

## Abstract

Several philosophers have recently defended CAUSAL ESSENTIALISM – the view that every property confers causal powers, and whatever powers it confers, it confers essentially. I argue that on the face of it, CAUSAL ESSENTIALISM implies a form of MONISM, and in particular, the thesis I call ‘Mereological Monism’: that there is some concretum that is a part of every concretum. However, there are three escape routes, three views which are such that if one of them is true, CAUSAL ESSENTIALISM does not imply any form of MONISM at all. I survey the costs associated with taking these escape routes along with the costs associated with accepting MEREOLOGICAL MONISM.

## 1 Varieties of Monism

Several philosophers have recently argued for the following view:

CAUSAL ESSENTIALISM: every non-trivial qualitative property confers causal powers, and whatever causal powers it confers, it is essential to it that it confers *those* causal powers (Shoemaker [1980], Molnar [2003], Bird [2007]).<sup>1</sup>

This can be sharply contrasted with the Humean view that *mass*, say, only contingently “behaves” the way the Law of Conservation of Linear Momentum says it does. CAUSAL ESSENTIALISM has many interesting consequences. One of its apparent consequences is that there are absolutely necessary connections between distinct existents: the way one thing is intrinsically seems to place constraints – ones that have the force of logic – on the way the rest of the world can be intrinsically.<sup>2</sup> These necessary connections suggest a unified, or monistic, picture of the world, one very different from the Humean picture of “entirely loose and separate” things, or in its twentieth-century iteration, the Lewisian picture of a “vast mosaic” of independent local matters of fact.

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<sup>1</sup>Two terminological notes: I am using ‘power’ in such a way that powers are a species of properties. Thus, according to CAUSAL ESSENTIALISM as I’ve stated it, powers confer powers just as non-powers confer powers.

Second, by a ‘trivial property’ I mean any property such that necessarily, it’s instantiated by everything. A ‘non-trivial property’ is any property that is not trivial, of course.

On a more substantive note, some Causal Essentialists recognize some exceptions, such as *historical* properties (and presumably *futurals* as well), and perhaps extrinsic geometric properties (Molnar [2003]). The existence of these exceptions, if such there be, will not affect my argument.

<sup>2</sup>Of course, even the weaker thesis that *some* intrinsic properties confer whatever powers and dispositions they do essentially also has that consequence. The importance of this fact will emerge in §3.

Of course, a picture is just a picture, not a thesis. But, I will argue, the existence of such necessary connections might in fact imply some version of MONISM, the thesis that, in some non-trivial sense, the World is One. “Some” version because MONISM comes in several varieties. “Might” in fact imply because there are three escape routes, three views which are such that if one of them is true, CAUSAL ESSENTIALISM does not imply any form of MONISM at all (or at least if there be such an implication, it cannot be demonstrated in the way I will suggest). Whether a Causal Essentialist should take one of the escape routes or accept the monistic conclusion is a matter of weighing the overall plausibility of the escape routes against the overall plausibility of the version of monism otherwise implied by CAUSAL ESSENTIALISM, a task I will take up in the second half of this article. But I’m getting ahead of myself. The first order of business is to pinpoint the version of monism that might be implied by CAUSAL ESSENTIALISM.

Jonathan Schaffer [2007, 2010a, 2010b] has recently called our attention to two such versions, the theses he calls ‘existence monism’ and ‘priority monism’. EXISTENCE MONISM is the radical ontological doctrine that there is exactly one concrete thing. Now, since we pre-theoretically think there are many distinct concreta - you and I, for example - EXISTENCE MONISM can itself be specified in at least two ways. The first “eliminates” many of the concreta we pretheoretically think exist. Here’s an example of such a specification: neither you nor I exist. And don’t worry, we’re not alone, since none of our friends exist either. The only concretum is the Cosmos. (The “eliminativist” specification comes in many other varieties too: you exist and no other concretum, I exist and no other concretum, neither of us exist since God is the only concretum, etc.) The second specification “identifies” the concreta we pretheoretically think exist: it says that both you and I exist, we’re just identical. And don’t worry, we’re not alone: we’re identical with all our friends. And to my hamster and to my cheese danish. And to everything else. (In a sense we *are* all alone.) So there are two forms of EXISTENCE MONISM.<sup>3</sup> (EXISTENCE MONISM, need not “take” the form of either specification, of course. It can remain as abstract and neutral as my initial statement of it. It would then be the disjunction of its more specific forms.)

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<sup>3</sup>There are also hybrids: specifications that “eliminate” some of the things we pretheoretically believe exist, and identify the remaining ones with one another.

There is also, I suppose, a third and non-hybrid sort of specification: one that neither eliminates nor identifies most of the things that we pretheoretically believe exist, but which denies of them their concreteness. (See [van Inwagen \[2009\]](#), for a corresponding taxonomy of views that occupy the terrain of MONISM.) Whether such a view makes any sense depends in part on what the concrete/abstract distinction comes to. If, for example, one distinguishes them by Way of Example ([Lewis \[1986\]](#)) - saying “By ‘concrete thing’ I mean anything that’s like quarks and electrons and you and me” - then I don’t see how such a view could make any sense. But on some of the ways of distinguishing them ([Lewis, ibid.](#)), the view at least makes sense, even if it is wildly implausible.

Now, EXISTENCE MONISM, in whatever form, is an enormous pill to swallow.<sup>4</sup> PRIORITY MONISM on the other hand is palatable, at least so long as it's intelligible. The central concept that figures into the doctrine is that of *ontological priority*: when  $x$  is ontologically prior to  $y$ ,  $y$  exists and has the nature it does in virtue of  $x$ . PRIORITY MONISM then is the doctrine that there is exactly one concretum that is "basic", i.e. is such that no concretum is ontologically prior to it. And making the very plausible assumption that the *ontological priority* relations over actual concreta form a well-founded partial ordering, that is equivalent to the claim that there is exactly one concretum such that it is ontologically prior to every other concretum (Schaffer [2010b]). (I shall assume that they are indeed equivalent.) Here too there is a variety of available specifications, one for each concretum.<sup>5</sup> Schaffer's own specification gives pride of place to the Cosmos, the sum of *all* concreta. But one can accept PRIORITY MONISM and think that some *other* concretum is the basic one.<sup>6</sup> Theistic priority monists - and I should think that theists would find (bare) priority monism quite congenial - would presumably hold that God is the only basic concrete being.<sup>7</sup>

So much for Schaffer's versions of MONISM. I'd like to add a third variety to the mix: MERELOGICAL MONISM. This is the view that there is exactly one concretum that is a *part* - proper or improper - of every concretum. This view is related to the other two versions of MONISM in interesting ways. It is sandwiched between them, logically speaking. On the one hand, EXISTENCE MONISM can be thought of as the limiting case of MERELOGICAL MONISM. After all, EXISTENCE MONISM is equivalent to the thesis that there is exactly one concretum that is an *improper part* of every concretum.<sup>8</sup> MERELOGICAL MONISM is just a bit more relaxed with regard to the mereological relations it allows between the "special" concretum and every concretum. So EXISTENCE MONISM entails MERELOGICAL MONISM.

On the other hand MERELOGICAL MONISM plausibly entails PRIORITY MONISM: it does so as long as a mereologically bottom-up picture of priority is (necessarily)

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<sup>4</sup>That hasn't stopped some philosophers from defending it. See Horgan and Potrč [2000] for a defense of an eliminativist specification.

<sup>5</sup>If PRIORITY MONISM is formulated as a necessary truth, and the basic concretum is allowed to vary from world to world, then there are even more varieties.

<sup>6</sup>You might think that you can't do that if you accept Schaffer's [2010b] *covering constraint*, which is the constraint that the Cosmos is the sum of all the basic concreta; but you can - or at least something close enough and equally well motivated - if you accept MERELOGICAL MONISM, the view I am about to propose, since on that view, the Cosmos is at least *a* sum of all the basic concreta.

<sup>7</sup>As Jonathan Schaffer pointed out to me, theistic priority monists could agree with him that the Cosmos is ontologically prior to all "natural beings," say; indeed, Schaffer's own thesis seems to be committed to nothing more, since he remarks [2010b] that "deities and spirits, if such there be, are not my concern either", thus allowing for the possibility that while all natural beings are dependent on their sum, that sum (the largest natural part of the Cosmos) is itself dependent on God or some other non-natural being.

<sup>8</sup>Where by 'x is an improper part of y' I just mean 'x is identical with y'.

correct. That is, as long as (necessarily) a concretum is prior to any concretum of which it is a proper part. This is intuitive: things are “constructed,” or “put together,” or “built up,” out of their parts.<sup>9</sup> Thus, (necessarily) if MERELOGICAL MONISM is true, then there is exactly one concretum,  $x$ , such that every concretum is either identical with  $x$  or has  $x$  as a proper part; and hence such that every concretum is either identical with  $x$  or posterior to  $x$ . And that’s just PRIORITY MONISM. Note, this would deliver a specification of PRIORITY MONISM that’s most certainly not Schaffer’s: not the sum of everything, but the part of everything, is prior to all.

