

University of Vermont

ScholarWorks @ UVM

College of Arts and Sciences Faculty
Publications

College of Arts and Sciences

1-2006

Statues and Lumps: A Strange Coincidence?

Mark Moyer

University of Vermont, mmmoyer@uvm.edu

Follow this and additional works at: <https://scholarworks.uvm.edu/casfac>



Part of the [Epistemology Commons](#), and the [Metaphysics Commons](#)

Recommended Citation

Moyer, M. Statues and Lumps: A Strange Coincidence?. *Synthese* 148, 401–423 (2006). <https://doi.org/10.1007/s11229-004-6235-1>

This Article is brought to you for free and open access by the College of Arts and Sciences at ScholarWorks @ UVM. It has been accepted for inclusion in College of Arts and Sciences Faculty Publications by an authorized administrator of ScholarWorks @ UVM. For more information, please contact donna.omalley@uvm.edu.

Statues and Lumps

Statues and Lumps: A Strange Coincidence?

Last week Matthew combined rare soils to create a massive lump of clay. He named the lump of clay ‘Clayton’. Arthur found the clay on the workbench just last night and shaped it into a beautiful statue of a winged woman. He named the statue ‘Angel’ and gave it pride of place on the mantle, where it now sits. Because clay statues sell so poorly, three days from now Arthur will take a bit of clay from the statue, replace it by a bit of lead of the same size and shape, and continue the process for a few hours until the clay making up Angel is entirely replaced by lead, finally throwing the clay into the garbage bin.

In the study of material constitution, there is a great divide between those who think that multiple objects can occupy the same place at the same time — call them pluralists — and those who think such spatial coincidence is impossible — call them monists.¹ The argument for pluralism is simple. The lump of clay sat on the workbench last night but the statue did not. The statue could not survive flattening, but the lump could. Because the statue and the lump of clay have different temporal and modal properties, by Leibniz’s Law we conclude that the statue and the lump of clay are not identical.

This paper defends pluralism against several arguments philosophers have given to the contrary. All of these arguments are rooted in a simple equivocation, a conflation of identity with what people more commonly mean by ‘the same’. Clarify the semantics and the metaphysical puzzles dissolve. The argument philosophers think to be most damning claims that pluralists cannot explain an object’s sort since its sort supervenes on its physical properties. To resolve this puzzle we must clarify the order of explanation between an object’s sort, its properties intrinsic to the current time, and its properties extrinsic to the current time. Once we dissolve the purported problems with coincidence, what remains is not yet another implausible

¹ The terminology is Kit Fine’s (in conversation).

theory of material constitution flouting common sense but instead the elimination of any need to appeal to a ‘crazy metaphysic’ in the first place.²

This paper has already mentioned, *en passant*, one argument in favor of coincident objects, that based on Leibniz’s Law and differences in temporal and modal properties. No new argument *for* coincidence will be given, since my interest lies solely in showing that the arguments *against* coincidence are unfounded. Moreover, my concern in this paper will be limited to the question of whether multiple objects can occupy the same place at *a* time, rather than the question of whether multiple objects can occupy the same place at *all* times. The issues are related, and exploring the former issue will shed light on the latter issue, but resolving the latter question requires a more lengthy discussion of modality that is best handled separately. To clarify the issue between pluralists and monists, and to set the stage for further arguments, I begin with some simple semantics.

1. The Semantics of ‘The Same’

Common sense insists that there is *one* thing on the mantle and, similarly, that the lump of clay *is* a statue. If Matthew talks about “this lump of clay that has been given such a beautiful form” and Arthur talks about “my statue that will some day be in the Louvre”, we would most naturally say they are both talking about *the same thing*, just as “the inventor of the bifocals” and “the first postmaster-general” are expressions referring to the same thing. To get a better grip on what these common sense claims mean, consider a person who has been told about a mantle holding a statue made of clay, where this person thinks that the lump of clay ‘is’ a statue and that there is only ‘one’ object on the mantle. Now let’s tell this person that the statue was created just this morning and that prior to that the lump of clay had been sitting in the garage for a week. She will not be moved at all to change her view that there is only ‘one’ object, that the lump of clay ‘is’ a statue, despite the fact that we have made explicit differences in their temporal properties. Next let’s tell her that the lump of clay is painted entirely white and the statue is unpainted. *Now* she *does* see an inconsistency and will conclude that there are, after all, ‘two’ separate items on the mantle or that some other assumption she was making was mistaken.

² The expression is Thomson’s (1983, 210).

Why when we tell of one sort of difference between the two objects does she *retain* her conviction that there is only one thing on the mantle, and yet when we tell of another sort of difference she feels forced to *give up* this conviction? Perhaps she is not attending to the temporal difference between the statue and the piece of clay when we tell her that one was created just this morning while the other existed yesterday and, more generally, whenever we count everyday objects we somehow uniformly neglect this sort of information. Or perhaps she doesn't realize that differences in temporal properties, like differences in any other properties, entail that the things so differing are not the same. In other words, by telling some sort of error theory, we can maintain the claim that one thing is properly said to be 'the same' as another only if they are alike not only in color and other properties had at that time but also in their histories. Instead, though, we might pursue a more charitable story and say that what she *means* in this context by 'one' and 'is' is not that the lump of clay and the statue *couldn't be* two different objects or that at one time they *were* not or *will* not differ, but only that they *currently* are not different.

Thus, I am proposing that, at least in many contexts, the expression 'the same' is not invoking absolute identity but a relation I will call 'sameness', where "x is the same as y at t" is true iff x and y are identical in all non-modal properties intrinsic to t.³ The same point carries over to sentences using expressions inter-definable with 'the same'. For x and y to be 'the same thing,' for x to 'be' y, for there to be only 'one' thing, for there to be 'a' thing rather than 'some' things — all such quantifying expressions, at least in many contexts, operate relative to a time.⁴

Understanding our natural language quantifiers in this way also sheds light on why people say what they do about hypothetical cases of fission and fusion. Imagine that Al splits

³ Just as a property p is intrinsic to an individual i iff i's instantiating p does not entail anything about objects wholly distinct from i, so too a property p is intrinsic to a time t iff any individual's instantiating p at t does not entail anything about how things are at times other than t. What I am calling 'properties intrinsic to a time' or 'temporally intrinsic properties', Simons (1987, p. 229) calls "time-blinkered properties" and Chisholm (1976, ch. 3) calls properties that are not "rooted outside the times at which they are had."

⁴ Quine (1969, 32) called these "the cluster of interrelated devices in which quantification becomes central."

like an amoeba to become Cal and Hal. The untutored claim is that there *was* only one person before the fission, that there *are* now two after the fission, and yet that Al did not die but somehow lived on through Cal and Hal. If our quantifiers are relativized to times, we can say that before the fission Cal and Hal *were* ‘one and the same’ person even though they differ in ways extrinsic to that time and, thus, are *now* ‘two’ people.

