

On Composition as Identity¹

1. Introduction

In my fridge there is a six-pack of beer, a jar of mustard, and a half-dozen eggs.

Now for a seemingly simple question: How many things are in my fridge?

We could say there are just three things there: one six-pack, one jar, and one half-dozen eggs.

But this isn't quite right, for we are partially inclined to count the individual beers, and perhaps the individual eggs. So, on second thought, there are thirteen things in my fridge. But wait. This

isn't quite right either. The beers, after all, are comprised of at least two parts: the actual

beverage inside the bottles and the bottles themselves. And similarly for the mustard and eggs:

there is the mustard itself, and the jar containing the mustard; there is the goopy egg-stuff, and

the shells containing the goopy egg-stuff. But wait. There's more. All of the beer, the bottles, the goopy egg-stuff, the shells, etc., are each made up of atoms or molecules or things even smaller.

Should we count by these? Or by something smaller still, such as metaphysical simples (if there are any), or gunk (if there is any of that)? Moreover, we may all agree that there's one six pack.

We may also agree that there's six beers. We may also, in a certain frame of mind, agree that

there are twelve halves-of-beers. But then is it true to say that there is one six pack *and* six beers

and twelve halves-of-beers? Surely this is a misleading way of taking a count. The reason is

¹ I would like to thank the following for all of their insightful comments on earlier drafts of this paper: Mark Brown, Andre Gallois, John Hawthorne, Tom McKay, Daniel Nolan, Adam Sennet, Ted Sider, and audiences at Syracuse, Rutgers, and Princeton University.

because the one six pack just *is* six beers, six beers just *are* one six-pack, ‘both’ of which just *are* the twelve halves-of-beers.

So just how many things *are* in my fridge? Our seemingly simple question is not so simple after all.

In this paper, I assume that ontologists are faced with the same difficulty as illustrated above. Just how many things *are* there? Should we count by tables and chairs and other ordinary furniture of the universe? Should we count by the parts that make up these things—e.g., molecules or atoms or things even smaller? Should we count by simples or gunk? Once we recognize that parts can make up wholes—i.e., that some things can compose another thing—what sort of effect does this have for our ontology? Specifically, I am concerned with how a *mereologist* counts up the things in the universe. An (unrestricted) mereologist claims that whenever we have two things, no matter how spatially or temporally² distant, there is a further thing: the fusion of the two things. For example, if we have a world with only a paper clip and a dumbbell (assuming that each are metaphysical simples—i.e., that neither have any parts), we would be inclined to say that there are only two things there. But the mereologist claims that there is something in addition to the two objects: there is the mereological fusion of the two things, where a fusion is as much an object as is a paper clip or a dumbbell.

I said that a mereologist thinks that whenever there are two objects there is something *further* or something in *addition* to our original items: the mereological fusion. I will argue below that this is a misleading way of putting the point. This is because there are two views about the relationship

² According to some views. See Lewis (1986), Sider (2001), et. al., on four-dimensionalism.

between parts and wholes. Either the parts that compose the whole are literally *identical* to the whole, or they are not. Most mereologists claim the latter. I, however, will claim that the parts that compose any whole *are* identical to the whole.³ To support my thesis I will (i) invoke a notion of relative counting and (ii) utilize a language and logic of plurals. My strategy will be to take the arguments against the claim that composition is identity and show why these arguments are ineffective, provided we've got a notion of relative counting and a language of plurals.

2. Weak vs. Strong Composition Theses

Some mereologists boast that their view of parts and wholes is ontologically innocent.⁴ They claim that a fusion is nothing over and above its parts; once you've committed to the parts, you get the fusion for free. In other words, fusions are not a *further* ontological commitment beyond the commitment to the parts. There are various proposals to explain how it is that fusions can come about so cheap. Perhaps the most straightforward of these explanations, and the one I will be concerned with in this paper, is to accept the *Strong Composition Thesis*:^{5,6}

Strong Composition Thesis: the predicate 'are' used to indicate the composition relation is *literally* another form of the 'is' of identity.

³ One person who has held this view is Donald Baxter (see his 1988a and 1988b). My view differs from his in that I do not reject the indiscernability of identicals. See section 4.1 of this paper for further discussion.

⁴ See Lewis, 1991 (72-87)

⁵ This thesis, and the Weak Composition Thesis stated below, are formulated by Byeong-Uk Yi in "Is Mereology Ontologically Innocent," *Philosophical Studies* 93: 141-160, 1999.

⁶ The reader should keep in mind that throughout this paper I am concerned with *composition* as identity, not *constitution* as identity. One difference between composition and constitution is that composition is concerned with the relation between one and many—e.g., a whole and its parts. Constitution is concerned with the relation between just one thing and another—e.g., a statue and the lump of clay that makes it up. I would eventually like to explore the relation between composition as identity and constitution as identity, but such interests are beyond the scope of this paper.

To put it simply, those who accept the Strong Composition Thesis claim that whenever there is a fusion of something, that fusion or whole is literally identical to all of its parts. Since, according to this view, the parts are literally identical to the whole, there is no problem getting the fusion of parts for free: the parts just *are* the whole, the whole just *is* its parts; so *of course* the whole is no further ontological commitment given that you are already committed to the parts.

