The Thesis of Vague Objects and Unger's Problem of the Many

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I. Introduction

Although the predominant view is that vagueness is due to our language being imprecise, the alternative idea that objects themselves do not have determinate borders has received an occasional hearing. But what has failed to be appreciated is how this idea can avoid a puzzle Peter Unger named "The Problem of the Many."[i]

Unger's problem of the many arises when it is assumed that entities have a determinate boundary, although this border occurs in a grey area where the object's component stuff falls off, i.e., becomes scarcer. For instance, a cloud consists mostly of water droplets grouped together. At the cloud's center, the droplets are tightly bunched together. As we move away from the clear center of the cloud, the water droplets will gradually lessen. It is the thinning of the droplets on the outskirts of the cloud that pose a problem: How do we determine the exact border of the cloud in this grey area? And a cloud must have a border or our entire world would just consist of cloud-like stuff.

The dilemma is that any line drawn in a grey area around a mass of water droplets seems no better suited to being the boundary of a typical cloud than an alternative line that encompasses, for instance, all but one of the same droplets. And any large number of these same droplets can be joined with still other droplets that were outside but adjacent to the first boundary. And if the first grouping qualifies as a typical cloud, then, surely, so do the groupings that are only slightly different. Thus the problem of the many is that there will be a great number of paradigmatic clouds each with perhaps only one droplet more or less than the next cloud that it bounds or is embedded within.

Unger's own analysis of the problem leaves us with the unwelcome choice between the existence of millions of objects where common sense hold that there is just one of the type in question, or a Parmenidean rejection of any such distinct objects. My thesis is that there are no

embedded entities of the same type of entity that they are ensconced within. For example, there are no clouds embedded within larger clouds. Any such alleged entities are really mere collections or mathematical sums whose parts do not together compose an individual object. Much of my argument will rest on the claim that since embedded objects don't have an appropriately vague border enclosing them, there is really only one object where two or more have been hypothesized. If I am right that most, if not all, actual objects do not have determinate borders, then we won't have the problem of arbitrarily choosing one amongst the countless equally good boundaries. However, Unger claims that the problem of the many can still plague objects with fuzzy borders. Therefore, the last third of this paper will be devoted to showing that his claim that vague objects can be embedded within other vague objects of the same type is the assertion of what is actually an impossible state of affairs.

II. Initial Attempts to Avoid the Problem of the Many

Unger astutely notes that it won't solve our problem to insist upon a principle that just rules out the possibility of any embedded entities. Even if there must be only one cloud in the vicinity in question, we don't have a selection criterion to pick it out.[ii] Why should the one and only cloud be a certain collection of water droplets rather than a collection that includes one more or less droplet?

Unger admits that it appears that we could avoid the problem of finding the supposed one and only cloud's exact border if the exterior droplets of a collection of water droplets were lined up neatly, equal distance from each other, with a clear divide between the cloud they compose and the empty space that is not part of the cloud.[iii] Unfortunately, nature obliges with few, if any, such objects. And Unger suggests that counterfactuals involving such objects could easily lead to the re-emergence of the problem of the many. For example, consider a small round stone that appears to

avoid the problem of having many equally good boundary candidates. All we have to do to give rise to the problem of the many will be to envision that the small stone is placed on a table made of the same kind of stone. The resulting intermingling of stone would pose a problem determining where the small stone would end and the stone table begin. Any boundary will be just as good as one with one more or one less molecule of stone.[iv]

Unger mentions a second kind of scenario in which the problem of the many would appear not to rise. What Unger envisions are objects that possess just the minimum amount of material to qualify as an actual cloud. Thus there couldn't be any embedded cloud within this minimal cloud. But if there are any such minimal clouds, they are quite rare cases.[v] The problem of the many will certainly arise for typical or paradigmatic clouds, and it appears world consists of many such entities.

Unger thus concludes that if there exist any typical clouds, then there are countless numbers of them where we initially thought there was but one. Since he finds such a multiplication of clouds to be absurd, he opts for the other extreme disjunct that there are no such things as clouds - or any other commonplace objects such as tables, bodies, brains, people etc., for they are all susceptible to the same kind of treatment.

III. The Thesis of Vague Objects

Unger has presented us with a very intriguing challenge. How should we respond? My position is that if there truly are vague objects, i.e., there are things such as clouds that don't have a precise boundary and a precise number of component parts, then we don't have a problem of determining exactly which of the ever scarcer droplets in a grey area are part of the cloud and which are not. However, Unger insists that even if the notion of an object with an indeterminate number of parts within its borders is coherent, the problem of the many can still make an appearance.[vi] If this

were indeed the case, then it would not matter whether or not there really were vague objects, for with either answer, common sense objects would fall prey to the problem of the many. So I will have to show that the idea of the fuzzy border of one cloud embedded within the fuzzy border of a larger cloud is, in fact, the idea of an impossible state of affairs. But before I do, I will outline my conception of vague objects.

