

COMPOSITION AS IDENTITY

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0. Let us say that x is a *part of* y just in the case that x is either a part of y in the ordinary sense of the English word 'part' or is identical with y . (I leave it an open question whether the ordinary sense of the word 'part' is consistent with a thing's being a part of itself.) Then:

x is a proper part of $y =_{df}$ x is a part of y but is not identical with y .
 x overlaps $y =_{df}$ Some one thing is a part of both x and y .
 y is a fusion of the x s $=_{df}$ A thing overlaps y if and only if it overlaps one or more of the x s.¹

And let us call the "multigrade" relation expressed by ' y is a fusion of the x s' *composition*.²

1. *Mereology* is a theory about parts and wholes, and, more generally, about composition. If it is formulated in terms of plural variables and plural quantifiers (in addition to ordinary variables and quantifiers), it consists of the logical consequences of the following two axioms:

Parthood is transitive.

For any x s, those x s have one and only one fusion.

The range of the variables of Mereology is usually taken to be unrestricted, but in this paper I shall consider only material objects (whatever those are) and their parts—if material objects can have parts that are not themselves material objects. (Some people would not be comfortable with the idea that, say, quarks and electrons are "material objects"; but most people would want to say that material objects have quarks and electrons as parts. And then, of course, there are—or, rather, in my view, there *aren't*—"tropes" and "immanent universals"

and various other things that some people think are parts of material objects and yet are not themselves material objects.)

David Lewis has recently advanced the thesis that Mereology is “ontologically innocent.”³ One can well imagine this thesis being received with incredulous stares. There might be speeches behind some of these stares. Here are two speeches that I can imagine.

I believe only in metaphysical simples, things without proper parts. This makes for a neat, manageable ontology of the material world, although (I concede) I have to do a lot of hard philosophical work to explain what’s “good” about typical utterances of ‘There are three apples in the bowl’ and “bad” about typical utterances of ‘There are three pixies in the bowl’. (For, by my lights, the world is, in the strict and philosophical sense, as empty of apples—which would be composite objects if they existed—as it is of pixies.) If I were to accept Mereology, I’d have to believe in all sorts of things I don’t believe in now. I’d have to believe that all sorts of properties that I now believe have empty extensions had non-empty extensions. I’d face all sorts of philosophical problems that I don’t face now—problems about the identities of composite objects across time or across worlds, for example. Tell me that if I accept Mereology I’ll end up with a more satisfactory metaphysic, and I’ll listen. Tell me that the new problems I’ll face have solutions or are more tractable than the problems I currently face, and I’ll listen. But don’t tell me that Mereology is *innocent*. If you tell me that, you’re no better than the salesman who tells me that a new Acme furnace is free because the money it saves me will eventually equal its cost. “Innocent” is like “free,” and “free” does not mean the same as “well worth it.”

I believe that the statue and the lump of gold that constitutes it are numerically distinct. I believe this because I believe that the statue and the lump have different properties. Even if God created the statue (and, of course, the lump) *ex nihilo*, and the statue remained in existence and unchanged for a year, after which God annihilated the statue (and the lump), the lump had the property *could survive radical deformation* and the statue did not have that property. And the statue had the property *is necessarily conterminous with a statue*, and the lump did not have this property. But there are certain gold atoms such that the statue was one fusion of those gold atoms and the lump was another. My thesis (I concede) faces philosophical problems. Ask me how each of the two properties I’ve mentioned manages to get associated with one of the fusions of the gold atoms and not with the other, and I’ll agree that I need to address that very serious question. But don’t tell me that any theory that—like Mereology, with its unique fusions—is incompatible with my ontology of the material world is *innocent*.

2. Lewis has an argument for the innocence of mereology. Sometimes he puts the argument like this: Composition is a kind of identity. Therefore, in accepting fusions, you are accepting only something that is identical with what you have already accepted, and nothing could be more ontologically innocent than that. And Mereology asks you to accept nothing more than fusions of what you already accept. Lewis eventually qualifies the thesis that composition is a kind of identity, and his qualifications seem to me to be significant enough that I should want to call the argument based on the qualified premise a statement of a new and different argument. For the present, I shall consider only the unqualified argument.