In *Parts of Classes*, David Lewis claims that mereology is ontologically innocent. However, he also claims that composition is not *strictly* identity but rather only *sort of* identity. He claims that the ‘are’ of composition and the ‘is’ of identity are at best only analogous. We might say that he is committed to the *Weak Composition Thesis*:

Weak Composition Thesis: the predicate ‘are’ used to indicate the composition relation is only *analogously* another form of the ‘is’ of identity

Two reasons Lewis offers for thinking that the ‘are’ of composition is only *analogously* the ‘is’ of identity are (a) that he knows of “no way to generalize the definition of ordinary one-one identity in terms of plural quantification,” and (b) that “we do not really have a generalized principle of indiscernibility of identicals.”⁷ Yet provided that (a) and (b) are reasons enough to reject the Strong Composition Thesis, I do not then see how Lewis can maintain that mereology is ontologically innocent. It seems that as soon as Lewis gives up the idea that the relation between part and whole is literally a form of identity, he is also giving up the idea that the whole

⁷ Lewis, 1991 (87) These arguments are laid out in more detail below.

is nothing over and above the sum of its parts. If the parts are not literally identical to the whole, then in committing oneself to the parts, one has not committed oneself to the whole—a further commitment is needed if one wants both parts and fusions in one’s ontology.

My aim in this paper is to make the Strong Composition Thesis (SCT) a plausible thesis. This will involve (i) responding to Lewis’s own reasons for rejecting the SCT (mentioned briefly above), (ii) responding to two arguments against the thesis presented by Byeong-Uk Yi, (iii) addressing some worries raised by Peter van Inwagen, and finally, (iv) addressing some additional worries that may be problematic for SCT. In responding to such arguments against SCT, I will lay out a relatively novel account of composition as identity, inspired, in part, by Frege’s remarks on counting. Also, I hope that a consequence of my view will show that unrestricted composition—the view that for *any* two things, there is a mereological fusion of those things—is far less ontologically extravagant than many have thought.

3. Lewis and the Strong Composition Thesis

3.1 Lewis’s First Worry

Lewis’s first worry against the Strong Composition Thesis concerns trouble with generalizing “the definition of ordinary one-one identity in terms of plural quantification” Lewis continues,

“We know that x and y are identical iff, whenever that are some things, x is one of them iff y is one of them. But if y is the fusion of the x s, then there are some things such that each of

the xs is one of them and y is not; and there are some things such that y is one of them but none of the xs is.”⁸

In other words, there will be some things—namely, the parts—such that each of the parts is one of them, but the fusion is not; and there will be some things—namely, the fusion—such that the fusion is one of them but none of the xs is.

3.2 Lewis’s Second Worry

Lewis’s second worry against the Strong Composition Thesis concerns the indiscernability of identicals. Lewis states,

“...even though the many and the one are the same portion of Reality, and the character of that portion is given once and for all whether we take it as many or take it as one, still we do not have a generalized principle of indiscernability of identicals...What’s true of the many is not exactly what’s true of the one. After all they are many while it is one. The number of the many is six, as it might be, whereas the number of the fusion is one.”⁹

If the parts and the whole are truly identical in the way that the Strong Composition claims, then they should not differ in any of their properties. Yet the parts and the whole do seem to differ—e.g., the parts are many, but the whole is one.

4. Responding to Lewis

⁸ Lewis, 1991 (87)

⁹ Lewis, 1991 (87)

4.1 Suggestions from Baxter

In “Identity in the Loose and Popular Sense,”¹⁰ Donald Baxter suggests one way of coming to terms with the indiscernability of identicals, while maintaining the Strong Composition Thesis. Baxter claims that there are two kinds of identity, strict and loose. Using his terminology, we could claim that the strong composition thesis says that the many on a strict count are one on a loose count. However, I am not convinced that either (i) his distinction between loose and strict identity is a plausible distinction, nor that (ii) a proponent of the Strong Composition Thesis needs to resort to such a distinction in order to save the indiscernability of identicals. My aim is to honor identity as we know her best: unambiguous and intuitive.

However, there is something to be gleaned from Baxter’s suggestion, and that is this: perhaps when we are counting the whole and counting the parts, our insistence that the parts are many while the whole is one is due to the fact that we have forgotten that we have engaged in two different kinds of *counting*. That is, on one count, when we are counting the whole, the count comes up one; on the other count, when we are counting parts, it comes up many. If we push this idea far enough, then we will not need to appeal to two different kinds of identity, strict and loose. Rather, we will hold tight to our original and ordinary sense of identity, placing all the work on our ways of counting.

In fact, Baxter himself suggests such a view in another article, “Many-One Identity.”¹¹ How are we to account for the fact that something is one if considered whole and many if considered

¹⁰ Baxter, Donald, “Identity in the Loose and Popular Sense,” *Mind*, New Series, Vol. 97, Issue 388 (Oct., 1988a), 575-582.

¹¹ Baxter, Donald, “Many-One Identity,” *Philosophical Papers*: XVII (1988b) No. 3.

parts? Baxter explains, “what are many on one count are one in another. Making the distinction between counts resolves the contradiction.”¹² However, Baxter also claims that in order to account for cross-count identity (i.e., the many on one count *are identical to* one on another count), we are required to accept the *discernability* of identicals. That is, he wants to claim that something can qualitatively differ from itself.

While there are some merits of this proposal (and indeed, I will appeal to some of Baxter’s points here and there), overall I am unconvinced by his view. My purpose in this paper is to find a way to make sense of the Strong Composition Thesis, while maintaining most of our ordinary intuitions about identity. This means that I will not want to appeal to two different senses or uses of identity, and I will not want to give up the indiscernability of identicals. My motivation for mentioning Baxter and his two proposals is that I think we might be able to borrow a bit from each to make SCT a plausible view. More specifically, this will involve distinguishing different *ways of counting*.

