

Constitution Is Not Identity

MARK JOHNSTON

I

Suppose that a statue of Goliath is made by fusing together two appropriately shaped pieces of clay and that after a few minutes, the artisan, frustrated with his work, dissolves the statue in a solvent which destroys clay and statue alike. Then a natural thing to say is that the careers of the statue and the lump or piece of clay which made it up are entirely coincident. The statue and the piece of clay came into being at the same time and ceased to be at the same time. Throughout their respective careers, the piece of clay constituted the statue.

Had the artisan despaired only of the arms and calves of Goliath and dissolved only them, replacing them with new pieces of appropriately molded clay, then we should say that distinct but not wholly distinct pieces of clay constituted the statue of Goliath over its lifetime.

In this second case we naturally conclude that the statue is not absolutely identical with the whole piece of clay which originally constituted it, since the piece arguably did not survive the dissolving of significant parts of it, while the statue clearly did survive the dissolving; as is evidenced by the fact that the statue had *new* arms and calves attached to it.

So also, it seems natural to conclude that even in the first case in which the original piece of clay constituted the statue throughout its entire career, the statue is not absolutely identical with the clay, since the statue could have survived certain changes which the piece of clay would not have survived, e.g. the changes described in the second case.

Philosophers have gone to some lengths to resist this last conclusion. Thus David Lewis, Alan Gibbard, Anil Gupta and Denis Robinson all allege that something special about modal predication invalidates the argument to non-identity in the case of complete coincidence.¹ Concentrating on Lewis's way of putting the point, since it fits neatly into a familiar systematic way of thinking of modality, the situation is supposed to be as follows.² If the term "Lumpl" names the piece of clay which makes up the statue *Goliath*, the aim is to defend

- (1) In the case of complete coincidence, Lumpl = Goliath while allowing
- (2) Lumpl could not have survived the loss of those of its parts which made up the arms and calves of Goliath. Goliath could have.

¹ See Lewis (1971), Gibbard (1975), Gupta (1980) and Robinson (1982).

² The remarks that follow are adapted from Lewis (1971).

How then are we to avoid the following contradiction, got by substituting in (2) on the basis of (1)?

- (3) Lump1 could not have survived the loss of those of its parts which made up the arms and calves of Goliath. Lump1 could have.

Lewis's answer is essentially this: The position held by "Goliath" in (2), even if *de re*, i.e. outside of the scope of the modal "could have", is not referentially transparent, i.e. does not support the substitution of codesignative names *salva veritate*. This is because "Goliath" as a name of a statue is performing more than a referential function in (2). "Goliath" not only picks out the statue but it also, perhaps with the cooperation of context, indicates a particular counterpart relation or set of necessary and sufficient qualitative conditions for tracing Goliath across the worlds—if you like, the "statue" counterpart relation.³ This relation determines for Goliath a set of otherworldly, relevantly similar individuals, or *counterparts*, which represent the possibilities for Goliath. We have a different set of counterparts determined if we employ the "lump of matter" counterpart relation indicated by the name "Lump1". Since, on the view in question, what could have happened to a thing is what happens to at least one of its counterparts, the truth values of the modal predication in (2) are sensitive to which counterpart relation or principle of cross-world tracing is invoked by the names used (perhaps in conjunction with context). That is why we have (2) true and (3) false. The substitution of codesignative names alters the tracing principles in terms of which the relevant modal predications are to be evaluated.

It is instructive to investigate those analogous moves which in the case of temporal predication could be employed to defend

- (1') In the case of only partial coincidence, Lump1=Goliath.

The obvious problem with (1') is

- (2') Lump1 will not survive the loss of those of its parts which make up the arms and calves of Goliath. Goliath will.

In conjunction with (1'), this seems to imply a contradiction, namely

- (3') Lump1 will not survive the loss of those of its parts which make up the arms and calves of Goliath. Lump1 will.

There are three slightly different ways of understanding temporal predication so as to make (1') and (2') true but avoid the inference to the contradiction apparent in (3'). The first way takes "Goliath" and "Lump1" to be names of continuants, and claims that (2') is true because it is properly read as

- (2*) Lump1 will not survive-qua-Lump1 the loss of those of its parts which make up the arms and calves of Goliath. Goliath will survive-qua-Goliath.

³ For counterpart theory see Lewis (1968). Lewis discusses multiple counterpart relations in Lewis (1986), §4 5

where something survives-qua-Lumpl some event just in case Lumpl is around before and after the event, and something survives-qua-Goliath some event if Goliath is around before and after the event. From (1') and (2*) we derive

- (3*) Lumpl will not survive-qua-Lumpl the loss of those of its parts which make up the arms and calves of Goliath. Lumpl will survive-qua-Goliath.