I claim that CAUSAL ESSENTIALISM implies MERELOGICAL MONISM (ignoring the escape routes). I will turn in the next section to my argument for that implication, but first let me make two preliminary remarks. First, one might reasonably wonder whether MERELOGICAL MONISM really deserves the label ‘monism’. Suppose I hold that there is exactly one concretum that is the largest hamburger. That very reasonable thought of mine doesn’t seem to commit me to the idea that, in some non-trivial sense, the World is One. More generally, it’s not as though any view that can be perspicuously expressed by a sentence of form “There exists exactly one concretum that is  $F$ ” deserves the label ‘monism’. Why this one? And even if we narrow down the views to those that are logically sandwiched between EXISTENCE MONISM and PRIORITY MONISM, it still doesn’t seem that all of *them* are really versions of monism. For instance, the claim that there is exactly one *sum* of all concreta is entailed by EXISTENCE MONISM and perhaps entails PRIORITY MONISM (as long as a mereologically top-down picture of priority is (necessarily) correct), but it doesn’t seem to be, all by itself, a version of MONISM.

This is surely true. Nevertheless, I believe the label is deserved. For one thing, there is a precise sense in which the special concretum - call it “the One” - *leaves no remainder*. In standard developments of mereology, the notion of a *difference* between  $x$  and  $y$  is introduced as that of the largest part of  $x$  which has no part in common with  $y$  (Simons [1987]). But if there is something that is the One, then there is no difference between any concretum at all and the One. As a matter of fact, for any concretum  $x$ , there is no part of  $x$  - *largest or otherwise* - that has no part in common with the One. There is no such as thing as the, or even a, remainder when the One is subtracted from a concretum.

Moreover, given the standard definition of ‘the  $x$ s compose  $y$ ’ (i.e., ‘the  $x$ s are all parts of  $y$  and no two of the  $x$ s overlap and every part of  $y$  overlaps at least one of the  $x$ s), the One composes every concretum. After all, the One is a part of every concretum, and so every concretum overlaps it. And it gets even more interesting. Assuming the antisymmetry of proper parthood, the One has no proper parts: it is

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<sup>9</sup>Although it’s intuitive, it does seem to commit one to the heavy-duty principle known as mereological essentialism (see Chisholm [1973]); or at least it does so if whenever  $x$  is ontologically prior to  $y$ ,  $y$  can’t exist without  $x$ .

a simple.<sup>10</sup> So there is some one simple that composes every concretum. Ordinarily we'd go on to infer that there's just one concretum, period (EXISTENCE MONISM). Assuming classical mereology, we'd be right.<sup>11</sup> And even though classical mereology is wrong if MERELOGICAL MONISM is true (in particular, the so-called Weak Supplementation Principle is false), it's interesting enough that there's just one simple of which everything concrete is composed.

Putting the previous two points together: supposing MERELOGICAL MONISM (and the antisymmetry of proper parthood), there is some simple that composes everything concrete and which leaves no mereological remainder: the One. That thesis certainly seems like a good candidate for a non-trivial sense of the saying "the World is One," and hence deserves the label 'monism'.

The second preliminary remark is this: you might not think CAUSAL ESSENTIALISM is true. And that's OK; neither do I. My argument can still be of interest for two reasons. For one thing, it's helpful to know what CAUSAL ESSENTIALISM implies, if only to give you another reason to reject it. And for another thing, one might hold that there are necessary connections between distinct existents *on grounds other* than CAUSAL ESSENTIALISM. Indeed, I think there are such necessary connections on the grounds that *phenomenal* properties are (it seems to me) intrinsic and yet their instantiation requires the rest of the world to be a certain way intrinsically.<sup>12</sup> Since my argument here requires only the existence of such necessary connections, no matter what gives rise to them, my argument would show that any view according to which there are such necessary connections implies either MERELOGICAL MONISM or one of the escape routes. In the interest of providing helpful and familiar illustrations, I will indeed focus on the sorts of necessary connections that arise if CAUSAL ESSENTIALISM is true; but my argument has wider applicability.

## 2 Argument

What do I mean exactly by saying that there are absolutely necessary connections between distinct existents? I mean that there are apparent violations of a Humean Patchwork principle: that is, of a principle that says that the way one thing is intrinsically (and the spatiotemporal relations in which it stands) is in-

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<sup>10</sup>Strictly speaking, what follows without any further assumptions is that it has no *concrete* proper parts; thus, in this and the next paragraph, when I say 'simple,' it should be understood that I mean 'thing with no concrete proper parts'.

<sup>11</sup>As Peter Simons [1987] puts it, "In a classical mereology, there is a fixed relationship between the number of atoms and the number of objects, assuming that everything is made of atoms." (17) As Peter van Inwagen noted in conversation, in order to go on and infer EXISTENCE MONISM, we wouldn't need to assume *all* the axioms of classical mereology; for example, we wouldn't need to assume an axiom that (under its intended interpretation) guarantees arbitrary sums.

<sup>12</sup>Defending this claim requires much more space than I have here. See ?.

dependent, in the broadly logical sense, of the way anything *else* is intrinsically (and the spatiotemporal relations in which *it* stands). Since these ways of being intrinsically can vary independently of one another, the principle guarantees the possibility of all manner of combinations. There is an “apparent violation” of a Patchwork principle just in case there is some state of affairs that is impossible, but whose possibility is apparently guaranteed by that principle.

Now, it’s important to distinguish between two versions of the Patchwork principle, which we might call ‘Patchwork<sub>De Re</sub>’ and ‘Patchwork<sub>De Qualitate</sub>’. PATCHWORK<sub>DE RE</sub>, as the subscript suggests, guarantees the relevant *de re* possibilities. For example, if I could be two inches taller, and you could be two inches shorter, it guarantees a possible world in which both *I* am two inches taller and *you* are two inches shorter than we in fact are. (Feel free to insert your preferred analysis of *de re* modal talk: if you usually analyze it in terms of counterparts, you can continue to do so.) PATCHWORK<sub>DE RE</sub> is a very strong principle: it conflicts, for example, with Kripke’s ORIGINS ESSENTIALISM. And I don’t quite see why I should think it’s *true*: after all, what would guarantee that a thing’s essence is intrinsic to it? (If counterpart theory is right, then it commits one to the claim that similarities in extrinsic respects don’t count for the counterpart relation. Why should anyone think that? And if the relevant counterpart relation is determined by context, that claim becomes even less plausible.)

PATCHWORK<sub>DE QUALITATE</sub> on the other hand guarantees only a possible world in which there is *something* with the (qualitative) intrinsic nature I would have if I were two inches taller and *something* with the (qualitative) intrinsic nature you would have if you were two inches shorter.<sup>13</sup> Those things need not be the two of us. More generally, it gives us a patchwork principle for *intrinsic natures*: for any intrinsic natures, they can be instantiated arbitrarily many times over and in any mereologically disjoint spatiotemporal arrangement. It doesn’t say what is doing the instantiating.

Violations, real or apparent, of PATCHWORK<sub>DE RE</sub> are not my concern here. As I’ve already indicated, even pervasive violations of PATCHWORK<sub>DE RE</sub> seem to me unremarkable and not to imply any of the versions of MONISM discussed in §1.<sup>14</sup> My concern rather is with violations of the weaker PATCHWORK<sub>DE QUALITATE</sub>. I will later give due consideration to the possibility of denying PATCHWORK<sub>DE QUALITATE</sub> – that is one of the escape routes – but for now, I will assume it’s true. (Henceforth, I will use ‘PATCHWORK’ to mean PATCHWORK<sub>DE QUALITATE</sub>.)

But here’s the rub: CAUSAL ESSENTIALISM has the consequence that there are

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<sup>13</sup>Some definitions: a property is *intrinsic to x* iff it is shared by all of *x*’s possible intrinsic duplicates; a property is *intrinsic* iff possibly it is intrinsic to something; a property is an *intrinsic nature of x* iff it is shared by all and only *x*’s possible intrinsic duplicates; a property is an *intrinsic nature* iff possibly, it is an intrinsic nature of something. (For now, I am taking ‘intrinsic duplicate’ as primitive. See however nt. 26.)