This interpretation of ‘the same’ will, no doubt, strike many as odd.⁵ But let us keep in mind that so many of the simplest predicates of English are temporally relative. Being big, bent,

⁵ So far I have suggested that often the relation picked out by ‘the same’ holds relative to a single time. But how, then, can we say that b at t_1 is the same as c at t_2 . That is, there doesn’t seem to be any means of having a cross-temporal relation whereby b and c are ‘the same.’ Yet, some may insist, everyday English clearly allows such talk: “I *am* the same person who waved to you *yesterday*.” Likewise, “Angel, the statue standing here *now*, and Clayton, the lump of clay created *last week*, are the very same thing.” How can we accommodate such sentences with a relation that only relates things at a single time?

There are two answers one might give. First, since I am only claiming that *some* utterances of ‘the same’ invoke sameness, we might simply agree that these problematic utterances invoke absolute identity rather than sameness. However, I think these utterances *can* be explained using the sameness relation as well, for while the sameness relation does not span times, the things related typically do. The sentence “I am the same person who waved to you yesterday” claims that sameness obtains *now* between the referent of ‘I’ and the referent of ‘the person who waved to you yesterday’, though these things that are *now* related by sameness certainly have features obtaining at other times, e.g. the latter’s waving to you yesterday. Of course, I and the person who waved to you yesterday are absolutely identical, so they are also related by sameness at *all* times at which they exist, but perhaps the sentence is *only* asserting sameness *at a time*, something weaker than absolute identity. Similarly, Angel and Clayton are *now* ‘the same,’ though it is also true that Clayton *is* that which *was* created last week. Clayton has persisted through time: *last week* it was created, but *now* it is ‘the same’ as Angel; moreover, next week it will no longer be ‘the same’ as Angel. Thus, a statement claiming that two things ‘are’ the same can be understood as predicating sameness *now* even if it identifies the relata in terms of properties they have at past or future times. (And, likewise, statements can

wrinkled, green, smelly, hot, etc. are all properties intrinsic to a time. In addition, intuitively it seems that counting the number of objects *now* on the mantle only requires examining the *current* state of affairs on the mantle, rather than determining what did, what will, or what could have happened to what's on the mantle. Thus, employing a sameness relation that holds merely in virtue of the properties things have intrinsic to the relevant time is very natural. In fact, if pluralists are correct, then absolute identity would often be quite impractical for everyday use. Our concerns are not with the number of temporally and modally distinguished objects there are on the mantle, a quite confusing multitude, but with the number of objects as individuated by their physical properties at the time in question — a number which tells us how much dusting, packing, and insuring is required.⁶

One might conclude from data such as this, following Myro (1986) or Gallois (1990; 1998), that identity is temporally relative. But all that has been suggested so far is that a *common* notion of x and y being numerically 'the same' is temporally relative. Whether we want to say that identity itself is temporally relative depends upon what we mean by 'identity,' calling for further semantic investigation. In everyday speech, 'identical' typically means qualitative identity rather than numerical identity. To the extent that 'identical' is used to express something stronger in everyday language, its use usually parallels that of 'the same' that we have been investigating. Sometimes, though, and especially in philosophical contexts, we mean something different than this temporally relative use of 'the same' and 'identical.' This stronger sense of 'the same' and 'identical' invokes a relation characterized by Leibniz's Law where b and c are 'identical' only if b and c have exactly the same properties, *including* temporally extrinsic and

predicate sameness at past or future times even if they identify the relata in terms of properties they have at other times: "My uncle, who *is now* in Chicago, *was* the one who called you yesterday.")

⁶ Consider a case in which our practical concerns *did* ride on temporal differences. If it became common practice to replace the material making up a statue, then insurance companies *would* take greater pains to specify whether it is this statue, the gold of which it is made, or both that are insured against theft.

modal properties.⁷ According to this notion of ‘identity’, what I will call ‘absolute identity’, the lump of clay and the statue are *not* identical, at least assuming they have the temporal and modal properties that common sense seems to ascribe to them.

The sort of distinction I am highlighting is not unprecedented. If White (1986) and Rea (1998) are right, Aristotle also distinguished a temporally and modally relative sameness relation from identity. Of contemporary philosophers, Wiggins (1980), Johnston (1992), Thomson (1998), and Baker (1997) distinguish the ‘is’ of identity from the ‘is’ of composition. It is true, they would urge, that the statue *is* the clay, but this means merely that the statue *is composed of* the clay, where this relation is to be understood as temporally relativized. The idea seems to be that occasionally we employ forms of ‘to be’ with a special compositional meaning that applies to material objects. I would go further, though, and insist that the meaning is not all that special — it is not specifically about composition of material objects but is a more general notion simply got by relativizing absolute identity to a time. Moreover, I say that the distinction comes not just with forms of ‘to be’ but with all English quantifiers and, perhaps even, that this is not an *optional* way we can use our quantifiers but how our quantifiers *always* operate in tensed contexts.⁸ Perry (1970, 198-199), Robinson (1985), and Lewis (1986, 218; 1976, 63) distinguish two ways in which we count things. According to one way, the statue and the lump of clay are two things, for they differ temporally. According to the other, the statue and the lump of clay are

⁷ Gibbard argues that modal predicates do not pick out modal properties, and thus *x* and *y* being identical does not require that *x* and *y* satisfy the same modal predicates. Since I am defending pluralism, rather than attacking monism, I will not discuss Gibbard’s views.

⁸ It seems we need some sort of non-relativized quantifier use to account for sentences in which we count objects that do not exist at the same time, as when we say that there are forty-three people that have become the president of the U.S. (Thanks to Ted Sider and Kit Fine, who steered me to these problematic cases.) We can’t say that our quantifiers are non-relativized iff they are in tensed sentences, for we also say things such as: In 1977 there *were* thirty-seven people who had become president. Thus, if there is some general explanation of when our quantifiers are relativized, the story will have to be more complicated, perhaps along the lines of whether the tense operator governs the quantifier.

one thing, for to count in this way is to count by identity-at-t, i.e. in a temporally relative way. But, again, I want to generalize the point, this time insisting it is not merely how we count but how all our quantifiers work. And though Lewis (1976, 64) claims that prior to fission Al “is really two nonidentical persons,” I see no reason to think this temporal relativization is not part of the semantics for quantifiers and, likewise, no reason to deny that Al is *really* one person.

I therefore see the distinction between absolute identity and sameness as applying more widely and being more fundamental than other proponents see it. My aim in this paper, however, is not so much to establish the distinction but to set out how this ambiguity lies at the root of the puzzle of coincidence. Thus, even if I don’t convince the reader that ‘the same’ is typically temporally relative, and that recognizing this semantic fact allows us to preserve what common sense has to say about coincident objects, I hope at least to show that, contrary to the current perception, the arguments marshaled against pluralism share a controversial assumption and, thus, that the case against pluralism consists not of several *different* arguments but of a single undefended view about the semantics of our everyday quantifiers.

