

The Matter of Coincidence

Justin Mooney
University of Alberta
Jmooney90@gmail.com

[A version of this article is forthcoming in *Pacific Philosophical Quarterly*]

1. Phasalism

We all know the puzzle of the statue and the piece of clay. Here is one version of it. Yesterday an undistinguished piece of clay sat on a desk in a certain artist's studio. Today, the artist molds that piece of clay into a statue. But by tomorrow she will have squashed the statue and there will once again be only a modest piece of clay on her desk. Here's the million-dollar question: is the statue numerically identical to the piece of clay? On the one hand, there are good reasons to think the answer is yes. For example, the statue and the piece of clay occupy exactly the same place at exactly the same time, but we don't normally think that two different objects can be in the same place at once. On the other hand, there are also good reasons to think the answer is no. For example, it seems as though the statue did not exist yesterday before it was molded, and will no longer exist tomorrow after it has been squashed. Whereas the piece of clay did exist yesterday, and will still exist tomorrow. So the statue and the piece of clay appear to differ in their historical properties, but no object can differ from itself.

One solution to this puzzle claims that ‘statue’ is a phase sortal¹ that is temporarily satisfied by the piece of clay, much like ‘child’ is a phase sortal that is temporarily satisfied by a human being.² On this view, when the piece of clay is molded into a statuesque shape, it becomes a statue. Instead of some new object coming into existence, the piece of clay itself begins to instantiate the property of *being a statue*. So the statue is identical to the piece of clay, and it has the historical and modal properties of the piece of clay. What we initially took to be the conditions under which it begins and ceases to exist are in fact merely the conditions under which it begins and ceases to instantiate the phase sortal property of *being a statue*. Korman (2015: 203) calls this view ‘phasalism.’

Phasalism is a simple and fairly commonsensical solution to the puzzle of the statue and the piece of clay. It relies on the notion of a phase sortal change, familiar from cases like children growing into adults, and it does not require the exotic metaphysical notions that some have deployed to solve the problem. But it does face certain challenges. Some critics of phasalism claim that the statue can gain and lose parts that the piece of clay cannot, and that the phasalist approach to the coincidence puzzle is powerless to account for this.³ If *being a statue* is a phase sortal property of the piece of clay, it should not be possible for the statue to lose a part that the piece of clay does not lose, any more than it is possible for a child to lose a part that the human who is that child does not lose. Let’s call this the mereological objection to phasalism.

Some phasalists have replied to this objection with the provocative suggestion that the piece of clay is not mereologically constant after all, but I am not aware of any phasalist who has defended this response in much

¹ The term ‘phase sortal’ was coined by Wiggins (1967:7).

² The phasalist solution to the statue puzzle is endorsed by Ayers (1974: 128-129), Jubien (2001: 6-7), Schwartz (2009: 613-615), and Mooney (2021; 2022), and it is suggested in passing by Markosian (2010: 144). See also Price (1977) and Tichý (2004 [1987]: 718-720).

³ E.g., Thomson (1998: 152ff), Korman (2015: 205), and Olson (1996, §4; 2007: 55). Cf. Sidelle (1998: 427).

detail.⁴ I will offer such a defense here. In section 2, I present the objection. In Section 3 I present the bare bones of my preferred response, which involves distinguishing the *piece* of clay that the statue is made of from the *clay* that the statue is made of, and arguing that the piece of clay is not mereologically constant after all. Then I consider three important objections. In Section 4 I address the objection that the piece of clay, even if not mereologically constant, is not as mereologically flexible as I make it out to be. In Section 5, I address the objection that my approach cannot handle cases where the statue seems to change from being made of clay to being made of some other material. And in Section 6, I address the worry that my response to the mereological objection merely relocates the threat of coincidence by generating an objectionable case of coincidence between the piece of clay, on the one hand, and the clay itself, on the other hand.

2. The Mereological Objection to Phasalism

Phasalism entails that the statue is identical to the piece of clay, but the mereological objection purports to establish that this is not so. In outline, it goes as follows: The statue can survive large mereological changes. The piece of clay cannot survive large mereological changes. So, the statue is not the piece of clay. This conclusion follows by the Indiscernibility of Identicals, i.e., the principle that objects which are classically identical have all of their properties in common. As for the premises themselves, here are three cases where it might seem that the statue undergoes mereological changes that the piece of clay does not.

Case 1: part loss. The first is a simple case of part loss from Thomson (1998: 152ff). Suppose that our artist's clay statue is a statue of a human figure, and suppose that the artist breaks off one of the statue's arms and drops it on the floor. In that case, the arm ceases to be part of the statue, so the statue is still wholly on the desk, rather than partly on the desk and partly on the floor. But for Thomson, the piece of clay is identical to the clay

⁴ Ayers (1974: 125-127) and Mooney (2021:7-8) each address it briefly.

that the statue was made from,⁵ and that clay *does* seem to be partly on the desk and partly on the floor. It has not lost a part; it has just taken on a more scattered arrangement. Since the statue has lost a part and the piece of clay has not, it follows by the Indiscernibility of Identicals that the statue is not the piece of clay.