<sup>14</sup>Schaffer [2010a] disagrees; see nt. 19.

apparent violations of PATCHWORK. For instance, according to CAUSAL ESSENTIALISM, *rest mass* is essentially such as to “behave” the way the Law of Conservation of Linear Momentum says it does. So there is no possible world in which some lonely particle has a certain rest mass at  $t_1$ , it follows a trajectory in spacetime such that its velocity remains constant until  $t_2$ , but its rest mass is *different* at  $t_2$ . But the possibility of that state of affairs appears to be guaranteed by PATCHWORK: CAUSAL ESSENTIALISM has the consequence that there are apparent violations of PATCHWORK.

Now, as far as I can tell, there are just two ways to drive a wedge between the appearance of a violation of PATCHWORK and the reality of one. One way is to say that although a certain property appears to be intrinsic, it really isn't. Applied to the case involving the trajectory of a lonely particle, this would involve saying that although *such-and-such rest mass* appears intrinsic, as a matter of fact it isn't. I will later give due consideration to this possibility – it is another of the escape routes – but for now, I will assume it's false. Indeed I will assume that the fundamental properties that figure into the actual laws of nature – like (determinates of) *mass*, *charge*, and *spin* – are all intrinsic. (Call this thesis 'INTRINSICNESS'.) Prominent proponents of CAUSAL ESSENTIALISM have concurred (Shoemaker [1980], Molnar [2003], Bird [2007]), and I will, at least for the time being, follow their lead.

This brings me to the second way of driving a wedge between appearance and reality, a wedge which relies on the qualification in my statement of PATCHWORK that the spatiotemporal arrangement must be *mereologically disjoint*. There is no possible world in which a sphere that is red through-and-through shares a part with a sphere that is green through-and-through, since there'd have to be something – that thing which is part of both – that is both red through-and-through and green through-and-through, and there couldn't be any such thing. So PATCHWORK makes an exception: it guarantees the possibility only of *mereologically disjoint* spatiotemporal arrangements of instances of intrinsic natures, i.e. arrangements such that if instances of those intrinsic natures were in that arrangement, no two of those instances would share a part. That exception leads to a second way in which appearances can be misleading: what appears to be disjoint isn't really.

That such appearances are in fact *systematically* misleading is, I claim, implied by CAUSAL ESSENTIALISM (conjoined with INTRINSICNESS and PATCHWORK). The basic argument for that claim should be obvious enough: if CAUSAL ESSENTIALISM and INTRINSICNESS are true, there are systematic necessary connections between the intrinsic natures of distinct, and apparently disjoint, concreta. But assuming PATCHWORK is true, then such appearances of disjoint arrangements must be systematically misleading.

Here's the argument in some more detail. Consider just two concreta, say the Sun and the Earth. (I'm thinking of the Sun and the Earth over their entire “careers”. Thus both of them have a temporal extent in the billions of years.) Name their intrinsic natures, ' $Q_{\text{Sun}}$ ' and ' $Q_{\text{Earth}}$ '. Now, consider whether for any (appar-

ently mereologically disjoint) spatiotemporal arrangement, it's possible that  $Q_{\text{Sun}}$  and  $Q_{\text{Earth}}$  are each instantiated once over, in that arrangement, and *no other concretum exists* (besides their parts and sums of those parts). Answer: not if CAUSAL ESSENTIALISM and INTRINSICNESS are true. The causal powers and dispositions which, assuming CAUSAL ESSENTIALISM and INTRINSICNESS, are entailed by  $Q_{\text{Sun}}$  ( $Q_{\text{Earth}}$ ) are such that nothing with those causal powers and dispositions would take a trajectory with the same shape as that taken by the Sun (Earth) unless it finds itself surrounded by just the right constellation of bodies with just the right causal powers. The actual trajectory of the Sun (Earth) is a result, in the main, of the vector sum of the gravitational forces exerted by each of the surrounding bodies in tandem with its own causal powers and dispositions; keep its own causal powers and dispositions fixed and change those forces – by changing the pattern of instantiation of causal powers *elsewhere*, say by just “deleting” all the other bodies except Earth (Sun) – and one will of necessity change its trajectory.

But supposing that PATCHWORK is true, there is only one way to explain away this seemingly mysterious “necessary connection”, and it is this: there would have to be overlap between those two things in that scenario, even though it doesn't seem as if there would be. After all, the supposition is that there is nothing else, and so there is nothing else to overlap. And the natural conclusion to draw is that this would not be a feature of those two intrinsic natures only if they were, *per impossibile*, to stand in those spatiotemporal relations. That would reintroduce the mysterious connection yet again. Rather, it would be a feature of those two intrinsic natures no matter where and when they would be instantiated. That is, although it *appears* that those intrinsic natures could be instantiated without sharing a part, that is not in fact the case. So necessarily, anything that instantiates the one will overlap anything that instantiates the other. And a perfectly analogous argument would seem to establish that the same goes for any pair of intrinsic natures, at least of the sort that are instantiated by actual concreta. Thus, for any two intrinsic natures of actual concreta, necessarily, anything that instantiates the one will overlap anything that instantiates the other. And that obviously implies that every two concreta in fact overlap.

That's pretty interesting in its own right. But we can go one step further, assuming that there is at least one concrete simple <sup>15</sup> (Call this claim ‘SIMPLE’.) That there is at least one concrete simple seems well-supported: it's true according to what is currently our best physical theory, it's true according to classical theism, and it's true according to a host of metaphysical theories about the nature of human persons that have been endorsed by such illustrious philosophers as Plato, Descartes, Leibniz, and Berkeley.<sup>16</sup> I say that any proposition that has in its favor

<sup>15</sup>What I mean *here* by ‘concrete simple’ is a concretum that has no proper parts, period. See nt. 10.

<sup>16</sup>Admittedly, the physical and metaphysical theories to which I refer don't directly deliver the result that there is a concrete simple, since they say nothing about whether ostensibly simple

the consensus of physicists, the faithful, and a fair number of philosophical giants is reasonable to believe unless we have very strong grounds to reject it.<sup>17</sup> (I will later give due consideration to the possibility of denying it – that is the third and final of the escape routes – but for now, I will assume SIMPLE is true.) So let’s assume that there is some concrete simple and every two concreta overlap. That conjunction straightforwardly entails MERELOGICAL MONISM.<sup>18</sup>

That completes my argument that CAUSAL ESSENTIALISM - conjoined with INTRINSICNESS, PATCHWORK, and SIMPLE - implies MERELOGICAL MONISM.<sup>19</sup> That is, the following five claims form an inconsistent set:

1. CAUSAL ESSENTIALISM
2. INTRINSICNESS
3. PATCHWORK

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concreta have abstracta, like properties, as parts. But as I will explain in §5.1, I find the whole notion of a concretum having an abstractum as a part very obscure. So I will assume that no abstractum, if there by any, is part of any concretum.

<sup>17</sup>Schaffer [2003] argues that science does not support atomism - and although atomism is stronger than the claim that there is some concrete simple, one might think that science’s support for the latter comes by way of its support of the former - but what he means by that is that there is no empirical evidence for any of the following three claims: (1) There will be a complete microphysics; (2) The complete microphysics will postulate particles; (3) These particles are the mereological atoms. But even if those three claims are not supported by the empirical evidence - indeed, even if they are all false - it might well still be the case that what is currently our best physical theory implies atomism, and a fortiori implies the weaker claim that there is some concrete simple. All I claim is the latter.

<sup>18</sup>Assume there is some concrete simple and every two concreta overlap. So there is some concrete simple  $x$ , such that for any concrete  $y$ ,  $x$  overlaps  $y$ ; that is, such that for any concrete  $y$ , there is some  $z$  such that  $z$  is part of  $x$  and  $y$ ; but since  $x$  is a simple, it has no parts other than itself; so  $x$  itself is part of  $y$ . That is, there is some concrete simple  $x$ , such that for any concrete  $y$ ,  $x$  is part of  $y$ . But if there is some concrete simple that is part of every concretum, then there is *no more than one* concretum that is part of every concretum, for if there were more than one, then they’d all be parts of each other, and none would be simple after all. Thus, there is *exactly* one concretum that is part of every concretum. That is, MERELOGICAL MONISM is true. (And it further follows that there is exactly one concrete simple that is part of every concretum.)

<sup>19</sup>Both Schaffer [2010a] and Williams [2012] argue for similar-sounding implications (although the variety of MONISM they claim is implied is Schaffer’s specification of PRIORITY MONISM, rather than MERELOGICAL MONISM). However, Schaffer [2010a] is concerned with the monistic implications of an importantly different thesis that goes by the name ‘Causal Essentialism’, which is that *individuals* bear their causal powers (and liabilities) essentially. CAUSAL ESSENTIALISM, on the other hand, makes no claim about what properties are essential to *individuals*, only about what (higher-order) properties are essential to *properties*. As a consequence, Schaffer’s argument needs to assume something like PATCHWORK<sub>DE RE</sub> rather than PATCHWORK<sub>DE QUALITATE</sub>.