Whatever the larger merits of this argument may be, there is a minor hole in it. I think, however, that this hole can be fairly easily plugged. Here is the hole: A theory that tells you to accept only things that are identical with things you already accept is not necessarily a theory that you will happily regard as “ontologically innocent,” for it may tell you that there are *fewer* things than you were inclined to believe in. (It would be odd to argue that atheism or materialism or nominalism was an ontologically innocent theory on the ground that it asked you to believe only in things you already believed in: finite things, as it may be, or material things or individual things.) This is the complaint of the believer in the distinct statue and lump: Mereology entails that either the statue does not exist or the lump does not exist or the statue and the lump are identical. In the present case, however, one can point out that if composition is indeed a kind of *identity*, there can hardly be two fusions of the same gold atoms: if something bears identity both to x and to y , then x and y must be, well, identical. The oncoiconists, so to call them, may complain that Mereology is not ontologically innocent, but their position can be compared with that of the philosopher (if there is such a philosopher) who believes that the statue is identical with the lump and that the statue and the lump have different properties. That philosopher may complain if you tell him that the standard account of identity is ontologically innocent, but the principles endorsed by the standard account are pretty uncontroversial, and we can’t be expected to use “ontologically innocent” so scrupulously as to avoid giving offence to those who deny the indiscernibility of identicals. Nor can we, even in these days of rampant pluralism, be expected to be so scrupulous in our use of this term as to avoid giving offence to those who deny the transitivity of identity—which is, after all, a consequence of the indiscernibility of identicals. (Indeed, if composition is a kind of identity, then it would seem that the oncoiconists might as well say that the statue and the lump are identical and yet the bearers of different properties as say that they are composed of the same atoms and yet not identical; if composition is a sort of identity, then the two theses are equally grave violations of the principles normally supposed to govern identity.)

The philosopher who made the first of our imaginary speeches is a different case, and is the sort of philosopher to whom Lewis’s argument is, in intention, addressed. (He is the most extreme case of this sort of philosopher: he believes that the x s *never* have a fusion—or, more exactly, he believes that the x s have a fusion if and only if there is exactly one of them.) If he comes to agree with Lewis, he will describe his conversion in some such words as the following: “I thought that I believed only in simples. I was blind but now I see. I see that *in* accepting the existence of simples, I accepted the existence of the fusion of any simples. I see that, in accepting the thesis that any simples have a fusion, I accept only things that are (in a sense, to be sure) identical with what I have already accepted.”

3. In a sense. But in *what* sense does Lewis believe that if y is a fusion of the x s, then y is identical with the x s? And will it be evident that his thesis is true, once its meaning has been spelled out, or will some further argument be required to show that it is true? On these points I am unclear. I am unclear because there are a great many things that Lewis says that I am unable to make any real sense of. I am going to quote, from the relevant sections of *Parts of Classes*, a fairly large number of sentences that seem to me to be the main vehicles of Lewis's attempts at an informal, intuitive explanation of the sense in which composition is a kind of identity. I say I am unable to make "any real sense" of what Lewis says on this topic because, although many of the sentences I am going to examine *seem* to mean something true and important when one first encounters them, this apparent meaning becomes very elusive when one tries to pin it down. That, at least, has been my experience. When I try carefully to spell out what these sentences mean, I discover a growing conviction (which I by no means regard as infallible) that they do not mean anything at all. In addition to quoting the sentences, I make will some remarks about them that are intended as a record of my failure to make sense of them. The sentences that I list below are in most cases not exact quotations. I have, for example, often replaced pronouns in Lewis's sentences both with variables and noun-phrases, as it seemed good to me. The number after each sentence refers to the page of *Parts of Classes* where the original occurred.