Case 2: part gain. The second case involves gaining, rather than losing, a part.⁶ Suppose the artist takes a piece of clay and molds it into a statue of a human figure that is missing one arm. Then she takes an additional and much smaller piece of clay, molds it into an arm, and attaches it to the statue. In this case, the statue seems to gain a part: namely, an arm. But it might also seem that the original piece of clay has not gained any parts. It has simply been brought into contact with another piece of clay (and in that case, presumably, there is also a third piece of clay that these two compose). It follows by the Indiscernibility of Identicals that the statue is distinct from the piece of clay.

Case 3: part replacement. Third, here is a more extreme case.⁷ Suppose we remove one very tiny bit of the statue's clay, and replace it with a new bit of clay. And then suppose we slowly continue to replace tiny bits of the statue's clay, maybe one small bit per year, until the statue is no longer made of any of its original clay. In this case, it seems to me that the statue has undergone complete turnover of its parts (at least at some levels of decomposition). But it might seem that, by the end of this procedure, the original piece of clay has been replaced by a new one. Since the statue has undergone complete turnover of its parts, and the piece of clay has not, it

⁵ More precisely, she says that a portion of clay is some clay (ibid.: 149), and properties like *being a piece of clay* and *being a lump of clay* are temporary properties of portions of clay (ibid.: 151). Later she identifies portions of clay with mereological sums of smaller portions of clay (ibid.: 158ff), but distinguishes them from mereological sums of atoms, which constitute them (ibid.: 161ff).

⁶ Thanks to Sam Schechter for this case.

⁷ This case is pressed as an objection to phasalism by, e.g., Korman (2015: 205). It also recalls the puzzle about the Ship of Theseus.

follows by the Indiscernibility of Identicals that the statue is not the piece of clay.

Many other cases of this sort could be constructed, but these three will be enough to keep us occupied for the time being. Can phasalists handle these three cases? The usual phasalist strategy does not seem to work here. If *being a statue* is a phase sortal property of the piece of clay, then the piece of clay can exist before it has been molded into a statue, and it can go on existing after it has ceased to be a statue. But it should not be possible for the statue to lose or gain parts that the piece of clay does not lose or gain. That would be like a child losing or gaining parts even though the human who is that child does not lose or gain parts. Nor will it help to say that, like *being a statue*, *being a piece of clay* is a phase sortal property. Even though I think this is true and I will return to the point below, it doesn't help the phasalist, because the problem in these three cases is not that there ceases to be some piece of clay located where the statue is located; the problem is that a certain *particular* piece of clay ceases to be located where the statue is located.

Fortunately, there is another way to respond to the mereological objection. I think that phasalists can and should reject the claim that the piece of clay does not gain and lose parts when the statue does in cases like the three I have just described. In the next section I will explain why.

3. Lumps and Their Ways

The point is sometimes made that, in ordinary language, a lump, hunk, piece, etc. of matter is a cohesive and spatially continuous object, while a mere portion or quantity of matter may fall anywhere on the spectrum from cohesive and spatially continuous to widely scattered. I will use the terms "lump", "hunk", "piece" etc. in this ordinary-language sense. I will also assume that a lump, hunk, piece, etc. is an *object* and not some stuff or a plurality or set of objects, but I will return to these alternatives in Section 6.

How exactly are lumps, hunks, pieces, etc. of matter related to the matter they are made of? Initially, there are two paths we can take. We

could take the path paved by Thomson (1998: 151), who says that lumps, hunks, pieces, etc. are identical to portions of matter. Specifically, she claims that *being a lump* is a temporary property which some matter instantiates when it is arranged lump-wise. (Given my assumption that lumps, hunks, pieces, etc. are objects, it would follow that portions of matter are objects too, rather than stuff or pluralities. I believe this is the correct interpretation of Thomson.) Or we could take the path paved by Chappell (1973) and Ayers (1974: 125-127), who claim that lumps, hunks, pieces, etc., are distinct from the matter that they are made of, with Ayers explicitly adding that they can gain and lose matter as they persist. I believe that the latter is the right path to take.

Suppose an artist mashes scattered bits of clay together on her desk into a single, cohesive, but unremarkable lump-shaped piece of clay. For a while, she considers molding this piece of clay into a statue, but never does. Instead, she leaves the piece of clay on her desk overnight. At some point during the night, she breaks off a tiny bit of the piece of clay's clay and drops it on the floor. The next day, a colleague stops by and asks her whether the piece of clay on her desk is the same piece of clay that was on her desk the day before. What should she say? My intuition is: yes, it's the same piece of clay. Of course, intuitions can be challenged, but notice that this particular intuition is very similar to the intuition that the statue survives gaining and losing parts in the cases described in Section 2. So at least *prima facie*, if we take our intuitions about mereological change seriously in the three cases described there, then we should take our mereological intuitions seriously in this case too.

If my intuition about this case is correct, then the piece of clay remains wholly on the artist's desk. It is not partly on the desk and partly on the floor, because, if there is any clay object that is partly on the desk and partly on the floor, that object is not a piece of clay in the ordinary sense of the term. It is rather a scattered object of some sort, composed of what we the folk would ordinarily describe as two separate pieces of clay. And that is not the sort of object the artist's colleague would be asking about when they ask whether the *piece of clay* on the desk is the same *piece of clay* that was

there the day before. At the same time, it seems that only some of the *clay* from which the piece of clay was originally made remains on the artist's desk; some of it is now on the floor.