And while Williams [2012] is discussing CAUSAL ESSENTIALISM proper, I’m not at all confident that I have followed his argument, both because I don’t understand why his talk of “reciprocal manifestations” is needed to generate the apparent conflict between CAUSAL ESSENTIALISM and PATCHWORK in the first place and because I have no idea how accepting Platonism would be a way to avoid it.

4. SIMPLE

5.  $\neg$ MEREOLOGICAL MONISM

How shall the Causal Essentialist – that is, someone who accepts CAUSAL ESSENTIALISM and won't give it up – react to the dilemma I have presented? It's now time to take a look at the costs associated with each of her options.

### 3 First Escape Route: Reject Intrinsicness

In the previous section, I yoked CAUSAL ESSENTIALISM to the assumption that the fundamental properties that figure into the actual laws of nature – like (determinates of) *mass*, *charge*, and *spin* – are intrinsic, and I noted that prominent proponents of CAUSAL ESSENTIALISM indeed endorse that view. But maybe it's time for them to reconsider: perhaps the best option for Causal Essentialists is to deny INTRINSICNESS. If CAUSAL ESSENTIALISM is stripped of its commitment to the intrinsicness of the fundamental properties, then it can get along just fine with PATCHWORK, without forcing its adherents to conclude that SIMPLE is false or that MEREOLOGICAL MONISM is true.

But this option would come at a very high cost. There are the prices that anyone would have to pay who held that *mass* and *charge* and the like are not intrinsic (Hawthorne [2006]). Those are nothing to sneeze at, but much higher are the prices that the Causal Essentialist in particular would have to pay in order to take this escape route *in all cases of apparent conflict* between CAUSAL ESSENTIALISM and PATCHWORK. So as to maintain the consistency of CAUSAL ESSENTIALISM and PATCHWORK along these lines, Causal Essentialists would need to hold that it's not possible for anything, or at least any concretum, to instantiate a non-trivial intrinsic nature. For any non-trivial intrinsic nature, according to CAUSAL ESSENTIALISM, entails certain causal powers; and an intrinsic nature that entails causal powers, it would seem, must place *some* restriction on how its bearer's environment can be (intrinsically); so we'd face an apparent conflict between CAUSAL ESSENTIALISM and PATCHWORK, one which we can extricate ourselves from only by saying that there are no non-trivial intrinsic natures, *or* by assuming that there would have to be overlap where we didn't think there would have to be; and to take the latter option is not to take the escape route presently under consideration *in all cases of apparent conflict* between CAUSAL ESSENTIALISM and PATCHWORK.

But think about the implications of the fact that necessarily, no concretum has a non-trivial intrinsic nature. For one thing, it would imply that you and my hamster are intrinsic duplicates: for if you two weren't intrinsic duplicates, then one of you would have a non-trivial intrinsic nature. But isn't it fairly obvious that you and my hamster are *not* intrinsic duplicates? (Shouldn't you be insulted by the suggestion that you are?)

For another thing, it would seem to imply NECESSITARIANISM, the thesis that there is exactly one possible world. Or at least something near enough. For it is evident that once you settle the intrinsic nature of the Cosmos (the sum of all the concreta), and you settle that it is the Cosmos (and thus that there is nothing concrete that isn't part of it), then you will have settled the (qualitative) properties that the Cosmos has intrinsically *and* extrinsically (i.e., those properties it has in virtue of its relations or lack thereof to things other than its parts), and hence you will have settled all the qualitative facts, period.<sup>20</sup> (What qualitative facts wouldn't be settled by *all* the features of the Cosmos?) But remember, there are no non-trivial intrinsic natures, so any two possible Cosmos will have the *same* intrinsic nature. Thus, any two worlds in which there *is* a Cosmos will differ at most haecceitistically. It seems that the only qualitative departure from actuality whose possibility this would permit is the empty world! This is a huge pill to swallow.<sup>21</sup>

What's more, assuming that no concretum instantiates a non-trivial intrinsic nature robs Causal Essentialists of one of the primary motivations for their view. Sydney Shoemaker (1980) has argued for CAUSAL ESSENTIALISM on the grounds that denying it would imply that we lack all sorts of knowledge that we in fact have. For example, I wouldn't know that my hammer has (for the most part) stayed the same over the course of the past year, since if CAUSAL ESSENTIALISM were false, then I wouldn't know that the manifest continued presence of causal powers is any indication that the hammer *genuinely stayed the same*; and conversely, I wouldn't know that my fence changed when I painted it white, since if CAUSAL ESSENTIALISM were false, then I wouldn't know that the manifest variation in causal powers is any indication that the fence *genuinely changed*. Clearly enough, what Shoemaker means is that I wouldn't know (in the former case) that the hammer's *intrinsic* properties stayed the same and (in the latter case) that the fence's *intrinsic* properties changed. (After all, I am able to know that the fence changed in *some* way, namely in its extrinsic properties.) But if nothing concrete has any non-trivial intrinsic properties, then I *don't* in fact know that the fence changed its intrinsic properties, since it didn't, and (if I can know that nothing concrete has any non-trivial intrinsic properties) I *can* know that my hammer stayed the same regardless of whether CAUSAL ESSENTIALISM is true.

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<sup>20</sup>I have assumed in this paragraph that there is a sum of all the concreta; but essentially the same point could be made without assuming that, since sequences of concreta, sets of concreta, and even just *some concreta* (quantifying plurally) have an intrinsic nature. So a sequence of all the concreta, or a set of all the concreta, or even just *all the concreta* (quantifying plurally), would serve my purposes just as well as a sum of all concreta: settling the intrinsic natures of any one of those, which entails all the intrinsic relations between concreta, would also settle all the qualitative facts.

<sup>21</sup>It's also not obvious that one can maintain it while holding on to PATCHWORK, as the latter is usually fleshed out. Even if there is just one intrinsic nature, PATCHWORK (as it is usually fleshed out) still guarantees that there could be *any number* of instances of that intrinsic nature, which surely means that there could be qualitative variation between possible worlds.

Perhaps, you will say, a Causal Essentialist is best served by taking this escape route only selectively: that is, by saying that when it comes to *some* apparent violations, what's going on is that certain properties appear to be intrinsic but aren't, and that when it comes to *others*, what's going on is that there would have to be overlap where we didn't think there would have to be. (This would still be to dispense with INTRINSICNESS, of course.) But, aside from the inelegance of this compromise, it seems that it would partake of many of the drawbacks of *both* the denial of INTRINSICNESS and MERELOGICAL MONISM, the former to the extent that cases of merely apparent intrinsic properties predominate and the latter to the extent that cases of merely apparent disjointedness predominate.

#### 4 Second Escape Route: Reject Patchwork

You might be puzzled by the whole hullabaloo I've made, especially if you happen to be a published Causal Essentialist. Several Causal Essentialists have explicitly noted and even celebrated the apparent conflict between CAUSAL ESSENTIALISM and PATCHWORK, or something near enough (Molnar [2003], Bird [2007], Wilson [2010]).<sup>22</sup> And each of them says, in effect, so much the worse for PATCHWORK. Thus, Molnar (2003, 184):

In my estimate, we have here a clear reason for resolving the conflict between essentialism and HD [Humean Distinctness, AS] in favor of the former.

And Bird (2007, 174):

The problem with the Dictum [Hume's Dictum, AS], as with the conceivability-possibility inference, is that insofar as it does conflict with dispositional essentialism, it [is] far from obviously true.

And their rejection of PATCHWORK is usually accompanied by the claim that there is no compelling argument in its favor. Molnar (2003, 182) and Bird (2007, 174) explicitly consider an argument based on a "conceivability-possibility link," and find such an argument wanting; Wilson ([2010]), in the longest published discussion of justifications for PATCHWORK of which I am aware, considers the possibilities that PATCHWORK (what she calls 'HD') is analytic, that it is "motivated by intuitions we have no good reason to question," (634) and that it can be justified by an appeal to an inference to the best explanation, and finds all such justifications wanting.

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<sup>22</sup>Shoemaker 1980 focuses on the closely related conflict between the apparent consequence of CAUSAL ESSENTIALISM that the laws of nature are necessary and the Humean view that the laws of nature are contingent.

Thus, it might seem that the obvious escape route for the Causal Essentialist to take – if it can even be called that – is to reject PATCHWORK. If there seems to be no compelling reason to accept it, and it apparently conflicts with CAUSAL ESSENTIALISM, then that would seem to give Causal Essentialists a good reason to reject it.