I propose that the proponent of the Strong Composition Thesis should commit herself to the view that whenever there is a fusion of many, it is ‘one’ if counted as a whole, or ‘many’ if counted as parts. I’d like to suggest that whenever there is a fusion, there is something that is many or one depending on how one is counting.

4.2 Suggestions from Frege: Counting Parts and Wholes

¹² Baxter, 1988b (194)

Suppose we want to buy a six-pack of beer. On our way up to the register with our purchase, we might wonder if our six-pack counts as one thing, six things, or even seven (and then some) things.¹³ The clerk at the counter will certainly count it as one; one barcode, one thing. Your five buddies and you, as thirsty as you are, will count it as six; after all, there's one beer for each of you. Yet the not-so-ontologically-innocent mereologist will tell you that there are at least seven things there, and probably on up to sixty-three or more things if he really wants to stick to his guns: Each individual beer counts for six; the fusion of all six counts for one; the fusion of just two beers, and then two others, and then the final two, counts for three, etc.¹⁴

If whenever we have a fusion we have just one thing that can be considered as parts or as a whole, but cannot be considered as both (on pain of miscounting), then we cannot count the pack as seven or more things. We can count it as one, or six (or two, three, or four if you really wish), but you can count it as only one of those things, one at a time. If it will help, we can even name all the ways to divide the parts of the pack. Counting the pack as six, we can call it 'Joe'; counting the pack as one we can call it 'Fred'; counting the pack as three we can call it 'Sue', etc. However, since the proponent of the Strong Composition Thesis claims that $\text{Joe} = \text{Fred} = \text{Sue} = \dots$ etc., for however hard you try, you will never be able to count your pack for seven or more things. But wait. How can $\text{Joe} = \text{Fred} = \text{Sue}$, if Joe is six things, Fred is one, and Sue is three? Here I think we need to be careful about what exactly we are counting each time we take a count.

¹³ We are supposing that our beers are simples. Also, hereafter, I am going to call the six-pack 'pack,' since 'six-pack' suggests that we are already counting it as six.

¹⁴ Hereafter, I will ignore some of the over-lapping parts (e.g. five of the beers, and then five others, where we count some of the individual beers twice in the second group of five). Including these overlapping parts will complicate the discussion—e.g., the count on which the beers are 63—and presently, I would like to keep things fairly simple. Moreover, I do not think that these overlapping counts will be problematic for my view, and so I see no harm in leaving them aside for now.

In *The Foundations of Arithmetic*, Frege claims that the number we ascribe to things depends on our way of counting. He claims,

“The Illiad, for example, can be thought of as one poem, or as twenty-four Books, or as some large Number of verses; and a pile of cards can be thought of as one pack or as fifty-two cards (§22). *One* pair of boots can be thought of as *two* boots (§25).”¹⁵

In §46, Frege continues,

“...it will help to consider number in the context of a judgment that brings out its ordinary use. If, in looking at the same external phenomenon, I can say with equal truth ‘This is a copse’ and ‘These are five trees’, or ‘Here are four companies’ and ‘Here are 500 men’, then what changes here is neither the individual nor the whole, the aggregate, but rather my terminology. But that is only the sign of the replacement of one concept by another. This suggests...that a statement of number contains an assertion about a concept.”¹⁶

Frege’s point is that when we answer the question ‘How many?’ we are saying something about a particular concept. Indeed, ordinary usage shows that it is unproblematic to assert that 52 cards are identical to one deck, that two boots are identical to one pair, that 4 cups are identical to a quart, that 1000 meters are identical to one kilometer, etc. According to Frege, in each case we are not ascribing different numbers to one thing; rather, we are ascribing different numbers to

¹⁵ Frege, Gottleb, *The Foundations of Arithmetic*, in *The Frege Reader*, ed., Beany, Michael.

¹⁶ *Ibid.*

different concepts of the thing(s) in question. Thus, there will never be a coherent answer to the question ‘How many things are there?’ until we have first agreed on a concept under which to think of the thing(s).¹⁷

Applying Frege’s point to the above example of the pack, this would mean that each time we divide and count the pack into parts, we are first conceiving of the pack under particular concept or a way of thinking about it, and then counting it. We are mistaken if we think that we are applying a number to a thing; rather, something(s) can be counted as ‘one’ if thought under one concept, ‘two’ if thought under another, etc. So how does Joe = Fred = Sue, if Joe is six things, Fred is one, and Sue is three? Well, Joe is the pack thought under the concept ‘individual beers’, Fred is the pack thought under the concept ‘six-pack’, Sue is the pack thought under the concept ‘pairs of beers’, etc.

Our original interest was to determine the answer to ‘How many?’ with regards to the pack of beer. Adopting the Fregean view as suggested, there is no answer to this question until we specify how we want to think of the beer. Only when we have been supplied with a concept or a sortal or a way to think about the pack can we determine how many things we have.

