

A Phasalist Approach to Coincidence Puzzles

Justin Mooney
University of Alberta
Jmooney90@gmail.com

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1. Phasalism

Suppose a piece of clay is a mere lump at t_1 , and is then molded into a statue at t_2 . This mundane case poses a puzzle, which can be formulated as an inconsistent triad:

- (1) The piece of clay at t_1 is the piece of clay at t_2 .
- (2) The piece of clay at t_1 is not the statue at t_2 .
- (3) The piece of clay at t_2 is the statue at t_2 .

Each of these propositions seems true, *prima facie*: (1) seems true because pieces of clay can survive being molded into different shapes, including statuesque shapes; (2) seems true because the statue seems to be created when it is molded from the (pre-existing) piece of clay; and (3) seems true because, at t_2 , the statue and the piece of clay are in the same place at the same time, made of the same matter. But since these propositions are jointly inconsistent, at least one of them is false.¹

¹ Early versions of the statue puzzle appear in (e.g.) Wiggins (1967: 8, 10-16), Perry (1970: 198-199), and Gibbard (1975).

There are many candidate solutions to this puzzle, but I prefer the *phasalist solution*. According to the phasalist solution, *being a statue* is a phase sortal property: a sortal property that an object can gain and lose without beginning or ceasing to exist. Just as a person begins to instantiate *being an adult* when they grow up, the piece of clay begins to instantiate *being a statue* when it is molded statue-wise. No new object comes into existence; the original object just gains a new sortal property. So (2) is false.²

My purpose in this essay is not to argue for phasalism, but rather to defend it against one important and common objection: the charge that it can't be extended to other kinds of coincidence puzzles, like those involving material turnover and undetached parts.³ Rival solutions to the statue puzzle, like the constitutional solution (e.g., Baker 2007), the four-dimensionalist solution (e.g., Hawley 2001: ch. 5; Sider 2001: ch. 5), and the eliminativist solution (e.g., van Inwagen 1990: §13; Merricks 2001: ch. 2), can be extended to other kinds of coincidence puzzles. So, *prima facie*, the phasalist is at a serious disadvantage here.

But I am going to argue that, although the phasalist solution to the statue puzzle cannot be extended to other kinds of coincidence puzzles, there is a more general approach to coincidence puzzles that takes the phasalist solution to the statue puzzle as a model and solves each coincidence puzzle by treating it as an instance of some ordinary kind of change. We will see

² The phasalist solution to the statue puzzle is defended, endorsed, or suggested by Ayers (1974: esp. 128-129), Schwartz (2009: 613-615), Markosian (2010: 144), and Mooney (2023a), and it is perhaps implicit in Price (1977), Tichý (2004 [1987]: 718-720), and Mooney (2023e). Korman (2015: 204-205) coined the term 'phasalism', and Wiggins (1967: 7) coined (an ancestor of) the term 'phase sortal.'

³ Objections of this sort are leveled against phasalism by (e.g.) Robinson (1982: 319), Burke (1994a: 592), Olson (1996: §4; 2007: 55), Sidelle (1998: 427-430), Thomson (1998: 152ff), Hawley (2001: 143), Parfit (2008: 194-195), and Korman (2015: 204-6). In addition, many philosophers claim that their preferred metaphysical theories can solve a variety of puzzles about objects, often adding explicitly that this is an advantage of those theories: van Inwagen (1990: 123ff); Hudson (2001: ch. 2); Merricks (2001: esp. 54); Sider (2001: 140ff); Brown (2005: esp. 181); Baker (2007: 194-197); Toner (2008); Sattig (2015: 79-80); and Inman (2018: 160).

that this broadly phasalist approach solves different kinds of coincidence puzzles differently, which makes it vulnerable to various complaints, such as that it is unparsimonious. Nevertheless, I will argue that it is no less attractive than its more uniform rivals.

I outline my broadly phasalist approach to coincidence puzzles in Section 2. Then I show that it can be applied successfully to representatives of four different kinds of coincidence puzzles: coincidence puzzles involving sortal changes (Section 3); coincidence puzzles involving material turnover (Section 4); coincidence puzzles involving undetached parts (Section 5); and a coincidence puzzle involving fission (Section 6).⁴ I will not be presenting new solutions to these coincidence puzzles, but rather arguing that certain existing solutions can be used to successfully carry out my phasalist approach to coincidence puzzles. Finally, I will conclude in Section 7 by arguing that my phasalist approach to coincidence puzzles is no less plausible than its rivals.

2. The Approach in Outline

The approach to coincidence puzzles that I am going to defend features a set of constraints that each individual solution to a particular coincidence puzzle should satisfy. The approach is phasalist in the sense that the set of constraints is inspired by the phasalist solution to the statue puzzle.

To state the first constraint, I am going to need to introduce a technical term. Let *phenomenal metaphysics* be the set of propositions about metaphysics that seem true prior to, or apart from, philosophical reflection. Although seemings can vary from one person to another, some of them are very widely shared, and I will assume that the propositions I attribute to phenomenal metaphysics in what follows seem true to a broad enough audience for my arguments to be of interest.

⁴ The introduction to Rea's (1997) influential collection features four coincidence puzzles belonging to these same four kinds.