(3*) is true on the intended construal of “*x* survives-qua-*y*”. However, the unattractive artificiality of this suggestion is immediately obvious. Surviving some event is plausibly taken to consist in being around before and after the event, but “Goliath survives-qua-Lumpl” (or “Goliath-qua-lump survives”) just means that Lumpl survives, and “Lumpl survives-qua-Goliath” (or “Lumpl-qua-statue survives”) just means that Goliath survives. Better then to avoid this kind of “qua” talk, since it only serves to mask paradox if *a*'s surviving-qua-*b* has nothing essentially to do with *a*'s continuing to be around. The real force of (2') is not captured by this first proposal.

Matters are not much different on the second proposal, which takes “Goliath” and “Lumpl” to be names of continuants now explicitly understood as four-dimensional sums of temporal stages united by appropriate gen-identity criteria, i.e., criteria for aggregating the short-lived stages into longer-lived continuants. Then it is said that for the continuant *x* to survive-qua-Lumpl or to survive-qua-lump some event *e* is for there to exist, after *e*, lump of clay stages which stand in the relation of being stages of the same lump of clay to stages of *x* existing before *e*. Mutatis mutandis for the continuant *x* to survive-qua-Goliath (or to survive-qua-statue or qua-statue to survive). Now we construe (2') as saying that (2*) and replace (3') by (3*). The inference from (1') and (2') to (3*) is unproblematic.

But once again we have a quite artificial sense of “survival” at work: *x*'s surviving-qua-*y* some event *e* has nothing essentially to do with *x* being around after the event *e*. To say that *x* exists in world *w* is to say no more than that the abstract representation of the way the world might have been that is *w* represents a possibility for *x*. This leaves it open just how this possibility is represented by *w*, e.g., by having *x* do the representing or by having *x*'s counterparts do it. But to say that *x* actually survives *e* is to say something that requires *x* to exist after *e*. Mere descendants of *x* won't do.⁴

The third theory of temporal predication is the closest analogue of Lewis's multiple counterpart theory and has it that “Lumpl” and “Goliath” each denote a *stage*, and in fact the same stage, a stage existing at the period during which (1')—

⁴ Some will say that I have illegitimately supposed that we can always pick out a continuant *x*, whereas in this context one can only pick out *x*-qua-statue and *x*-qua-clay. I find this very implausible. To see its implausibility, imagine that we view the history of the statue and the clay from a later date. Why can't we *then* introduce the name “Goliath” to denote the continuant with the more inclusive history—i.e., the history of the statue, which continued on after the change of parts—and introduce the name “Lumpl” to denote the continuant with the less inclusive history—the history which came to an end with the change of parts. The claim that qua-predication is irreducible may look plausible when contemplating future occurrences but its plausibility vanishes when we contemplate histories from the perspective of the remembrance of things past.

(3') are uttered. But the theory has it that these names do more semantically than merely denote. They carry with them, perhaps via the associated nominal "piece of clay" and count noun "statue", distinct gen-identity criteria, i.e. criteria for aggregating momentary or short-lived stages into longer-lived continuants. Necessary and sufficient conditions for being a stage of the same persisting *piece of clay* as Lump1 is a stage of are somehow associated with the name "Lump1", and necessary and sufficient conditions for being a stage of the same persisting *statue* that Goliath is a stage of are somehow associated with the name "Goliath". Since a stage will survive some change only if it is gen-identical with a stage which exists after the change, the question as to whether the stage referred to twice over in (1') will survive some specific change is sensitive to which name is used in putting that question. Hence, although (1') and (2') are true while (3') is false, (3') does not follow from (1') and (2').

This theory of temporal predication also breaks down. For it to begin to work we must once again think of continuants as four-dimensional aggregates of stages. Then it is natural to say that *continuants* undergo or *survive* changes like coming to be constituted by different matter, while their *stages succeed* each other through such changes. The change in question is the replacement of the arms and legs of Goliath and hence of much of the matter of Lump1. On the theory in question "Lump1" and "Goliath" are supposed to denote a pre-replacement stage shared by the statue and the piece of clay. But then it follows that Goliath (the pre-replacement stage) does not survive the change described in (2') and (3') any more than Lump1 does. The continuant statue that includes Goliath literally survives but, on the third theory, this continuant is *not* Goliath. On that theory, "Goliath" names a short-lived stage. So the third theory of temporal predication is just like the first two theories in failing to capture the force of (2').

Despite the similarities between the cases of complete and partial coincidence, there is little to be said for defending (1') by understanding *de re* temporal predication as introducing referential opacity. Yet in ordinary language the use of modal and temporal predication seems strikingly similar. (They shade into each other when the topic is which possibility is likely to occur next.) So we should inquire into the claim which motivates the construal of *de re* modal predication as introducing referential opacity. This is the claim that (1) is true, more generally the claim that a material object is identical with the matter which constitutes it over its lifetime.

II

I know of only two arguments for (1) with any *prima facie* plausibility. The first is an argument from mereology, allegedly the logic of the part/whole relation.