- A fusion is nothing over and above its parts. (80)

But what does 'nothing over and above' mean? This slippery phrase has had a lot of employment in philosophy, but what it means is never explained by its employers. Sometimes it needs no explanation, for it sometimes has a straightforward mereological sense. (Think of the materialist who says 'I am nothing over and above my body'; presumably he means that he has no part that is not a part of his body.) If Lewis is using 'nothing over and above' in this straightforward mereological sense, then the quoted sentence means that a fusion has no parts other than its parts. But this, surely, is not what Lewis intended to convey by this sentence. It would be interesting to see an example of a thing that Lewis thinks *is* something over and above its parts; it would be interesting to see an example of something that had this feature according to some philosophical theory that Lewis rejected.

- The fusion of the x s just *is* the x s. (81)
- The x s just *are* the fusion of the x s. (81)

There is the 'is' of (singular) identity. This word makes syntactical sense when it is flanked by singular terms and variables: Tully is Cicero; x is the successor of 0; x is y . There is the 'are' of (plural) identity. This word makes sense when it is flanked by plural terms (or "plural referring expressions") and plural variables:

Locke, Berkeley, and Hume are the British Empiricists; The *x*s are the Mortons and the Hanrahans; The *x*s are the *y*s. But what kind of syntactical 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? Both singular and plural identity can be defined in terms of 'is one of' or 'is among' (as, Berkeley is one of the British Empiricists):

x is y =_{df} For any z s, x is one of the z s if and only if y is one of the z s.
 The x s are the y s =_{df} For all z , z is one of the x s if and only if z is one of the y s.

But the "hybrid" is/are cannot be defined in terms of 'is one of', or in any other way that I can see.

- The 'are' of composition is, so to speak, the plural form of the 'is' of identity. (82)

I am not sure what the force of 'so to speak' is, but, whatever the 'are' of composition may be, it cannot be the plural form of the 'is' of identity, for that office is already filled: the plural form of the 'is' of 'identity' is the 'are' of identity.

- The whole is the many parts counted as one thing. (83)

(This sentence occurs in a quotation from an article by Donald Baxter.⁴ But Lewis does not seem to regard the sentence as at all puzzling; the quotation is presented in support of Lewis's position.) This sentence contains the is/are hybrid, but it has another feature that I find puzzling. What does 'counted as one thing' mean? What does it mean to count, say, the British Empiricists as one thing? "She's only interested in one thing in philosophy." "What's that?" "The British Empiricists." Well, that means one *topic* of conversation or contemplation or research, the topic that is constituted by the writings of, careers of, and issues addressed by the British Empiricists. "For Heidegger, there's no difference between the British empiricists. They all exemplify Forgetfulness of Being to the highest possible degree, and are really the same philosopher." No comment needed. Probably there are lots of ways to "count several things as one," but none of them really has much to do with the ideas suggested by the word 'whole'.

- Take the *x*s together or take them separately, the *x*s are the same portion of Reality either way. (81)

What is it to take things together and to take them separately? And haven't we got that hybrid is/are in the second clause? Could the following be the proposition that makes this sentence seem intelligible, owing to the fact that this sentence sort of looks as if it might, in a way, express something not too

unlike it—I mean if you didn't look too closely?

The fusion of the *xs* is the fusion of certain simples, the *ys*; the simples that are parts of any of the *xs* are the *ys*.

Or could it be the following proposition (if material things are not ultimately composed of simples but are rather ultimately constituted of continuous stuff)?

The fusion of the *xs* is constituted by a certain quantity of stuff *y*; the total quantity of stuff such that any of it constitutes any of the *xs* is *y*.⁵

Or this one?

The fusion of the *xs* occupies (fits exactly into) a certain region of space *y*; the region of space that is collectively occupied by the *xs* is *y*.

Or this one?

The same spatial distribution of shape and color and other “local” properties is determined by the way the *xs* are and by the way the fusion of the *xs* is; start with the fusion and determine the distribution without taking into account the fact that it has proper parts, or start with the *xs* and determine the distribution without taking into account the fact that they have a fusion, and you'll get the same distribution.