And one might advance two more considerations in favor of taking this route. First, the standard grounds for PATCHWORK – and ones firmly rooted in Hume’s own work – consist in the pair of assumptions that any situation guaranteed possible by PATCHWORK is conceivable and that any situation that is conceivable is indeed possible. But if a Causal Essentialist is to maintain a consistent set of views by accepting MERELOGICAL MONISM (or even by accepting that there is universal mereological overlap and denying SIMPLE), then it would seem that conceivability is an absolutely horrible guide to possibility! In whatever sense I can conceive of every situation that is guaranteed possible by PATCHWORK, it seems I can equally conceive of a situation in which you and I are mereologically disjoint. So even if the standard grounds for PATCHWORK are any good, they are not ones available to a Causal Essentialist who accepts PATCHWORK!<sup>23</sup>

Second, if MERELOGICAL MONISM is true (or even if it’s the case that there is universal mereological overlap), then PATCHWORK is consistent with *any* modal thesis about the connections between intrinsic natures (at least those instantiated by actual concreta). That is, PATCHWORK is rendered pretty much *useless* for the purpose of determining what possibilities there are. So if a Causal Essentialist were to maintain a consistent set of views by accepting MERELOGICAL MONISM (or even by accepting that there is universal mereological overlap and denying SIMPLE), then she would not be able to make much *use* of PATCHWORK to play one of its central roles, which is to allow us to determine what’s possible. As Lewis [2001, p. 611] puts it, “it is the Humean prohibition of necessary connections that gives us our best handle on the question what possibilities there are”. So even if PATCHWORK could otherwise “earn its keep” by giving us our best handle on the extent of modal space, it can’t do so for a Causal Essentialist.

So why indeed have I made a hullabaloo? Well, first, even if there were no *compelling* reason to accept PATCHWORK, there might be *some* reason – such as an argument based on a conceivability/possibility link – to accept it; in that case, the Causal Essentialist might be well-advised to accept PATCHWORK if that reason is as good or better than the reasons (if such there be) for accepting SIMPLE and denying MERELOGICAL MONISM. (It seems Causal Essentialists have not considered this point because they have neglected the alternatives to denying either CAUSAL ESSENTIALISM OR PATCHWORK.<sup>24</sup>)

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<sup>23</sup>Thanks to Jonathan Schaffer and an anonymous referee here.

<sup>24</sup>Another reason some of them may have failed to consider the point is that they have in mind a cousin of PATCHWORK that is much stronger – and hence much less plausible – than PATCHWORK itself. See, e.g., Molnar [2003].

Second, there might well be a compelling reason to accept PATCHWORK; or at least a reason as compelling as reasons get in this area. Lewis doesn't say very much to justify his acceptance of PATCHWORK, but what he does say is instructive. He refers to any potential violation of PATCHWORK as involving an "unintelligible necessary connection":

It cannot be, for instance, that there is an absolutely necessary connection (as opposed to a contingent law of nature) whereby every charged particle must be exactly a certain distance from another particle. It's one thing for the particle to be charged, another thing for two particles to be at a certain distance – *the common involvement of the same particle is not enough to make the alleged connection intelligible* (1986, 181, emphasis mine)

This remark is strongly suggestive of an argument for PATCHWORK that has nothing to do with a conceivability-possibility link, which we might call the 'Argument from Mystery', and which goes roughly as follows: for any proposition that is absolutely necessary, there has to be some *explanation* of its necessity, some answer to the question, "But why couldn't things be otherwise?" In some cases, the explanation of the fact that proposition *p* is necessary is the fact that proposition *q* is necessary; presumably, though, explanations of that sort can't go on forever, and so in some cases, the explanation of the fact that proposition *p* is necessary will be the fact that proposition *q* is *true*, where proposition *q* does not "say" of another proposition that it's necessary. (Proposition *q* might be necessary – it might well be that one *can't* explain why a certain proposition is necessary by citing one that is contingent – but there won't be any proposition *r* such that *q* is the proposition *that r is necessary*.<sup>25</sup>) For example, what is the explanation of the fact that *it's not the case that Hesperus is distinct from Phosphorus* is a necessary truth, i.e. that Hesperus and Phosphorus can't come apart? It seems to me that there is a straightforward explanation for this fact, which is that *Hesperus is identical with Phosphorus* is *true*. It's not as though Hesperus is identical with Phosphorus because "they" have to be! Hesperus can't come apart from Phosphorus because Hesperus *is* Phosphorus.

But here's the rub: any violation of PATCHWORK would involve a proposition that is absolutely necessary but which lacks an explanation of its necessity. The basic reason is that an intrinsic nature is *intrinsic*, and so it is never instantiated in virtue of its bearer's relation to anything other than its parts; so if the instantiation of intrinsic nature  $Q_1$  necessitated or precluded the instantiation (by an object disjoint from the first) of intrinsic nature  $Q_2$ , then there could be no explanation of

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<sup>25</sup>On whether a contingent truth can be a sufficient explanation of why a certain proposition is necessary, see Blackburn [1987], Hale [2002].

that fact.<sup>26</sup> To personify objects just a bit, an object’s “choice” of intrinsic nature is independent of any other disjoint object’s “choice” of intrinsic nature, in the straightforward sense of ‘independent’: the choices don’t depend on one another, and moreover, they don’t depend on any common source. And so the ingredients are lacking from which we might draw an explanation of such a necessary connection. (If you suspect that personification is misleading, then just *try* to give an explanation – in terms of the nature of the involved properties or relations or whatever else you wish – and see if you can do so in a way that doesn’t run afoul of the intrinsicness of the involved properties/relations.) And the same seems true with regard to a putative necessary connection between an intrinsic nature and the spatiotemporal relations in which its bearer stands. As Lewis put it, “it’s one thing for the particle to be charged, another thing for two particles to be at a certain distance.” There’s nothing, it seems, that could explain such a necessary connection. (Although to be honest, here we don’t even have a proof by personification.)

So goes the basic idea of the argument. However, in order to make this more precise and avoid making false claims about explanation, I should really be using modal *operators* rather than modal *predicates*, and I should not be using the predi-

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<sup>26</sup>In saying that, I am assuming something like the following analysis: *P* is *intrinsic* iff necessarily, *P* is never instantiated in virtue of its bearer’s relations (or lack thereof) to anything other than the bearer’s parts. This might be problematic: suppose something *exists* in virtue of something other than its parts. Then the account would imply that *existence* and *self-identity* are not intrinsic. But that flies in the face of the definition of ‘intrinsic property’ in nt. 13: any two intrinsic duplicates both have the property of *existence* after all.

But we can bypass this problem assuming the correctness of the following analysis. First, say *P* is a *basic intrinsic property* iff necessarily, *P* is never instantiated in virtue of its bearer’s relations (or lack thereof) to anything other than the bearer’s parts. Then here’s the analysis: *x* and *y* are intrinsic duplicates iff for any basic intrinsic property *P*, *x* has *P* iff *y* has *P*; then define all the other intrinsicity terms in terms of ‘intrinsic duplicate’ as in nt. 13. So *existence* and *self-identity* come out intrinsic no matter what depends on what. But crucially, any intrinsic nature is equivalent to some basic intrinsic property. [Here I make three assumptions: (1) there is a possible basic intrinsic property: assuming the correctness of my analysis, this is implied by the seemingly obvious fact that there are things that are *not* intrinsic duplicates, like you and my hamster; (2) the set of basic intrinsic properties is closed under (possibly infinitary) conjunction; (3) the set of basic intrinsic properties is closed under negation.

Argument: every intrinsic nature is possibly instantiated. So suppose intrinsic nature *P* is instantiated by some possible *a*; since there is a basic intrinsic property *Q*, and the set of basic intrinsic properties is closed under negation, then *a* has some basic intrinsic property (either *Q* or  $\neg Q$ ); then the conjunction of all *a*’s basic intrinsic properties, call it ‘*R*’, is a basic intrinsic property. Now, necessarily, anything that has *P* is an intrinsic duplicate of *a*; but then necessarily, anything that has *P* also has *R*. Furthermore, necessarily, anything that has *R* has all and only the basic intrinsic properties that *a* has – that it has all of them follows trivially from its having *R* and that it has only those follows from its having *R* together with the fact that the set of basic intrinsic properties is closed under negation – and so it is an intrinsic duplicate of *a*, and so has *P*. Thus, *P* and *R* are equivalent. But *P* was an arbitrary intrinsic nature and *R* is a basic intrinsic property.] And that’s all my argument requires, since there couldn’t be an explanation of the fact, supposing it’s a fact, that the instantiation of basic intrinsic property *B*<sub>1</sub> necessitated or precluded the instantiation (by an object disjoint from the first) of basic intrinsic property *B*<sub>2</sub>.

cate ‘ $p$  is true’ at all. Consider this explanation of the fact that *it’s not the case that Hesperus is distinct from Phosphorus* is a necessary truth: the fact that necessarily, it’s not the case that Hesperus is distinct from Phosphorus. That seems to be the right explanation – just as the explanation of the fact that *Hesperus is identical with Phosphorus* is a truth seems to be the fact that Hesperus is identical with Phosphorus – but it differs from the one I suggested two paragraphs ago. The reason is that the explanandum I *really* had in mind two paragraphs ago was this: the fact that necessarily, it’s not the case that Hesperus is distinct from Phosphorus. That explanandum does not *refer* or *name* a proposition, and it makes no use of modal predicates. And the explanation of *it*, I contend, is that Hesperus is identical with Phosphorus, and not – as I put it two paragraphs earlier – the fact that the proposition *Hesperus is identical with Phosphorus* is true. (These niceties could be safely ignored – and I wish I could ignore them – if we weren’t discussing explanation!)