The first constraint that I will build into my phasalist approach to coincidence puzzles is inspired by the fact that a phase sortal change is a kind of change recognized by phenomenal metaphysics. As we have seen, the phasalist solves the statue puzzle by classifying the statue's molding as a phase sortal change. Even if it doesn't seem, pre-theoretically, that molding a statue is a phase sortal change, it does seem, pre-theoretically, that some sortal changes which ordinary objects undergo are phase sortal changes, like a human growing from a child to an adult. So the phasalist is taking a kind of change that is present in phenomenal metaphysics and applying it to a coincidence case in order to solve a puzzle.

I propose to adopt this as a general procedure. The phasalist should solve coincidence puzzles by classifying each coincidence case as an instance of some ordinary kind of change, i.e. a kind of change that, according to phenomenal metaphysics, material objects sometimes undergo. Call this the *conservative constraint* on solving coincidence puzzles.

The second constraint I will build into my phasalist approach to coincidence puzzles is inspired by the fact that molding a statue resembles paradigm phase sortal changes in significant ways. Like the transition from child to adult, the transition from mere lump to statue begins and ends with an ordinary object, and the ordinary object it begins with is spatiotemporally, qualitatively, materially, and causally continuous with the ordinary object it ends with. In fact, the resemblance between the statue case and paradigm phase sortal changes is close enough to leave a mark on ordinary language. It sounds natural to say things like "that lump of clay on the artist's desk will soon be a beautiful statue", just as it sounds natural to say "that child will soon be an adult."⁵ Even if the former sentence shouldn't be taken literally (though maybe it should be), it at least reflects an analogy between the statue case and paradigm phase sortal changes. Because of the similarities, classifying the statue case as a phase sortal change is less of a stretch than it would otherwise be. It's certainly less of a

⁵ I made this point previously in Mooney (2021: 231-232).

stretch than suggesting that statues survive changes like disintegration, shattering, and decomposition. Or so it seems to me.

In light of this feature of the phasalist solution to the statue puzzle, the second constraint that I want to build into my phasalist approach to coincidence puzzles requires that, if a coincidence case is classified as an instance of some ordinary kind of change, then it resembles paradigm instances of that ordinary kind of change to a significant degree. Call this the *resemblance constraint* on solving coincidence puzzles. The case of the statue shows why this constraint is important: resemblance to paradigm cases of the kind of change in question limits the extent to which we have to deviate from the picture that phenomenal metaphysics paints concerning what instances of that kind of change can be like.

The third constraint I will build into my phasalist approach to coincidence puzzles is inspired by a consequence of the resemblance constraint. The resemblance constraint entails that different kinds of coincidence cases should often be classified as different ordinary kinds of change. After all, coincidence cases are variegated, and so not all coincidence cases resemble the same paradigm cases of ordinary kinds of change to a significant degree. And if different coincidence puzzles are solved in different ways, then the phasalist has to be careful about whether the various solutions fit together.

So the third constraint is what I will call the *coherence constraint*: the phasalist's solutions to different coincidence puzzles must cohere with each other. Minimally, this means that they must be compatible with each other. But the phasalist should also avoid adopting solutions which draw on the resources of phasalism's rivals. Other things being equal, it would be a little odd to appeal to constitution to solve coincidence puzzles about (say) undetached parts once one has already rejected the constitutional solution to the statue puzzle in favor of the phasalist solution.

In sum, my phasalist approach to coincidence puzzles aims to solve each coincidence puzzle in a way that satisfies three constraints: the conservative constraint, the resemblance constraint, and the coherence constraint. If the approach can be carried out successfully, the phasalist will be able to say of

any coincidence case that it is not a genuine case of distinct objects occupying the same place at once, nor anything quite so exotic as that, but rather something comparatively mundane. However, different coincidence cases may be classified as instances of different ordinary kinds of change, depending on which ordinary kind of change fits the case best. So the phasalist approach does not treat coincidence puzzles monolithically, but rather takes them on a case-by-case basis, giving each kind of coincidence its own, unique treatment.

But can the phasalist approach be carried out successfully? I will argue that the prospects for this approach are bright by showing that it can be successfully applied to prominent representatives of four different kinds of coincidence puzzles.

3. Sortal Changes

One prominent kind of coincidence puzzle involves sortal changes in which an object of one sort seems to persist through the change, while an object of another sort seems to begin or cease to exist when the change occurs. The trouble is that the two objects are coincident at times when they both exist. The most famous sortal change coincidence puzzle is the puzzle of the clay statue, and we have already seen how the phasalist handles it. What I will argue in this section is that the phasalist approach sketched above can be successfully applied to certain variants of the statue puzzle, starting with one that is supposed to be a special problem for the phasalist.

Imagine that the piece of clay is molded successively into very different forms: first it is molded from a mere lump into a statue of a hippo at t_1 , then it is squashed back into a lump, and finally it is molded into a statue of an elephant at t_2 . This case poses the following puzzle:

- (1) The hippo statue at t_1 is the piece of clay at t_1 .
- (2) The elephant statue at t_2 is the piece of clay at t_2 .
- (3) The piece of clay at t_1 is the piece of clay at t_2 .
- (4) The hippo statue at t_1 is not the elephant statue at t_2 .