Could the fact that a picture (or mental image) of a plurality of objects and a picture of their fusion are the same—the fact that one cannot distinguish pictorially between objects and their fusion—be a part of what causes us to regard this sentence as expressing something true and important? (I mean, just look at the picture. Here they are; here their fusion is. You don't do something different to draw them and to draw their fusion. Drawing them *is* drawing their fusion.)

- Commit yourself to the existence of the *xs* all together or one at a time, it's the same commitment either way...the new commitment is redundant, given the old. (81)

“I hereby commit myself to the existence of the Continental Rationalists.” That's committing myself to the existence of the Continental Rationalists all together. “I hereby commit myself to the existence of Descartes. I hereby commit myself to the existence of Spinoza. I hereby commit myself to the existence of Leibniz.” That's committing myself to the existence of the Continental Rationalists one at a time. Or, at any rate, these commitments are what “committing oneself to the *xs* all together” and “committing oneself to the *xs* one at a time” suggest to *me*. Lewis, it would appear, agrees about ‘one at a time’, but not about ‘all together’. For Lewis, to commit oneself to the Continental Rationalists all together is to commit oneself to the existence of an

object such that a thing overlaps that object if and only if it overlaps one or more of the Continental Rationalists. This seems to me to be an odd use of ‘committing oneself to the existence of the Continental Rationalists all together’, one that is in as much need of explanation as the thesis that composition is a kind of identity. It does not explain the sense, if any, in which the Rationalists are identical with their fusion, or why commitment to their fusion is not a new commitment for someone who already believed in Descartes, Spinoza, and Leibniz.

- If you draw up an inventory of Reality..., it would be double counting to list the fusion of the *x*s and also list the *x*s. (81)

Double-counting? Counting the same thing twice? Why so? “An example should make my point clear. If you boast that you own one large parcel of land and six small ones, and if it turns out that the six small parcels of land *compose* the one big one, you’re exaggerating your holdings. You’re exaggerating them because the big parcel *is* the small parcels, and in listing it you’ve already listed them. Your boast is like this boast: I am one of the most erudite of students of American letters, for I am an expert not only on the writings of Mark Twain but of Samuel Clemens as well.” (Cf. *Parts of Classes*, pp. 81-2. Lewis uses the “parcels of land” example—which he borrows from Baxter—to illustrate a different point, but I think it provides a particularly good illustration of the intuitive force of the idea that there is some sense in which including both the *x*s and their fusion as separate items in the same list is “double-counting.”)

But consider. Suppose that there exists nothing but my big parcel of land and such parts as it may have. And suppose it has no proper parts but the six small parcels. (I have not forgotten that the Mereologist will want to say that any two, three, four, or five of the small parcels will compose a piece of land that is a proper part of the big parcel. If you want to complicate the argument I am about to give by including the composite proper parts of the big parcel, go ahead: you will do no more than complicate it.) 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 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-values of our sentences. Or suppose that we are evaluating a batch of quantificational sentences in relation to a universe in which there are aleph-zero simples and only such other things as have them as parts. What (given the two axioms of Mereology) is the cardinality of our domain of quantification? The power of the continuum, right? Not aleph-zero? But if counting both the *x*s and their fusion is “double-counting,” then why are our domains respectively seven- and *c*-membered, rather than six- and aleph-zero

membered?

4. The following quotation—we have already looked at one of the sentences it contains—is a nice summary of Lewis’s position on composition, identity, and the ontological innocence of Mereology:

I say that composition—the relation of part to whole, or, better, the many-one relation of many parts to their fusion—is like identity. The ‘are’ of composition is, so to speak, the plural form of the ‘is’ of identity. Call this the thesis of *Composition as Identity*. It is in virtue of this thesis that mereology is ontologically innocent: it commits us only to things that are identical, so to speak, to what we were committed to before. (*Parts of Classes*, p. 82)