So let’s say this: a sentence  $X$  is *necessity-attributing* iff for some sentence  $Y$ ,  $X$  is the sentence ‘ $\Box Y$ ’. And then say that a proposition  $p$  is *necessity-attributing* iff  $p$  can be expressed by some necessity-attributing sentence. Then I can put the Argument from Mystery this way:

1. For any true necessity-attributing proposition  $p$ , there is some true proposition which explains  $p$
2. If PATCHWORK is false, then there is some true necessity-attributing proposition  $p$ , such that there is no true proposition which explains  $p$

### C. PATCHWORK is true

Granted, I owe a little more by way of motivating the first premise, so here’s a story to pay that debt: three philosophers, Alf, Bill, and Sofia, are engaged in a debate about the implications of the fact that certain physical constants, like the cosmological constant, are exquisitely fine-tuned to permit life. Alf argues that this fact implies that it is very likely that the universe was designed by a purposive agent who wanted there to be life; Bill argues that this fact implies that it is very likely there are a huge number of “universes” – perhaps infinitely many – of which our observable “universe” is just one; Sofia argues that this fact implies neither of those things – even given that fact, she says, it is not unlikely that our universe, which is all there is, came to be wholly by chance.

After they bicker for several hours, God descends upon them and enters the fray: “None of you has spoken correctly about the matter of fine-tuning. As a matter of fact, the correct account is that “our universe” is all there is, and it’s just a necessary truth that the constants have the particular values that they do.” Perplexed by this, Alf asks God whether He means by ‘necessary’ something like ‘nomologically necessary’, i.e., that it’s a necessary truth that if the laws of nature are what they in fact are, then those constants have the values they have. God

says ‘no’ – that might be true, but it’s not to the point, and He always speaks to the point. Perplexity still in the air, Bill asks God whether there is some deeper explanation of the fact that the cosmological constant, say, has to have the value it does, some necessary truth from which one can deduce and shed light on the necessity of the cosmological constant’s having the value it does. God says ‘no’ – there is no deeper explanation for the fact that it has to have that value, indeed, no explanation at *all*, it just *does*. If one asks, God continues, why the cosmological constant couldn’t have had a slightly higher value, or have been negative, the correct answer is, “No reason, it just couldn’t and there’s an end on it.” With the perplexity only heightened, Sofia asks God whether He’s testing them and their philosophical commitment to understanding. God says ‘no’ – He’s done that before, but this isn’t the time or the place for such things. So the scene ends.

What should the trio think? It seems obvious that they should think that either they have misunderstood what God said or they are deeply conceptually confused (or that God’s final answer was itself part of a test). If we know anything about modal concepts, we know that the fact that the cosmological constant *has to have* the value it does (if there is such a fact) cannot be brute: bruteness might be tolerable in some cases, but not here. To quote Lewis’s incredulous questions (1986, 179–80), “I have been tolerant – maybe too much so – toward primitive modality; but here, the primitive modality is especially repugnant...How can these connections be necessary?...What stops it from going the other way?” But now, if we ask ourselves *why* bruteness has no place here – and we reflect on similar cases in which we’d render the same verdict – I think we can see that there is no satisfying and principled answer other than that the proposition here is necessity-attributing, and bruteness is intolerable when it comes to *any* (true) necessity-attributing proposition; or, more cautiously, that there is no satisfying and principled answer other than one that entails that claim (such as the stronger claim that bruteness is intolerable when it comes to any (true) necessity-attributing *or* (true) possibility-attributing proposition). But to say that bruteness is intolerable when it comes to any true necessity-attributing proposition is just to endorse the first premise.

And so it seems to me that the hullabaloo is justified. There is a substantial cost associated with rejecting PATCHWORK, viz. the cost of rejecting one of the two assumptions in the Argument from Mystery. And if that cost is high enough, then a Causal Essentialist would be well-advised to accept PATCHWORK even if at the end of day she won’t be able to make any *use* of it. Of course, whether that cost is high enough depends on the costs involved in taking other routes. I will turn to those costs shortly, but I will first briefly address a less sweeping version of the solution under consideration: rather than rejecting PATCHWORK wholesale, it says we should accept a modified version.

#### 4.1 ALTER THE SHAPE OF PATCHWORK

PATCHWORK says there are no absolutely necessary connections between *distinct* existents. And it's important for my argument that *distinctness* is here construed as *mereological disjointness*: that is, it's important for my argument that PATCHWORK says that intrinsic natures can be instantiated in any mereologically disjoint spatiotemporal arrangement. But one might wonder: even if we accept PATCHWORK in its broad outlines, why put it exactly that way? First, why talk about *distinct* existents at all? Why make any exceptions? Second, why construe *distinctness* in just that way? Why not construe it instead as *spatiotemporal disjointness*? That is, why not construe it in such a way that PATCHWORK says that intrinsic natures can be instantiated in any *spatiotemporally* disjoint spatiotemporal arrangement? Alternatively, why not construe *distinctness* as *ontological independence* (where two things are ontologically independent, let's say, if neither one is ontologically prior to the other and there is nothing that is ontologically prior to both of them)? That is, why not construe it in such a way that PATCHWORK says that intrinsic natures can be instantiated in any spatiotemporal arrangement which is such that if there were instances of those intrinsic natures in that arrangement, they would be ontologically independent?<sup>27</sup>

The first question is easily answered. Clearly an exception *needs* to be made, as I noted in §2: there is no possible world in which a sphere that is red through-and-through shares a part with a sphere that is green through-and-through, since there'd have to be something that is both red through-and-through and green through-and-through, and there couldn't be any such thing. And clearly an exception *can* be made in a non-ad-hoc way: the second premise of the Argument from Mystery is plausible only if PATCHWORK makes an exception for cases of mereological overlap. After all, an intrinsic property can be instantiated in virtue of how it *and its parts* are, and so the "choices" (of intrinsic natures) by mereologically overlapping objects need *not* be independent of one another.

The second question is a bit more complicated to answer. The suggested construals, if they are to make any difference with regard to which cases are guaranteed possible by PATCHWORK, are supposed to allow *more* exceptions than my construal. Thus, to take the second suggested construal as an example, the idea is that there are certain intrinsic natures and a certain spatiotemporal arrangement which are such that if there were (perhaps *per impossibile*) instances of those intrinsic natures in that arrangement, there wouldn't be mereological overlap between the instances, but they wouldn't be ontologically independent of each other either. And so, the suggestion goes, the correct principle in the vicinity of PATCHWORK ought to make an exception for that sort of case as well. If that idea is right – and we indeed ought to make an exception for that sort of case – then a Causal Essentialist need not accept MERELOGICAL MONISM (or the weaker claim

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<sup>27</sup>Thanks to an anonymous referee for pressing me on these questions.

of universal overlap) even if she *does* accept the correct principle in the vicinity of PATCHWORK; she could instead hold that the Sun and the Earth, for example, fail to be ontologically independent even though they don't overlap. And more generally, she could instead hold that no two actual concreta are ontologically independent of each other. Which claim, together with the assumptions that (a) ontological priority relations among actual concreta form a well-founded partial ordering and (b) nothing is ontologically prior to a concretum other than a concretum, implies PRIORITY MONISM.<sup>28</sup> An upshot: the Causal Essentialist could accept PRIORITY MONISM without accepting MERELOGICAL MONISM. (Note: this would not escape the conclusion that CAUSAL ESSENTIALISM implies *some* form of MONISM.)

My replies to the suggested alternate construals are as follows: when it comes to the first suggested construal, I reply that either no more cases are excepted than on my construal or there's no reason to except them. If spatiotemporal overlap entails mereological overlap, then no more cases are excepted, since any case that would fail to be spatiotemporally disjoint would also fail to be mereologically disjoint. If it doesn't entail mereological overlap, then an exception for cases in which there would be spatiotemporal overlap but no mereological overlap is unwarranted: the very same considerations adduced earlier show that there could be no explanation on any such absolute ban. If two spheres could spatiotemporally overlap without mereologically overlapping, then why couldn't a sphere that is red through-and-through spatiotemporally overlap a sphere that is green through-and-through? What sort of explanation could be given that wouldn't run afoul of the intrinsicness of the involved properties (*being red through-and-through* and *being green through-and-through*)?