With the distinction between sameness and absolute identity in hand, let me clarify the issue of this paper. The question is whether *multiple* objects can *coincide*. By ‘coincidence’ I mean spatial coincidence, or the occupying of exactly the same place at the same time. By ‘multiple’ I mean more than one *as individuated by absolute identity*. Monists claim that the statue and the lump of clay *are* absolutely identical, while pluralists claim that they *are not*.⁹

That said, I now turn to the various reasons that have been given for thinking that the statue and the lump of clay *are* absolutely identical.

⁹ One might object that I am in fact defending *monism* since I argue that the semantics for our quantifiers that is most commonly relevant in everyday contexts is temporally relative and in this sense there is only *one* thing on the mantle. Because I am claiming that many have failed to distinguish two ways of quantifying, neither ‘monist’ nor ‘pluralist’ is a label that neatly fits my position. Both those denying and those endorsing the possibility of ‘multiple’ objects coinciding are partially correct, I say. However, I have characterized my position as pluralist because I think the key issue is whether the objects are *identical*, not merely ‘the same’ in the looser, everyday sense. My concern, though, is whether the relativization of our quantifiers to times explains puzzles of coincidence, not which label we wish to give to this view.

2. Reason 1: The Intuition That There's One Object

In our examination of the semantics of 'the same', we have already considered one reason cited in favor of monism, viz., the pre-theoretic intuition that only one object sits upon the mantle. And quite a few philosophers *have* been motivated towards monism on this basis.¹⁰ As Lewis (1986, 218) says, "It seems for all the world that there is only one." But as our little semantic study suggests, this is a claim that carries no cross-temporal or cross-modal force. Using a relation of absolute identity we can make finer distinctions, so what we may correctly judge to be 'one' object when employing temporally relativized quantifiers are 'multiple' objects when employing non-relativized quantifiers. This is merely to say that the statue and the lump of clay do not differ in any ways intrinsic to this moment and world, though we can distinguish them when considering their properties extrinsic to this moment and world. The putative conflict between pluralism and intuition is thus nothing more than a conflation of the two notions of being 'the same thing'. The pluralist is not denying that the statue and the lump of clay are related by *sameness*, only that they are *absolutely identical*.

3. Reason 2: Two Things Cannot Occupy the Same Place at the Same Time

According to Wiggins (1968, 90), "It is a truism frequently called in evidence and confidently relied upon in philosophy that two things cannot be in the same place at the same time."¹¹ This, then, is a second reason cited in favor of monism. For it has seemed to many that we will have to flout this common sense principle if we are to say that the statue and the clay are not identical.¹²

Heller (1990, 14) explains away some putative counter-examples to the common sense dictum by noting that these are cases of *partial* identity.¹³ Though the oak tree and one of its

¹⁰See Myro (1986, 148-9); Rea (2000, 169); van Inwagen (1990, 127); Lewis (1986, 218; 1988, 71); cf. Robinson, (1982, 320); and Thomson (1998, 149).

¹¹Wiggins is here reporting a common view, though not his own.

¹²See Zimmerman (1997, 19); van Inwagen (1981, 129); Burke (1994, 237); Sider (1996, 446); Doepke (1982, 10).

¹³Cf. Lewis (1993, 177ff).

branches occupy the same place at the same time, this is because they are partially identical, i.e. because the part of the tree that coincides with the branch *just is* that branch. Thus, we can reconcile *some* putative counter-examples with the principle that two things can't occupy the same place by taking the principle to mean two *wholly distinct* things cannot coincide. However, this doesn't seem to save the pluralist, who is trying to distinguish the statue and the lump of clay, for since the statue and the lump of clay are made of exactly the same atoms, it is hard to say that one is merely partially identical to the other. Prima facie, every part that belongs to the statue also belongs to the lump of clay.¹⁴

We can make progress, though, by recalling that what we usually mean by 'the same' and 'one' are relations based upon sameness rather than absolute identity. Understood in this light, the truism Wiggins cites is merely claiming that 'two things', i.e. something x and something y differing in their *temporally intrinsic* properties, cannot occupy the same place at the same time. Thus understood, the truism does *not* conflict with the possibility of there being absolutely 'two things', i.e., something x and something y differing in their *temporally extrinsic or modal* properties, occupying the same place at the same time. The lump of clay sits upon the mantle. The statue also sits there. But because the statue and the lump of clay are identical in all of their properties intrinsic to the current moment, they are (currently) 'one' and 'the same' thing and therefore do not constitute a counter-example to the claim that *two* things can't occupy the same place at the same time.

¹⁴ Of course, a temporal part theorist would disagree with my reasoning by insisting that temporal parts *are parts*, thus locating the partial identity of the statue and the lump of clay with the temporal slices at the time in question and their partial distinctness with slices at other times. The way I am suggesting we reconcile the common sense dictum with pluralism is, in effect, similar to this sort of appeal to temporal parts in that we both disqualify putative counterexamples by claiming that they are not identical things merely in virtue of being identical in all ways intrinsic to the time in question. However, temporal parts theorists will claim that the putative counterexamples are cases of two things that are not 'wholly distinct', while I claim that they are not 'two' things in the relevant sense, i.e. the sense intended by the common sense claim that two things cannot occupy the same place at the same time. See Heller (1990, 14-15).

Pluralists, seeking to explain away the conflict with the common sense dictum, have tried to re-interpret the dictum. For example, Wiggins concludes that we must limit the principle to apply only to “two things of the same kind”. Heller (1992, 695), following a common temporal parts strategy, claims that “A physical object is the material content of a region of spacetime.” Thus, he claims that the statue and the lump of clay are partially identical, coinciding in their temporal parts. But surely these approaches misinterpret what people have in mind. They are denying, e.g., that the baseball can pass through the bat. That is, the common sense dictum is a simple denial that material objects can spatially overlap, whether or not they are of the same sort and whether or not they overlap for merely part of their lives.¹⁵ The statue and the lump of clay are — i.e., *currently are* — the same thing, so they do not constitute a counter-example to the common dictum. A ball passing through the bat, on the other hand, *would* provide a counter-example since the ball and the bat (or even the parts of the ball and bat that exactly coincide) are *two* things, i.e., things differing in their temporally intrinsic properties: the ball is made of yarn while the bat is made of wood.