Proposition (1) seems true because, at t_1 , the hippo statue and the piece of clay are located in the same place at the same time, and made of the same matter; (2) seems true because, at t_2 , the elephant statue and the piece of clay are in the same place at the same time, and made of the same matter; (3) seems true because pieces of clay seem to survive being molding into different shapes, including statuesque shapes; and (4) enjoys the support of a relatively firm intuition that may be tracking discontinuity or disconnectedness between the hippo statue and the elephant statue.⁶

The typical phasalist view of this kind of case is that it is a sequence of phase sortal changes. There is a single piece of clay which initially instantiates *being a mere lump*, then *being a hippo statue*, then *being a mere lump* again, and finally *being an elephant statue*. So the hippo statue and the elephant statue are each identical to the piece of clay, and therefore identical to each other, contrary to what (4) claims.

This phasalist interpretation is counterintuitive; the hippo statue and the elephant statue seem distinct. Even so, this solution satisfies all of the constraints of the broadly phasalist approach to coincidence puzzles I sketched in Section 2. It satisfies the conservative constraint because it classifies this case as a sequence of phase sortal changes, which is a kind of change that features in phenomenal metaphysics. For example, according to phenomenal metaphysics, an infant growing into a child, then an adolescent, then an adult, then a senior, is a sequence of phase sortal changes, and so is a tadpole developing into a pollywog, and then a frog. There are even cases of objects instantiating certain phase sortal properties on and off, like a college student who only works in the summer, and so is an employee each summer but not in the intervening months.

⁶ Cases like this one go back as far as the debates about relative identity in the sixties and seventies and have continued to make appearances since that time: E.g. Wiggins (1967: 8, 10-16), Perry (1970: 198-199), Chisholm (1973: 601-602), Hawley (2001: 143), Jubien (2001: 4, 11-2), and Korman (2015: 206). Thanks to a referee for Mooney (2023a) for the suggestion that discontinuity may be relevant to propositions like (4).

This brings us to the resemblance constraint: the two-statue case resembles some paradigm sequences of phase sortal changes in important ways. Take the case of the college student who is an employee each summer. Suppose she is a fast-food worker one summer, and a lifeguard the following summer. This sequence has a lot in common with the two-statue sequence. Both are spatiotemporally, qualitatively, materially, and causally continuous. In both, there is a sortal property instantiated throughout the entire series (*being a person; being a piece of clay*) and a sortal property instantiated periodically (*being an employee; being a statue*). And just as the piece of clay is not the same kind of statue each time it is a statue, the college student is not the same kind of employee each summer.

In fact, the similarity of the two-statue sequence to paradigm sequences of phase sortal changes may even be reflected in ordinary language. It doesn't sound strained to say "That elephant statue used to be a mere lump, and before that, a hippo statue," just as we might say "That lifeguard used to be a college student, and before that, a fast food worker." Even if the former sentence shouldn't be taken literally (though maybe it should be), it at least suggests an analogy between the statue series and the employee series. Because of the similarities, classifying the statue series as a sequence of phase sortal changes is less of a stretch than it would otherwise be.

Finally, the phasalist interpretation of the two-statue case satisfies the coherence constraint. So far, the only other solution it must cohere with is the phasalist solution to the classic statue puzzle. And since it merely extends that solution to a variant of the original puzzle, the two cohere impeccably. I conclude that my phasalist approach to coincidence cases can be applied successfully to the two-statue puzzle.

Before I move on, it's worth noting that the phasalist approach can also be applied to modal variants of sortal-change puzzles. Consider Gibbard's (1975) case in which the statue and the piece of clay begin and cease to exist at the same time. In this scenario, the statue and the piece of clay do not differ in their historical properties, but they still seem to differ in their modal properties. For example, even if the statue and the piece of clay in fact cease to exist at the same time, the statue could have been squashed

into a lump, and in possible worlds where it is squashed, it seems to outlive the statue. Similarly, maybe the piece of clay could have begun its career as a mere lump, only to be molded into a statue at a later time. Then there are possible worlds where it seems that the piece of clay predates the statue. And presumably, if the piece of clay could have begun its career as a mere lump, it could have remained a mere lump for the entirety of its career too. In that case, there are possible worlds where it seems that the piece of clay exists and yet the statue never exists.

The natural thing for the phasalists to say here is that the piece of clay is identical to the statue, and that the apparent modal differences between them are explained by the hypothesis that *being a statue* is a phase sortal property of the piece of clay. In the actual world, the piece of clay instantiates *being a statue* for its entire career; in worlds where the piece of clay seems to outlive the statue, it undergoes a phase sortal change from statue to mere lump; in worlds where the piece of clay seems to predate the statue, it undergoes a phase sortal change from mere lump to statue; and in worlds where the piece of clay is never molded into a statue, it never instantiates the phase sortal property, *being a statue*.

This phasalists solution is counterintuitive insofar as the statue seems to be distinct from the mere lump, but it satisfies all of the constraints of my phasalists approach to coincidence puzzles. It satisfies the conservative constraint by classifying the puzzle case as an instance of a kind of change that is present in phenomenal metaphysics: an object beginning and ceasing to instantiate what is normally a phase sortal property only when it begins and ceases to exist, respectively. For example, a person who is an heir to a certain throne might instantiate the phase sortal property *being an heir* from the beginning of their existence until the time that they die prematurely, before having a chance to actually take the throne.