Now, granted, we will have to have some rule about how one cannot count something(s) under more than one concept at once. Counting things under more than one concept at once might

¹⁷ This is just one interpretation of Frege; I acknowledge that there are others. For my purposes, it is not important whether I have read Frege correctly or not. I am interested in relative counting as it is suggested above insofar as it can help support the Strong Composition Thesis; it is of no importance here that Frege might not have actually endorsed the idea himself.

result in mistakenly counting things twice. In this way, we will be barred from counting the pack as six (beers) *and* as one (six-pack) *and* as three (pairs of beers), etc. Also, we will need some sort of restriction about what concepts are legitimate or not. For example, since ‘thing’ is too unspecific—i.e., it applies to bulky couches and nearly imperceptible atoms and metaphysical simples alike—it won’t count as a legitimate concept under which to count things.¹⁸

In regard to our pack of beer, the mereologist wants to claim that it is true that there are six beers there. Accordingly, it is also true that there is one six-pack there. And it is true that there are three particular pairs of beer; a pair and a quadruple; two threesomes, etc. We are tempted, after all this has been explained, to ask, ‘yes, but then how many *things* are there *in total*?’ We are tempted, after the mereologist has committed himself to the existence of all of these parts, to add all of these up, getting the sum total of all of the things that are there. But simply adding up all of the numbers of all of our counts would result in a miscount. Assuming that our beers are simples, we never have a count that exceeds six.

Thus, as concerns mereology, we need to add two conditions to Frege’s thesis. First, if we want our counts to be accurate, then for anything that can be counted on more than one count (e.g., boots, cards, etc.), we should limit ourselves to one count at a time. Second, if we are looking for the count that will yield the most number of things, our count will involve either simples or gunk. If the world is composed of only simples, then our count can never exceed the number of

¹⁸ I need to flesh this out a bit more. The idea is that if a concept applies too generally, it won’t be of any help to us when we want to know ‘how many?’. So concepts such as ‘thing,’ ‘fusion,’ ‘things falling under a concept,’ ‘self-identicals,’ etc., are illegitimate concepts under which to count.

simples there are. If there is gunk lying around, then there is no (finite) number of things such that we cannot count more things than it.¹⁹

4.3 Back to Lewis's Worries

So how does a notion of relative counting help answer Lewis's complaints against SCT? Let's take his second worry first. Lewis objects that SCT violates the indiscernability of identicals, since what's true of the many is not true of the one—i.e., the many are many and the one is one. Adopting relative counting provides us with an explanation for what's going on here. Since counts cannot be taken without a sortal (or concept, or way to count by) there will be nothing that is many *simpliciter*, or one *simpliciter*. So the many are not many and the one is one; rather, the many are (e.g.) *many eggs*, and the one is (e.g.) *one dozen eggs*. So, as far as numerical predicates are concerned, we do not have a violation of the indiscernability of identicals.

As for Lewis's first worry (concerning defining ordinary one-one identity in terms of plural quantification), I appeal to the following two sections. For while the appeal to relative counting will help in response to this concern, we will also need to be armed with a notion of a plural language and plural quantification. Such tools will also help us in addressing Byeong-Uk Yi's worries. I turn now to Yi's objections, my responses, and a response to Lewis's first worry in the sections that follow.

5. Yi's Argument against SCT

¹⁹ Thanks to Ted Sider for help on this section.

Byeong-Uk Yi has two arguments against the Strong Composition Thesis. They run as follows.

Argument 1:

Yi asks us to suppose that there are only two things in the world: a cat, Tom, and a mouse, Jerry.²⁰ Suppose, also, that no cat is part of a mouse, and no mouse is part of a cat. If we commit ourselves to mereology, then we are committed not only to Tom and Jerry, but also to the mereological sum of Tom and Jerry, Genie. Yet this fusion is neither a cat nor a mouse. So, by adopting mereology, we are committed to a third thing—a thing in addition to Tom and Jerry—viz., Genie, the fusion of Tom and Jerry.²¹

Argument 2:

Again suppose that we've got a cat, Tom, a mouse, Jerry, and the mereological fusion of Tom and Jerry, Genie. According to mereology, Tom and Jerry are said to compose Genie. Given the Strong Composition Thesis, the mereologist will say:

(*) Tom and Jerry *are* (viz. are identical with) Genie.

²⁰ We can assume for the sake of the example that Tom and Jerry are simples (i.e., they have no proper parts).

²¹ Yi, 1997 (141-2)

Given (*), Genie is one of Tom and Jerry, since Genie is one of Genie.^{22,23} But Genie cannot be one of Tom and Jerry, since Genie is identical to neither Tom nor Jerry. So, Yi concludes, (*) and the Strong Composition Thesis must be false.²⁴

6. Responding to Yi

6.1 Plural Quantification

My responses to both of Yi's argument involve utilizing a logic and language of plurals. This move should not be too objectionable. Yi himself endorses just such a language in Yi 2000(?). Also, both Yi and Lewis effectively argue (independently) that adopting plural terms and quantifiers carries with it no new ontological commitments.²⁵ That is, adopting a plural language is ontologically innocent. The sort of plural language I have in mind has (at least) the following features²⁶:

- (i) plural terms (e.g., pronouns), and their symbolic equivalents

²² Yi utilizes a language of plurals that admits of "a special predicate 'is one of', the second arguments place of which admits of plural terms." Yi, 1997 (143)

²³ Yi claims that if 'Genie is one of Genie' is ungrammatical (because it has a singular term in the second argument place), the predicate can easily be redefined. He suggests: " t is-one-of $u \leftrightarrow \forall \alpha[t$ is one of (u and α)], where ' t ' can be replaced with a singular term and ' u ' any term, plural or singular." Yi, 1997 (147)

²⁴ Hugh S. Chandler has presented a similar argument as follows:

"How can one thing be the same as two, neither of which is the same as the first? A cardboard disc is made up of two halves. Obviously the disc is not the same as the first half and not the same as the second. (Chandler, "Constitutivity and Identity," in Rea, 1997)

²⁵ Yi, forthcoming (1), Lewis, 1991.