4. Reason 3: Rampant Creation and Destruction

Van Inwagen (1990, 126) raises a third reason for thinking that the statue and the lump of clay are identical. Something is said to be a statue, he argues, in virtue of its shape. Yet it seems there is nothing metaphysically special about the shapes in virtue of which something is a statue, so we can with equal right consider another sort of object — call it a ‘gollyswoggle’ — which is

¹⁵ Heller claims that physical objects have their boundaries essentially. It therefore appears that he in fact is *not* identifying objects with the material content of a region, at least as we ordinarily individuate material content. And it therefore seems that Heller cannot capture the common sense dictum. It is *conceivable* that two people or two quarks, e.g., could pass through each other, such that they both occupy the same exact spatial region at the same time, though retaining their own identities throughout. This explains why we picture ghosts passing through walls and why we wonder if magicians can make a coin pass through a piece of wood. This suggests that common sense takes itself to be making a *contingent* claim in saying that two things cannot occupy the same place at the same time. Yet if we cash out the dictum using Heller’s hunks, the claim becomes tautologous: two hunks that occupy the same space at the same time ipso facto are partially identical.

a gollyswoggle in virtue of it having some different shape, e.g. the shape I accidentally created just now from the clay. “But if you can make a gollyswoggle by accident by kneading clay, then you must, as you idly work the clay in your fingers, be causing the generation and corruption of the members of a compact series of objects of infinitesimal duration. That is what seems to me to be incredible.”¹⁶

There are three problems with van Inwagen’s argument. First, it is hard to see why an appeal to intuition should favor *his* view, viz. that the only things that exist are simples and organisms, over the view that material objects coincide. Intuition says that lumps and statues do exist, and intuition says that Michelangelo did create something when he shaped the lump of clay so beautifully. And while it does seem that when one considers the jostling collection of atoms making up the statue, there is nothing *metaphysically* special about this collection of atoms over any other collection of jostling atoms, I also find it hard to see what would be so special, *metaphysically*, about the collection of jostling atoms making up an organism.

Second, it seems that van Inwagen’s objection can be answered by a fairly straightforward pragmatic story. Van Inwagen is right to say that as Michelangelo crafts the clay into a human form we think a single new thing has been created rather than a great multitude, and he is also correct that there is nothing special, metaphysically, about statue-shaped pieces of clay rather than gollyswoggle-shaped pieces. But this suggests that our intuition that only a single thing was created rests upon a distinction dealing with what things are relevant to the discussion. If we discovered that the shape of a gollyswoggle is the exact shape necessary to cause the angels to sing, and therefore many people wanted to make gollyswoggles, then we would begin to think of this shape as especially relevant and we *would* think that in shaping the clay in just that way we had created a new thing. In other words, the intuitions to which van Inwagen appeals indicate that judgments about what things exist or what new things have been created are guided by perceptions of relevance. Thus, in such questions it seems we *can* let any possible shape count as a new object, though which things we are willing to countenance in a particular context is simply a matter of pragmatics restricting our quantifiers.

¹⁶Sosa (1999, 133) takes a similar position.

A third problem with van Inwagen's argument is that it too rests upon an ambiguity of tense. When we consider the new gollyswoggle that has been created, we might be drawn by the intuition that, as van Inwagen suggests, we have not created some new object but have merely given the same old lump of clay a new *shape*. What exists after the reshaping is still just the lump of clay and not a new thing. And, of course, in some sense, this is entirely correct. But we have already seen the sense in which it is and the sense in which it is not correct. For if we consider how many different things there are in the *temporally relative* sense, then the gollyswoggle and the lump of clay are the very same thing — the gollyswoggle is not a single atom more or less than the lump of clay, so nothing new has been created. But if we consider what is there in the absolute sense, individuating things by their temporal and modal properties, then we have something that differs, temporally and modally, from the lump of clay. In short, van Inwagen's argument rides on the same ambiguity of sameness and identity that we have already explored.

5. Reasons 4, 5, & 6: Relations between properties

The fourth reason for thinking the statue and the lump of clay are identical is that this is the best explanation of why they have such similar properties. As Thomson (1998, 150) argues, they “plainly stand in some intimate relation to each other—they currently occupy the same place, they currently have the same shape, size, color, texture, smell, and so on and on. In what relation do they stand to each other if not identity?”

Zimmerman (1995, 87) considers his body and its constituting mass, each of which weighs 140 pounds. If these are different objects, he wonders, “how can it be so easy to lift both these 140-pound physical objects at once?” Lewis (1986, 252-3) says “It reeks of double counting to say that here we have a dishpan, and we also have a dishpan-shaped bit of plastic that is just where the dishpan is, weighs just what the dishpan weighs (why don't the two together weigh twice as much?), and so on. This multiplication of entities is absurd on its face; and it only obfuscates the matter if we say that the plastic and the dishpan are ‘relatively identical’ while implying that they are absolutely *not* identical.”¹⁷ That two coincident things don't weigh

¹⁷Lewis is actually offering this argument for the case in which the dishpan and the piece of plastic are *spatio-temporally* coincident. But notice how the same argument, drawing on the same intuitions, works equally well in

twice as much (or occupy twice as much space, or cost twice as much, etc.) is thus the fifth reason for thinking them identical.

Rea (2000,174), giving what he takes to be a common reason for denying coincidence, says that the statue and the lump of clay “cannot be distinct because they share all of the same parts and (we assume) for any x and y , if x and y share all of the same parts, $x = y$.”¹⁸ This is the sixth reason for thinking the statue and the lump of clay are identical.

Using such reasons, monists argue that there are strange connections between the properties of the statue and the properties of the lump of clay — whether it be having identical weights, having weights that don’t combine additively, or having all the same parts — which are best explained by the objects being identical. Of course, when we talk about the properties they ‘have’, this is meant as a tensed predication. The statue and the lump of clay weigh the same *at t*, the time under consideration. Similarly, their weights combine non-additively *at t*, and they share all the same ultimate parts *at t*. But after the clay is replaced by lead, then they *will not* weigh the same, their weights *will* combine additively, and they *will not* share any parts. In short, the argument gives us reason not to think that the statue and the lump of clay are absolutely identical but only that they are identical in all ways intrinsic to a particular moment. And this, of course, is exactly what we have recognized with our ambiguity. In other words, Thomson, Zimmerman, and Rea have merely given us reasons for thinking the statue and the lump of clay are ‘the same’, where this is understood as a temporally relative relation of sameness, but not for thinking that they are absolutely identical.

the case of spatial coincidence as well. In *both* cases our intuitions seem to require a denial of Leibniz’s Law, so why in the *temporal* case does Lewis (1986, 218) deny these intuitions and say “We will have to say something counter-intuitive,” and in the *modal* case say that whoever denies these intuitions is ‘obfuscating the matter’? Since these are parallel arguments, a parallel explanation is surely desirable.

¹⁸This is *not* an argument Rea himself endorses (Rea, in correspondence). Johnston (1992, § 2) takes a similar line. See also Robinson (1982, 323).