When it comes to the second suggested construal, I reply that no more cases are excepted than on my construal, at least not if INTRINSICNESS is true. There *are no* intrinsic natures and spatiotemporal arrangement which are such that if there were instances  $x_1 \dots x_N$  of those intrinsic natures in that arrangement, they wouldn't be ontologically independent of each other even though there would be no mereological overlap between them. After all, there would then have to be some  $y$  and one of the  $x$ s,  $x_i$ , such that  $y$  would not be part of  $x_i$  but would nevertheless be ontologically prior to it; so  $x_i$  would exist and have the nature it does in virtue of something that isn't part of it. But then no non-trivial property would be intrinsic, contrary to INTRINSICNESS.<sup>29</sup> One can't avoid MERELOGICAL MONISM by holding

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<sup>28</sup>Since the ontological priority relations form a well-founded partial ordering, for every actual concretum there is some basic concretum that is ontologically prior to it. But there can't be *two* basic concreta if no two concreta are ontologically independent and nothing is ontologically prior to a concretum other than a concretum (the second conjunct rules out the possibility that there are two basic concreta that fail to be ontologically independent because there is some *non*-concretum that is ontologically prior to both of them). So, assuming there is some actual concretum, there is *exactly* one basic concretum.

<sup>29</sup>Here I assume again that the set of basic intrinsic properties is closed under negation. (See nt. 26.) So since none of  $x_i$ 's properties would be basic intrinsic – it would have every one of its

that the Sun and the Earth fail to be ontologically independent even though they don't overlap, since saying that amounts to claiming that the Sun (or Earth) has no non-trivial intrinsic properties after all.

## 5 Accept Mereological Monism

Perhaps then the best route for the Causal Essentialist to take is simply to accept MEREOLOGICAL MONISM. (I have skipped over the option of accepting universal overlap but denying SIMPLE, and I will return to it in due course.) If she does so, then she will be accepting the existence of something (the One) very much like the null individual, that thing which is to mereology what the null set is to set theory: it is a part of everything. I say "very much like" since the One need not be as ubiquitous as the null individual: it is guaranteed to be part of every concretum, but abstracta - if there be any - need not have the One as a part. (Of course, it might well be the case that the One *is* part of every abstractum - either because there are no abstracta, and so it is vacuously true that it is part of every abstractum, or because even though there are abstracta, it is part of every one of them - but that it is is not established by my argument.) Despite this difference, it might be useful to consider the philosophical credentials of the null individual.

Other philosophers have given reasons for believing in the null individual. The least substantive is that if the null individual exists, then the formal theory of parts and wholes can be a complete Boolean algebra, which affords a certain degree of elegance and simplicity to the theory. Recently, Hud Hudson [2006] has argued that the existence of the null individual can help salvage a non-ad-hoc principle to replace the principle of Universal Mereological Composition, the latter of which may have to go for Cantorian reasons. Even more recently, Hudson [2009] has noted that theists who believe that God is omnipresent might have good reason to accept the existence of the null individual - they should say that God *is* the null individual - as it affords them an account of omnipresence that is more robust and less theologically problematic than its rivals.<sup>30</sup> The argument I have given might

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properties in virtue of something that isn't part of it - and necessarily for anything whatsoever and any property, that thing has either that property or its negation, there would be no basic intrinsic properties at all. But then every two possibilia would be intrinsic duplicates and hence all intrinsic properties would be trivial.

See Sider [2007] for a similar argument to the effect that Sider's version of PRIORITY MONISM - that is, the thesis he calls 'Priority Monism', not that he endorses that thesis - has the consequence that no proper part of the Cosmos has any intrinsic properties. However, the framework for his discussion differs from mine - he speaks of *perfectly natural properties* rather than *basic intrinsic properties* - and so his conclusion differs from mine.

<sup>30</sup>See Hudson [2006] for a complete (or near-complete) list of uses to which the null individual has been put. Some of those might be considered reasons to accept the existence of the null individual, although as Hudson says, "...Martin sees the null individual as qualified for the tasks in (i)

be added to the list of reasons, at least if the fact that there is something that is part of every *concretum* gives one *some* reason to believe that there is something that is part of *everything*.

But philosophers have generally not taken a liking to the null individual. In Peter Simons's comprehensive work on mereology (Simons [1987]), the null individual merits only a dismissive footnote. Hudson [2006] nicely summarizes the antipathy of most philosophers:

Curiously, the null individual has not really received a lot of positive press, perhaps stemming in part from its rather dyslogistic name. Occasionally it is mentioned in passing as an embarrassment, as a disanalogy to be explained away, as something which would be even more a mystery than the null set, as something for which no serviceable function can be discerned that might entitle it to existence. (645)

This attitude is indeed curious. Of course, if there's no reason to believe that the null individual exists, then we ought not believe there is such a thing (or, at any rate that's true if we recognize that there's no reason). But it seems that philosophers have generally adopted the much stronger position that even if we *had* some reason - and perhaps very good reason - to believe that the null individual exists, it would still be the case that we ought not believe there is such a thing. And it seems as if such a position could be justified only if we have some reason - some very good reason - to believe that *there is no such thing*. But apart from its dyslogistic name, what are these reasons? I'm not sure what the opponents have in mind, but I can think of three possibilities; and they're worth exploring because they expose certain costs of accepting MEREOLOGICAL MONISM.

### 5.1 CONCEPTUAL COST

The first objection to the null individual has to do with the very concept *part*. If the null individual exists along with something *else*, then the so-called Weak Supplementation Principle (WSP) is false. That principle is the following:

(WSP) Necessarily, for any  $x$  and  $y$ , if  $x$  has  $y$  as a proper part, then there exists a  $z$  such that  $z$  is a part of  $x$  and  $z$  does not overlap  $y$ .

After all, if the null individual exists along with something else, then it is part of that something else (that's part of its job description); but then by (WSP), there exists some third thing that does not overlap the null individual. But of course there is no such thing since the null individual is part of everything. And it's clear

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- (iv) precisely because he (like Bunge) does not really believe it exists, and thus does not hold it to very exacting standards." (647)

that there is *something* that is not the null individual - just look around! - so any proponent of the null individual will have to give up (WSP).<sup>31</sup> The problem, say opponents of the null individual, is that (WSP) is a *conceptual truth*. Anyone who grasps the concept *part* and reflects on it can just *see* that one thing can't be a proper part of another unless there's something *else* that is part of the other and disjoint from the one; if there's nothing else to even go part of the way to "filling in" the difference between *x* and *y*, how are *x* and *y* not identical?<sup>32</sup> So objects the opponent of the null individual. (eg., [Simons \[1987\]](#)).

Suppose the opponent is right about (WSP). Does that spell trouble for MERELOGICAL MONISM? Well, not obviously. As I've noted, the One need not be part of any abstractum. So (WSP) is not clearly inconsistent with the conjunctive claim that MERELOGICAL MONISM is true *and* there is something - perhaps even concrete - other than the One. Consider the following model: there are two concreta, the One and the Other. The One is a proper part of the Other. There is something else, the Abstractum, that is also part of the Other. The One is not part of the Abstractum and they do not overlap in any other way.

But there are two difficulties with this reply on behalf of MERELOGICAL MONISM: the first is that it's not clear whether there *are* any abstracta, and so MERELOGICAL MONISM would be less costly if its conjunction with the obvious fact that there is something distinct from the One were consistent with the denial of abstracta. The second is that even if there are abstracta, one might find the whole notion of a concretum having an abstractum as a part very obscure. I for one find it very obscure. As far as I know, my dog doesn't have any abstracta, like properties or propositions, as parts. Just other concreta, like paws and a pancreas. (Ask the vet for more details.) And I don't think that it's *just as a matter of fact* that dogs don't have any abstract parts; I don't think they *could*. (That is, I don't think it's possible that there is something that is a dog and has abstract parts. I am not precluding a situation in which something that is in fact a dog could have had or might yet have an abstract part; it just couldn't, if I'm right, still have been (or still be) a dog, or any sort of concrete thing at all.) My reasons for thinking that are general but not very deep: I simply cannot think of any relation that might reasonably be expressed by the English expression 'part of' which is such that an abstractum can bear it to a concretum or vice versa. I cannot conceive of a situation in which a property is, strictly speaking, a part of my dog. Or at least I'm not at all confident

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<sup>31</sup>Of course, if EXISTENCE MONISM is true, then the proponent of the null individual can hold on to (WSP). (If the proponent of the null individual thinks that it's a necessary being - or even that it's *necessarily* true that there is *something or other* that fits the job description of the null individual - then she can hold on to (WSP) only if she thinks EXISTENCE MONISM is a necessary truth.) But I don't take EXISTENCE MONISM very seriously.