²⁶ I am assuming that our plural language is irreducible—that is, plural terms, quantifiers, etc., cannot be reduced to singular terms, quantifiers, etc.

(ii) ‘and’ as a term connective

(iii) plural predicates, quantifiers, and variables

Examples of (i) would be terms such as “John and Carol”, as in (7)—

(7) John and Carol lifted the piano.

where John and Carol lifted the piano together. Notice that admitting such terms into the language also allows that ‘and’ can be used other than as a sentential connective. For example, the ‘and’ in (7) could not be a sentential connection, otherwise we would be able to conclude:

(8) John lifted the piano and Carol lifted the piano.

Assuming that the piano is so heavy that neither John nor Carol could lift it by themselves (but that they are strong enough to lift it together), (7) is true and (8) is false. So it must be that ‘and’ in the term ‘John and Carol’ is working as a term connective to produce the plural term ‘John and Carol.’ [In an attempt to keep things a bit more clear, in the following sections, I will use ‘and_t’ to indicate when ‘and’ is being used as a term connective, and ‘and_s’ to indicate when it is being used as a sentential connective.]²⁷

²⁷ Describing ‘and_t’ and ‘and_s’ as a *term* connective and *sentential* connective, respectively, is not quite right. For I assume that and_t and and_s can be used to link predicates and names as well—see sentences (9) and (13) below for examples of this.

With regards to (iii), examples of plural predicates are predicates such as “surrounded the building,” “met for lunch,” “argued about philosophy,” etc. Yi introduces a special two-place predicate ‘is one of,’ the second argument place of which admits of plural terms.²⁸ Yi also allows for the predicate ‘is-one-of,’ which allows the second argument place to admit of singular terms. This predicate obeys the following semantics: t is-one-of $u \leftrightarrow \forall \alpha[t$ is one of (u and α)], where ‘ t ’ can be replaced with a singular term and ‘ u ’ any term, plural or singular.^{29,30}

6.2 Responding to Argument 1

In Yi (forthcoming), Yi claims that plural terms refer, but need not refer to any object whatsoever. For example, Yi claims that the plural term ‘John and Carol’ in the sentence

(7) John and_t Carol lifted the piano

“...does not refer to John; neither to Carol. But this does not mean that it does not refer at all. It refers to: John and Carol, who are not some one object but two objects.”³¹ Going back to Yi’s argument 1, if there can be a plural term—namely ‘Tom and_t Jerry’—that does not refer to Tom

²⁸ Yi, 1997 (143)

²⁹ Yi, 1997 (147)

³⁰ Since I appeal to relative counting, Yi’s predicates ‘is one of’ and ‘is-one-of’ are not quite right. Rather, I believe these predicates should be read ‘is one ___ of’ and ‘is-one-___-of’, respectively, where the ‘___’ needs to be filled in with a sortal, (or concept or way of counting). These are details that would need to be worked out in a fuller account of my view. However, I think that these details can be safely put aside for the purposes at hand.

³¹ Yi, forthcoming (44)

and does not refer to Jerry, but somehow refers to both, then it seems that the mereologist can use this when she claims that the fusion is identical to Tom and Jerry. If Yi thinks that commitments to plural terms (e.g., ‘Tom and Jerry’) are ontologically innocent, then the mereologist can think this as well.

When Yi argues that there is a thing, Genie, that is neither a cat nor a mouse, the mereologist can respond that, according to Yi, there is a plurality, Tom and Jerry, that is also neither a cat nor a mouse. (Perhaps it is misleading to say ‘there is a plurality’ since this seems to suggest that there is some one thing that ‘Tom and Jerry’ refers to. If so, then one can say, “there is a plural term, ‘Tom and_t Jerry’ that somehow refers to two things.”) In other words, even Yi will admit that there are some things, Tom and_t Jerry, that are neither a cat, nor a mouse—*they are a cat and_t a mouse.*

The idea is to utilize the notion of ‘and’ as a term connective. According to Yi (and Lewis), once we are committed to Tom, a cat, and Jerry, a mouse, we get the plural terms for free. Using the term connective ‘and’ we get the plural term ‘Tom and_t Jerry,’ as well as the plural term ‘a cat and_t a mouse’ (as in ‘a cat and_t a mouse lifted the table’), and plural predicates. So using ‘Tom and_t Jerry’ and ‘a cat and_t a mouse’ as plurals, we get:

(9) Tom and_t Jerry are a cat and_t a mouse.

Just as ‘Tom and_t Jerry’ does not refer to either Tom or Jerry, likewise ‘a cat and_t a mouse’ does not refer to either a cat or a mouse.

In this way, it is no objection to SCT that we will be committed to too many things if we accept mereological sums. For on SCT, the sums are simply *identical* to the parts, and the non-mereologist was presumably already committed to these. If SCT is right, there are not any further *quantitative* ontological commitments to make once the parts are conceded, since any sums will just be identical to anything we are already ontologically committed to.