The resemblance constraint is also satisfied. Perhaps the most notable resemblances in this case are the modal ones. Just as the piece of clay could have been squashed into a lump, thereby ceasing to be a statue, so the heir to the throne could have lived long enough to take the throne, thereby ceasing to be a mere heir and becoming a monarch. Similarly, just as the

piece of clay could have started out as a mere lump, the heir could have inherited their heirship at a late stage because, e.g. they could have had an older sibling who died prematurely. And finally, just as the statue might have been a mere lump for its entire career, so an heir might never have been an heir because they could have had an older sibling who did not die prematurely. Because of these and other similarities, this phasalist solution to Gibbard's puzzle is less of a stretch than it would otherwise be.

Finally, this solution satisfies the coherence constraint. Since it is again merely a slight variant of the phasalist solutions we have already seen, it pairs very naturally with them.

4. Material Turnover

Another prominent kind of coincidence puzzle turns on the observation that many material objects are made of different matter at different times. This simple observation seems to entail that material objects are distinct from the matter they are made of, despite being coincident with that matter.⁷ Another variant of the puzzle about the clay statue will serve as my main example here.

Suppose an artist molds a piece of clay into a statue and places it on a table at t_1 . Later, the artist removes one very tiny bit of the statue's clay, replacing it with a new bit of clay. And she continues to replace tiny bits of the statue's clay, maybe one small bit per year, until there comes a time, t_2 , when the statue on the table is no longer made of any of its original clay. In this case, each of the following propositions seem true:

- (1) The statue on the table at t_1 is the piece of clay on the table at t_1 .
- (2) The statue on the table at t_2 is the piece of clay on the table at t_2 .

⁷ This kind of coincidence puzzle originates with the playwright Epicharmus, and it was debated by the Academics and the Stoics (Sedley 1982; Rea 1997: xviii). The objection that phasalism doesn't solve this kind of puzzle appears in, e.g. Korman (2015: 205), Olson (1996, §4; 2007: 55), Sidelle (1988: 427), and Thomson (1998: 152ff).

- (3) The statue on the table at t_1 is the statue on the table at t_2 .
- (4) The piece of clay on the table at t_1 is not the piece of clay on the table at t_2 .

Proposition (1) seems true because the statue and the piece of clay at t_1 are located in the same place at the same time, and they are made of the same matter; (2) seems true because the same goes for the statue and the piece of clay at t_2 ; (3) seems true because it seems that the statue can survive gradual replacement of small parts; and (4) seems true because the piece of clay at t_1 consists of entirely different clay than the piece of clay at t_2 . But (1)-(4) are jointly inconsistent, so at least one of them is false.

The phasalist approach can be applied to this case using what I will call the *divide-and-conquer solution* to the puzzle.⁸ The divide-and-conquer solution distinguishes between the *piece* of clay, on the one hand, and the *clay* that the piece of clay is made of, on the other hand, and then reduces each of them to things that are not objectionably coincident with the statue. The piece of clay is identified with the statue, and therefore turns out to be a cohesive material object that can be made of different matter at different times. The clay itself is construed as the plurality of clay particles that compose the statue, and therefore the clay turns out to be the parts that the statue can gain and lose over time.⁹ So what happens when the statue's clay is gradually replaced is that the piece of clay (= the statue) undergoes complete material turnover, but the original clay itself is replaced by different clay. Hence, (1)-(3) are true, but (4) is false.

The divide-and-conquer solution satisfies all of the constraints of my phasalist approach to coincidence puzzles. It satisfies the conservative constraint because it classifies this coincidence case as an instance of a kind

⁸ Ayers (1974: 125-127) and Burke (1994a) take this approach. Cf. Chappell (1973) and Gibbard (1974), who join the divide-and-conquer strategists in distinguishing the piece of clay from the clay it is made of.

⁹ For a recent defense of the view that talk of matter can be paraphrased as talk of pluralities of particles, see Carmichael (2020). For a critique of this view, see Zimmerman (1995; 2005: 508-517).

of change that features in phenomenal metaphysics: persistence through material turnover. According to phenomenal metaphysics, ordinary objects of many sorts can gain and lose matter. Cars can have their tires changed, mountains can erode, and people can lose limbs. And at least some ordinary objects can survive complete turnover of their matter, like when an organism persists through complete turnover of the atoms that compose it. In fact, the coincidence puzzle itself gets its bite in part from the suggestion that the statue survives complete turnover of its matter.

The divide-and-conquer solution also satisfies the resemblance condition, because this case resembles paradigm cases of persistence through complete material turnover in important ways. For example, I maintain that the piece of clay is an object that can gain and lose parts, just like the objects in paradigm cases of persistence through complete material turnover. Unfortunately, this similarity is very controversial. Many philosophers believe that the piece of clay is materially inflexible in the sense that it cannot gain or lose any of the clay it is made of. If some of its clay is separated from the rest of its clay, the piece of clay takes on a scattered location rather than losing a part, and if some bit of its clay is destroyed, the piece of clay ceases to exist altogether. I reject this view. It seems to me that the piece of clay, like the statue, can gain and lose at least some of its parts.