Mereology employs the primitive predicate “ $O(x,y)$ ” where the intended construal of this predicate is that x and y “overlap in content” in the broadest “logical” or topic neutral sense of these terms. (As we shall see, it is an important question just what this sense is.) Given this notion of overlap, the logical or topic neutral notion of one thing being a part of another may be defined thus

$$(4) P(x,y) \leftrightarrow \forall z(O(z,x) \rightarrow O(z,y))$$

Mereology is interesting for our purposes because, depending on the details of its formulation, mereology contains as an axiom or a theorem

$$(5) x = y \leftrightarrow \forall z(P(z,x) \leftrightarrow P(z,y))$$

Now we seem to have a powerful tool for arguing to identities. Exhaustively enumerate the “parts” (in the broadest topic neutral sense) of x and of y . If they have just the same parts “they” are identical.⁵ So the mereologist might argue in favor of (1) as follows: clearly in the case where Lump1 and Goliath are coincident throughout their entire careers they have just the same parts—there is nothing that is a part of Lump1 that is not a part of Goliath nor vice versa. After all, isn’t this what we are saying when we say that throughout their careers all of Lump1 constitutes Goliath and Goliath is constituted only by Lump1. But then, using (5), we must conclude that Goliath=Lump1.

So long as we think of continuants as four-dimensional sums of stages, the argument does not generalize to encompass (1’) understood as a claim about continuants. In the case of partial coincidence the four-dimensional statue Goliath will have different material parts from the four-dimensional piece of clay Lump1. After the change of head and calves there will be parts of Goliath which are not parts of Lump1.

Does the argument for (1) stand up to scrutiny? I think not. Indeed, I believe it simply equivocates on the term “part”. Throughout their entire careers Goliath is wholly constituted by Lump1. One thing wholly constitutes another iff every *material* part of the first stands in the ancestral of *being a material part of* to some material part of the second.⁶ At most, then, constitution implies sameness of material parts. But we cannot plausibly construe (5) as licensing claims of identity simply on the basis of sameness of material parts. For suppose we have a plasticene pot. We squash the plasticene, thereby destroying the pot. We then use the plasticene—all of it—to make a bust of Napoleon. Clearly the pot is not identical with the bust, even though they have the same material parts. Someone might say that the trouble here is that the pot and the plasticene, although made of the same matter, were made of it at different times, so that we get identity just when we have x and y made of the same matter over just the same range of times. But this condition for identity is too close a claim to the claim that (1), i.e., that in the case of complete coincidence, Goliath=Lump1, to provide an argument for (1). Any-

⁵ For examples of such uses of mereology see Thomson (1983).

⁶ The slightly roundabout wording is to accommodate those who might wish to worry whether for example the subatomic parts of the clay are really material parts of the statue—maybe the statue’s material parts are only parts like the clay, the legs, the torso, the arms, and the head.

one who has doubts about (1) will doubt the condition. Nor will it help to cast the condition in the language of material temporal parts, where a material temporal part is the content of a matter-occupied region of space-time, and material continuants are thought of as sums of such temporal parts. For then the argument for (1) which goes by way of

$$(5) \quad x=y \leftrightarrow \forall z(P(z,x) \leftrightarrow P(z,y))$$

interpreting " $P(z,x)$ " as z is a temporal part of x , and understanding Goliath and Lump1 as sums of temporal parts, will simply beg the question against someone who has doubts about (1). Such a person will reject the motivating metaphysical model of Goliath and Lump1 as four-dimensional sums of temporal parts.

If there is to be a non-question begging argument for (1) from (5), the mereologist owes us an account of a topic neutral or logical notion of a part for which (5) is true. Only then can he be said to be motivating (1) by means of (5), rather than appealing to a metaphysical view of continuants which is plausible only if particular claims like (1) are true. But what is this logical or topic neutral notion of a part, supposedly available prior to conversion to metaphysical views about continuants? Unfortunately, mereologists are far from unanimous on this point.

Thus, for example, in their original paper "The Calculus of Individuals and Its Uses" H.S. Leonard and Nelson Goodman write

in our interpretation [of mereology] parts and common parts need not necessarily be spatial parts. Thus in our applications of the calculus to philosophical problems, two concrete entities to be taken as [non-overlapping or] discrete not only have to be spatially discrete, but also temporally discrete, *discrete in color, etc. etc.* (1940, pp. 46-7; my emphasis)

The idea of objects being mereological sums of property parts with the explicit condition that properties are in the first instance particular and not universal was a leading motive in the eminently clear-headed metaphysics of D.C. Williams.⁷ David Lewis, also working within a mereological framework, opts for a more restrictive notion of a property part when he writes

It is quite easy to believe that a point particle divides into a few non-spatiotemporal parts in such a way that one of them gives the particle its charge, another gives it its mass and so on. But it is just absurd to think that a thing has (recurring or non-recurring) non-spatiotemporal parts for *all* its countless abundant properties. (1986, pp. 66-7)

Elsewhere, an even narrower construal of the notion of part relevant to mereology has set in. Thus Judith Jarvis Thomson, discussing a *prima facie* argument for the doctrine of temporal parts—an argument which involves applying mereology to a scattered sum of parts which was temporarily unscattered and shaped in the form of a house—writes

⁷ Williams (1966) and (1986).