I said that there won’t be any further *quantitative* ontological commitments. However, perhaps Yi’s objection is not that mereological sums commit us to *more* stuff in our ontology, but rather, more *kinds* of stuff. Perhaps it’s the *qualitative* commitments that bother him.³² Indeed, prior to accepting mereology, we will all be happy enough to admit Tom and Jerry into our ontology. We will even be happy to admit (once we’ve adopted a plural language) Tom and_t Jerry into our ontology, since we will realize that Tom and_t Jerry is nothing over and above Tom and_s Jerry. Yet even if we are assured by SCT that the mereological sum of Tom and Jerry is simply *identical* to something we are already happy with—namely, Tom and_t Jerry—we may cringe at the *kind* of thing the sum is. That is, we may not want to admit mereological sums into our ontology, *not* because they are ontologically explosive, but because they are just weird or repulsive or suspicious sorts of things. For example, one might think that the mereological fusion of Tom and Jerry is a strange sort of scattered object, one part of which could be chasing the other, and one may not want to admit such scattered, self-chasing things into one’s ontology. The

³² Thanks to Tom McKay and Daniel Nolan for discussion on this section.

methodology underlying this sort of objection would be one guided by qualitative—as opposed to quantitative—parsimony.

My response to this line of reasoning is simply to wonder why we should be bothered by the qualitative character of mereological sums. I do not see how they are intrinsically weird or spooky or suspect, unless of course, one is bothered by the quantitative worries that are usually associated with such entities. For example, if I am inclined to find a certain entity qualitatively suspect—say, magic crystals—it is only in virtue of the fact that such entities are a further *quantitative* commitment (one unnecessary, say, for my otherwise parsimonious theory of the world) that I find them so undesirable. If, in response to my rejection of such entities, someone were to explain to me that magic crystals are actually identical to things I am already committed to—say, for example, normal crystals and wishful thinking—then I fail to see why I would then reject a commitment to such entities on *qualitative* grounds. All of the spooky qualitative stuff disappears once I accept that the ‘new’ entities are simply identical to things I have already admitted into my ontology. Indeed, this is the appeal of giving reductive accounts of otherwise spooky stuff—the reduction of a suspicious entity to something already accepted takes the spook out of the specter.

So if Yi’s objection is a quantitative complaint, then we need not go beyond an appeal to plural languages to see that we are not incurring further quantitative commitments by accepting SCT. If Yi’s complaint is a qualitative one, then I fail to see where the aversion to mereological sums comes from.

6.3 Responding to Argument 2

Yi claims that Genie cannot be one of Tom and Jerry because Genie is not identical to either Tom or Jerry. I take it that Yi's reasoning behind the claim that Genie is identical with neither Tom nor Jerry is supported by (10) and (11):

(10) Genie is not identical with Tom.

(11) Genie is not identical with Jerry.

From (10) and (11) we get

(12) Genie is identical with neither Tom nor Jerry.

And from (12), we get the following (13), where 'and' is read as a sentential connective

(13) Genie is not one of Tom and Jerry.

(provided that the relationship between 'being one of' and 'being identical to' is the way Yi claims it is).³³ But even if Yi has succeeded in showing (13), he has still not shown (14):

³³ Yi, 1997 (pp. 143-5)

(14) Genie is not one of Tom and_t Jerry.

Recall that Yi wanted to show that (*)

(*) Tom and Jerry *are* (viz. are identical with) Genie.

and the Strong Composition Thesis, were false. Having introduced the distinction between ‘and_s’ and ‘and_t’, we can now see that (*) should be read as (**), where the ‘and’ is a term connective, not a sentential connective:

(**) Tom and_t Jerry are (viz. are identical with) Genie.

Since it is (**) that the Strong Composition Thesis is committed to, one would need to show that (14) holds, in order to show that (**), and the thesis, is false. However, Yi has not done this. At the very most, he has only shown (13).

[Notice that utilizing ‘and_t’ as I have above forces the Composition as Identity Theorist to give up the following sorts of claims:

(i) ‘ α is one of β and_t δ ’ is true iff either ‘ $\alpha = \beta$ ’ is true or ‘ $\alpha = \delta$ ’ is true.

There should be no worries here, however, for adopting a term connective such as ‘and_t’ is going to give rise to all sorts of exceptions to standard inferences and intuitive principles. This does not mean that trouble abounds for all of our inferences and principles, it is just that we must remember that our inferences and principles concern only the sentential connective, and_s, not the term connective, and_t.]

6.4 Back to Lewis

Recall Lewis’s first worry:

“We know that x and y are identical iff, whenever there are some things, x is one of them iff y is one of them. But if y is the fusion of the xs, then there are some things such that each of the xs is one of them and y is not; and there are some things such that y is one of them but none of the xs is.” (*Parts of Classes*, p. 87)

If I am reading Lewis correctly here, then what is going on is a slip between a distributive and collective reading of ‘the parts.’ He claims that ‘there are some things such that *each* of the xs is one of them and y is not.’ The ‘*each*’ here is forcing us to attribute the distributive property of *being one of the parts* to each of the individual parts. It is no claim of SCT that a property that the parts have individually is a property that the part have collectively. For example, it may be the case that (15) holds:

(15) John and_s Carol lifted a piano

where the ‘and_s’ is to be read distributively, such that (the incredibly strong) John and Carol each lifted a piano by themselves. And yet (16) may be false:

(16) John and_t Carol lifted the piano

where the ‘and_t’ is to be read collectively, such that John and Carol lifted a piano together.

It seems that a similar slip is occurring in Lewis’s complaint against SCT. That each of the parts is one of the parts and yet the fusion is not, is not a problem. What *would* be a problem is if the parts *collectively* had a property that the fusion did not, thus violating Leibniz’s Law. But as of yet, we have no instance of this. Consequently, as far as I can tell, we do not have a violation of the principle: x and y are identical iff whenever there are some things, x is one of them iff y is one of them.