But maybe the intuition that the piece of clay is the same piece of clay before and after losing a tiny bit of its original clay is an intuition about sameness in a loose and intransitive sense. A number of authors have observed that, in ordinary life, we often use less-than exacting standards to evaluate claims about whether some matter is "the same" matter as before (e.g., Burge 1977: 108-109; and Thomson 1998: 163). For example, suppose I put a glass of water on my nightstand when I go to bed, and don't drink any of it overnight. In the morning, I would be inclined to say that the water in the glass is the same water that was there the night before even if I know that a tiny amount of it has evaporated.⁸ Maybe the same thing is going on in the case of the piece of clay. Since only a tiny amount of clay is lost overnight, the next day it will be appropriate in some loose sense to say that the piece of clay on the artist's desk is the same piece of clay that was there the day before. But strictly speaking, it isn't.

I am not persuaded by this objection. Suppose our artist decides to name the piece of clay "Lumpy." Overnight, a tiny bit of Lumpy's clay is replaced, and the next day one of the artist's colleagues comes by and asks whether the piece of clay on her desk is Lumpy. My intuition: the correct answer to this question is yes. The piece of clay on the desk is Lumpy. Could "The piece of clay on the desk is Lumpy" be merely a loose way of saying something like "The piece of clay on the desk is made of mostly the same material that Lumpy was made of"? I am skeptical. The former sounds to my ear like it expresses something which (in the circumstances) entails that Lumpy has persisted through the replacement of some of its original clay, while the latter does not seem to be saying that at all. And even if this alternative interpretation cannot be ruled out, neither can the face-value interpretation that I endorse. Since I am merely aiming to rebut an objection to phasalism, that is all I need.

⁸ Cf. Butler (1736) on identity 'in the loose and popular sense.'

Moreover, suppose I'm wrong: the piece of clay does not persist through the loss of some of its clay. In that case, the intuition which tempts me to say otherwise is either mistaken, or I have misinterpreted it. Perhaps I took the content of that intuition to be: *the piece of clay on the desk is Lumpy*, when its content is actually something like: *The piece of clay on the desk is made of mostly the same material that Lumpy was made of*. Whatever we say about this intuition, the phasalist can say the same about the statue: our intuition that the statue persists through the loss of its original clay is either misleading, or it has been misinterpreted. For example, maybe the true content of that intuition is: *the statue on the desk today is made of mostly the same material that yesterday's statue was made of*. I don't believe this, but the point is that the critic of phasalism is in no position to reject this move if they say the same thing about the piece of clay.

If I am right that the same piece of clay remains on the desk even after part of it has been removed, two important points follow. First, it follows that the piece of clay is distinct from the clay itself.⁹ Like the statue, the piece of clay is an object that is *made of* the clay itself. The clay itself is some matter, the nature of which I will discuss in Section 5. Second, since the piece of clay seems to have lost a part without ceasing to exist, it follows that pieces of clay are not mereologically constant. They can gain and lose at least some of their parts, and they seem to do so when a part begins or ceases to cohere to the piece of clay, respectively. So my argument seems to vindicate the Chappell/Ayers view of lumps, hunks, pieces, etc., over Thomson's view. At the very least, it shows that their view is plausible.

⁹ A referee drew my attention to another reason to think that the piece of clay is not the clay. Gibbard's (1975) statue puzzle is both designed to be, and is normally accepted as, a case in which the piece of clay and the statue begin and cease to exist simultaneously. But since the statue is made by putting two separate pieces of clay together, the clay it is made of predates the time when the statue and the piece of clay are supposed to be simultaneously created. So on the usual interpretation of the case, the clay is distinct from the piece of clay (a point Gibbard endorses). However, this case does nothing to support the further thesis that pieces of clay are mereologically inconstant.

These two conclusions about lumps, hunks, pieces, etc. - that they are distinct from the matter they are made of, and that they are not mereologically constant after all, but can gain and lose parts - offer the phasalists a way forward. Now the phasalists have space to resist the mereological objection to phasalism in a way briefly pursued by Ayers (1974: 125-127), who suggests that lumps of matter gain and lose parts just as the artifacts, organisms, and so forth that they are coincident with do. Let's see how this works in the three cases from Section 2.

In Case 1, the artist breaks an arm off of the clay statue and drops it on the floor. The statue seems to thereby lose a part, while the clay from which the statue was originally made merely seems to become scattered. Some of it is on the desk; some of it is on the floor. I accept all of this but deny that the *piece* of clay from which the statue was made is the *clay* from which the statue was made. Instead of becoming scattered like the clay, the piece of clay loses a part just like the statue does.¹⁰

In Case 2, a piece of clay is formed into a statue of a human figure minus one arm, and then a smaller piece of clay is molded into the shape of an arm and added to the statue. The statue seems to gain a new part, but what about the piece of clay? The *clay* from which the statue was originally made does not gain a new part; it is simply brought into contact with some additional clay. But, having distinguished the clay from the *piece* of clay, I suggest that the piece of clay, like the statue, gains a new part when the arm is added. Just as statues can grow by accumulating new parts, so can pieces of clay.