Even if there is [such an entity as house-shape] it certainly is not literally part of any house. (1983, p. 201)

Evidently there is much dispute about the metaphysical parts of objects and hence much dispute about the detailed metaphysical interpretation of the crucial mereological predicate " $O(x,y)$ ".

Adjudicating the dispute is not to the point here. For we are not interested in implementing a metaphysics but only in evaluating a mereological argument for the conclusion that an object is identical with the matter which invariably constitutes it. In evaluating that argument we should not rely upon any substantive metaphysical conception of the parts or ingredients of entities. Rather our question is whether there is any metaphysically neutral or *logical* conception of a part which could be used in conjunction with ordinary judgements about constitution and material parts to motivate claims such as (1).

For those who are comfortable with thinking of second order logic as the logic of properties the following may provide a way of thinking about the question. This principle of second order logic

$$(6) \quad x=y \leftrightarrow \forall F(Fx \leftrightarrow Fy)$$

has a good claim to define the logical notion which is identity. From left to right we have Leibniz's Law, surely an a priori principle if anything is. From right to left we have a triviality secured by instantiation; among the properties which x and y are asserted to have in common by the right hand side are identity with y and identity with x . Moreover, from (6) we can prove the familiar features of identity, *viz.*, that it is reflexive, symmetric and transitive. So the second order definition of identity has a good claim to be *the* definition of identity.

Now in standard mereology the following is the definition of identity:

$$(7) \quad x=y \leftrightarrow \forall z(O(z,x) \leftrightarrow O(z,y))$$

So it seems that if we want to give " $O(x,y)$ " its proper *logical* interpretation, and by means of

$$(4) \quad P(x,y) \leftrightarrow \forall z(O(z,x) \rightarrow O(z,y))$$

fix the logical interpretation of " $P(x,y)$ ", and thereby find out what a *logical* part is, we should consider this question: How then must we understand the mereological primitive " $O(x,y)$ " so that the second order characterization of identity is logically equivalent to the mereological characterization of identity?

This quite determinate question is the question to face if we are to take mereology as a "generalization of the logic of identity" i.e. a set of principles, including a characterization of identity, which purport to have as much claim on us as

$$(6) \quad x=y \leftrightarrow \forall F(Fx \leftrightarrow Fy)$$

Our problem then is to find an appropriate pure logical construal of the mereological primitive " $O(x,y)$ ".

Clearly, if we interpret the mereological primitive " $O(x,y)$ " as saying that x is identical with y , then (7) and (6) will be logically equivalent. For then $\forall z(O(z,x) \leftrightarrow O(z,y))$ is logically equivalent to $x=y$.

If we interpret the mereological primitive “ $O(x,y)$ ” as saying that x is not identical with y , then (7) and (6) will be logically equivalent. For then $\forall z(O(z,x) \leftrightarrow O(z,y))$ is logically equivalent to $x=y$.

In order to make (7) come out logically equivalent to (6) it will not do to understand “ $O(x,y)$ ” as meaning that x and y stand in some relation R that neither guarantees identity nor guarantees distinctness. For then there will be no logical guarantee that $x=y$ just in case for every z , z stands in R to x if and only if z stands in R to y .

The simple but important observation is this: if we accept (6), the second order characterization of identity, and we ask ourselves how we should understand the mereological primitive “ $O(x,y)$ ” so that the mereological definition

$$(7) \quad x=y \leftrightarrow \forall z(O(z,x) \leftrightarrow O(z,y))$$

has the same status as (6), the answer is that we should take “ $O(x,y)$ ” either to guarantee that x is identical with y or to guarantee that x is not identical with y . Given this conclusion and

$$(4) \quad P(x,y) \leftrightarrow \forall z(O(z,x) \rightarrow O(z,y))$$

it follows that whichever of these two ways we construe “ $O(x,y)$ ”, “ $P(x,y)$ ” will mean that x is identical with y ! The exercise has shown what most of us probably suspected all along: there is available no non-trivial notion of a *logical* part. x is a *logical part* of y just in case x is y . Pure logic can offer no interesting interpretation of the predicate “ $P(x,y)$ ”.

Of course, the mereologist may accept this and yet still urge (7) on us as an extension of what we learned in the logic class. (He may not be very interested in securing the honorific “logic” for a principle in which he has complete confidence.) However, what should embarrass the mereologist is that we do have a perfectly good *logical* characterization of identity, *viz.* the second order characterization, whose status no mereological characterization can either impeach or approach.

That status is importantly different from the status of the metaphysical views about objects which would guarantee the equivalence of (6) and (7). These two characterizations of identity would be equivalent on the assumption that objects are sums of their properties, and hence have their properties as “parts”. Then (7) would have it that x is identical with y just in case every sum of properties which overlaps with x overlaps with y and vice versa. But the picture of objects as sums of properties is neither forced on us by logic nor capable of being the upshot of any empirical discovery. In that sense it is sheer metaphysics. Moreover, in order to use (7) so interpreted in a defence of the claim that

(1) In the case of complete coincidence, Lump1=Goliath

we would have to accept the further metaphysical principle that sameness of material or spatiotemporal parts is sufficient for sameness of property parts.