Lewis goes on to say, “In endorsing Composition as Identity, I am following the lead of D. M. Armstrong and Donald Baxter.” I have already examined a crucial sentence from Baxter (“The whole is the many parts counted as one thing”). No one will be able to get anything out of Baxter unless he understands this sentence, and I, as I have said, do not understand it. Armstrong is another story. He has advanced a different thesis from Baxter’s concerning the relation between composition and identity. Lewis describes Armstrong’s position in these words: “Armstrong takes strict identity and strict difference as the endpoints of a spectrum of cases, with cases of more or less extensive overlap in between. Overlap subsumes part-whole as a special case: it may be x itself, or y itself, that is a common part of x and y . Two adjoining terrace houses that share a common wall

are not identical, but they are not completely distinct from each other either. They are partially identical, and this partial identity takes the form of their having a common part. Australia and New South Wales are not identical, but they are not completely distinct from each other. They are partially identical, and this partial identity takes the form of the whole-part ‘relation’... Partial identity admits of at least rough-and-ready degree. Begin with New South Wales and then take larger and larger portions of Australia. One is approaching closer and closer to complete identity with Australia.” (*Parts of Classes*, pp. 82-3)⁶

What exactly is Armstrong saying? I suggest that the best way to interpret the quoted passage is as an argument for the thesis that it is philosophically instructive to read ‘ x overlaps y ’ as ‘ x is partly identical with y ’.⁷ And there does seem to be some sort of insight to be gleaned from thinking of overlap as partial identity. If x overlaps y , then a part of x , something that partly contains the *being* of x is such that it, that very same thing, also partly contains the being of y . For something to happen to that thing (for it to be touched or struck, say) is for something—in a large class of cases, the *same* thing that happens to it—to happen to both x and y . For that thing to instantiate a local property at point a is for both x and y to instantiate that property at point a . Both parthood and identity, moreover, can be defined in terms of overlap, and calling overlap ‘partial identity’ is a perspicuous way of calling attention to the fact that the

roots of both parthood and identity are contained in the overlap relation. Here are the definitions, with 'partial identity' replacing 'overlap' (' \leq ' represents parthood and ' $=_p$ ' partial identity):

$$x \leq y =_{df} \forall z(z =_p x \rightarrow z =_p y).$$

$$x = y =_{df} \forall z(z =_p x \leftrightarrow z =_p y).$$

The formal similarity between these two definitions may be some sort of argument for a close relation between parthood and identity. (Both partial identity and identity can be defined in terms of parthood, but neither partial identity nor parthood can be defined in terms of identity. I'm not sure whether the force of the argument is weakened by the observation that partial identity and identity can be defined in terms of parthood.)

Let's suppose that all of this is right: there *is* a close relation between parthood and identity, and thinking of overlap as partial identity is a good device for making this close relation evident. What follows about the ontological innocence of Mereology?

You believe in the "automatic" fusions of Mereology. I believe in the *x*s. You tell me that there is a *y* such that a thing is partly identical with *y* if and only if it is partly identical with one or more of the *x*s. What makes this assertion of yours "ontologically innocent"? We suppose that there is an intimate relation between parthood and identity, one that is displayed by thinking of what we used to call overlap as partial identity. Does this intimate relation between parthood and identity show that the assertion of the existence of a fusion of the *x*s is ontologically innocent? I don't see why it should. You have asserted that an object having certain properties exists. Why should I believe you? "Well, it's identical with what you already believe in, the *x*s." But that's neither true nor false. That doesn't make any sense. That's just the hybrid *is/are*, and thinking of overlap as partial identity is not going to be of any help in making sense of *that* notion.⁸ It is true that if *y* exists, it is partly identical with lots of things I believe in, and each of them is partly identical with it. But why should I believe that *y* exists? All sorts of objects can be specified by stipulating the partial identity relations that they (supposedly) bear to objects whose existence is uncontroversial, but that does not mean that anything answers to those specifications. I do not believe that there is anything that satisfies the open sentence 'For some *x*, *x* is an electron and *y* is partly identical with *x* and for some *z*, *z* is partly identical with *x* and *z* is not partly identical with *y*', since I do not believe that electrons have proper parts. No one would tell me that the assertion that something satisfied this sentence was ontologically innocent. I do not believe that there is anything that satisfies the open sentence 'For all *x*, *x* is partly identical with *y* if and only if, for some *z*, *z* is an electron and *x* is partly identical with *z*', since I do not believe in that there is such a thing as the fusion of all the electrons. Why, then, would someone tell me that the assertion that

something satisfied this sentence was ontologically innocent?

