Almost One, Overlap and Function

C. S. Sutton

Abstract

In David Lewis's famous 'Many, but Almost One', he argues that when objects of the same kind share most of their parts, they can be counted as one. I argue that mereological overlap does not do the trick. A better candidate is overlap in function. Although mereological overlap often goes hand-in-hand with functional overlap, a functional approach is more accurate in cases in which mereology and function are teased apart. A functional approach also solves a version of the problem of the many (illustrated by the house with and without a garage) that Lewis thought was immune to the Almost-One solution.

1. Introduction

David Lewis's 'almost-identity' solution to the problem of the many is couched in terms of mereological overlap, that is, in terms of parts shared between two or more things. Although mereological overlap frequently tracks functional overlap, that is, overlap in what things do, the two can be disentangled. When they are, we see that functional overlap matters more than mereological overlap. Although mereological overlap is a good heuristic, we should turn our attention to functional overlap to more accurately count members of a kind.

2. The Problem of the Many and Lewis's Solutions

The problem of the many is this. (My description of the problem borrows from Weatherson 2009.) Imagine flying through a cloud. When you are in the thick of it, the water droplets around you are clearly part of the cloud. As you exit the cloud, there are water droplets that are neither clearly part, nor clearly not part, of the cloud. Call one of these droplets d1, and another of these droplets d2. Call the collection of droplets that are clearly parts of the cloud ‘the core cloud’. Consider these four objects: (1) the core cloud, (2) the core cloud plus droplet d1, and (3) the core cloud plus droplet d2 and (4) the core cloud plus droplets d1 and d2. Each of these objects seems to meet the criteria for cloudhood. Thus, there seem to be at least four clouds where pre-theoretically we would have thought that there was one. Of course, there are not only two borderline droplets, but perhaps thousands or billions, so there are thousands or billions of things that meet the criteria for cloudhood, where commonsense tells us that there is one cloud.

David Lewis offered a two-part solution: (1) supervaluationism and (2) counting by ‘almost-identity’. Recently, Dan López de Sa has shown that supervaluationism cannot solve the problem of the many (2014).[1] Let us then focus on the other solution, almost identity.

Lewis suggests that we think of identity on a scale, where one extreme is a complete lack of mereological overlap and the other extreme is strict identity. Lewis calls cases of extensive overlap ‘almost identity’. The core cloud and the core cloud plus two droplets, for example, are almost identical because they have almost all of their parts in common. And for Lewis, almost identity satisfies the sense in which there is only one cloud in the vicinity, while preserving through strict identity the sense in which there are many.

[1] Supervaluationism is the view that we could make precise the concept of cloud in a variety of ways, but on any way of making ‘cloud’ precise, only one of the overlapping collections of water droplets is a cloud. Thus, it is ‘supertrue’ that there is only one cloud.

López de Sa shows that the supervaluation solution faces two problems. (He illustrates the two problems using cat candidates that differ from one another by a few hairs.) (1) Supervaluationism entails that there is no clear case of a cat, for on any precisification of ‘cat’, only one cat satisfies that precisification, and for it to be supertrue that it is a cat, it would have to be a cat under every reasonable precisification (1110). (2) The supervaluationist solution violates what Peter Unger termed the Principle of Minute Differences, that given a paradigm case of a cat, anything that is very similar to the paradigm case (e.g., differs from the paradigm case by one hair) is also a cat (López de Sa 2014: 1108).

3. Problem Cases

The almost-identity solution focuses on mereology, but the cases below show that mereology is not what matters and that extensively shared parts are not sufficient for counting overlapping things as one. In these cases, mereological overlap and functional overlap diverge. When we ask, how many of kind *K* are there, the clear answer in each case is ‘two’ *despite* the presence of extensive mereological overlap. After presenting the problem cases, I offer an alternative solution that handles the cases correctly.