6. Reason 7: Supervenience and the Physical

Of the many reasons for thinking the statue and the lump of clay are identical, one has emerged as *the* challenge for pluralists. The same general sort of argument against coincidence has been supported by Heller (1990, 30-32), Zimmerman (1995), Burke (1992; 1980), van Inwagen (1990, 290n45), Sosa (1987, 78-82), Olson (2001), and Bennett (forthcoming) to name a few.¹⁹ There are both temporal and modal versions of the argument, but since we are concerned here with spatial coincidence rather than spatio-temporal coincidence, only the former will be considered. The general argument, here in Burke's (1992, 14-15) words, begins with an explanatory challenge:

In virtue of what does the object identified under 'statue' *satisfy* 'statue'? In virtue of what does the object identified under 'piece of copper' *satisfy* 'piece of copper'? Given the qualitative identity of these objects, what explains their alleged difference in sort?

Burke goes on to argue that pluralists *cannot* explain an object's sort by its history. I disagree. Before presenting my argument, though, I'd like to try to understand the thinking underlying Burke's challenge.

Burke (1992, 14) begins his challenge pointing out that Angel and Clayton "are qualitatively identical. Indeed, they consist of the very same atoms. What, then, could *make* them different in sort?" Burke means this as a tensed claim, saying that Angel and Clayton are *currently* qualitatively identical. But do a thing's *current* physical properties determine its sort?²⁰ One might find this position tempting by considering how we in fact do identify a thing's sort. For example, Burke (1992, 14n4) explains how the *monist* can meet the explanatory challenge he is laying down: "On theories that allow only one object to a place, differences in sort are readily explained. The difference in sort between a tree and a mouse is attributable to the difference in their qualities." The tree and the coinciding quantity of cellular matter presumably provide a contrast case, for they are indistinguishable, and therefore, runs the objection, what current properties could possibly explain why one is a tree and the other not?

Rea presents and then attacks a supervenience argument. See also Levey (1997).

²⁰By 'current properties' I mean non-modal properties intrinsic to the current moment.

Pluralists can protest that while the two are *currently* indistinguishable, they are not indistinguishable *simpliciter*. The monist, however, may press his point: “But it’s intuitively obvious that what makes this object a tree is just the way it *is*, not the way it *was*, *will be*, or *could have been*. Just by examining the bark, the leaves, the sap, etc. we know that this thing is a tree.” The monist’s claims here *are* intuitively correct, but that is because we are considering ‘an’ object as individuated at a time — in this case the present time — by its temporally intrinsic non-modal properties and thus we are distinguishing the tree from the mouse and the bison but we are abstracting away from differences between the tree and the collection of atoms which constitute the tree. Thus, the fact that we commonly do use only temporally intrinsic properties to draw certain distinctions is no reason to think that there are not further distinctions to be made between, e.g., the tree and the coincident collection of cellulose molecules.

Some monist accounts are rooted in the observation that when asked “What is it?” we say it is a tree, and we don’t say it is a collection of cellulose molecules. Thus, goes the thinking, we *are* distinguishing trees from collections of cellulose molecules and saying that the single object is a tree — or, perhaps, is essentially a tree. The difficulty with this story, however, is that our answer to the “What is it?” question can vary with context. Thus, a much more plausible story is that we answer such questions by providing the most informative answer given the context. In most circumstances the best answer is perhaps ‘a tree’, though for those shopping for a Christmas tree ‘a Monterey Pine’ is more appropriate and for the hungry Martian who can digest only cellulose molecules but is unconcerned with the differences between bales of hay, pieces of paper, and trees, ‘a collection of cellulose molecules’ is best. It therefore seems that the intuitively compelling thought that we need not appeal to historical properties to explain something’s sort comes from the natural way of individuating things by sameness. We say there is one thing here, and it is a tree, because we are individuating by temporally intrinsic properties and we’re supplying the most pragmatically useful answer as to its sort, i.e. what, given the context, we might call its ‘dominant kind’.²¹

²¹ I am gesturing at the ‘Dominant Kinds’ account offered by Burke and Rea, suggesting that the intuition underlying such an account relies upon our consideration of objects as individuated by sameness. See Burke (1994) and Rea (2000).

6.1 The Charge of Circularity

I suspect the argument we have examined plays a part in motivating many monist accounts and Burke's in particular.²² But in Burke's case it is unclear, for in the same footnote in which Burke (1992, 14n4) explains how monists can meet the explanatory challenge, he continues as follows:

In the extraordinary case in which the objects differing in sort are qualitatively identical (as in Peter Simons' case of genuine bills and counterfeit bills . . . or the case of a statue and a qualitatively identical object produced by a volcano), the difference in sort is explained by differences in the manner or circumstances of their origin or, perhaps, by other differences in their histories.

But, claims Burke, though the *monist* can explain an object's sort by its history, *pluralists can't*. The difficulty, according to Burke (1992, 15), is that the pluralist's account of an object's history, or cross-temporal identity, would have to appeal to the object's sort, thereby making the account circular.

. . . now what could account for a difference in the cross-time identities of [Angel and Clayton]? The two are composed of just the same atoms. And since they are coextensive, any object spatiotemporally continuous with one is spatiotemporally continuous with the other. If one but not the other is identical with a certain past or future object, the only apparent explanation for this is that one but not the other is like that object in *sort*. In short, historical differences between [Angel and Clayton] could be explained only by reference to the very difference they are themselves supposed to explain: the alleged difference in sort.

Note, though, that as the problem is stated, many monists will likewise have trouble giving a non-circular account. For example, consider a statue that was yesterday formed from clay and next week will be squashed. According to Burke's (1994) own account, the statue *is* a lump, i.e. *is identical to* a lump, but it is distinct from the original lump from which the statue

²² Why would Burke see the appeal to the object's history as necessary only in 'the extraordinary case' if the line of reasoning I have given is not at least *underlying* Burke's thinking? As an analogy, consider the following: We can explain why objects x and y differ by appealing to their differences in properties. Admittedly, only in the extraordinary case need we appeal to anything other than the differences in the exact times they exist, but it would be strange to mention this unless one thought that times of existence were somehow special in determining the difference between objects. Similarly, Burke's thought that we can explain an object's sort at t by its properties intrinsic to t *except in the extraordinary case* suggests that he thinks the properties intrinsic to t are somehow doing more important work in determining the object's sort.

was made. At the moment the original lump was given the intended shape yesterday, it ceased to exist and a spatio-temporally continuous lump, which is a statue as well as a lump of clay, came into existence. Thus, on Burke's account the situation I would describe as containing (at least) two objects instead consists of a single object, which is both a statue and a lump of clay, that is *not* cross-temporally identical to the single object, which is merely a lump of clay, that will exist after the squashing. But we can consider a second situation that is the same as the first in all respects from the present moment forward although yesterday instead of the clay being *intentionally* given a form it *accidentally* acquired that shape when it rolled off the workbench and banged into a series of tools. According to Burke's account this second situation currently consists of a single object, which is a lump of clay but not a statue, that *is* cross-temporally identical with the single object, which is only a lump of clay, that will remain after the squashing. How can Burke account for the difference in identity across time between what sits before us in the first situation and what sits before us in the second situation if not by appealing to their sorts? It seems his account fails his own challenge.²³ But rather than a tu quoque showing that something is wrong with Burke's argument, let's try to pinpoint what is wrong.