Although I don't have the space to defend this view in detail, I will say something brief about it. Suppose I have a piece of clay on my desk one day, but I dissolve a tiny bit of it overnight. The next day someone asks: 'Is that the same piece of clay you had yesterday?' It seems to me that the right response is 'yes'. And if that is correct, then the piece of clay persisted through losing a part.¹⁰ Moreover, it seems to me that the strongest intuitions that can be deployed against the view that the piece of clay is materially flexible are not intuitions about the piece of clay, but rather about the clay it is made of. It does seem clear, intuitively, that the *clay* takes on a scattered location when a bit of it is separated from the rest. But that makes

¹⁰ For further discussion of this case, see Mooney (2023d).

sense on the divide-and-conquer solution, which says that the clay is the plurality of clay particles that compose the statue. If some of those particles are separated from the others, then they take on a scattered location.

Another important similarity is that the piece of clay's parts are replaced gradually, one at a time, just like the parts of organisms, the statue, and so on, in paradigm cases of persistence through complete material turnover. One might protest that the reason these other objects persist through complete material turnover is that they have important formal or teleological properties that are retained throughout the process.¹¹ But on the hypothesis that the piece of clay is the statue, the piece of clay has the same formal and teleological properties that that the statue does, and it, too, retains them throughout the process. So I can agree that retaining those properties is crucial to persistence through complete material turnover. I do not need to say that a mere piece of clay - i.e. one which is not also a statue - would survive complete turnover of its parts. However, I should note a limitation of this response: it only works if we understand a statue's formal and teleological properties in a deflated sense, rather than casting them as something like an Aristotelian substantial form. An object cannot survive gaining and losing such a form.¹² But I am unbothered by this consequence, as I accept the deflated view of formal properties anyway.

Finally, the divide-and-conquer solution satisfies the coherence condition. It agrees with the phasalist solutions to the other puzzles on the point that the piece of clay is identical to the statue, and it is neutral on whether *being a statue* is a phase sortal property. Moreover, it makes no use of constitution, temporal parts or stages, or other alternatives to those solutions. I conclude that the phasalist approach to coincidence cases can be applied successfully to this case of material turnover.

Of course, there are other cases of material turnover. For example, one can imagine the statue's clay being gradually replaced by another material altogether, such as wax. But the phasalist can apply the divide-and-conquer

¹¹ Thanks to Dan Dake for this suggestion.

¹² Thanks to a referee for this point.

strategy here too, with one additional ingredient: *being a piece of clay* is a phase sortal property, just like *being a statue* is. This suggestion fits especially well with versions of phasalism on which all or nearly all sortal properties of material objects are phase sortal properties (e.g. Price 1977; Mooney 2023a, 2023e). According to this application of the divide-and-conquer solution, when the object which is initially both a statue and a piece of clay has all of its clay replaced by wax, it ceases to be a piece of clay and begins to be a piece of wax, all the while remaining a statue. And again, the phasalist could add that it is only because the object in question retains its statuesque formal and teleological properties that it persists through such an extreme sort of material turnover.

5. Undetached Parts

There are also coincidence puzzles in which an object seems to become coincident with one of its undetached parts. I will take as my example the oldest version of the puzzle, featuring an amputation.¹³ Consider a human person whose left foot is amputated in order to prevent the spread of a dangerous disease. According to some philosophers, this human person has an undetached part known as a foot-complement, which is composed of all of the person's atoms except for the atoms composing their left foot. The trouble is that, when the person's left foot is amputated, they seem to become coincident with their foot-complement. Let t_1 be a time prior to the amputation, and let t_2 be a time shortly after the amputation. Then we can formulate the puzzle as an inconsistent tetrad:

- (1) The human at t_1 is not the foot-complement at t_1 .
- (2) The human at t_1 is the one-footed human at t_2 .
- (3) The foot-complement at t_1 is the foot-complement at t_2 .

¹³ This puzzle is discussed by Philo of Alexandria and Chryssipus (Sedley 1982; Long & Sedley 1987: 171-172), and later by William of Sherwood (1968: 60-61). It found its way into contemporary discussion via Wiggins (1968), who was inspired by Geach (1980: §110).

(4) The one-footed human at t_2 is the foot-complement at t_2 .

Proposition (1) seems true because a human with both feet intact is clearly different from their foot-complement: it has greater mass, a different shape, twice as many toes, etc.; (2) seems true because the amputation we have imagined, far from being deadly, is used to save the human's life; (3) seems true because the foot complement only changes in an extrinsic way when the amputation occurs. This seems like an even worse candidate than amputation for a change that destroys an object; and (4) seems true because the human and the foot complement at t_2 are coincident, and coincident objects seem to be identical, at least *prima facie*. But the problem is that (1)-(4) are jointly inconsistent, so at least one of them is false.¹⁴

The phasalist approach can be applied to this case by adopting what I will call the *conservative solution* to the puzzle.¹⁵ The conservative solution says roughly that only undetached parts which feature in phenomenal metaphysics exist, and other undetached parts do not. Arguably, this includes feet but excludes foot-complements. (Even if, as a reader has suggested, there are contexts in which it might seem that there are foot-complements, their apparent absence outside of those contexts will be enough for the conservative solution to satisfy the constraints of the phasalist approach.) So according to the conservative solution, there are no foot-complements, and if there are no foot-complements, then nothing is identical to any foot-complements. Therefore, (3) and (4) are false.