Case 1: The Semidetached Houses

Imagine a pair of semi-detached or duplex houses planned by a mad architect who was obsessed with the idea that good shared interior walls make good neighbors. The mad architect designed the shared wall of the semi-detached houses so that the parts of the wall make up ninety-five per cent of the total parts had by the two houses. The shared wall is gigantically thick. The remaining five per cent of the parts is divided between the two houses for living space: each house has a private entrance and a living area comparable to a cramped houseboat.

What lesson can we draw from this case, other than that the architect is about to have his or her license revoked? Consider these two house-candidates: (1) the living space for Heloise, including its four walls and (2) the living space for Abelard, including its four walls. Despite the fact that these two houses have most of their parts in common, namely the parts of the shared wall, they are clearly two houses, not one. If we count by mereological overlap, we would count the two houses as one because the two houses have almost all of their parts in common. Their functions, however, do not significantly overlap. One provides shelter for Heloise, and the other provides shelter for Abelard. Note that when I talk about overlapping function, I mean function tokens, not function types. If we count by almost-overlapping function, we get the correct answer: there are two houses because the function of providing living space for Heloise is *not* almost identical the function of providing living space for Abelard.

Case 2: The Overlapping Minds

This case is for those who think that the mind is something physical, such as a brain. Imagine an alien population where two conjoined twins, Hansel and Gretel, share parts of their brains (or the alien equivalent of brains). The shared parts of their brains are responsible for receiving sensory input and sensory awareness. Hansel and Gretel see, smell, and hear the same things. But their brains do not overlap at the parts that are responsible for their reactions to sensory input, or for reflective thinking or for dreaming or daydreaming. Upon having the same experience of seeing the rose bush, Hansel thinks, 'I ought to plant more of those' while Gretel thinks, 'There are too many pests on that plant'. These reactions are phenomenologically exclusive--each twin is ignorant of the other twin's reaction to seeing the rose bush. Imagine that the biology of this alien population is such that the sensory awareness part of the brain is quite large, while the remaining parts are proportionately quite small. So Hansel's brain shares most of its parts with Gretel's brain, and vice-versa. But Hansel's thinking diverges significantly from Gretel's. There are two minds here. If we use mereological overlap to count, then we would count one brain, and thus one mind. If we focus instead on functional overlap, then we would count two brains, and thus two minds because Hansel and Gretel's brain functions sharply diverge.

4. Functional Almost-Identity

The above cases show that when mereological overlap and functional overlap are disentangled, functional overlap matters more. To count correctly in problem-of-the-many cases, we should turn our attention to functional overlap. The proposal is this:

> *Functional Almost-Identity:* Candidates *x* and *y* for kind-*K* are almost identical *K*s if their token *K*-functions significantly overlap as a result of mereological overlap. If they are almost identical, then we count them as one *K*.

Let's see how the functional approach applies to the problem cases, and in doing so, illustrate the concept of functional overlap. In case one, our overlapping house-candidates are (1) Heloise's house and (2) Abelard's house. Plugging this case into the proposal above, we get

> Candidates (1) Heloise's house and (2) Abelard's house for the kind *house* are almost identical if their token house-functions significantly overlap as a result of mereological overlap. If they are almost identical, then we count them as one house.

The function of a house is to provide living space. The two house-candidates overlap very little in their token house-functions. There are two separate spaces for cooking, for sleeping, for visiting with friends. Abelard and Heloise won't cross paths in their living spaces. If we count by functional overlap, then we count two houses, not one.

In case two, our overlapping mind candidates are (1) Hansel's mind and (2) Gretel's mind. Are they the same mind? No, because their functions diverge sharply. Hansel's mind might be dreaming, while Gretel's mind is planning project, and neither mind is aware of the other's activity. The mind-candidates have different beliefs, different plans, different attitudes. The shared sensory input, though based on a large number of parts, is a relatively small part of the mind's functional roles. If we count by functional overlap, we count two minds, not one.

Functional Almost-Identity gets the correct answer in the standard cases as well. Recall the cloud case. We considered four cloud-candidates that differed from one another by at most two droplets. Those cloud candidates carry and distribute the same rain (varying by at most two drops of rain). On the functional almost-identity view, we count those clouds as one.[2]

5. What About Non-Functional Kinds?

Ordinary kinds of things are often defined functionally, such as watches, which keep and display the time; lungs, which allow an organism to breathe; and boats, which transport people and things over water. Because things are individuated functionally, it is appropriate to count them with an eye on function. But how, if at all, does functional almost-identity apply to kinds that are defined in non-functional ways, such as rocks or masses of matter?