²³ Burke's challenge consists of a single situation which, according to the pluralist, contains two objects; thus Burke asks for an account of the difference in the identity across time of the two objects. My challenge in response consists of two situations, each of which, according to Burke's account, contains a single object; thus I ask for an account of the difference in the identity across time of these two objects. Because Burke's challenge involves two objects in a *single* situation, an explanation of their differences in identity across time can only appeal to differences in the objects themselves. My challenge, in contrast, involves *two* situations, leaving open the possibility that the differences in the objects' identity across time might instead be due to differences in the situations other than differences in the objects. However, the only differences between the two situations lie in the past. Thus, Burke might respond by saying that he can explain the difference in identity over time between the two objects by appealing to the different circumstances surrounding the shaping of the two objects. But the idea behind Burke's challenge seems to be that if this thing existing now is identical across time with that thing existing later, but something else existing now is not, then the explanation of the difference must come from facts about what obtains

Burke's argument centers upon the statue's so-called 'cross-time identity'. However, this is an ambiguous expression. By 'cross-time identity' Burke might mean simply identity, perhaps restricting our attention to cases where we pick out the relata by means of properties they have at different times. If identity is the relation intended by 'cross-time identity', then expressions describing the relata of this relation, such as 'the statue that will sit on the mantle next week', must be talking about the object — in this case the statue.

Thus, Burke might be talking about identity and about Angel, asking for an explanation of why Angel (i.e., the statue sitting here now) is identical to Angel (i.e., the statue that will sit on the mantle next week) whereas Clayton (i.e., the lump of clay sitting here now) is not. But if we're talking about why the identity relation holds between these relata, there is really nothing to explain. For we cannot explain the identity of Angel with itself other than to repeat that it is the same, i.e. identical, thing being considered as both relata.²⁴ The first relatum is sitting here now and will sit on the mantle next week; likewise for the second relatum since the first relatum *just is* the second relatum. Thus, if we're talking about the *referent* of 'the statue sitting here now' and the *referent* of 'the statue that will sit on the mantle next week' — rather than about the properties in virtue of which we pick out these referents — we're not really starting with any difference between the two that would invite an explanation of their identity.

This is one reason to think that Burke's request for an explanation of the 'cross-time identities' of Angel and Clayton isn't asking for an explanation of why Angel bears the identity relation with certain objects whereas Clayton doesn't. An even better reason is that identity doesn't fit what Burke says about 'cross-time identity'. For example, Burke claims that the pluralist's explanation of the cross-time identity of various objects would have to appeal to their sorts. It is natural to think that we must appeal to an object's sort to explain its history, but not to explain their identities. If Angel is identical to itself but not to Clayton or to Michelangelo's David, how could the sort of these objects explain this fact? Moreover, identity is not really a

now, then, or, perhaps, sometime in between. I therefore don't see how Burke can take advantage of the fact that my challenge involves two situations rather than one.

²⁴See Lewis (1986, 192-3). Sider (1999) also makes this point. Cf. Lowe (1989, esp. 12-13) and Jubien (1996).

cross-time or historical relation. The *object* spans times, but not the identity *relation* between an object and itself.

It therefore seems much more plausible that what Burke means by ‘cross-time identity’ is not a relation between an object and itself but a relation between things that exist at *different* times. There are various ways to cash this out to get at the desired relation. The simplest way is to use talk of temporal parts. Thus, when Burke talks of a statue *x* existing at *t* and a statue *y* existing at *t*’ being cross-time identical, this can be rephrased as talk of the temporal slice at *t* of statue *x* and the temporal slice at *t*’ of statue *y* being temporal slices of a single thing. Or, in other words, this can be understood as talk of two temporal slices bearing a genidentity relation *R* to each other.

For those like Burke who deny the existence of arbitrary temporal parts we can instead make use of property instantiations. Coincident objects will instantiate the same non-modal properties that are intrinsic to that time. If Angel weighed three stone at noon, so too did Clayton. If Clayton is now shiny, so too is Angel. Thus, the instantiation of a property intrinsic to a time will form an equivalence class with instantiations of the same property at the same time by coincident objects. Let’s say that when an object instantiates a set of properties intrinsic to a time it ‘exhibits’ the set of equivalence classes of property instantiations formed from that set. These equivalence classes allow us to abstract away from differences between coincident objects at a time. Thus, the question of whether the statue *x* at *t* and the statue *y* at *t*’ are cross-temporally identical can be rephrased as the question of whether the set of equivalence classes of property instantiations which statue *x* exhibits that are intrinsic to *t* and the set of property instantiations which statue *y* exhibits that are intrinsic to *t*’ are sets of equivalence classes of property instantiations exhibited by a single thing. Or, in other words, this can be understood as talk of two sets of property instantiations bearing a genidentity relation *R*’ to each other. We can ask the same question and give the same answer with or without talk of temporal parts, but because present concerns do not ride on the controversial commitments of temporal parts, I will continue to use temporal parts talk for convenience.

Perhaps, then, Burke’s challenge to “account for a difference in the cross-time identities of [Angel and Clayton]” is asking for an explanation of why certain temporal slices are genidentical to some but not to others. After all, this is what problems dealing with ‘persistence conditions’ or so-called ‘identity through time’ are all about. Moreover, in this case we *are* asking about the difference in histories of the objects and it does seem that we might need to

appeal to the objects' sorts to explain their different histories. Construing Burke's questions about 'cross-time identity' in this way, he would be asking for an explanation of why the current slice of the statue is genidentical to the temporal slice next week of the statue whereas the current slice of the lump of clay is not. But in this case we *don't* get the asymmetry that Burke suggests. The current temporal slice of the statue sitting on the mantle *is* a slice of the same object as the future temporal slice of the statue that will sit on the mantle in one week. But the current temporal slice of the *lump of clay* sitting on the mantle *is also* a slice of the same object as the future temporal slice of the statue that will sit on the mantle one week from now. Why? Because the current temporal slice of the statue *just is* the current temporal slice of the lump of clay.²⁵ There is only one current temporal slice at the time and location we are considering, so we can't ask, as Burke seems to try to ask, why *one* bears some relation with something in the future that the *other* doesn't bear. Something has gone wrong.