Finally, in Case 3, the statue undergoes complete, gradual turnover of its original parts, as bits of its original clay are gradually replaced, whereas it is claimed that the piece of clay does not undergo complete part replacement. But, having distinguished the clay from the piece of clay, I say

¹⁰ Cf. Markosian's (2015) ninth argument for stuff, where he makes the point that the mereological constancy of matter can explain our intuitions that objects made of that matter are mereologically constant.

that it is only the clay which does not undergo complete turnover of its parts, whereas the piece of clay does.

So once we distinguish the piece of clay from the clay itself, and allow that the piece of clay is not mereologically constant, it begins to look like the phasalist can make sense of the three cases of mereological change from Section 2. But there remain important objections that deserve a hearing. I will consider three: first, even if the piece of clay is not mereologically constant, it is not as mereologically flexible as my account of Cases 1-3 requires (Section 4); second, the phasalist account cannot handle cases where the statue's clay is replaced with a different kind of material (Section 5); and third, by distinguishing the piece of clay from the clay itself, the phasalist has merely pushed the bump around under the rug, because now the phasalist faces a coincidence puzzle concerning the piece of clay and the clay it is made of (Section 6).

4. Too Much Change?

My remarks so far only address one version of the mereological objection to phasalism: the version which rests on the intuition (or at any rate, the claim) that the piece of clay is mereologically constant. This seems to be the classic version of the objection, but it isn't the only one. There is a wide spectrum of possible views one could take on what sort of mereological changes a lump, hunk, or piece of clay can undergo, ranging from mereological essentialism on the one hand to what Chisholm (1973: 584) calls "complete, unbridled mereological inessentialism" on the other hand. Even if we accept the view that pieces of clay, like statues, are objects that gain and lose parts when those parts begin and cease to cohere to them, it doesn't follow that they can undergo the large mereological changes that the statue undergoes in the three cases described above. It is one thing for a piece of clay to be able to survive the loss of one tiny part; it is quite another thing for a piece of clay to be able to survive the sudden loss or gain of a relatively large part, as in Cases 1 and 2, or the complete turnover of all of its parts, as in Case 3. These changes might seem to stretch a piece of

clay's mereological inconstancy beyond the breaking point. One might have the intuition that the piece of clay which remains after these dramatic mereological changes is not the same piece of clay that preceded the changes.

If this objection is right, then the reflections in Section 3 do less work than they otherwise would have. They still suggest that the piece of clay is distinct from the clay itself, which is an important step toward defending the position that the piece of clay remains coincident with the statue through the various mereological changes we have been considering, since the clay itself manifestly does not. And they cast doubt on the dogma of mereological constancy. But all of this is only necessary, and not sufficient, for the piece of clay to survive the mereological changes in Cases 1-3.

The phasalist could respond to this version of the objection by biting the bullet. Even if it is counterintuitive to suppose that the piece of clay survives the mereological changes in Cases 1-3, it is at least somewhat easier to swallow once we have rejected the position that the piece of clay is mereologically constant in favor of the view that it can survive gaining and losing parts. Alternatively, the phasalist could supplement the remarks in Section 3 with a story about how a piece of clay can survive mereological changes that seem too dramatic for it to survive, even if it is not mereologically constant. There are promising ways to tell such a story. Some phasalists, including me, endorse accounts of identity under a sortal which can be put to work in cases like this one (Markosian 2010: esp. 144; Mooney 2021). But here I wish to offer a novel suggestion..

My suggestion is that, even if a piece of clay cannot undergo the dramatic mereological changes I have described while it is merely a lump, maybe it *can* undergo these changes while it is *also* a statue. This might be the case if the kinds of mereological change an object can survive depends on which sortal properties it instantiates. In particular, when a piece of clay begins to instantiate the property of *being a statue*, it becomes capable of persisting through whatever mereological changes are tolerated by statues, and it retains this ability for as long as it continues to instantiate the property of *being a statue*.

This proposal is similar to Burke's (1994) view that, when an object instantiates multiple sortal properties simultaneously, one sortal "dominates" the other so that the object has the persistence conditions associated with the dominant sortal. *Being a statue* dominates *being a piece of clay*, so a piece of clay which is also a statue has the persistence conditions of a statue. But according to Burke's view, *being a statue* is a substance sortal property, so an object which has the persistence conditions of a statue cannot persist through becoming or ceasing to be a statue. Whereas on the view I am suggesting, *being a statue* is a phase sortal property, so an object which has the persistence conditions of a statue can persist through becoming and ceasing to be a statue. We might call it a semi-dominant sortal property. A semi-dominant sortal property dictates which changes its bearer can survive *while it retains that property*, but it does not require that the object retains the property.

More generally, the phasalist could adopt the following view about the persistence conditions of material objects. Just as *being a statue* is a phase sortal property of a piece of clay, all artifact-sortals and organism-sortals are phase sortal properties of cohesive hunks of matter.¹¹ These hunks of matter may vary over time in respect of which mereological changes they are disposed to survive, depending on which sortal properties they instantiate at each time. At times when they are merely nondescript hunks, they are disposed to persist according to a material continuity condition, which requires that an object does not lose too much matter all at once; and they are disposed to persist according to a material connectedness condition, which requires that an object does not lose too much of its original matter over time. These conditions might be fairly demanding, permitting a material object to lose only a few relatively small parts. But the object only obeys them at times when it is a mere hunk.