It would seem, therefore, that someone could accept Armstrong's thesis about the intimate relation between overlap and identity without being in any way moved to regard Mereology as ontologically innocent. If we decide to label Armstrong's position 'the thesis of Composition as Identity', then the thesis of Composition as Identity in *this* sense does not support the ontological innocence of Mereology.

5. We have been considering Lewis's argument for the Composition as Identity thesis, and his argument for the conclusion that this thesis entails that Mereology is ontologically innocent. More exactly, we have been considering various theses to the effect that composition and identity are in some sense intimately linked, and the argument that, because they are thus intimately linked, Mereology, which commits one only to things that bear the relation *composition* to things one already believes in, is ontologically innocent. But this is not exactly the argument that Lewis, in the end, officially and definitively accepts. In Section 2, I said, "Lewis eventually qualifies the thesis that composition is identity, and his qualifications seem to me to be significant enough that I should want to call the argument based on the qualified premise a statement of a new and different argument. For the present, I shall consider only the unqualified argument." It is now time to turn to the qualified argument. The qualification consists in a weakening of the Composition as Identity thesis. (Or so I would describe it; Lewis might resist this description.) Lewis's considered or official position is that, while it is instructive to think of composition as a form of identity, this cannot be, strictly speaking, maintained:

...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 really have a generalized principle of indiscernibility of identicals. It does matter how you slice it—not to the character of what's described, of course, but to the form of the description. What's true of the many is not exactly what's true of the one. After all, they are many while it is one. (*Parts of Classes*, p. 87)

(I will remark parenthetically that, while I am not sure I understand everything Lewis says in this passage, I do understand its final sentence. It is an excellent epitome of my difficulties with what I have called the hybrid is/are.) The relation between composition and identity is not, as Baxter thinks, identity. It is, rather, analogical:

Mereological relations...are strikingly analogous to ordinary identity. So striking is this analogy that it is appropriate to mark it by speaking of mereological relations—the many-one relation of composition, the one-one relations of part to whole and overlap—as kinds of identity. Ordinary identity is the special limiting case of identity in the broadened sense. (*Parts of Classes*, p. 83)

The sense of this passage seems to be this: our present vocabulary does not

reflect the striking analogy between composition and identity; it is, therefore, philosophically appropriate to expand the meaning of 'identity' to cover both composition and identity, and to regard what used to be called 'identity' as the "special limiting case" of what is now to be called 'identity'.

And what is this striking analogy? "The analogy," Lewis tells us, "has many aspects" (p. 85). They are as follows.

First, just as it is redundant to say that x and y exist when x is identical with y , so it is redundant to say that x and the ys exist, when x is a fusion of the ys .

Secondly, just as, given that x exists, it is automatically true that something identical with x exists, so, given that the xs exist, it is automatically true that a fusion of the xs exists.

Thirdly, just as there cannot be two things both of which are identical with x , so there cannot be two things both of which are fusions of the xs . There is something analogous to the transitivity of identity in this feature of composition: if x is the ys , and the ys are z , then x is z .

Fourthly, just as fully to describe x is fully to describe the object that is identical with x , so fully to describe the xs is fully to describe their fusion.

Fifthly, just as x and y must occupy the same region of spacetime if the former is identical with the latter, so x and the ys must occupy the same region of spacetime if the former is the fusion of the latter.