I am not going to defend in any detail the existence of genuinely vague objects. It has been done elsewhere.[vii] The notion seems as commonsensical to me as it does to many laymen.[viii] Our common belief is that there is not an exact boundary where clouds, tables, and mountains can be said to end. We find it preposterous to think that one micron to the side of, respectively, a water droplet in a cloud, a speck of dirt in a mountain, or a wood molecule in a table, there can be found a bead of water, a pinch of dirt, or a splinter of wood that is not part of the same cloud, mountain or table. The more plausible view is that there is just a grey area in which there is a gradual lessening of the molecules that compose a mountain, cloud or the table. In this type of area, it will neither be determinately true nor false that the composite object in question exists.

It is evident to the naked eye that one can't determine precisely which specks of dirt or white puffs of water droplets are exactly the outermost constituents of a mountain or cloud. But the fact that at the edge of a table there are molecules of wood flying about whose membership in the table is difficult to determine is a lesson that scientists of the microscopic realm have had to teach us. However, far from the table's fuzzy boundary there are clearly non-table regions. Any such non-table region may contain another type of object or just be empty space. And some distance in from the fuzzy border of the table there exists such a density of "table stuff" that there is no doubt that the observed area is clearly in the interior of the table.

"Table stuff" is the name for the things that are arranged in such a manner that they compose a table. I understand it to be a conceptual truth that since a table is a composite object it consists of table parts or, equivalently, table stuff. The same is true for clouds, mountains, cats, etc. Because they are composite objects, they consist, respectively, of cloud stuff, mountain stuff, and cat stuff. Since the category of stuff that a molecule will belong to depends upon what micro object it is part of, molecules of different chemical types can be the same kind of stuff and vice versa. And it follows that the numerically same molecule may be, for instance, table stuff at one time but not at another.

Although we can be certain that tables are composed of table stuff, we can't be sure exactly where the latter stuff ends. Virtually all physical objects will be like tables.[ix] Any such object X will have a fuzzy boundary in which there is a grey area of neither clearly X stuff, or clearly non-X stuff, which is surrounded by determinate areas that contain either exclusively X stuff or only non-X stuff.[x] Because objects have vague boundaries, we will be able to rule out that there could ever exist an embedded object of the same type as its embedding object. At the border of a genuine object, there will be a gradual change over from one type of stuff to different kind of stuff. Thus there can't be an approximately three inch high candle with a one inch diameter within an approximately six inch high candle with a two inch diameter because the embedded candle won't have a vague border where the candle stuff composing it gradually falls off and is replaced by non candle stuff. The only gradual thinning of candle stuff occurs in the grey areas roughly six inches apart at the ends and around two inches from each other at the width.

Even if a candle is composed of two types of wax, and there is a vague border between these two kinds of wax, we shouldn't think that there exist two candles.[xi] Imagine that it is roughly all red wax in the three inch by one inch interior and roughly yellow wax everywhere else. Since the red

wax molecules become sparser as they gradually become intertwined with the yellow wax molecules, there will be an area of the candle about which we can't say whether it is or is not yellow or red wax. But this doesn't provide us with a reason to say that there are two candles. There is not one candle that is all red wax and another larger one that is a mixture of yellow and red wax. While there is indeed a vague area in which the red wax ends and the yellow wax begins, the same general area cannot be described as a place where any materials cease, even vaguely, to be arranged candlewise. In other words, there is just continuous candle stuff.

It seems fair to say that our common sense view of a composite stuff's boundary involves stuff arranged in one type of manner on one side of a boundary and a different type of arrangement of stuff (or lack of stuff) on the other. If it wasn't for this, we wouldn't think we had a natural boundary.[xii] Given our account of natural boundaries, we have good reason to doubt that there are any embedded objects of the same kind, since the border of an (alleged) embedded object does not separate stuff arranged one way from that arranged in another manner.[xiii]

IV. Why the Thesis of Vague Objects is not Susceptible to Unger's Problem of the Many

However, as I noted before, Unger insists that even if there are objects with fuzzy borders, the problem of the many can still arise. I doubt that this last claim is correct. In fact, as I asserted in the introduction, if one admits the possibility of a world containing objects with fuzzy borders, one cannot also allow this world to contain embedded vague objects of the same kind.