At times when a material object instantiates an organism-sortal or an artifact-sortal, that sortal property is a semi-dominant sortal that brings

¹¹ This view is, or is at least very similar to, what Sidelle (1998: 426) calls 'materialist reductionism.'

with its dispositions to survive other mereological changes. When an object instantiates an organism-sortal, it is disposed to survive any mereological changes that we normally take organisms of the relevant sort to survive - perhaps all and only those changes which do not disrupt biological continuity. When an object instantiates an artifact-sortal, it is disposed to survive any mereological changes that we normally take artifacts of the relevant sort to survive - perhaps all and only those changes which do not significantly alter the artifact's core function. In the case of statues, we might say that the object survives any mereological changes that leave a sufficient amount of the statue's artist-imposed form intact.¹²

I do not think that this phasalist account of the persistence conditions of material objects is the only defensible phasalist account. I offer it as one possible direction in which a phasalist metaphysics might be developed, and one way the phasalist can rebut the objection that pieces of clay and their ilk are not as mereologically flexible as I have claimed. Perhaps they are only that flexible when they are not merely pieces of clay, but also, e.g., statues.

One might protest that the intuition that a piece of clay can't survive dramatic mereological changes is not limited to mere pieces of clay. Even a piece of clay that has been molded into a statue does not seem, on reflection, to tolerate the mereological changes in Cases 1-3. However, this isn't all that surprising from the phasalist's point of view. According to the phasalist, when a person considers a piece of clay that has been molded into a statue, they are considering an object that is both a piece of clay and a statue. It is possible to consider it as a piece of clay, in abstraction from the fact that it is also a statue, and it is likewise possible to consider it as a statue, in abstraction from the fact that it is also a piece of clay. This, the phasalist might say, is precisely what the present objection encourages us to do by

¹² LaPorte (2009) sketches a view about human bodies that is similar to the general view of objects I am outlining here. Something like this general view of objects also once came up in conversation with a colleague, but I do not remember who (perhaps Dan Dake), nor whether I had the idea independently or not.

asking us to consider separately whether the statue persists through a certain change, and whether the piece of clay persists through that change. And it is not surprising that, when we consider the piece of clay as a piece of clay, in abstraction from the fact that it is also a statue, this triggers our intuitions about what changes mere pieces of clay would survive, rather than our intuitions about what changes pieces of clay that are also statues would survive.¹³

5. From Clay to Wax

I have focused so far on cases where only one sort of material is involved: clay. But consider the following familiar variant of Case 3. Suppose that, instead of replacing each bit of clay with another bit of clay, the artist replaces each bit of clay with something else, like a bit of wax. Then, by the end of the procedure, the statue is made of wax instead of clay, and so it has undergone complete turnover of its clay parts. Surely the original piece of clay is no longer located where the statue is, since there is no piece of clay on the desk at all, much less the particular piece of clay that the statue was originally made of. No matter how mereologically flexible the phasalist is willing to say that the piece of clay is, there just is no piece of clay left to speak of by the end of this procedure, so the phasalist is forced to admit that the piece of clay has either been destroyed or relocated. If we add that the statue has not been either destroyed or relocated, but has instead gradually come to be made of wax rather than clay, we can infer by the Indiscernibility of Identicals that the statue is not the piece of clay.¹⁴

I do not think the phasalist should concede that the piece of clay has either been destroyed or relocated on the grounds that there is no piece of clay by the end of the procedure. For there is an alternative account of what has happened to the piece of clay, and it is the alternative most natural on phasalism: *being a piece of clay* and *being a piece of wax* are phase sortal

¹³ Cf. the related linguistic points in Frances (2006) and Almotahari (2014, 2017).

¹⁴ An early version of this kind of case appears in Wiggins (1967: 8).

properties, and what starts out as a piece of clay gradually becomes a piece of wax. During the transition, it is a heterogeneous lump consisting partly of clay and partly of wax. So the phasalists should say that *being a heterogeneous lump of clay and wax* is a phase sortal property as well.

I've found that this suggestion sometimes causes puzzlement: what is this object that can cease to be a piece of clay? The presupposition generating this puzzlement seems to be that an object must have some core sortal property that it retains through any sortal changes it might undergo, so that we can say what sort of thing it is that persists through all of these changes. If not only *being a statue* but also *being a piece of clay* are disqualified, then what else could it be?¹⁵

One way to respond to this worry is to suggest that the sortal property in question is simply *being a physical object*. Though highly general categories like this are not usually regarded as sortals, Xu (1997) has argued on the basis of both empirical and philosophical considerations that the concept of a physical object, when suitably defined, is indeed a sortal concept, and one that is deployed by both infants and adults. And I take it that, if the concept of a physical object is a sortal concept, then the property of *being a physical object* is a sortal property. So for those who insist on a sortal property that is retained throughout any changes an object might undergo, maybe *being a physical object* will do.¹⁶

But, having said that, I also don't see why there has to be some sortal property that an object retains throughout any sortal change it can survive. I suppose that, for any object, O, it must be the case that, for any time at which O exists, O instantiates some sortal property or other. It's always got to be an object of some sort. But it doesn't follow that, for any object, O, there is some sortal property, P, such that O must instantiate P at any time O exists. Objects are always objects of some sort, but *which* sort of object

¹⁵ Wiggins (1967) famously defended the view that each object has a sortal that it retains throughout its career.