Obviously, all this is substantial metaphysics, not formal logic. There is no metaphysically neutral, *logical* conception of a part which could be used in conjunction with ordinary judgements about material parts so as to motivate claims such as (1). If that is so, then in *motivating* a metaphysics, as opposed to merely implementing one, mereology is about as useful as Mariology.

The metaphysically neutral guide to identity is just (6)

$$(6) \quad x=y \leftrightarrow \forall F(Fx \leftrightarrow Fy)$$

and in our original case of complete coincidence we have good reason to think that there is a property that holds of Goliath but not of Lump1: it is the property of being able to survive the loss of those of its material parts which make up the arms and calves of Goliath. Alternatively, supposing Lump1 to be squashable, we have good reason to think that there is a property that holds of Lump1 but not of Goliath: it is the property of being able to survive being squashed. Appeals to (7) or (5) on behalf of (1) notwithstanding, there is good reason to think that (1) is false since (6), unlike (7) and (5), is uncontroversially a logical principle.

Even so, some are unsatisfied by this use of (6) against (1) precisely because it depends upon exploiting modal or dispositional differences as between things with just the same categorical intrinsic properties. The second argument for (1) develops the worry that sameness of categorical intrinsics is sufficient for identity.

III

This second argument for (1), though not explicitly employed in the literature, is one that seems to me especially worthy of respect. Sometimes in discussion it is said on behalf of (1) "How can you distinguish between Goliath and Lump1 on the basis of mere modal or counterfactual or dispositional differences; after all, Goliath and Lump1 are intrinsically exactly alike, how could they fail to be identical?"⁸ As it stands, this goes too far, for there is no reliable road to identity from qualitative similarity. After all

$$(6) \quad x=y \leftrightarrow \forall F(Fx \leftrightarrow Fy)$$

is a theorem of second order logic only because the second order quantifier ranges over non-qualitative properties like identity with x . A fortiori, there is no utterly reliable road to identity from *intrinsic* qualitative similarity. But there is a powerful point in favor of (1) to be made by exploiting the fact that Goliath and Lump1 seem to be intrinsically exactly alike, i.e. both are made up of exactly the same sort of clay, have exactly the same shape and texture, weigh exactly the same and so on.

Take any sort of thing F , then this principle will be plausible:

⁸ Here, and in what follows, those who think of modal properties and dispositions as intrinsic should understand "intrinsic" to mean categorical and intrinsic. I particularly remember Denis Robinson urging the argument just quoted.

(8) If y is a paradigm F and x is intrinsically exactly like y then x is an F .⁹

Now suppose for *reductio ad absurdum* that Goliath and Lumpl are distinct. Goliath is a paradigm statue of Goliath and Lumpl is intrinsically exactly like Goliath. By (8), Lumpl is a statue of Goliath. Two bizarre consequences follow. First, an intolerable type of co-occupancy: in the case in which Lumpl and Goliath are completely coincident, we have at least two *statues of Goliath* in the same place throughout their entire careers. At *least* two because we can invent a name for the piece of matter which constitutes Lumpl, say “Lumpl*”, and argue first that Lumpl* is distinct from the statues Lumpl and Goliath, and then argue by (8) that it is a statue. So we have an endless multiplication of statues.

Secondly, as this last elaboration also shows, concerning something which we originally assumed not to have the modal properties of a statue, we have shown that it is a statue, and so *does* have the modal properties of a statue. We started out, as in (2) above, by saying that Lumpl could not survive the loss of those of its parts which make up the arms and calves of Goliath. The grounds were that, unlike Goliath, Lumpl is a piece of clay and not a statue. But by using (8) we have undermined those grounds and in proving that Lumpl is a statue we have thereby established that it could survive the loss of those parts.

Surely, if (8) is true, then this is a *reductio* of the claim that Goliath is not identical with Lumpl.¹⁰

IV

If (8) is true, then certain related similarity principles ought also be true. In particular, it ought to be true that

⁹ To make such a principle ultimately defensible certain restrictions not pertinent to the argument of the main body of the paper have to be added. Thus if things intrinsically just like human beings grew on trees or sprang from the teeth of a certain dragon many would think that a case could be made for denying them the name of human beings since they do not have the characteristic *origins* of human beings. *Mutatis mutandis* for statues, a statue of Mt. Fujiama that was full size and made of the same sort of matter as the real Mt. Fujiama might be intrinsically exactly like Mt. Fujiama. But it would be wrong to say that Mt. Fujiama is a statue. (This example is due to Giden Rosen.) For something to be a statue it has to be shaped or constituted with the intention of generating an art object. But just because it could be said of Lumpl that it was originally shaped or constituted (by putting together two pieces of clay) with the intention of generating an art object, the required restriction on (8) would affect the argument to follow.