These statements explain what is meant by saying that composition and identity are strikingly analogous. It would seem, then, that Lewis's thesis of Composition as Identity could be put as follows:

Since composition and identity are analogous in these five respects, it is philosophically appropriate to expand the meaning of 'identity' to cover both composition and identity, and to regard what used to be called 'identity' as the "special limiting case" of what is now to be called 'identity'.

At any rate, that is how I will understand the thesis.

Are composition and identity alike in these five ways?

Not everyone is going to accept all five of the above "just as" statements. I myself accept only the third and the fifth without qualification. I definitely reject the second, and that leads me to reject the first as well, since it is, surely, not redundant to say that the ys and the fusion of the ys exist if it is not automatically true that just any objects have a fusion. (And I am not sure what even the believer in "automatic fusions" means by saying that it is redundant to say that the ys and the fusion of the ys exist. Recall our "domain of quantification" point: if there are n simples ($n > 1$) and they have a fusion, then there must be at least $n + 1$ items in the list of objects to be checked in the course of determining the truth-values of statements containing quantifiers; but if that is so, in what sense is it redundant to say that the ys and the fusion of the ys

exist?) I accept the fourth statement only with a serious qualification (as, indeed, Lewis himself must, since he believes that “what’s true of the many is not exactly what’s true of the one”): ‘fully to describe x [the ys]’ must mean something like ‘fully to describe the distribution of local properties in the smallest spacetime region that includes the events that make up the career[s] of x [the ys]’.⁹ Furthermore, although I accept the third statement, not everyone will: the oncoiconist will not.

From my point of view, therefore, the analogy between composition and identity is so weak as really not to be much of an analogy at all.¹⁰ Even from the point of view of the Mereologist, the analogy is not quite so strong as Lewis suggests. (This is the burden of my parenthetical comments, in the preceding paragraph, on the first and fourth sentences.) But let us grant that, from the Mereologist’s point of view, the analogy is still strong enough to be compelling. (It does not seem that there is any *other* point of view from which it would be strong enough to be compelling.) *If* Mereology is a correct theory of composition, therefore, Lewis’s Composition as Identity thesis (in its considered, analogical form) would appear to be correct—and otherwise not. And if the Composition as Identity thesis is correct, then Mereology is ontologically innocent.¹¹ What Lewis’s argument would appear to establish, therefore, is that if Mereology is correct, then it is ontologically innocent. There would seem to be no way to find out whether Mereology is innocent than this: find out whether it is true.

Those who begin by believing that Mereology is false will not accept Lewis’s argument for the ontological innocence of Mereology (and they are hardly likely to accept this thesis on some other ground). Whatever reasons persuade them that Mereology is false will persuade them that composition lacks many of the features Lewis claims for it, and will therefore persuade them that composition is not strongly analogous to identity. They will, therefore, reject Lewis’s considered, analogical version of the Composition as Identity thesis, and that thesis is the main premise of his argument for the ontological innocence of Mereology.

The Composition as Identity thesis may perhaps provide a reason for someone who accepts Mereology to be pleased with Mereology, but it will not be recognized as an advantage of Mereology by those who do not adhere to its tenets. The theist may regard the fact that theism provides an explanation for the existence of the cosmos as a reason to be pleased with theism, but the atheist who believes—and who believes that he has reasons for believing—that the cosmos does not require an explanation, or that it requires an explanation of a sort that is incompatible with theism, will regard the fact that theism provides an explanation for the cosmos as a defect in theism, an additional reason for rejecting theism. “Genuine Modal Realists” may regard the fact that Genuine Modal Realism provides a reductive analysis of modality as a reason to be pleased with Genuine Modal Realism, but those who reject Genuine Modal

Realism will regard this reductive analysis of modality (which they see as assigning the wrong truth-values to modal sentences) as a defect in Genuine Modal Realism.¹² Similarly, those who reject Mereology will regard the strong analogy between composition and identity that is a consequence of Mereology as a defect in Mereology, since (they will say) composition lacks many of the features that a statement of the analogy attributes to it.