If an object is not defined functionally, but rather mereologically, we could (1) fall back on the mereological approach *or* (2) translate the definition into a functional definition. We could use either approach, because in such cases, mereological overlap would track functional overlap anyway. A mass of matter, for example, is defined by the parts that it has. The function of a mass of matter is to *have its parts essentially.* So whether we measure by functional overlap or mereological overlap, we measure the same thing—we measure to what extent the candidate masses have the same parts. For example, two candidate masses of coffee would count, for everyday purposes, as the same coffee if the candidates had mostly the same parts in common.

Secondly, it is notable that more kinds are functionally defined than it seems at first pass. As Nichols 2010 argues, artefacts, biological entities and the objects of physics are functionally defined (261–266). Artefacts are the clearest cases of functionally defined entities, for artefacts are manmade objects that serve a certain purpose. I won't reproduce in whole Nichols's cases that biological entities

[2] I am not claiming that David Lewis was unable to avoid the problem cases in some other way. He might have considered function as part of the context when selecting cloud candidates or house candidates, before he applied the mereological almost-one solution. My claim is that because overlap in *function* is doing the heavy-lifting in solving the problem of the many, function should be the focus of the almost-one solution, not mereology. The aim of my project is not to do Lewis exegesis but rather to develop the best version of the almost-one solution to the problem of the many, which can be used independently of Lewis's particular approach to ontology.

and fundamental particles are functionally defined (the interested reader can read the primary source), but here are some highlights. Nichols considers several definitions of 'organism', all of which involve functional features, such as having parts that are interrelated in certain ways, growing, and being guided by a genetic plan. All of these are things that an organism *does* (262–263). Other biological entities are functionally defined as well. Organs, such as the lung example above, are defined by their functions, as are genes (which carry genetic information) and populations (geographically situated groups that can interbreed). In physics, fundamental particles are 'defined purely in terms of *what the entities are capable of doing'* (Nichols 2010: 265). Nichols gives the example of an electron, which is defined by its 'negative charge, a determinate mass, and a certain spin. But each of these properties is dispositional; it specifies what sort of behavior the electron will exhibit under certain circumstances' (266).

Even the examples that we started this objection with—a rock and a mass of matter—are plausibly defined functionally. A rock is not just any mineral deposits, but mineral deposits that *hang together as a solid unit*. If the mineral deposits are broken up, and they no longer hang together, then they cease to do what rocks do, and no longer form a rock. Masses of matter do something: they *have parts essentially.* In sum, objects that are defined functionally are everywhere, and counting by *functional* overlap can help us track what is essential to those objects. Counting by mereological overlap would be a fallback plan that would rarely, if ever, be needed.

6. Another Benefit of Functional Almost-Identity

The functional approach offers a second benefit over the mereological approach that goes beyond being accurate in the problem cases. Functional Almost-Identity solves a version of the problem of the many that Lewis thought almost-identity could not handle.[3] Lewis used a house to illustrate this

[3] López de Sa also suggests that the almost-one solution has this benefit. He writes that the almost-one solution can be strengthened by diluting it from counting by almost-identity (that is, by almost complete overlap) to counting by 'relevant overlap, not necessarily amounting to almost-identity' (2014: 1114). He says nothing more

second version of the problem of the many. Does the referent of 'house' include the garage? Lewis thinks that competent language users can be unsure. Lewis describes this version of the problem of the many thus:

> The almost-identity solution won't always work well. We've touched on one atypical case already: if not a problem of the many, at least a problem of two. Fred's house taken as including the garage, and taken as not including the garage, have equal claim to be his house. The claim better be good enough, else he has no house. So Fred has two houses. No! … But although the two house-candidates overlap very substantially, having all but the garage in common, they do not overlap nearly as extensively as the [cloud-type cases] do. Though they are closer to the identity end of the spectrum than the distinctness end, we cannot really say they're almost identical. So likewise we cannot say that the two houses are almost one. (1999: 180–181)

The garage is a borderline part of the house, like an outlying water droplet is a borderline part of a cloud. We are uncertain whether to include the garage as part of the house. But unlike the droplet, the garage's parts, if included as parts of the house, would be a notable percentage of the house's parts. So Lewis thinks that the mereological overlap is not significant enough to merit almost identity.