Burke's argument draws upon a natural intuition that an object's sort determines with which objects it is cross-temporally identical. If asked where 'this' will be next week, it seems that we can only answer the question once we determine whether 'this' is referring to the statue or the lump of clay. Thus, comes the conclusion, something's sort determines its identity over time. However, this line of reasoning confuses metaphysical with epistemic determinations. As an analogy, consider Sue's question of whether 'this', as she points to a spot on a plank of a ship, is identical across space with 'that', where she points to a spot on a different plank of the same ship, where context does not make clear to us whether 'this' and 'that' are intended to refer to the ship or to the planks of the ship. Does the referent's *sort* explain whether 'this' is identical with 'that'? In some sense, yes. *Epistemically*, we are unable to determine whether 'this' and 'that' are demonstratives referring to identical things unless we know the sort of the referents. But this

²⁵ According to traditional temporal parts theory, the current slice of the statue *is identical to* the current slice of the lump of clay. For those who believe in spatio-temporally coinciding objects, including slices, we can instead say that the current slice of the statue *is identical in all non-modal respects to* the current slice of the lump of clay. For simplicity, I will usually talk as if the slices are identical, but the argument does not ride on this. In either case, the current slice of the statue might bear a modal relation to some other slice that the current slice of the lump of clay does not bear, but they will bear all the same non-modal relations.

is simply because we are unable to fix upon the referents without first coming to know their sorts. *Metaphysically*, however, whether ‘this’ and ‘that’ are identical is determined solely by the two referents, without any need to appeal to their sorts. If ‘this’ refers to one plank and ‘that’ refers to another, then this and that are *not* identical; the reason they are not identical is not that they are planks but instead that they are different things. If ‘this’ and ‘that’ refer to the ship, then ipso facto this and that *are* identical; again, this is not because of the sort involved but only because that which was referred to the first time just is that which was referred to the second time.

Part of the intuitive appeal of Burke’s argument also comes from the suggestion that there is only a single relation of ‘identity through time’. Yet even Burke must allow that actually there are multiple genidentity relations since he thinks there are different sorts with different persistence conditions. If something is a lump of clay and not a statue and something else is a statue, the conditions for two slices being slices of the same statue must therefore be different than the conditions for two slices being slices of the same lump of clay. But this suggests that a single slice could be co-statue-slice related to one set of slices and be co-lump-slice related to a different set of slices. The problem comes when we confuse this multitude of different genidentity relations with identity, for there is only *one* identity relation, which tempts us to conclude that there is only one identity across time relation and, equivocating, therefore only one set of slices to which the current slice of the statue can be related by ‘cross-time identity’.

The conflation of the object with the temporal slice of the object is yet another symptom of the same conflation we saw earlier, that of sameness and absolute identity. Burke’s argument leans heavily on the fact that the statue and the lump of clay are composed of the same atoms, are coextensive with the same things, and so forth, but notice that these are *tensed* claims talking about what the statue and the lump of clay are like *now*. Because present tense and tenseless predications are homonymous, speaking of the way the statue *is*, or what properties it *has*, easily confuses what is *now* the case with what is *absolutely* the case. As a result, it is quite natural to slide into thinking of “the statue now sitting on the mantle” as characterized by all of the properties it has, i.e. *has now*, and thus to have in mind actually the slice rather than the statue. But, as mentioned, as long as we’re restricting our thinking to the current temporal slice of the statue, then we cannot draw any conclusions about the identity of the statue or, more specifically, about how the statue is *at other times*.

In summary, when Burke asks how the statue can be identical across time with something to which the lump of clay is not identical across time, his question rides on two ambiguities, on whether ‘the statue’ means the statue or the temporal slice of the statue at t , and on whether ‘identity across time’ means identity or a genidentity relation.

6.2 The Order of Explanation

My argument has largely been negative up to now, but I will now answer Burke’s question about the order of explanation, which should then make clear why, pace Burke, there is no circularity. The spatio-temporal distribution of physical properties, together with what it is to be a statue, explains whether, and if so exactly where and when, there are statues. There are two reasons why it is somewhat misleading to use the expression ‘the statue’s history’ for the distribution of physical properties. First, the property instantiations that determine when and where a statue exists extend outside the spatio-temporal region of the statue — e.g., for there to be a statue there must be a person with certain intentions prior to the creation of the statue. Second, we are not in fact interested in the properties *of the statue*, but rather the properties of the fundamental particles or space-time points of which the statue is composed. We might use the ungainly, though more accurate description, ‘the spatio-temporal distribution of properties underlying the existence of the statue’. But, as long as our meaning is clear, we can agree with Burke that a statue’s history determines that it falls under the sortal ‘statue’ and thus explains why it is a statue.

But what then, asks Burke, explains its history? Here we have another ambiguity. If we mean by ‘its history’ just what explained the statue’s sort, then Burke is asking what explains the fact that there is this particular spatio-temporal distribution of physical properties. The answer to that is easy, at least for our purposes: the initial conditions of the universe together with the laws of nature explain why there is this distribution of physical properties.

But Burke shifts the sense of ‘its history’ and instead appears to be asking why the statue traces this particular historical path through space and time. This, though, is a question we just answered. Given the distribution of physical properties through space and time, and given what it is to be a statue, i.e. the identity conditions for statues, this temporal slice will be co-statue-slice related with those temporal slices, the series of which traces this particular path through time. It may appear that I am appealing to the object’s sort, since I appeal to the conditions for being a statue in this explanation; but I appeal to the *general conditions* for what it is to be a statue and not to the fact that *this object* is a statue or that *that slice* is a slice of a statue. The

charge of circularity therefore rests upon two equivocations. If we mean by ‘the object’s history’ the spatio-temporal distribution of physical properties, and if we mean by ‘the object’s sort’ the fact that the object is a statue, then the statue’s history explains its sort. If instead we mean by ‘the object’s history’ the spatio-temporal path the object traces and mean by ‘the object’s sort’ the concept or identity conditions for being a statue, then the statue’s sort explains its history. But only if we equivocate on both expressions would we think that the explanation is circular.

7. Conclusion

The case for monism begins with the natural belief that only one object sits on the mantle, that the lump of clay *is* a statue. Once we distinguish the temporally and modally relative relation of sameness from the relation of absolute identity, we see that these beliefs offer no evidence for the *absolute identity* of the statue and the lump of clay. The claim that two things can’t occupy the same space at the same time; the intuition that a continuous change in an object’s shape doesn’t bring into existence an infinitude of new objects; the thought that it would be mysterious if two objects exactly shared location, weight, and all other such properties; and the idea that two different objects can’t share all the same parts — all such claims fail to undermine the pluralist’s thesis that two different objects *as individuated by absolute identity* can occupy the same space at the same time. Burke offers a temporal supervenience argument, claiming that the pluralist cannot account for the sort of an object without giving a circular account. But his argument founders upon the conflation of different notions of ‘cross-time identity’ and ‘the statue’. Is coincidence, then, so strange after all?

Acknowledgements

I wish to thank Karen Bennett, Michael Burke, David Christensen, Troy Cross, Kit Fine, John Hawthorne, Mark Heller, Hilary Kornblith, Brian McLaughlin, Tim Maudlin, Derk Pereboom, Michael Rea, Ted Sider, Ernie Sosa, and an anonymous referee for their many useful comments on earlier drafts, drafts that have evolved considerably due to their criticisms and suggestions.