7. Addressing Van Inwagen’s Worries

7.1 First Worry

Van Inwagen’s first complaint about the Strong Composition Thesis concerns the fact that such a view is committed to the following sorts of claims:

(15) The fusion of the xs just *is* the xs.

(16) The *xs* just *are* the fusion of the *xs*.³⁴

Van Inwagen claims that it makes sense when the ‘is’ of identity is flanked on either side by singular terms (e.g., Superman is Clark Kent); and it makes sense when the ‘are’ of identity is flanked on either side by plural terms (e.g., Locke, Berkeley, and Hume are the Empiricists). But he does not think that the ‘is/are’ hybrid of identity that is used by the composition as identity theorist is legitimate. He asks, “What kind of syntactic sense is there in taking either ‘is’ or ‘are’ and putting a singular term or variable on one side of it and a plural term or variable on the other?”³⁵ He continues, “The ‘hybrid’ is/are cannot be defined in terms of ‘is one of,’ or in any way that I can see.”³⁶

Response: We saw above that *Yi* certainly has no trouble adopting a predicate ‘is-one-of’ that allows for plurals or singulars in the second argument place. It’s a small hop from there to then make sense of the hybrid is/are identity about which van Inwagen seems so thoroughly confused. Since van Inwagen himself is armed with a language of plurals, he’s got all the tools to make sense of the is/are hybrid of identity as *Yi* did. Moreover, all van Inwagen has to do is open a cookbook or check out a metric conversion table and he’ll see the following sorts of identity claims: 16 fluid ounces *are* one pint, and conversely, one pint *is* 16 fluid ounces; 2 cups *are* 1 pint, and conversely, 1 cup *is* two pints; 1000m *are* 1km, and conversely, 1km *is* 1000m; twelve eggs *are* one dozen, one dozen *is* twelve eggs, etc. That such uses of the is/are hybrid are so readily and commonly available shows exactly what kind of syntactic sense such an identity

³⁴ These are actually pulled straight from Lewis, 1991 (81).

³⁵ PvI, 1994 (210-1)

³⁶ *Ibid.*

predicate has. Moreover, my theory allows me to make sense of such ordinary English, whereas Van Inwagen's does not. I would think that capturing such grammatical claims in English is a bonus for a theory, not a bug.

7.2 Second Worry

Borrowing an example from Lewis (who borrows it from Baxter), van Inwagen asks us to imagine that there is one big parcel of land, divided neatly into six smaller-parcel parts.³⁷ Van Inwagen argues the following:

“Suppose that we have a batch of sentences containing quantifiers, and that we want to determine their truth values: ‘ $\exists x \exists y \exists z (y \text{ is a part of } x \ \& \ z \text{ is a part of } x \ \& \ y \text{ is not the same size as } z)$ ’; that sort of thing. How many items are in our domain of quantification? Seven, right? That is, there are seven objects, and not six objects or one object, that are possible values of our variables, and which we must take account of when we are determining the truth value of our sentences.”³⁸

Response: Suppose that we have to fill a tub of water measuring 1 fluid quart. Alas, however, all we have is a one cup scoop, so we run from the sink to the tub four times, each time pouring one cup of water into the tub. Let's say that we take this tub-filling opportunity to explain to van Inwagen how it can be that 4 cups just *are* 1 fluid quart, and conversely, 1 fluid quart just *is* 4

³⁷ PvI assumes that the smaller parcels are simples, and ignores (for brevity's sake) many of the over-lapping parts.

³⁸ PvI, 1994 (213)

cups. But let us suppose that as we are running to and fro, from the sink to the tub and back again, van Inwagen is watching over us and quantifying over all of the liquid quantities. After we are all finished, he wants to know the truth value of the following sorts of sentences: “ $\exists x \exists y \exists z (y$ is a part of x & z is a part of x & y is not the same size (or same quantity) as z)””; that sort of thing. He then queries, “Just how many things are in our domain of quantification? Five, right? There’s all of the four cups, plus the one quart.”

What we surely will explain to him is that he has simply miscounted. You cannot count the tub-water under two different concepts, first as cups and then as quarts, or else you will end up with the wrong number of things in your domain. You can count the quantity of water as cups, or as quarts, or as jiggers if you like; but you cannot count all of them, all at once, or you will mistakenly count some of the water twice.

The underlying idea here is that *we cannot count merely by existential quantifiers and identity statements*. Indeed, if the identity predicate is allowed to be flanked by singulars on one side and plurals on the other, then we will not be able to count by identity statements at all, even if we have qualified such statements with sortals. To see this, consider: one six-pack is identical to six beers, but then does this leave us with one thing or six? To plunk down for either six or for one would be an arbitrary choice. In a language without an SCT identity predicate (i.e., an identity predicate that allows for singular terms on one side and plurals on the other), the number of things in our domain will always be settled. For given any identity statement (flanked either by singulars or plurals), the number of things on either side of the predicate will always match up. Not so according to SCT, for her identity predicate allows that many of some things may be identical to

fewer of another, with no principled way for determining whether one should count by the many or few. This is why, according to SCT, it is incoherent to give an unqualified answer to: how many? If an SCTist must give a response to how many things are in front of us, she could give a disjunctive answer such as: there is one six pack or six beers or twelve halves-of-beers, etc. And this answer would be *correct*, in a way. But she should then explain (on pain of being misleading), that we cannot count by all of these things all at once. The SCTist might insist: first, pick your sortal (or concept or things you want to count by), then I can help you out with the count.