We are uncertain whether the garage is part of the house because it is on the *functional* periphery of the house. It contributes little to the house's function of providing living space. Whether or not we include the garage, the central parts of the function of the house remain. If we focus on functional overlap, then the overlap of the house candidates is more extensive than their mereological

---

specific about what he means by relevant overlap. I do not know if my functional approach is consistent with what he has in mind. We do agree that an overlap approach can do more work than Lewis thought and can handle the garage case below.

overlap. Using *functional* overlap gives us grounds for counting the house with the garage as almost-identical to the house without the garage, so the two house candidates are one house.

The almost-one solution, when approached through the lens of functional overlap, does more work. It unifies the problems of the many, bringing cases of like Lewis's house-with-garage versus house-without-garage under the same umbrella as the more traditional cases, like the cloud case, which involve extensive mereological overlap.

7. A Place for Mereological Overlap

Notice that there is still a role for mereological overlap. Functional Almost-Identity includes the proviso that to count candidates as one, their functional overlap must be *as a result of mereological overlap.* Mereological overlap is not *sufficient* to count one thing rather than two, as the semidetached house and the overlapping minds cases show, but a lesser quantity of mereological overlap might be necessary.

Mereological overlap is necessary *if* causal over-determination is possible. By over-determination, I mean multiple forces that are sufficient to bring about the same outcome. If a foot race began after two starting pistols signaled at the same time, it might be that the race's start was caused by both pistols. Each pistol fills the same token causal role of signaling the start of the race, but there are clearly two pistols. In this case, counting by functional overlap alone would not be sufficient to count two pistols. This is why Functional Almost-Identity includes the proviso that the overlapping functional roles must be *as a result of mereological overlap.* The mereological overlap need not be extensive, it need only underlie the functional overlap.

In the starting pistol case, the fact that both pistols caused the race to start has nothing to do with mereological overlap between the pistols—their parts don't overlap. Therefore, the Functional Almost-Identity view tells us to count the pistols as two, not one. In the cloud case, by contrast, the cloud candidates transport and distribute the same rain—that is, they fill the same token functional role—because they have mostly the same water droplets. Functional Almost-Identity tells us to count the cloud candidates as one cloud.

8. Conclusion

We can use almost-identity to count objects in ordinary circumstances. David Lewis suggested this approach using mereological overlap. We can get more accurate results if we use functional overlap instead. If we count functionally overlapping things as one, we can handle both versions of the problem of the many (cloud-type cases and house-and-garage cases).[4]

Virginia Commonwealth University

csutton2@vcu.edu

References

Lewis, David. 1999. Many, but almost one. In his *Papers in Metaphysics and Epistemology.* Cambridge: Cambridge University Press. Originally published in Keith Campbell, John Bacon and Lloyd Reinhardt, ed., *Ontology, Causality, and Mind: Essays on the Philosophy of D. M. Armstrong* (Cambridge: Cambridge University Press, 1993).

López de Sa, Dan. 2014. Lewis vs Lewis on the problem of the many. *Synthese* 191: 1105–17.

Nichols, Peter. 2010. Substance concepts and personal identity. *Philosophical Studies* 150: 255–70.

[4] Thanks to Sara Bernstein, Maya Eddon, Alex Skiles and Peter Sutton for feedback on this paper.

Weatherson, Brian. 2009. The problem of the many. *Stanford Encyclopedia of Philosophy* (Winter 2009 Edition), edited by Edward N. Zalta. http://plato.stanford.edu/archives/win2009/entries/problem-of-many/.