The conservative solution satisfies all of the constraints of the phasalist approach. It satisfies the conservative constraint, because it classifies this coincidence case as an instance of change that features in phenomenal metaphysics: part loss without a complement. Part loss without a complement occurs when an object, O, loses a part, P, and there is no one

¹⁴ This paragraph is taken, with modifications, from Mooney (2022: 140-141).

¹⁵ This view is endorsed by Carmichael (2020) and Mooney (2023b). Cf. Brown (2005: 157-160) and Jaworski (2016: 129-136). See Yang (2022) for a recent critique. The term "conservatism" is inspired by Korman (2015: 1), who uses it in a related way.

proper part of O composed of O's remaining atoms (P's complement). If indeed there are no such things as foot-complements and their ilk in our pre-theoretical picture of the world, then part loss without a complement is ubiquitous in that picture. The very case of amputation at issue is one example. Assuming that there are no foot-complements, when a human person loses a foot, there is no one proper part of that human person composed of their remaining atoms. There might instead be a plurality of remaining proper parts, such as arms, a torso, a head, and so on. But they do not compose a foot-complement. They only compose a human person.

What about the resemblance constraint? The amputation case resembles paradigm cases of part loss without a complement. This is true because, if I am right that there are no foot-complements in our pre-theoretic picture of the world, then the amputation case just *is* a paradigm case of part loss without a complement. Since everything resembles itself, the resemblance constraint is satisfied.

Finally, the coherence constraint is satisfied too. As far as I can tell, the conservative solution is compatible with the solutions I have endorsed to other coincidence puzzles above. And it doesn't draw on the resources of rival solutions to those other puzzles, such as temporal parts or stages, the constitution relation, or ordinary-object eliminativism. True, the conservative solution eliminates objects such as foot-complements. But it preserves rather than eliminates *ordinary* objects, so a proponent of this view won't be in the business of eliminating things like statues or pieces of clay.

However, there is a well-known variant of this puzzle designed to get around the conservative solution. Suppose a human person is beheaded, and survives for a few seconds after the beheading occurs. This time, the human person seems to become coincident with their head, and a head is the sort of undetached part that does seem to be present in phenomenal metaphysics (Burke 1994b: 132). How can the phasalist approach be applied here? It turns out that this case can also be cast as a case of part loss without a complement, in at least two ways.

First, Carmichael (2020) hypothesizes that the blood cells and electrical current in the head are parts of the human organism but not parts of the organism's head. (They may be *contained* in the head, but they are not *parts* of the head.) If he is right, then the head is not a complement of the person's lost body. What remains of the person consists of a head, together with blood cells and an electrical current, and the beheaded human person is composed of these remaining parts, rather than being coincident with one of them (the head).

Alternatively, the phasalist could shift to a cousin of the conservative solution which says that, although there are organisms like humans, there are no heads, hands, feet, and other ordinary undetached parts, just as there are no undetached parts like foot-complements.¹⁶ This is more revisionary than the conservative solution, but it still satisfies the constraints of the phasalist approach. If a foot amputation is a paradigm case of part loss without a complement, then classifying a beheading as a case of part loss without a complement is classifying it as an instance of a kind of change that features in phenomenal metaphysics, paradigm cases of which it resembles in significant ways: both are cases of part loss; both involve a human organism; and so on. And one can deny that there are undetached parts of organisms without eliminating statues and so forth, so the coherence constraint is satisfied as well.

There are still other puzzles about undetached parts, some of which do not involve organisms. For example, a door made of a wooden board and a brass doorknob seems to become coincident with the board if it loses its knob. This puzzle does not seem susceptible to Carmichael's treatment of Dion's head. The phasalist might have more luck extending the strategy of eliminating ordinary undetached parts to this case. And if that option doesn't appeal, I have elsewhere defended an alternative phasalist

¹⁶ This position is defended by van Inwagen (1981; 1990: 172ff), Merricks (2001: 47-53, 135-136), and Olson (1995, 1997, 2007: 59-60, 157-164).

approach to puzzles of this sort which, I believe, satisfies the constraints from Section 2.¹⁷ But I do not have the space to discuss this approach here.

6. Fission and Fusion

Finally, fission and fusion puzzles are sometimes classified as coincidence puzzles because they seem to involve distinct objects either becoming coincident (in fusion cases), or ceasing to be coincident (in fission cases). There are many fission and fusion puzzles, and some of them differ in important ways. In fact, as a group, they are much less uniform than the three kinds of coincidence puzzle I have already considered. For that reason, applying the phasalist approach to fission and fusion puzzles is going to require subdividing those puzzles into further categories and treating each of those categories differently. That task is too big to accomplish here, so I tackle it elsewhere instead.¹⁸ But for the sake of illustration, I will show in this section how the phasalist approach can be applied to one prominent fission puzzle: the puzzle about the Ship of Theseus.¹⁹

This puzzle begins with a ship made of boards called the Ship of Theseus. Throughout the ship's career, those boards are gradually replaced, one by one, until what remains is a ship which is, though continuous with the original Ship of Theseus, made of entirely different boards than those the original was made of. Meanwhile, the old boards that were gradually removed and replaced are reassembled as they were originally, thereby forming a second ship that is composed of the same boards as the original Ship of Theseus was. This situation leaves us with the following puzzle:

¹⁷ Mooney (2023b).