So, if Van Inwagen's complaint against SCT is that when we break our commitments down to existential and identity statements, we are thereby shown to be committed to more entities than we thought, the SCTist need not disagree. But this need not worry the SCTist either, for as soon as relative counting and the SCT identity predicate were adopted, she had already given up counting things by existential and identity statements anyway.

7.3 Third Worry

Finally, to illustrate a third worry, van Inwagen quotes the following from Lewis (who, again, was quoting from Baxter):

“The whole is the many parts counted as one thing.”³⁹

Van Inwagen’s first beef with this sentence is that it utilizes the ‘is/are’ hybrid of identity that he finds so perplexing. I think I have dealt with this adequately above. But his second worry he states as follows: “What does ‘counted as one thing’ mean? What does it mean to count, say, the British Empiricists as one thing?”⁴⁰

Response: I think that my discussion in section 4 fully explained what someone might mean by ‘counting something as one thing’ or ‘counting it as many.’ Once we have adopted relative counting, then we understand that things are not counted *simpliciter*, rather, they are counted relative to a sortal (or concept or way to count by). Under one sortal, something(s) may be many, while under another, something(s) may be few. This is how to make sense of counting something(s) as many or counting ‘them’ as one. If after this explanation Van Inwagen is still confused, I am afraid that there’s not much else I can do to make the point any clearer. But if he alone is confused, then I see no reason to sweat the point too terribly much.

8. Other Worries for SCT?

8.1 Commitment to Relative Identity?

³⁹ PvI, 1994 (p. 211), from Lewis, 1991 (p. 83)

⁴⁰ PvI, 1994 (p. 211)

William Alston and Jonathan Bennett (1984) argue that Frege's doctrine of relative counting sinks or swims with Geach's Relative Identity Thesis.⁴¹ Applying their arguments to my proposal here, they would no doubt claim that by adopting relative counting, I must thereby commit myself to relative identity. Their explanation begins as follows:

“To say that $x = y$ is to say that there is just one of ‘them,’ and that x and y between ‘them’ only make one.”⁴²

Moreover, they argue that our resistance to relative identity seems to come from “our ability to carry out singular reference.” They continue:

“We not infrequently succeed in picking out particular items—physical objects, events, properties, persons, institutions—by the use of proper names, definite descriptions, and indexical expressions of various sorts. Given that we have succeeded in picking out something by the use of ‘a’ and in picking out something by the use of ‘b’ it is surely a complete and determinate proposition that $a = b$, that is, it is surely either true or false that the item we have picked out with “b” is the item we have picked out with b [sic; it should read “a” here I think]; nor do we have to range a and b , covertly or overtly, under a common concept in order to form an identity proposition with a determinate truth-value. If a is the

⁴¹ See Geach, 1980.

⁴² Alston and Bennett, 1984 (554)

number 15 and b is Sally's new hat, it is clearly false that $a = b$, and no question "Aren't the same *what?*" is left dangling."⁴³

They go on:

"Aren't two or more successful singular references sufficient to set up a determinate cardinality question? Suppose we pick out some particular item by 'a,' one by 'b,' one by 'c,' one by 'd,' and one by 'e.' Can't we then go on to ask how many that is? And won't that have a determinate answer, assuming that our attempted reference was successful in each case?"⁴⁴

Now whether Alston and Bennett's thesis is correct or not, their arguments do not seem to apply to my suggested account of relative counting. For I allow a language of plurals, where we can have plural terms that refer to more than one object. Also, the identity claims I am interested in are primarily the 'hybrid' is/are identity claims, where an identity predicate is flanked by a plural on one side, and a plural term on the other.

So it might be true that given *successful singular reference*, the question 'How many?' is not so terribly mysterious, but that's just because we are assuming that there is successful *singular* reference; that is, we're already assuming that there is just *one* thing there, whatever that thing happens to be. My project involves making sense of statements such as $x = y$ and z . And for all that Alston and

⁴³ *Ibid.*, (558)

⁴⁴ *Ibid.*, (560)

Bennett have to say, I do not think that I thereby have to adopt relative identity, nor should I be worried that my thesis is wildly counterintuitive.

8.2 Problems with Singletons?

One worry raised by Lewis relates back to problems concerning the indiscernability of identicals. Lewis claims, “the singletons of the many parts are wholly distinct from the singleton of the one fusion.”⁴⁵

This worry seems to echo Lewis’s first worry, which I addressed in section 6.4. My response here is similar to my response there: I agree that the singleton of each part (of some whole) is not identical to the singleton of the whole. This, no doubt, is evidence to the fact that each individual part is not identical to the whole. But I remind the reader that the proponent of SCT is concerned with *composition*, and how certain parts that *compose* the whole are related to that whole. In other words, she is concerned with how the parts *taken together* are related to the whole. Thus, we should not be worried if the singletons of the parts—taken individually—are not identical to the singleton of the whole.

9. Concluding Remarks

⁴⁵ Lewis, 1991 (87)

My aim in this paper was to make the Strong Composition Thesis a plausible view. This involved going through many of the arguments against the thesis, and showing how, by adopting a notion of relative counting and a logic and language of plurals, these arguments are ineffective. If I have been successful, then I have not only shown how composition can be identity, but also how a mereologist could plausibly maintain that her thesis is truly ontologically innocent.

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