Cited Works

- Armstrong, David: 1989, *A Combinatorial Theory of Possibility*, Cambridge University Press, Cambridge.
- Armstrong, David: 1997, *A World of States of Affairs*, Cambridge University Press, Cambridge.
- Baker, Lynne Rudder: 1997, "Why Constitution is not Identity," *The Journal of Philosophy* 94, 599-621.
- Bennett, Karen, forthcoming, "Spatio-Temporal Coincidence and the Grounding Problem," *Philosophical Studies*.
- Burke, Michael B.: 1980, "Cohabitation, Stuff and Intermittent Existence," *Mind* 89, 391-405.
- Burke, Michael B.: 1992, "Copper Statues and Pieces of Copper: A Challenge to the Standard Account," *Analysis* 52, 12-17.
- Burke, Michael B.: 1994, "Preserving the Principle of One Object to a Place: A Novel Account of the Relations Among Objects, Sorts, Sortals, and Persistence Conditions," *Philosophy and Phenomenological Research* 54, 591-624. Reprinted in Rea (1997a).
- Chisholm, Roderick M.: 1976, *Person and Object: A Metaphysical Study*, Open Court Publishing Co., La Salle, Ill.
- Doepke, Frederick: 1982, "Spatially Coinciding Objects," *Ratio* 24, 45-60. Reprinted in Rea (1997a).
- Gallois, André: 1990, "Occasional Identity," *Philosophical Studies* 58, 203-224.
- Gallois, André: 1998, *Occasions of Identity*, Oxford University Press, Oxford.
- Gibbard, Allan: 1975, "Contingent Identity," *Journal of Philosophical Logic* 4, 187-221. Reprinted in Rea (1997a).
- Heller, Mark: 1990, *The Ontology of Physical Objects: Four-Dimensional Hunks of Matter*, Cambridge University Press, Cambridge.
- Heller, Mark: 2000, "Temporal Overlap is Not Coincidence," *The Monist* 83, 362-380.
- Heller, Mark: 1992, "Things Change," *Philosophy and Phenomenological Research* 52, 695-704.
- Johnston, Mark, 1992, "Constitution is not Identity," *Mind* 101, 89-105. Reprinted in Rea (1997a).
- Jubien, Michael, 1996, "The Myth of Identity Conditions," in *Philosophical Perspectives* 10, *Metaphysics*, 343-356.
- Levey, Samuel: 1997, "Coincidence and Principles of Composition," *Analysis* 57, 1-10.
- Lewis, David: 1993, "Many, but Almost One," in *Ontology, Causality, and Mind*, eds. Keith Campbell, John Bacon, and Lloyd Reinhardt, Cambridge University Press, Cambridge. Reprinted in Lewis (1993).
- Lewis, David: 1986, *On the Plurality of Worlds*, Basil Blackwell, Oxford.
- Lewis, David: 1993, *Papers in Metaphysics and Epistemology*, Cambridge University Press, Cambridge.
- Lewis, David: 1983, *Philosophical Papers, vol. 1*, Oxford University Press, New York.
- Lewis, David: 1988, "Rearrangement of Particles: Reply to Lowe," *Analysis* 48.2, 65-72.

- Lewis, David: 1976, "Survival and Identity," in *The Identities of Persons*, ed. Amelie O. Rorty (University of California Press). Reprinted in Lewis (1983).
- Lowe, E. J.: 1989, "What is a Criterion of Identity?" *Philosophical Quarterly* 39, 1-21.
- Myro, George: 1986, "Identity and Time," in *The Philosophical Grounds of Rationality*, eds. Richard E. Grandy and Richard Warner, Clarendon Press, New York. Reprinted in Rea (1997a).
- Olson, Eric T.: 2001, "Material Coincidence and the Indiscernibility Problem," *The Philosophical Quarterly* 51, 337-355.
- Perry, John: 1970, "The Same F," *The Philosophical Review* 79, 181-200.
- Quine, W.V.: 1969, "Ontological Relativity," in *Ontological Relativity and Other Essays*, Columbia University Press, New York.
- Rea, Michael C.: 2000, "Constitution and Kind Membership," *Philosophical Studies* 97, 169-193.
- Rea, Michael C., ed.: 1997a, *Material Constitution: A Reader*, Rowman & Littlefield, New York.
- Rea, Michael C.: 1998, "Sameness without Identity: An Aristotelian Solution to the Problem of Material Constitution," *Ratio* XI, 316-328.
- Rea, Michael C.: 1997b, "Supervenience and Co-Location," *American Philosophical Quarterly* 34, 367-375.
- Robinson, Denis: 1985, "Can Amoebae Divide Without Multiplying?", *Australasian Journal of Philosophy* 63, 299-319.
- Robinson, Denis: 1982, "Re-Identifying Matter," *The Philosophical Review* 91, 317-341.
- Sider, Theodore: 1996, "All the World's a Stage," *Australasian Journal of Philosophy* 74, 433-453.
- Sider, Theodore: 1999, "Global Supervenience and Identity across Times and Worlds," *Philosophy and Phenomenological Research* 59, 913-937.
- Sider, Theodore: 2000, "Recent Work on Identity Over Time," *Philosophical Books* 41, 81-89.
- Simons, Peter M.: 1987, *Parts: A Study in Ontology*, Clarendon Press, Oxford.
- Sosa, Ernest: 1999, "Existential Relativity," *Midwest Studies in Philosophy* XXIII, 132-143.
- Sosa, Ernest: 1987, "Subjects, Among Other Things," *Philosophical Perspectives*, 1, *Metaphysics*, ed. James E. Tomberlin, Ridgeview, Atascadero, CA. Reprinted in Rea (1997a).
- Thomson, Judith Jarvis: 1983, "Parthood and Identity Across Time," *Journal of Philosophy* 80, 201-220.
- Thomson, Judith Jarvis: 1998, "The Statue and the Clay," *Noûs* 32, 149-173.
- van Inwagen, Peter: 1981, "The Doctrine of Arbitrary Undetached Parts," *Pacific Philosophical Quarterly* 62, 123-137.
- van Inwagen, Peter: 1990, *Material Beings*, Cornell University Press, Ithaca.

- White, Nicholas: 1986, "Identity, Modal Individuation, and Matter in Aristotle," *Midwest Studies in Philosophy XI*, 475-494.
- Wiggins, David: 1968, "On Being in the Same Place at the Same Time," *Philosophical Review* 77, 90-95.
- Wiggins, David: 1980, *Sameness and Substance*, Harvard University Press, Cambridge, Massachusetts.
- Zimmerman, Dean W.: 1997, "Coincident Objects: Could a 'Stuff Ontology' Help?," *Analysis* 57.1, 19-27.
- Zimmerman, Dean W.: 1995, "Theories of Masses and Problems of Constitution," *Philosophical Review* 104, 53-110.