In a similar vein, some F s are subject to a requirement of “maximality” so that nothing that is a proper part of an F can count as another F . The status of such a principle and the required qualifications for a such a principle are delicate matters. Two tables can make up a third table, and the Pope’s crown consists of three crowns.

¹⁰ Some might object that the paradigm statue used to argue that Lumpl is a statue is none other than Goliath, the very statue which Lumpl constitutes. But of course a duplicate of Goliath made from the same mold using the same material would have done as well.

- (9) if y is a paradigm F and x is an entity that differs from y in any respect relevant to being an F only very minutely then x is an F .

For how can such very minute differences make for the difference between a paradigm F and something not an F at all? This principle can be given strong theoretical support in those cases in which “ F ” is a sortal that can be taught by ostending paradigms. In such cases, (9) seems to state the grounds for counting as F s things other than the ostended paradigm F s. (Imagine that the minute differences do not add up to a perceptible difference, and that we can recognize F s by perception.)

That (9) is very surprisingly *not* true I take to be the upshot of Peter Unger’s (1981) nice “problem of the many”. The problem begins with the observation that

- (10) In the closest vicinity of any paradigm middle sized material F there are usually very many entities that differ only very minutely from the paradigm in any respect.

This is a familiar consequence of material atomism. Unger illustrates the point by means of the example of a cloud. Whenever there is a cloud or dense cluster of water droplets, there is in its closest vicinity a relatively large number of cloud-shaped, equally dense clusters of water droplets. All of these clusters are highly coincident, many differing in composition from the others and from the original cloud only in respect of a single droplet. Hence in the closest vicinity of any paradigm cloud there are very many entities—cloud-shaped clusters of water droplets—that differ only very minutely from the paradigm cloud. So, by (9), in the closest vicinity of any paradigm cloud there are very many clouds, in fact an enormous number. They are highly coincident, almost completely overlapping, differing only minutely in constitution. Moreover, clouds are here functioning only as a vivid example. The same holds for tables, chairs, trees and animals—anything that is materially complex.

Rather than conclude that there are enormously many more tables, chairs, trees, etc. than we would ever have dreamt of, Unger himself prefers to say that there are no tables, chairs, trees, etc.—no materially complex F s for any sort F . So far as I can reconstruct the reasoning, Unger’s thought is that since terms like “table”, “chair”, etc. are supposed to both function as count nouns, and give rise to reasonable counts of the numbers of these things, *and* be governed by principles like (9), they turn out to be not coherently usable, thanks to the truth of (10).

I think that we can do better than Unger’s Eliminative Nihilism. We can explain why (9), though plausible, is nonetheless false. The explanation will similarly redound to the discredit of (8), thereby undermining the main argument for taking invariant constitution to be identity. Indeed, doing better on Unger’s problem will involve us in supposing that constitution is *never* identity.

First we must locate the role played by the phenomenon of vagueness in the problem of the many, lest some think that the problem is simply and completely a problem of vagueness and will disappear once one or other of the more or less adequate treatments of vagueness is applied. It is true that we were adopting a pretense of precision when we supposed that there would be a particular and def-

inite dense cluster of water droplets constituting any paradigm cloud, a definite cluster of which we could say that many other, almost exactly overlapping, cloud-shaped clusters differed from it only minutely in constitution, e.g. by not including one water droplet included in the paradigm cloud. However, the pretense was harmless for the purposes of generating the problem of the many. The problem of the many still looms if we admit that our paradigm cloud has no privileged cluster of water droplets as *the* cluster which exactly constitutes it, the truth being instead that with respect to various sharpenings, or legitimate ways of drawing the boundaries of the cloud, slightly different such clusters will constitute the cloud. For after all, on any sharpening, or way of fixing on a sharply defined cluster to constitute our paradigm cloud, we will have the cloud c , the precise cluster k_0 and a very large number of precise clusters k_1, k_2 differing from k_0 only very minutely and hence differing from c only very minutely. Now (9), if true, is definitely true; i.e. it ought to hold on any legitimate sharpening. But then on any legitimate sharpening, such as the one just described, we will have our paradigm cloud c and, by (9), a very large number of almost exactly similar clouds k_1, k_2, \dots . So the problem of the many arises on each legitimate sharpening.

What then is the way out? Sticking to the harmless fantasy of precision, consider the cloud c and the clusters k_0, k_1, k_2, \dots . On any ordinary way of talking, clusters like k_0, k_1, k_2 , etc. are not themselves clouds but may constitute clouds. On ordinary ways of talking, when counting the number of clouds we do *not* contemplate a count of all the distinct, precise, cloud-shaped clusters of water droplets in the nearest vicinity of any cloud. These do not count as clouds. Despite their being quantities of matter which constitute clouds, we do not count them *as* clouds. That is, our ordinary use of a count noun like ‘cloud’ does not strictly conform to (9) but rather to

- (9') If y is a paradigm F and x is an entity that differs from y in any respect relevant to being an F only very minutely and x is of the right category, i.e. is not a mere quantity or piece of matter, then x is an F .