The idea of one object's grey area being within the grey area of another object of the *same type* is contradictory, for the smaller grey area will be bounded by determinate areas, one or both of which are within the large object's grey area where, by definition, there can't be either part of a clearly determinate object of that type or the clear absence of such an object. To illustrate this, just

try to imagine a small cloud possessing a fuzzy border which starts to become vague and ceases to be vague somewhere within the vague border area of a larger cloud. One cannot succeed in this imaginative endeavor, for to do so there would have to exist some water droplets that were clearly part of a cloud and some that were clearly not, in the *very* grey area of the larger cloud that we have defined as not having any water droplets that are clearly part of a cloud or clearly not. So a fuzzy border embedded within another fuzzy border turns out to be like a round square - it cannot exist.

When Unger briefly discusses the possibility of embedded entities with fuzzy borders, he suggests that all we have to do to obtain an instance of the problem of the many is to imagine one of the two fuzzy bordered clouds having obviously one more droplet than another.[xiv] But where is this obviously one belonging droplet? The single extra droplet *clearly* belonging to the one larger cloud can't be a the beginning of the smaller cloud's grey area for the latter then wouldn't have begun if there still was a dense enough mass of water droplets to clearly form a cloud. And if the extra droplet is not considered part of the smaller cloud, but is viewed as part of the larger cloud because it is surrounded by a thick enough mass of droplet to be still clearly part of a cloud, then this droplet and its neighbors are in the smaller cloud's grey area, an area which, by definition, cannot have any determinate cloud parts. So any alleged extra droplet belonging to the larger cloud will also belong to the embedded cloud. A fortiori, two clouds with all the same constituent water droplets would really be only one and the same cloud.

And we can see that it won't work to put the extra droplet anywhere else. Consider that wherever there is a cloud, it will contain an area where every water droplet within that area, is, without a doubt, also in the cloud. We can define such a densely populated area of a cloud in the following way: All the droplets in this area are roughly the same distance from their neighboring

droplets and share approximately the same number of neighboring droplets which are this rough distance from each of them. So it would be impossible in this area, so densely populated with water droplets, to say that one of these droplets belongs to the larger embedding cloud and not the other cloud embedded within it. Since all the droplets of the area in question have roughly the same number of droplets in their immediate vicinity, there is no reason to say that an individual droplet belongs to one alleged cloud and not the other. A boundary which divides the dense middle of a cloud into two clouds would be absurd.[xv]

The problem of the many will not only fail to appear in what is clearly the dense interior of an ordinary object, but, as Unger himself admits, the puzzle will not readily arise along the exterior of an object if it possesses a boundary devoid of any gradual thinning of the object's component material. The only threat of multiple entities where folk ontology (i.e., common sense) says there is just one entity, occurs when there is a need for a determinate border in an area where there is a gradual thinning of the component particles in question. Since any border chosen there would be as good as another boundary, the possibility arises of many entities where we intuitively thought there was only one.

Let's take stock. We have seen that there cannot be a vague border within another vague border of the same type of entity because the former must be bounded by something that isn't a vague instance of its type, but this more determinate something will be in an area in which there could not be either any clear objects of that sort or lack of such objects. And there doesn't seem to be anywhere else to place the extra droplet(s) where it could be at all reasonable to believe that one object enclosed it while another object of the exact same type did not. If the single droplet supposedly distinguishing two clouds is obviously in the dense middle of one cloud, then it is clearly

in the alleged cloud that resides within the large cloud. The two putative clouds would contain the same droplets and thus really would be one and the same cloud. Adjacent water droplets could possibly belong to one cloud and not another embedded one, only in cases where an exact boundary must be found in an area that is occupied by a thinning population of water droplets.

It thus seems that if vagueness is not a result of our language's imprecision, we do not have to accept either of the two disjuncts that Unger provides us with: the first being that if there are any objects then there are great numbers of them where common sense says there is just one; the second being that there are no objects at all. But admittedly, I haven't argued in enough detail for the existence of vague objects, nor have is dealt at all with the logical problems that they give rise to. However, what I have hopefully shown is that if vague objects do exist, then they do not possess embedded objects of the same type.[xvi]

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i. Unger, Peter. "The Problem of the Many." *Midwest Studies in Philosophy 5.* 1980 pp. 411-

467. The solution will also help with the related problem of Geach's Tibbles the Cat. By avoiding embedded entities we will also be free from the problem of having to tolerate either mereological essentialism or spatially coincident entities of the same kind if the embedding entity loses some matter and becomes composed of the same particles as the previously embedded entity. For a good survey of the problems of spatially coincident entities, see W. R. Carters "Our Bodies, Our Selves." *Australasian Journal of Philosophy* Vol. 66, No. 3; September 1988 and Olsen's *The Human Animal: Personal Identity without Psychology*. (Oxford, Oxford University Press, 1997). To read why positing spatially coincident entities may even be an incoherent enterprise, see Michael Burke's "Copper Statues and Pieces of Copper: A Challenge to the Standard Account." *Analysis* 1992 #52 pp. 12-17.