¹⁶ For discussion of Xu's arguments, see Ayers (1997), Hirsch (1997), and Wiggins (1997).

they are may vary across the course of their careers.¹⁷ Versions of this view have been defended by some phasalists.¹⁸

Here is an interesting variant of the clay-to-wax case. Suppose that an artist has a piece of clay on the left side of her workbench and a piece of wax on the right side. She molds the piece of clay into a statue, and then she molds the piece of wax into a statue that is the same size and shape as the clay statue. Next she swaps their locations, putting the clay statue on the right side of the workbench where the piece of wax used to be and the wax statue on the left side where the piece of clay used to be. Then, bit by bit, she gradually transfers the clay statue's clay to the wax statue, and she gradually transfers the wax statue's wax to the clay statue. Finally, she squashes each of the statues back into lumps. At the end of this process, there is a piece of clay on the left side of the workbench that is made of the same clay as the piece that was there originally, and there is a piece of wax on the right side of the workbench that is made of the same wax as the piece of wax that was there originally.

According to the phasalist view I am defending, the piece of clay on the left is not identical to the piece of clay that was there originally, despite being made of the same clay. It is instead identical to the original piece of wax. Likewise, the piece of wax on the left side of the table is not identical to the piece of wax that was there originally, but is instead identical to the original piece of clay. But this is very counterintuitive. It seems as though the piece of clay on the left at the end of this procedure is the same piece of clay that was on the left at the beginning of the procedure, and that the piece of wax on the right at the end is the same piece of wax that was there at the beginning. And if I simply bite the bullet and claim that these intuitions are wrong, then I am at risk of undercutting my own appeal to our intuitions about the persistence of pieces of clay in my argument against mereological constancy.¹⁹

¹⁷ This point has been made by, e.g., Wiggins (2001: 64).

¹⁸ See Ayers (1974), Price (1977), and Mooney (2021, 2022).

¹⁹ I thank the editor for this objection.

One thing the phasalist could say here is that, normally, when a piece of clay at one time is made of the very same clay as a piece of clay at another time, the pieces of clay are identical. This will be true in the most common case where a piece of clay simply retains its original clay over some interval of time, and it may be true in some less common cases as well: cases where the piece of clay is destroyed and later reassembled out of the same clay, and cases where the piece of clay undergoes mereological change but eventually regains its original clay. But in certain unusual cases like the one described above, where the original clay becomes integrated bit-by-bit into a different, pre-existing object (in this case, an object that began as a piece of wax), being made of the same clay does not suffice for being the same piece of clay. If this is the way things are, intuitions which tell us that pieces of clay made of the same clay are identical will normally be correct, and to that extent, they will be reliable, even though they lead us astray in cases like the one described above. And if even those intuitions are reliable, despite leading us astray in the case described above, then I don't think their failure in that kind of case does much to cast doubt on intuitions about other kinds of cases, like the intuition that pieces of clay survive at least some mereological changes. (Parallel points apply to pieces of wax.)

But suppose I conceded to the objector that our intuitions about the persistence of pieces of clay and their ilk are not reliable, and therefore they can safely resist my argument against the mereological constancy of pieces of clay. Then there is a much simpler response to the mereological objection. For if our intuitions about the persistence conditions of pieces of clay cannot be trusted, then it is hard to see how the mereological objection can get off the ground in the first place. Cases 1-3 and others like them are designed to pump intuitions about the persistence conditions of pieces of clay - intuitions which suggest that pieces of clay do not have the same persistence conditions as statues. If we adopt a stance of distrust toward our intuitions about the persistence of pieces of clay, then we should adopt a stance of distrust toward arguments that turn on these cases.

6. What's the Matter?

Haven't I just relocated the phasalists' problem? I have rebutted the mereological objection by distinguishing the piece of clay from the clay. And the clay is (initially) located exactly where the piece of clay is located in each of the cases we have considered. So even if the piece of clay is identical to the statue, we seem to have a case of coincidence between the piece of clay / statue on the one hand, and the clay on the other hand. And we can't solve it by appealing to phase sortals. For it is not as though the piece of clay could be temporarily *this* clay and later some other clay.

Whether the objector is right to say that we have simply traded one case of coincidence for another depends on what the clay is.²⁰ According to one view, the clay is a particular composite object, namely, the aggregate, sum, or fusion of all the minimal bits or portions of clay that make up the piece of clay. Like its parts, this aggregate is itself a concrete material clay object. Moreover, it has all of its clay parts essentially and exists regardless of how those parts are arranged. Or so the orthodox theory of aggregates claims (Tanksley 2010).²¹ Since aggregates are concrete material objects, the aggregate view generates a coincidence puzzle just like the one that phasalism is meant to avoid. But the aggregate view is one view among others, so the phasalists might be able to respond to this objection by adopting a different view about the nature of the clay.

One alternative to the aggregate view is the *stuff view*, which claims that the clay is some stuff, where stuff is taken to be neither an object, nor a set of objects, nor a plurality of objects. Versions of this view seem to go back at least as far as Aristotle's notion of prime matter, but it also has more recent proponents.²² On the stuff view, portions of stuff are coincident with

²⁰ For a collection of essays on this topic, see Pelletier (1979).

