vague objects, and so we cannot hold all that we might like about them or about any other putative entities that we find in similar circumstances. But how general is this negative result? And how might we adjust to it?

Unlike other arguments, the modal argument doesn't rule out non-democratic vague objects. Nevertheless, I suspect that many, and perhaps all, situations in which we are moved to posit vague objects will be democratic.[30] Consider Shoemaker's seemingly non-democratic case of two halls "connected by a rather flimsy covered walkway."[31] Suppose that Ann is lecturing in Apple Hall while Bob is lecturing in Banana Hall, and the walkway connects the two. Is the building that Ann is lecturing in the same as the building that Bob is lecturing in? One might be moved to hold that this is metaphysically indeterminate.[32] But such a judgment is ultimately grounded, I think, in the fact that there are (at least) two suitable candidates with which to identify the building in which Ann is lecturing — there is Apple Hall, but there is also the larger structure composed of Apple Hall, Banana Hall and the flimsy walkway that connects them. We can't determinately identify the building that Ann is lecturing in with the building that Bob is lecturing in because the presence of other candidates prevents us from determinately identifying either of these with the larger structure. So any metaphysical indeterminacy here is, at root, democratic.

However, there are other examples in which it's less clear that Democracy lurks beneath the surface (and more compelling to hold onto Referential Determinacy). Parsons considers a case in which a "person enters a room where something disruptive happens to them that challenges our judgments about personal identity."[33] He defends the idea that it is metaphysically indeterminate whether the person who entered the room is identical to the person who left the room after the disruption. If he's right, the person who entered the room might be a

30. Democracy also seems required for the postulation of fuzzy objects. Suppose that *M* doesn't exist because the molecule that distinguishes it from *M*-minus doesn't exist. Not only is there now no impediment to holding that Mt. Toby and *M*-minus are determinately identical, but we also have little inclination to call Mt. Toby "fuzzy," since the question of where to draw a boundary arises only when there's more than one place to do so.

31. In Sydney Shoemaker and Richard Swinburne, *Personal Identity* (Oxford: Basil Blackwell, 1984), pp. 145–6, fn. 5.

32. In part because he accepts Salmon's argument, Shoemaker himself holds that the indeterminacy here isn't metaphysical but derives instead from a referential indeterminacy in "the building that Ann is lecturing in".

33. Parsons, *op. cit*, p. 8.

vague object in my sense, and it's not clear that this can be construed as a case in which Democracy is at work beneath the surface.

There is, of course, an established philosophical framework within which this example can be treated like the building example. According to this framework, there are two collections of person stages that are equally suitable for identification with the person who entered the room. The first contains both a person stage that enters the room and a person stage that exits, and it answers to our inclination to hold that the disruption is not enough to break the bond of personal identity. This collection is formed under a diachronic relation that mixes considerations of psychological and/or bodily continuity in a way that is robust enough to relate the two person stages. The second collection lacks the existing person stage because it's formed under a tighter, more fragile diachronic relation that honors our competing inclination to hold that the disruption has extinguished the person who entered the room. On this way of understanding the example, any indeterminacy about whether the entering person is the exiting person derives from a democratically driven indeterminacy about whether either person is identical to the first, more inclusive collection of person-stages. But whether the example can be treated in this way requires not just acceptance of this framework for understanding personal identity, but also the distinguishability in principle of competing unity relations that our concept of a person is torn between. It could be that we draw a blank for other reasons.

How might one adjust to the modal argument, whatever its scope? One option, of course, is to reject Referential Determinacy. We might, in the end, adopt some representationalist explanation of the indeterminacy that enshrouds these examples, and explain away or simply reject the countervailing considerations of semantic phenomenology. Thus, the perdurantist (or "4D-er") who holds that Continuous Volvo and Reconstructed Volvo are distinct, temporally extended entities that share a temporal part, might maintain (contra my road-side intuition) that it is indeterminate to which of these two entities "Original Volvo" refers. And the representationalist might also posit a subtle or unnoticed indeterminacy in my number-pondering, or in my seemingly determinate thought and talk about "Mt. Toby." Semantic phenomenology isn't absolutely clear-cut and authoritative, after all, and the broad usefulness of our names and individual concepts might be explained by supervaluationism or some other representationalist account.[34]

But abandoning Referential Determinacy isn't the only, or even, I think, the most popular way to go. Many choose, in effect, to abandon Parsimony — to hold, for example, that mountains (even at a time) are distinct from any collection of the molecules that might compose them, or to hold that numbers are distinct from sets. This might be relatively easy for those who don't feel the general pull of Parsimony, or who think, for example, that mountains are distinguished from molecular collections by their temporal and modal flexibility of composition. But some abandon Parsimony primarily *because* Referential Determinacy trumps it in their metaphysical inclinations.[35]

Although Referential Determinacy and Parsimony are the most popular, and perhaps most obvious, places to question the motivation for vague objects I gave in section I, we might choose instead to abandon our broad realism about the target entities — to hold, for example, that although there may be an immense host of sharp, mountain-like collections of molecules, there is not, in the final analysis, a Mt. Toby, nor a strictly speaking truthful way of talking of one.[36] An-

34. See, for example, Lewis, *op. cit*, and McGee, *op. cit*.

35. Philosophers who, in effect, abandon Parsimony for composed entities such as mountains include Tye and Edgington (in the works cited above), as well as E. J. Lowe (in, *e.g.*, "The Problem of the Many and the Vagueness of Constitution," *Analysis*, 55 (1995): 179–82) and Michael Morreau, "What Vague Objects are Like," *The Journal of Philosophy*, 99, no. 7 (July 2002): 333–61. (The "vague objects" of Tye and Morreau are, as I understand them, my fuzzy objects.) In "Proposition, Numbers and the Problem of Arbitrary Identification," I argue, in effect, that because of the force of Democracy and Referential Determinacy, we should hold that propositions, and quite possibly numbers, are, in a sense defined there, *sui generis* entities.

36. Peter Unger seems to hold this for our talk of many putative everyday entities in, for example, "There Are No Ordinary Things," *Synthese*, 41 (1979):

other alternative is to abandon Democracy: if we hold that the vagueness here arises ultimately from our ignorance, then we might claim that Mt. Toby is determinately identical to a unique collection of molecules even if we don't know which particular collection, and even if this isn't even in principle revealed to us by examining our received conceptual scheme.[37]

These different views are usually proposed, of course, not as ways of adjusting to the impossibility of vague objects, but as competing accounts of the puzzle cases in question. Nevertheless, their enduring diversity adds support to my claim that we could hold all that we want about the puzzle situations if only we could allow that they involve vague objects. The diversity of views endures at least in part because each is imperfect — each involves accommodating to some tension or clash that comes from abandoning one or another of the unrefined but robust folk-metaphysical inclinations set out in section I. So the modal argument doesn't simply rule out some strange, alternative account of the puzzle situations. It shows more significantly that we are, alas, bound to live with one or another imperfect account of the world, and our conceptions of it.[38]

117–54. Mark Heller seconds the view in *The Ontology of Physical Objects: Four-Dimensional Hunks of Matter* (Cambridge: Cambridge University Press, 1990).

37. This "epistemicist" picture has been refined and defended by Timothy Williamson. See, for example, *Vagueness*, Chs. 7–8.

38. For helpful comments I thank Kai von Fintel, James Garson, Jonathan Vogel, and several anonymous referees.