Hence Unger's insistent and ironic question “But *which* of k_0, k_1, k_2, \dots is our paradigm cloud c ?” has as its proper answer “None”. None of these count as clouds because they are mere quantities of matter and hence mere constitutors of clouds. The problem of the many simply shows that constitution is a vague relation. Our cloud c is not only not identical with any one of k_0, k_1, k_2 but also it is not definitely constituted by any one of k_0, k_1, k_2, \dots . Rather, on one legitimate sharpening it is constituted by one of the k s, on another, another of the k s, and so on. What is important for our purposes is that on no legitimate sharpening is c identical with any one of the k s. For if that were so there would be a precise cluster k_1 which on one legitimate sharpening was a paradigm cloud and there would be entities of the same category as k_1 —all the other precise clusters—which

deserve the name of a cloud if k_1 does. We would be back with the problem of the many.

So we see that recognizing that constitution is not ever identity, which involves recognizing a distinction of category between a material object and the matter which constitutes it, is crucial in dealing with the problem of the many.¹¹ So also, the alleged reductio of §3 only serves to show that instead of (8) we need (8').

(8') If y is a paradigm F and x is intrinsically exactly like y and x is of the right category, i.e. x is not a mere quantity or piece of matter, then x is an F .

(8') reflects the fact that in counting F s we never dream of counting as still more F s the enormous number of F -shaped bundles of matter which (on some or other legitimate sharpening) constitute F s. Now perhaps someone with a feel for the problem of the many will admit this as a descriptive claim, but will insist "By what right do we not count such F -shaped bundles of matter as F s? By what right do we ignore the striking intrinsic similarities between F s and their constituting matter, counting F s only on one side of this so-called distinction of cate-

¹¹ In understanding the issue as whether constitution is ever identity I have in mind the temporal part theorist who admits that in the second case where the head and calves of Goliath are replaced, Goliath is not identical with Lump1. Rather Goliath and Lump1, understood as four dimensional continuants, overlap. Constitution is the overlap of the temporal parts of persisting quantities of matter and of persisting material objects. Identity is just the case of complete overlap. For a development of this view see Robinson (1982a) and (1982b). Someone who construes identity as the limiting case of this kind of overlap will not be able to justify any distinction of ontic type between a material object and its constituting matter. For on this view it will sometimes be true that a material object's constituting matter is identical with that material object. Since constituting matter is all of the same category and if $x=y$ then y is of the same category as x , it follows that some material objects are of the same category as pieces of constituting matter. So the problem of the many looms

The version of the problem of the many which holds most directly against the view that identity is the limiting case of overlap of temporal parts is the four-dimensional version. Think of a four-dimensional sum of cloud stages that is supposed to be a paradigm persisting cloud. In the paradigm's nearest spatiotemporal vicinity there are very many sums of cloud stages which differ only very minutely from the paradigm. The problem of the many is underway if on a legitimate sharpening the persisting cloud is identical with one of the sums, so that one of these sums deserves the name of a persisting cloud. Why don't the others?

What of the idea (suggested by David Lewis) that they do, but that this is harmless since, because of massive overlap, the many are almost one? Well, I do not think that this gives as general solution. Michael's house has an extension almost as large as his original house, which in fact was a near duplicate of the next door neighbour's house. While some have houses consisting of two houses (a hacienda often consists of the main house and the servants' gatehouse) Michael doesn't. His house is a single suburban dwelling made larger than it originally was by an extension. Yet (8) implies that Michael has (at least) two houses—the large house with the extension, and the proper subpart of that house which made up the original house and is intrinsically just like the next door neighbour's house. The point is that these two houses do not massively overlap, they are not almost one. Michael's extension is almost as large as his original house. I conclude that the "many but almost one" solution does not work here. (8) needs restricting anyway, and when the right restriction is made the original problem of the many is blocked along with the problem of Michael's house

gory? What is there to the distinction anyway once we admit that there is nothing more to an *F* than its constituting matter? Isn't this just a distinction without a difference?"

V

What gives these questions force is their appeal to a particular conception of what is required to justify certain systematic patterns and demarcations in our judgements of identity, difference and sortal-relative number. The insistence on no distinction between an *F* and its *F*-shaped constituting matter without a difference to justify the distinction is uncontroversial on its face. It is a certain seductive conception of what a justifying difference must consist in which ought to be controversial. The conception has it that the justifying difference has to be substantial and characterizable independently of our practice of making judgements which exhibit certain patterns and demarcations. So on this substantial conception it is not enough *first* to say that the difference between an *F* and its *F*-shaped constituting matter is just the difference we mark when for example we standardly don't count *F*-shaped constituting matter as an *F*, and *then* having said that go on to give an internal and pragmatic justification of this in terms of how a practice which marks this distinction serves our purposes. In contrast with such a minimal and practice-dependent justification, *practice-dependent* because it only has recourse to our practices and their internal rationales, the substantial and independent justification would resort to some metaphysical model of the relation between an *F* and its *F*-shaped constituting matter. The practice-independent justification of the distinction will then be that there is some metaphysical *extra* which an *F* includes and an *F*-shaped bundle of matter does not.