²¹ Fans of aggregates include Cartwright (1965), Cook (1975), Burge (1977), Zimmerman (1995), Thomson (1998), and Baker (2007), to name a few.

²² Including Chappell (1973), Burke (1996), and Markosian (2015).

material objects, so it will turn out that the clay is some stuff that is distinct from, but coincident with, the piece of clay. However, since the clay is not an object, we do not have a traditional case of coincidence between distinct objects on our hands. Some metaphysicians, like Burke (1996) and Markosian (2015), think coincidence between an object and some stuff is harmless, while others, like Zimmerman (1997) and Kleinschmidt (2007), demur. But I'm not going to enter this debate here, because there is a third view on the nature of the clay that seems plausible to me and that clearly avoids worries about material coincidence.

The *plurality view* claims that the clay is neither an individual object, nor some stuff, but a plurality of objects, namely, some bits of clay.²³ To speak of the clay on the artist's desk is like speaking of the tools on her workbench. It is to speak of many things, not just one. On this view, "the clay" is a plural referring expression.²⁴ The plurality view does not generate a coincidence puzzle because it entails that the clay is not coincident with the piece of clay; instead, the clay *composes* the piece of clay.

Zimmerman (2005: 508-517; cf. Zimmerman 1995) argues that the plurality view cannot handle gunky objects: objects such that all of their proper parts have proper parts, all the way down. If we say that the clay which the piece of clay is made of is a plurality of bits of clay, then presumably we should also say that the matter which the piece of clay is made of is a plurality of bits of matter. But which plurality is it? One is tempted to say it is the plurality of its simple parts, or mereological atoms. However, if the piece of clay is gunky, then the piece of clay's matter cannot be its simple parts, since it has none.

²³ The plurality view is endorsed by Laycock (1972), Burke (1994), Koslicki (2018: ch. 2), and Carmichael (2020).

²⁴ A variant of this view claims that 'the clay' refers to the *set* of the relevant bits of clay, but I will focus on the plurality version. I am following Zimmerman (1995) in treating the plurality and set-theoretic views as variants of the same view. Some authors, e.g. Miller (2009), treat them as distinct views.

Nor can the piece of clay's matter be the bits of gunk which compose the piece of clay at any other level of decomposition. Let g_1 - g_n be some bits of gunk which compose the piece of clay at some arbitrary level of decomposition. Since they are gunky, any one of g_1 - g_n will have proper parts that could in principle be rearranged to compose a tiny organism. Let's say this happens to g_1 . Zimmerman supposes that, to avoid material coincidence, fans of the plurality view must say that g_1 ceases to exist, rather than becoming coincident with the organism. But then the piece of clay is no longer composed of g_1 - g_n , since g_1 has ceased to exist. And yet, because all of the gunk that composed g_1 is still present and part of the piece of clay, it seems like the piece of clay is composed of the same gunk as it was before g_1 was destroyed. So when we speak of the matter that the piece of clay is made of, we are not speaking of g_1 - g_n . And the same reasoning works at every level of decomposition.

Now as a matter of fact I am not particularly fond of gunk. I am skeptical that gunk is metaphysically possible. But I don't need to rely on my skepticism about gunk to resist this objection. For the phasalist is not forced to say that g_1 ceases to exist when its parts are rearranged organism-wise in order to avoid material coincidence. She should instead treat this case of coincidence the same way she handles the coincidence of the statue and the piece of clay. At least one phasalist, Marjorie Price (1977), has argued that 'organism' is a phase sortal. In that case, a bit of matter may instantiate *being an organism* even if it did not previously instantiate that sortal property. So perhaps, in the scenario Zimmerman imagines, g_1 becomes an organism, i.e., begins to instantiate the property of *being an organism*.²⁵ In that case, if "the clay" refers plurally to g_1 - g_n , each of those bits of matter is still around to be referred to after g_1 turns into an organism. I conclude that Zimmerman's objection against the plurality view is not successful against the phasalist.

²⁵ For an alternative response to Zimmerman's argument, see Carmichael (2020).

7. Conclusion

The phasalist solution to the puzzle of the statue and the piece of clay faces certain challenges, one of which is the objection that pieces of clay cannot undergo the same mereological changes that statues can. I have replied to this objection by arguing that the piece of clay is distinct from the clay itself, and that the piece of clay can undergo mereological changes, contrary to the standard view that it is mereologically constant. This opens the door to the view that the piece of clay undergoes the very same mereological changes that the statue does. I also identified and rebutted three objections to this view. On the whole, I think the phasalist has a promising response to the mereological objection.²⁶

Department of Philosophy, University of Alberta

References

- Almotahari, Mahrad (2017). “‘Not’ Again! Another Essay on the Metaphysics of Material Objects’ (*Philosophy and Phenomenological Research* 94(3): 711-737).
- Almotahari, Mahrad (2014). ‘The Identity of a Material Thing and Its Matter’ (*The Philosophical Quarterly* 64(256): 387-406).
- Ayers, Michael (1974). ‘Individuals without Sortals’ (*Canadian Journal of Philosophy* 4(1): 113-148).
- Ayers, Michael (1997). ‘Is Physical Object a Sortal Concept? A Reply to Xu’ (*Mind and Language* 12(3/4): 393-405).
- Baker, Lynne Rudder (2007). *The Metaphysics of Everyday Life* (Cambridge: Cambridge University Press).