¹⁸ Mooney (2023c).

¹⁹ Ancient Greek philosophers debated whether the Ship of Theseus persists through complete turnover of its parts (Plutarch, *Life of Theseus* 23; cf. Plato, *Phaedo* 58a-b). But the fission puzzle I discuss here is due to Hobbes (*De Corpore* 11.7).

- (1) The original Ship of Theseus is the ship made of new planks.
- (2) The original Ship of Theseus is the ship made of reassembled planks.
- (3) The ship made of new planks is not the ship made of reassembled planks.

Proposition (1) seems true because ships seem able to survive gradual turnover of their planks; (2) seems true because it seems possible to reconstruct a ship by reassembling the planks that once composed it; and (3) seems true because the ship made of replacement planks is in a different place from the reassembled ship, and a single ship cannot be in two places at once.

One solution to this puzzle claims that, when the original planks are reassembled, they compose a different ship than before - one which is a mere replica of the original. Therefore (2) is false. Call this the *replication solution*.²⁰ This solution comes in many forms, which vary in respect of how they explain why the reassembled boards fail to compose the same ship they previously composed. For example, one could say that, in general, when an object is disassembled, it ceases to exist, and it cannot be brought back into existence by reassembly. The best one can do is create a replica out of the original parts.²¹

Another option is to say that, in ordinary cases of disassembly and reassembly, an object survives the entire process, but not in fission cases like the Ship of Theseus. Lowe (1983) defends a version of this view, claiming that the old planks cease to be parts of the original ship when they are replaced, because otherwise there would be two ships that shared most of their parts at the same time, which Lowe takes to be impossible. And when the old planks cease to be parts of the original ship, they cease to be

²⁰ Versions of this solution are defended by Smart (1972), Hirsch (1982: 68-71), Lowe (1983), Evinne (2016: 106-109), and Mooney (2023e).

²¹ Thanks to Ned Markosian for this suggestion.

parts out of which the original ship could be reassembled, so the reassembly attempt inevitably fails.

However exactly it is developed, the replication solution satisfies all the constraints of the phasalist approach. It satisfies the conservative constraint because it classifies this coincidence case as an instance of a kind of change that features in phenomenal metaphysics: creation, and more specifically, replication. According to phenomenal metaphysics, a new object can be created by assembling other objects, such as boards, bricks, blocks, and so forth. And in some cases, when the assembled object resembles another object in appropriate ways, the newly created object is a replica of that other object.

The resemblance constraint is satisfied too, because reassembling the old boards into a ship resembles paradigm cases of creation in general and replication in particular, and it does so in significant ways. In fact, reassembling the old boards is intrinsically just like creating a replica of the Ship of Theseus. The only difference concerns the history of the boards used: did they previously compose the Ship of Theseus, or did they not? Of course, some will think that difference makes all the difference. The replication solution denies this, and each version of it (like Lowe's) tells some alternative story which is intended to be plausible as well. I won't engage in a comparative assessment of these views here.

The point I want to emphasize is about how resemblance to paradigm replication impacts the overall plausibility of the replication solution. Compare a case in which certain boards compose a ship at t_1 and t_2 , and the ships at those times are perfectly continuous with each other: no intervening fission, part replacement, or disassembly and reassembly. To deny that the boards compose the same ship at t_1 and at t_2 in this case is so implausible as to be absurd. By my lights, it is much easier to swallow the suggestion that the boards in the fission scenario compose a different ship after they have been reassembled. And I think at least part of the reason for this is that the reassembly case resembles paradigm cases of creation (and replication) much more closely. The similarity minimizes the extent to

which the phenomenal-metaphysical view of what creation (and replication) can look like must be revised.

Finally, the replication solution satisfies the coherence constraint. As far as I can see, the replication solution is compatible with all of the other solutions I have endorsed, and it does not use the resources of their rivals, such as temporal parts or stages, constitution, or eliminativism.

7. In Defense of Diversity

I have now applied the phasalist approach to at least four importantly different material coincidence puzzles. In each case, I did this by arguing that an existing solution to the puzzle satisfied each of the constraints of my broadly phasalist approach. But how does this phasalist approach compare to rival approaches, particularly rivals that treat coincidence cases more uniformly?

First, the phasalist approach is at least as conservative as its rivals, and perhaps more conservative than they are. Because of the conservative constraint, the phasalist approach does its work using kinds of change we already believe that objects sometimes undergo. By contrast, the constitution theorist relies on a kind of change that does not feature in phenomenal metaphysics: becoming (or ceasing to be) coincident with another material object. The four-dimensionalist goes even farther, adopting a revisionary view of the very nature of change in objects. And the eliminativist goes farther still, not merely revising our view of what objects are like, but denying that they exist at all. So the phasalist approach is at least as conservative and perhaps more conservative. Moreover, because of the resemblance constraint, the way in which the phasalist approach is revisionary is extremely minimal. Some ordinary kinds of change are extended to cases we would not have thought they extended to, but only if those cases significantly resemble paradigm cases of the kind of change in question. The greater the resemblance, the less revisionary the extension.