The catalogue of proposed extra ingredients is none too impressive. Among the entities proposed as ingredients in *F*s along with their matter, we have had bare, that is non-qualitative, but somehow essentially *F*-ish particulars, *F*-ish substrata which hold together the proper features of *F*s as if those features were like pins in a pin cushion, and haecceities or particular identity properties, such as *being Mt Fujiama*. Not that all of these ideas are just silly. Most of them have their origins in reasonable thoughts about material objects which then become perverted by the demand for a metaphysical model of a material object which discerns extra ingredients besides the object's constituting matter. So, for example, the idea of non-qualitative bare particulars or haecceities as ingredients is a mistaken hypostasizing of a rather good idea, which has of late been called (along with many other different ideas of varying merit) haecceitism,¹² the idea that

¹² For various versions of haecceitism see Kaplan (1975), Adams (1979) and Lewis (1986, §4.4.).

there is no purely qualitative criterion for the identity of objects. So too the idea that each *F* includes as an ingredient besides its constituting matter a substantial form, which unlike the *F*'s constituting matter is essentially *F*-ish, is a mistaken hypostasis of the rather good idea that if we have objects classified into substance sorts or relatively natural kinds and *F* is one such sort or kind then we will not countenance as possible a situation in which something that is actually an *F* exists without being in that situation *F*-ish in important ways. Just as we can have haecceitism without bare particulars or haecceities as extra ingredients, we can have essentialism without having substantial forms or essences as extra ingredients.

Alternative conclusions can be drawn from surveying at once both the catalogue of proposed metaphysical extras and the problem of the many. The first conclusion is that there is no credible metaphysical extra and *therefore* no justifiable distinction to be made between an *F* and its constituting matter. Then the problem of the many is a straight proof to the effect that our practice of using count nouns or sortals is incoherent. The better conclusion is that our practice and the distinction it embodies is acceptable as it stands and what is bogus is the conception of justifying our practice which requires that, for the distinction to be justified, the difference between an *F* and its constituting matter must be a deep metaphysical difference secured by an extra ingredient of the *F*.

It is the Minimalist who characteristically draws the second conclusion. Here, as elsewhere, he aims for ontology without metaphysics, which is to say general talk about reality without the postulation of extra ingredients which it is the peculiar privilege of philosophy to discover. The Minimalist accuses both the Eliminativist like Unger and the Hyperrealist, who believes in extra ingredients, of making the same error, the error of supposing that our practice of distinguishing *F*s and their constituting matter and counting accordingly could only be justified if the distinction is secured by the independent metaphysics of the matter.¹³

What then does justify our practice of employing the distinction and counting accordingly? Probably only this: in representing the world as made up of material objects of various sorts, persisting through all but substantial changes in respects crucial to their sort, we provide for ourselves certain explanatory strategies. We are able to explain sortal relative continuities in terms of the persistence of objects of the relevant sorts, and to explain change and discontinuity in terms of the natures and interactions of persisting objects of various sorts. But since the middle-sized persisting objects of our experience are materially complex and constantly undergo material change which falls short of being substantial change in respects important to objects of their sort, we cannot take them to be identical with the parcels or bundles of matter which make them up at various times. For often, as with the case of Goliath and Lump1, such material changes are substantial changes in respects important to the persistence of bundles or quantities of

¹³ For more on the advantages of Minimalism see Johnston (1987). Unger seems to have become more sympathetic to Minimalism in his (1990) in which Minimalist themes are deployed against Derek Parfit's attempt to derive revisionary consequences in ethics from the observation that we are not "seperately existing entities distinct from our brains and bodies".

matter in question. Goliath is thus typical in being able to survive changes which the piece of matter which originally constituted it cannot survive. Hence within our scheme of persisting objects and their constituent pieces or quantities of matter there are systematic reasons to distinguish objects from the matter which constitutes them. The crucial distinction is a consequence of representing the world as a world of both objects and pieces of matter surviving material change, but surviving different kinds and degrees of material change.

The explanatory strategies which this style of representation makes possible are sometimes contrasted with an explanatory strategy which accounts for change and continuity in terms of the laws governing the propagation of material property instances over space-time. This last style of explanation has been extraordinarily successful in serving the purposes of modern science. But there is an enormous gulf, so far unabridged by argument, falling between properly respecting that style of explanation and accepting scientism, which in this context amounts to the view that there are only patterns of distribution of material property instances, so that persisting objects, if they are to exist at all, must be identical with some such patterns.

In the absence of a defense of scientism, we can rest content with our scheme of persisting objects distinct from their constituting matter. After all, the scheme has served us very well in making intelligible a world of change and continuity. Russell said that we can properly do without the metaphysics of the stone age. Just so, but we can also properly do without the scientific metaphysics of our own age. The ontology of the stone age is however another matter. It, fortunately, is still with us and well deserves its place.¹⁴

Department of Philosophy
1879 Hall
Princeton University
Princeton
NJ 08544-1006
USA

MARK JOHNSTON

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