Against Composition as Identity

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The claim that composition is identity is an intuition in search of a formulation. The farmer's field is made of six plots, and in some sense is nothing more than those six plots. According to the friend of composition as identity, the six plots *are identical with* the farmer's field.[1]

Some philosophers, such as Peter van Inwagen (1994), have claimed that the view that composition is identity is incoherent. Van Inwagen cites the apparent ungrammaticality of sentences like 'the six plots are the farmer's field' as evidence for his view. Perhaps van Inwagen is right, but I needn't settle this question here. I will argue against the view that composition is identity, whatever that view amounts to, in the following way. First, I will elucidate a principle called 'the Plural Duplication Principle' [PDP]. Any acceptable way of making sense of the slogan that composition is identity—i.e., any way that properly conforms to the intuitions that lead one to utter this slogan—must validate PDP. Second, I argue that PDP is false. So any acceptable way of making sense of the slogan that composition is identity is false. The slogan that composition is identity will be refuted prior to being properly formulated.

Following David Lewis (1986: 59-63), let us say that *x* and *y* are duplicates just in case there is a 1-1 correspondence between their parts that preserves perfectly natural properties and relations. Suppose that A is identical with B. Then any duplicate of A must also be a duplicate of B. This follows via Leibniz's Law: if some duplicate of A were not

[1] This example is originally from Donald Baxter 1998: 579, and is discussed in Lewis 1991: 83-84.

a duplicate of a B, then A and B must differ in some qualitative respect and hence would not be identical.

Just as individuals can be identical with individuals, pluralities can be identical with pluralities. No one should deny that statements of the form *the xs are the ys* are intelligible and sometimes true. Let us say that the *xs* are *plural duplicates* of the *ys* just in case the *xs* and the *ys* can be put in 1-1 correspondence C that preserves perfectly natural properties and relations and for each *z* of the *xs*, C(*z*) is a duplicate of *z*. Suppose that the *xs* are the *ys*. Then any *zs* that are plural duplicates of the *xs* must be plural duplicates of the *ys* as well, on pain of violating the plural analogue of Leibniz's Law.

If the *many* just is the *one*, then in some sense the many and the one must have the same qualities. Obviously, the friend of composition as identity is committed to their being such a sense, although it is tricky business to spell out what this sense is.[2] But however we cash out Leibniz's Law in this context, we can be confident that a properly formulated version must validate the following claim:

> [LL-P]: For any *xs*, *w*, and *z*, if the *xs* are identical to *w*, then *z* is a duplicate of *w* iff there are some *ys* that are plural duplicates of the *xs* and are identical to *z*.

Given composition as identity, for all *xs* and every *y*, the *xs* are identical with *y* if and only if the *xs* compose *y*. The conjunction of LL-P and composition as identity accordingly entail the *Plural Duplication Principle* [PDP] alluded to earlier:

> [PDP]: For any *xs*, *w*, and *z*, if the *xs* compose *w*, then *z* is a duplicate of *w* iff there are some *ys* that are plural duplicates of the *xs* and compose *z*.

[2] See Sider 2007 for a discussion of the attendant difficulties.

Note that PDP does not appeal to the perhaps obscure notion that many things can be one. Even someone who is suspicious of composition as identity should be able to understand PDP. Note also that PDP does not seem to entail composition as identity.

However, anyone who is a friend of composition as identity should accept PDP, since anyone who accepts composition as identity should accept LL-P. Consider the following argument, which is based on some remarks by David Lewis (1991), himself a champion of (moderate) composition as identity. Lewis writes, 'Describe Magpie and Possum fully – the character of each and also their interrelation – and thereby you fully describe their fusion.' (1991: 85) Lewis's thought is this: if composition is identity, then the whole just is the parts. So if you fully describe the parts, you must have fully described the whole. In order for the claim that a full description of the parts suffices for a full description of the whole to be non-trivial, certain features of the parts must be omitted from the 'full' description. Otherwise a full description of anything whatsoever would suffice for a full description of anything else whatsoever. Lewis's slogan would then be uninteresting, and certainly not worth mentioning. Suppose we take a full description of a thing to be one that mentions *every* property had by a thing, intrinsic or extrinsic. Then a full description of me will entail a full description of any other thing, since for any property F had by some substance *x*, I have the extrinsic property *being such that x has F*, and my having that property entails that *x* has *F*.

Note that Lewis explicitly distinguishes between a *full* description and a *relational* description on the same page from which the example of Magpie and Possum is drawn. This is why Lewis cashes out the notion of a full description in terms of the *intrinsic* character of the parts and the *external relations* the parts bear to each other.

PDP is merely a formal restatement of Lewis's claim that, given composition as identity, a full description of the parts is a full description of the whole.[3]

Recall the farmer's field. In this case, it really does seem that a full description of the parts of the field suffices for a full description of the field. If there are six other plots of land that are plural duplicates of the farmer's six plots, then there is another field that is a duplicate of the farmer's field. This is as PDP predicts. So we should acknowledge that PDP might seem initially plausible: with respect to at *some* wholes, PDP seems to say the right thing.

If a full description of *x* is not also a full description of *y*, then *x* and *y* cannot be identical. If a full description of the *ws* is not also a full description of the *zs*, then the *ws* cannot be the *zs*. Likewise, if a full description of the *ws* is not also a full description of *x*, then the *ws* and *x* cannot be identical. How then could *x be* the *ws* and *y be* the *zs* if the *ws* and the *zs* could be exactly alike while *x* and *y* are qualitatively different?

The upshot is this: PDP must be true on any reasonable way of formulating composition as identity. If PDP is false, then we should give up on the slogan that composition is identity.