²⁶ For comments on this paper or related material, I thank Dan Dake, Patrick Grafton-Cardwell, Tim Juvshik, Alejandro Pérez-Carballo, Sam Schechter, participants in the dissertation seminar at UMass where I presented an early version of this paper, my dissertation committee, and various anonymous referees.

- Burge, Tyler (1977). 'A Theory of Aggregates' (*Nous* 11(2): 97-117).
- Burke, Michael (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).
- Burke, Michael (1996). 'Coinciding Objects: Reply to Lowe and Denkel' (*Analysis* 57(1): 11-18).
- Butler, Joseph (1736). *The Analogy of Religion*, Appendix 1. In Perry, John (1975). *Personal Identity* (Los Angeles, CA: University of California Press) 99-105.
- Carmichael, Chad (2020). 'How to Solve the Puzzle of Dion and Theon Without Losing Your Head' (*Mind* 129 (513): 205-224).
- Cartwright, Helen Morris (1965). 'Heraclitus and the Bath Water' (*The Philosophical Review* 74(4): 466-485).
- Chappell, Verne (1973). 'Matter' (*The Journal of Philosophy* 70(19): 679-696).
- Cook, Kathleen (1975). 'On the Usefulness of Quantities' (*Synthese* 31: 443-457).
- Frances, Bryan (2006). 'The New Leibniz's Law Arguments for Pluralism' (*Mind* 115(460): 1007-1021)
- Gibbard, Allan (1975). 'Contingent Identity' (*The Journal of Philosophical Logic* 4(2): 187-221).
- Hirsch, Eli (1997). 'Basic Objects: A Reply to Xu' (*Mind and Language* 12(3/4): 406-412).
- Jubien, Michael (2001). 'Thinking About Things' (*Philosophical Perspectives* 15: 1-15).
- Kleinschmidt, Shiva (2007). 'Some Things About Stuff' (*Philosophical Studies* 135(3): 407-423).
- Korman, Daniel Z. (2015). *Objects: Nothing Out of the Ordinary* (Oxford: Oxford University Press).
- Koslicki, Kathrin (2018). *Form, Matter, Substance* (Oxford: Oxford University Press).
- LaPorte, Joseph (2009). 'On Two Reasons for Denying that Bodies Can Outlast Life' (*Mind* 118(471): 795-801).

- Laycock, Henry (1972). 'Some Questions of Ontology' (*The Philosophical Review* 81(1): 3-42).
- Markosian, Ned (2010). 'Identifying the Problem of Personal Identity.' In J. Campbell, M. O'Rourke, and H. Silverstein (editors) *Time and Identity* (Cambridge: MA: MIT Press).
- Markosian, Ned (2015). 'The Right Stuff' (*Australasian Journal of Philosophy* 93(4): 665-687).
- Miller, Kristie (2009) 'Stuff' (*American Philosophical Quarterly* 46(1): 1-18).
- Mooney, Justin (2021). 'Becoming a Statue.' (*Australasian Journal of Philosophy* 101(1): 228-239)
- Mooney, Justin (2022). 'Criteria of Identity Without Sortals' (*Noûs* 57(3): 722-739).
- Olson, Eric (1996). 'Composition and Coincidence' (*Pacific Philosophical Quarterly* 77: 374-403).
- Olson, Eric (2007). *What Are We? A study in Personal Ontology* (Oxford: Oxford University Press).
- Pelletier, Francis Jeffrey (1979). *Mass Terms: Some Philosophical Problems* (Dordrecht: D. Reidel Publishing Company).
- Price, Marjorie (1977). 'Identity Through Time' (*Journal of Philosophy* 74(4): 201-217).
- Schwartz, Stephen (2009). 'The Essence of Essence' (*Australasian Journal of Philosophy* 87: 609-623).
- Sidelle, Alan (1998). 'A Sweater Unraveled' (*Noûs* 32(4): 423-448).
- Thomson, Judith Jarvis (1998). 'The Statue and the Clay' (*Noûs* 32(2): 149-173).
- Tichý, Pavel. (2004 [1987]). 'Individuals and Their Roles.' In V. Svoboda, B. Jespersen, and C. Cheyne, eds., *Pavel Tichý's Collected Papers in Logic and Philosophy* (Dunedin, New Zealand: University of Otago Press, and Prague, Czech Republic: Filosofia. 710-748).
- Wiggins, David (1967). *Identity and Spatio-Temporal Continuity* (Oxford: Basil Blackwell).
- Wiggins, David (1997). 'Sortal Concepts: A Reply to Xu' (*Mind and Language* 12(3/4): 413-421).

- Xu, Fei (1997). "From Lot's Wife to a Pillar of Salt: Evidence that *Physical Object* is a Sortal Concept." (*Mind and Language* 12(3/4): 365-392).
- Zimmerman, Dean (1995). 'Theories of Masses and Problems of Constitution' (*The Philosophical Review* 104(1): 53-110).
- Zimmerman, Dean, (1997). 'Coincident Objects: Could a Stuff Ontology Help?' (*Analysis* 57(1): 19-27).
- Zimmerman, Dean (2005). 'Material People.' In Michael J. Loux and Dean W. Zimmerman, eds., *The Oxford Handbook of Metaphysics* (Oxford: Oxford University Press). 491-526.