One might protest that, even if the phasalist approach is less revisionary than rival approaches for each coincidence puzzle taken individually, it is not less revisionary as an account of all coincidence puzzles considered collectively. If different kinds of coincidence puzzles are subsumed under different ordinary kinds of change, then the proponent of the phasalist approach is going to end up tampering with each of those kinds of change, expanding each of their extensions to encompass whatever coincidence cases they are being used to explain. Those revisions, however modest they might be in isolation, add up. By contrast, once the proponent of a rival approach has introduced their revisionary metaphysical idea to solve one coincidence puzzle, they don't have to introduce any further revisionary metaphysics to solve other coincidence puzzles. They can just re-use the one revisionary idea they already have on hand.

My response to this charge is that re-using the revisionary idea that the proponent of a rival approach already has on hand is not cost-free. Just as the phasalist approach expands the extension of various ordinary kinds of change to include corresponding kinds of coincidence, so each rival approach expands the extension of its revisionary idea (e.g. constitution) to include all of those same kinds of coincidence. And some approaches, like the four-dimensionalist and the eliminativist approaches, extend their revisionary ideas beyond coincidence cases. This expansion should not be dismissed as insignificant. If some metaphysical notion is foreign to phenomenal metaphysics, then, the farther its extension is expanded beyond the null extension, the less closely the world as imagined by the view in question resembles the phenomenal world.

I can imagine someone protesting that, even if the phasalist view is at least as conservative as its rivals, it is inferior to its rivals in other ways. In particular, it might seem objectionably piecemeal when juxtaposed with rivals that treat various coincidence puzzles more uniformly. Aren't those rivals more parsimonious, simple, or elegant than the phasalist approach? It might look that way at first. But I think this impression is produced by what I will call "coincidence puzzle myopia". If we focus on coincidence puzzles themselves, all we will see is the elegant uniformity of uniform

approaches contrasted with the seemingly piecemeal diversity of the phasalist approach. But if we also consider the broader world that coincidence puzzles inhabit, we will see how the phasalist approach integrates those puzzle cases into that broader world. At that point, it becomes less clear that more uniform approaches to coincidence puzzles are more parsimonious, simple, or elegant.

Take parsimony. One might claim that at least some uniform approaches to coincidence puzzles are more parsimonious than the phasalist approach. This is clearest in the case of the eliminativist approach, since it works by subtracting ontology and ideology from phenomenal metaphysics. However, my view is that parsimony should be balanced with conservativeness. The eliminativist approach comes at a very great cost - the cost of rejecting a good deal of what seems to be true about the world. So consider a more conservative alternative, such as the constitutional approach. The constitutional approach adds the constitution relation to our ideology, but that's all. Once the constitution relation is introduced, it can be used over and over again for each coincidence puzzle. By contrast, the phasalist uses a different bit of ideology for each kind of coincidence puzzle: phase sortal changes over here, persistence through material turnover over there, and so on. So the phasalist approach is less ideologically parsimonious.

Not so fast! This argument gets its plausibility from coincidence puzzle myopia. The constitution theorist is likely to believe that there are such things as phase sortal changes, as well as the other ordinary kinds of change the phasalist uses to solve coincidence puzzles. In that case, when we consider the constitutional picture of the world as a whole, we will find all of the ideology that the phasalist draws on to solve coincidence puzzles, with the constitution relation besides. So, other things being equal, the constitutional view will turn out to be *less* parsimonious than phasalism.

Even if uniform approaches to coincidence puzzles are not more parsimonious than the phasalist approach, one might insist that there is some sense in which they are simpler than the phasalist approach. After all, they tell just one explanatory story that applies to every kind of coincidence

case, whereas the phasalist tells a different explanatory story for each different kind of coincidence case. As long as each story is approximately equally complex, then one such story is simpler than many. But this impression falls away when we are liberated of coincidence puzzle myopia. We have seen that the story the phasalist tells about each coincidence case is the same story that is normally told about certain less puzzling cases. For example, the puzzling case of the statue is interpreted as a phase sortal change, just as the non-puzzling case of growing into an adult is interpreted as a phase sortal change. Any rival view that accepts the same standard stories as the phasalist about these non-puzzling cases, but tells a different story about the puzzling cases, will likely end up with a picture of the world that is *more* complex than phasalism's picture.²²

Finally, one might claim that uniform approaches to coincidence puzzles are more elegant than the phasalist approach. This is the hardest claim to assess, since it is difficult to measure elegance. But I grant that there is something elegant about uniform approaches. Unity is often elegant. What I'm not so sure about is the claim that the phasalist approach is less elegant. When we are not blinded by coincidence puzzle myopia, we can see that the phasalist approach promotes unity in its own way, for it unifies each coincidence case with instances of an ordinary kind of change, and in this way, it integrates them into the picture of the world painted by phenomenal metaphysics. And that makes for a beautiful picture indeed.²³

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²² Thanks to Ned Markosian, who made a similar point in conversation.

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