I will now argue that PDP is false. The argument against PDP is very simple. If PDP is true, then *strongly emergent properties* are impossible. But strongly emergent properties are possible. So PDP is false.

F is a strongly emergent property if and only if (i) *F* is a perfectly natural property, (ii) *F* can be exemplified by composite material objects, and (iii) *F* does not

[3] It's worth noting that, in order to avoid triviality, the full description of the parts must not explicitly mention features such as *being part of a whole that is F*.

locally supervene on the perfectly natural properties and relations exemplified by only atomic material objects.[4]

If composition as identity is true, then it is necessarily true. So if composition as identity is true, then PDP is necessarily true. But if PDP is necessarily true, then strongly emergent properties are impossible. Proof: assume PDP, and suppose for reductio that *x* instantiates *F*, where *F* is a strongly emergent property. Since *F* does not supervene on the perfectly natural properties and relations of the atomic parts of *x*, the *ws*, there could be some *zs* such that the *zs* are plural duplicates of the *ws* but the *y* that is composed of the *zs* does not exemplify *F*.[5] However, since *x* exemplifies *F* but *y* does not, *x* cannot be a duplicate of *y*, since there is no 1-1 function between the parts of *x* and the parts of *y* that preserves perfectly natural properties and relations. (*F* is not preserved.) Given composition as identity, *x* is the *ws* and *y* is the *zs*. Since the *ws* and the *zs* are plural duplicates, PDP implies that *x* and *y* are duplicates. Reductio complete. PDP is incompatible with the possibility of strongly emergent properties.

I've argued elsewhere that strongly emergent properties are possible.[6] Moreover, PDP might even be falsified by actual counter-example. I am attracted to the admittedly unpopular view that certain qualitative properties of persons or their experiences —

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[4] I assume the possibility of material atoms, i.e., material objects that have no proper parts. I also assume that the actual world is such that every material object in it decomposes without remainder into simples. I don't think these assumptions are essential to my argument, though they do simplify its presentation, and in any event, I believe that they are true. (Note that, if an object is gunky, then trivially every fundamental property it exemplifies is strongly emergent in the sense defined here. Were we to formulate a similar argument against composition as identity that dropped the assumption of atomism, we would need to introduce a different notion of an emergent property. I foresee no difficulty here, and so will not pursue this issue further.)

[5] I assume that it is not the case that every strongly emergent property *F* is such that something is a composite object only if it exemplifies *F*.

[6] See McDaniel 2007 and Schaffer 2007 for defenses of the claim that mereologically complex objects can exemplify perfectly natural properties.

sometimes called *phenomenal* properties or *qualia* — do not supervene on any of the properties or relations had by their atomic parts. There could be an object (a 'zombie') that is a 'microphysical duplicate' of me, i.e., its atomic parts are plural duplicates of my atomic parts, but who lacks qualitative experiences.[7] Moreover, on some interpretations of quantum mechanics, the quantum state of the universe is a perfectly natural property assigned to a complex whole: the entire physical universe. As Tim Maudlin puts it:

> In quantum theory, then, the physical state of a complex whole cannot always be reduced to those of its parts, or to those of its parts together with their spatiotemporal relations, even when the parts inhabit distinct regions of space… (Maudlin 1998: 56)

The physical state of a complex whole appears to be a strongly emergent property in my sense. If Maudlin is right about what quantum theory implies, then we should be very suspicious of PDP. Facts about quantum entanglement might well refute it.

I anticipate the following reply: as a matter of necessity, whenever a whole exemplifies what I have taken to be a strongly emergent property — such as a phenomenal property or an entanglement state — that whole has parts that exemplify a perfectly natural external relation. This new fundamental relation does not supervene on the intrinsic properties of the parts or the spatiotemporal relations obtaining between them, and so in this sense is an emergent relation. Accordingly, just as I am not a duplicate of something *x* that is otherwise just like me save for lacking qualia, my parts are not plural duplicates of *x's* parts. And so PDP is not refuted.[8]

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[7] See Chalmers 1996 for a defense of this view. It is worth noting, however, that Chalmers is also attracted to a view – *panpsychism* – according to which phenomenal properties supervene on non-physical 'proto-phenomenal' properties of their parts.

[8] Thanks to Ben Bradley and Brad Skow for suggesting this reply.

I have two worries about this reply. First, this reply requires that a perfectly natural intrinsic property necessarily co-varies with a perfectly natural relation. Anyone attracted to the view that perfectly natural properties and relations can be freely recombined will find this reply unprecedented and unduly mysterious. Given that both the property and the relation are perfectly natural, why couldn't they come apart?[9]

Second, this reply actually *concedes* the objection to composition as identity, namely, that it is incompatible with the possibility of strongly emergent properties. For this reply tells us that the allegedly strongly emergent property actually supervenes on some relation obtaining between its proper parts. Perhaps qualia and states of entanglement do supervene in this way, in which case they are not responsible for actual counter-examples to PDP. (For what its worth, claiming that qualia supervene in this way strikes me as unmotivated.) Nonetheless, it still seems that strongly emergent properties are *possible*, and if composition as identity rules them out, this is a serious cost of the view.

Wholes, especially wholes enjoying emergent properties, are something 'over and above' their parts in the following sense: a mere description of the proper parts need not be a complete description of the emerging whole. Since composition as identity seems to imply PDP, we should be suspicious of composition as identity as well.[10]

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[9] Note that, if one denies that the property in question is perfectly natural, one will have conceded that the property is not a strongly emergent property. But then how could this reply constitute a response to the objection that composition as identity is inconsistent with the possibility of strongly emergent properties?

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