Notes

1. For an account of “plural variables” (‘the *x*s’, ‘the *y*s’ ...), and the plural quantifiers (‘for some *x*s’, ‘for any *y*s’) that bind them, see my *Material Beings* (Ithaca: Cornell University Press, 1990), pp. 23-7. See also David Lewis, *Parts of Classes* (Oxford: Basil Blackwell, 1991), pp. 62-71. The mereological terminology of the present paper is that of *Parts of Classes* and not that of *Material Beings*.
2. For a discussion of “multigrade” relations, see *Material Beings*, pp. 27-8. In *Parts of Classes*, Lewis sometimes calls the multigrade relation of composition a “many-one” relation. By this he means simply that composition holds between a plurality of objects on the one hand (the planks, say) and a single object on the other (the ship). It should be noted that he is not using this term in its standard sense, according to which a many-one relation is a binary relation (a relation that holds between a single object and a single object) such that an object cannot bear it to each of two objects. (Denotation, for example.) Lewis also describes the part-whole relation and the overlap relation as “one-one,” meaning simply that they are ordinary and not multigrade relations. It should be noted that in the standard sense of the term, these two relations are not one-one but, so to speak, many-many. (Each of the planks bears both of them to the ship; and not to the ship alone but to itself and various other proper parts of the ship.)
3. *Parts of Classes*, pp. 81-7.
4. “Identity in the Loose and Popular Sense,” *Mind* XCVII (1988) pp. 575-82.
5. ‘Quantity’ is to be understood not in the sense of ‘amount’ but in the Russell/Cartwright sense. (In Russell’s words, “A quantity is anything which is capable of quantitative equality with something else.”) See Helen Morris Cartwright, “Heraclitus and the Bath Water,” *Philosophical Review* LXXIV (1965), pp. 466-85.
6. The quotation is from David Armstrong, *Universals and Scientific Realism*, (Cambridge: Cambridge University Press, 1978), vol. II, pp. 37-8.
7. I have changed Armstrong’s ‘partially identical’ to ‘partly identical’. Here I follow Fowler: see the article ‘partially’ in *Modern English Usage*.
8. Lewis talks as if Armstrong, who says that overlapping objects are partly identical, and Baxter, who says that the whole is the parts counted as one thing, were saying the same thing, or at least closely related things. Lewis links his quotation from Armstrong to a quotation from Baxter, which begins with the sentence I have examined above, with the words, “Baxter puts it this way:” (*Parts of Classes*, p. 83). But what is this “it” that Armstrong is putting one way and Baxter another? Apparently, “it” is supposed to be the thesis of Composition as Identity. It is certainly true that Armstrong and Baxter have both put forward theses that could be called “the thesis of Composition as Identity”; but they are hardly the *same* thesis. For one thing, Baxter’s thesis depends on the intelligibility of the *is/are* hybrid, and Armstrong’s does not.
9. It is instructive to contrast the “ $n > 1$ ” with the “ $n = 1$ ” case. If there is only one simple, it is identical with the fusion of all the simples, and there is therefore only one object—not two objects—to be taken account of in determining the truth-values of statements containing quantifiers in a one-simple universe. In the

" $n = 1$ " case, it really *is* redundant to say that the *ys* exist and the fusion of the *ys* exists.

10. Nevertheless, similarities between parthood and identity remain. If an explanation of these similarities is required, perhaps it could be supplied by Armstrong's thesis that overlap is partial identity.
11. Or so Lewis argues, and let us suppose he is right. But if composition is not really identity, but only very strongly analogous with identity, then what is the force of the argument that, in accepting fusions, we are accepting only what we already believe in? Is the force of this argument not at least somewhat diminished?
12. See my "Two Concepts of Possible Worlds," *Midwest Studies in Philosophy*, vol. XI, pp. 185-213, pp. 194-99 in particular.

NOTE ADDED IN PROOF: David Lewis has informed me that the statement made at the beginning of Part 1—that Mereology consists of the logical consequences of the two displayed axioms—is correct only if 'fusion' has a different definition from the one given in Part 0.