ii. Unger. "The Problem of the Many." p. 449.

iii. *IBID*. p. 413.

iv. *IBID*. pp. 441-446.

v. Unger qualifies his apparent admission of an exception to the problem of the many for even such a minimal object, or the first kind of object with apparently neat and obvious borders, may be vulnerable to the problem of the many. This is because such objects contain "separators," i.e., space (or something else) between the composite matter of the object. These separators can be given many equally good apportionments. Unger writes: "One, as good as any, is to take the smoothest outside tangent surface as a boundary; another, just as good, is to take a surface that *barely* encloses each most external particle, until it is halfway to the next particle, then dipping in

a certain amount, perhaps the diameter of such a particle, until it is halfway to the next particle, where it then rises, economically to close again. And of course between these two, there are very many (perhaps infinitely many) compromises, each no worse than any other possible boundary for any such object." IBID. pp. 438-439.

vi. Unger doubts that the idea of an object with fuzzy border makes much sense for he assumes that if an entity is a composite object, it has an exact number of parts. He thinks that is just what it means to be a composite object. "Problem of the Many." pp. 428, 433-4.

vii. See for instance, Peter van Inwagen's *Material Beings.* (Ithaca, Cornell University Press, 1990) and Michael Tye's "Vague Objects" in *Mind* vol. XCIX no 396. 1990. Pp. 535-558.

viii. Ward Jones suggests my appeal to commonsense ontology is dubious. He claims that commonsense ontology is fundamentally Aristotelian, and not microphysics-based. So I may be forced to qualify my claim and just insist that the thesis of vague objects is consistent with a microphysics-informed folk ontology.

ix. Like Unger, I am not denying that objects with clear boundaries are possible. It is just that if there are any in our world, they are very scarce. Furthermore, they are susceptible to counterfactual scenarios which render their boundaries vague as when a small stone is placed upon a stone table. So objects which may at one time not have a vague boundary, could acquire one. But perhaps I am wrong to claim that there are any objects in our world, or another, which have precise boundaries. What appears to be the absence of vagueness may just be a result of overlooking Unger's account of separators, i.e., the space in between the particles composing the

object in question. See note # 4. The separating space may always give rise to a vague boundary as we can't tell what empty spaces are part of the object and which are not. We can't deny that any empty spaces are parts of a composite object without a number of counterintuitive consequences. One such bizarre consequence would be that all previous measurements of an object's volume would be erroneous, for the empty space had been included in the total. Furthermore, the denial that an object contains empty space within it would mean it would never make sense to say any foreign body is in the object in question, for the spaces between that object's particles, where the foreign object would be found, would not be considered part of the object. Furthermore, we would not know what to make of the boundary of an object like a stone if the spaces between the atoms composing the stone were not part of it. The boundary of the stone have to be the sum of the boundaries of the constituent particles, and that is not a very plausible alternative.

x. I should qualify the last statement. A vague border area can be bounded by another vague area. For instance, the vague border of a cloud could be bounded by the vague border of a mountain.

xi. I owe this example to Craig Martell.

xii. Perhaps the claim in the text needs to be qualified. I should say that there is a natural boundary when *either* there ends one arrangement of stuff and begins an arrangement of a different kind of stuff, or when two aggregates of similar stuff are not bonded together in a way that the parts of each aggregate are to each other. To illustrate the latter kind of boundary,

consider a pair of identical human twins. We would not claim that two twins compose one human being when they are in contact with each other. The biological stuff composing both individuals is not caught up in one biological system. The composite stuff of each twin is caught up only in the physiological processes of that twin's life. One could tell a similar story about two plywood tables that were pushed together. We can even allow that the two tables have the kind of neat boundaries that give the appearance of each being the type of object that does not give rise to the problem of the many. Although, the two tables are now in contact, they don't compose one table because the wooden parts of each are pressed (or glued) together in a way that the two chunks of plywood of the two tables are not, despite their now being in contact. The two tables are not in contact in the right manner, they lack the necessary bond (the pressing or gluing) for there to be just one large table. This note was added in response to an objection of Ward Jones.

xiii. For similar reasons, it would be difficult to persuade us that just because a line could be drawn across a four foot square table at the two foot mark, there were two nonembedded but adjacent tables, where common sense says there is only one. There could only be two adjacent tables if there was a change, sharp or not, from table stuff to non table stuff and then back to stuff arranged tablewise.

xiv. Unger says as much in "The Problem of the Many" p. 428.

xv. Recall the earlier mentioned absurdity (in note #13) of drawing a line down the middle of a four foot table and declaring the existence of two adjacent tables. The situations are in principle the same.

xvi. I would like to thank Craig Martell and Nathan Salmon for helpful discussions about these issues, and Ward Jones for his written comments.