<sup>32</sup>As should be apparent, I am thinking of a truth's being a *conceptual truth* in epistemological terms, rather than metaphysical (eg. [Fine \[1994\]](#)) or semantic (eg. [Williamson \[2006\]](#)) terms.

that I can.<sup>33</sup> I recognize that others claim to be able to conceive of such a situation, many of them claim such situations are actual, and some of them even claim that it is the very nature of concrete particulars to have properties - whether universals or tropes - as parts (or at any rate to be related to properties by a relation *very much like* parthood, such as *constituency*). But *I* am a Platonist about properties and other abstracta – that is, I believe that *if* there are such things, then Platonism is the correct theory of their nature – and so conceiving of such a situation strains my imaginative capacities. Any Causal Essentialist who shares my qualms on this score would, I suspect, find MEREOLOGICAL MONISM too costly if it committed her to the claim that concreta have abstracta as parts.

Of course, an alternative available to the adherent of MEREOLOGICAL MONISM is to simply deny (WSP). I, for one, have no strong intuition in favor of (WSP), and (WSP) certainly doesn't seem to be a *conceptual* truth: it's not as though anyone who grasps the concept *part* and reflects on it can just *see* that (WSP) is true. A piece of my evidence for that is that *my* reflection on the concept *part* doesn't allow me to see that, and I *think* I grasp the concept *part*. Hudson [2006] too seems unperturbed by the falsity of (WSP), and I think *he* grasps the concept *part*. Others could be added to the list.<sup>34</sup> I do, however, believe there is a slightly weaker claim in the vicinity of (WSP) that is true, and is even a good candidate for being a conceptual truth, which would help explain why some people mistake (WSP) for a conceptual truth<sup>35</sup>:

(VWSP) Necessarily, for any  $x$  and  $y$ , if  $x$  has  $y$  as a proper part, then there exists a  $z$  such that  $z$  is a proper part of  $x$  and  $z$  is not a part of  $y$ .

The difference between (VWSP) (Very Weak Supplementation Principle) and (WSP) is just that (VWSP) doesn't require the "supplement" to be disjoint from that which is being supplemented; it imposes the weaker requirement that the supplement not be a part of that which is being supplemented. (VWSP) seems to do justice to the intuition ordinarily marshalled in favor of (WSP): if for any proper part  $y$  of something  $x$ , there is some third thing  $z$  that is not a part - proper or improper - of  $y$  and *is* a proper part of  $x$ , then it seems like  $z$  could go at least part of the way to

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<sup>33</sup>It has become fashionable to say that the concrete/abstract divide is not a fundamental or joint-carving one. I am not very fashionable, I admit, so it should not surprise the reader that this claim strikes me as very implausible. But I do not wish to take issue here with this piece of contemporary fashion. Even if it is not a fundamental distinction, the following still seems true: for any abstractum I can think of, like the number seven or the property *weighing 54 lbs*, and any concretum I can think of, like me or my dog, I cannot conceive of a situation in which the abstractum is, strictly speaking, part of the concretum.

<sup>34</sup>See also Smith [2009]. He further argues that it doesn't appear that (WSP) is *entailed* by any conceptual truth about *part*.

<sup>35</sup>Although Smith [2009] denies (VWSP) along with (WSP).

“filling in” the difference between  $x$  and  $y$ . On the other hand, if there is an  $x$  and  $y$  such that  $y$  is a proper part of  $x$  but there is no third thing  $z$  that is both a proper part of  $x$  and not a part of  $y$ , then we might legitimately wonder how  $x$  and  $y$  fail to be identical.<sup>36</sup>

And crucially for the adherent of MERELOGICAL MONISM, (VWSP) is consistent with the following three claims all being true: (1) MERELOGICAL MONISM, (2) there are concreta other than the One, and (3) no abstractum is part of any concretum. A simple model: there are an infinite number of concreta; for any concretum, the One is a part of it; for any concretum  $x$  distinct from the One, there is some third concretum  $y$  such that  $y$  is a proper part of  $x$  and the One is a proper part of  $y$ . (Think of an infinite and “dense” chain of Russian dolls - i.e., between any two Russian dolls there is another Russian doll - which terminates at the bottom with a “simple” Russian doll.) Moreover, (VWSP) is consistent with the following three claims all being true (where (2') is stronger than (2)): (1) MERELOGICAL MONISM, (2') there are concreta such that (a) they are each distinct from the One, and (b) no one of them is part of any other one of them, and (3) no abstractum is part of any concretum. (That it is so consistent is important because I take it that even if, say, you and I overlap, neither of us is a part of the other, and furthermore, neither of us is the One!) Here's a model: there are two sets of concreta (call them ‘chains’); each chain is infinite and has the One as a member; for each chain, there is some member of the chain (distinct from the One) such that all and only its parts are members of that chain; for any member  $x$  of a given chain which is distinct from the One, there is some third member  $y$  of that chain such that  $y$  is a proper part of  $x$  and the One is a proper part of  $y$ ; finally, the intersection of the two chains is the One's singleton set. Any two concreta - one from one chain and the other from the other chain, and neither of them identical with the One - will satisfy condition (2'). (Think of two sets, one whose members are all and only the closed intervals whose lower bound is greater than or equal to  $-1$  and whose upper bound is  $0$ , and the other of whose members are all and only the closed intervals whose lower bound is  $0$  and whose upper bound is less than or equal to  $1$ .)<sup>37</sup> Note, however, that these models are all what we might call “quasi-gunky,” in that every concretum is such

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<sup>36</sup>Simons [1987] considers (VWSP) - which he labels ‘SF2’ - but claims it's not strong enough, which is why he moves up to (WSP). His reason is just that it doesn't rule out “a universe all of whose parts overlap each other.” And, Simons says, “surely if a universe is complex (i.e. has proper parts at all), then at least two of these parts will be disjoint.” (27) I guess I just don't see any reason to think that must be so.

<sup>37</sup>It is noteworthy, I think, that the above model shows that the Proper Parts Principle is likewise consistent with those same three claims. The Proper Parts Principle says that no two things share all the same proper parts, or, more formally: (PPP) Necessarily, for any  $x$  and  $y$ , if there exists a  $z$  such that  $z$  is a proper part of  $x$ , and for any  $z$ ,  $z$  is part of  $x$  only if  $z$  is part of  $y$ , then  $x$  is part of  $y$  (Simons [1987]).

that all of its parts (other than the One) have proper parts distinct from the One.<sup>38</sup>

So here are the costs of accepting MERELOGICAL MONISM so far, having to do with the concept *part*: (1) one can't consistently accept (WSP) (and that no abstractum is part of any concretum), although one can consistently accept (VWSP) instead; (2) one can consistently accept (VWSP) (and that no abstractum is part of any concretum) only if one accepts, or at least doesn't deny, that actual concreta are quasi-gunky.

## 5.2 COMPOSITIONAL COST

The second objection to the null individual derives from the fact that the null individual composes everything. That fact seems odd given the qualitative diversity we find: different things have different qualities. How could they differ qualitatively if they are composed of the same things, indeed the very same single thing? One would have thought that the qualities instantiated by a composite object supervene on the qualitative properties and relations instantiated by the things (or thing) that compose it. This objection transfers over straightforwardly to the One: we of course find qualitative diversity among concreta as well. So the analogous fact with respect to the One – the fact that the One composes every concretum (§1) – seems equally odd. How could you and my hamster differ qualitatively if the two of you are composed of the same things, indeed the very same single thing?<sup>39</sup>

There is indeed a cost here, but it's important to take note of what the Mereological Monist could still hold on to. It is true that MERELOGICAL MONISM (conjoined with the obvious fact that you and my hamster differ qualitatively; I'll henceforth leave this conjunct implicit) is inconsistent with certain supervenience theses that tie the properties of a composite object to the properties of the objects that compose it. But there are other supervenience theses in the vicinity that are consistent with MERELOGICAL MONISM, and which may be adequate to capture the intuitions of the objector.<sup>40</sup> A supervenience thesis that is indeed *inconsistent* with MERELOGICAL MONISM is the following:

LOCAL SUPERVENIENCE ON THE COMPOSERS: Necessarily, for any  $x_1$  and  $x_2$  and  $y$ s and  $z$ s, if (1) the  $y$ s compose  $x_1$  and the  $z$ s compose  $x_2$  and (2) there is an isomorphism from the  $y$ s to the  $z$ s that preserves qualitative properties and relations, then  $x_1$  and  $x_2$  have the same qualitative properties

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<sup>38</sup>That is, for any concrete  $x$  and anything  $y$  that is part of  $x$ , if  $y \neq$  the One, then there is some  $z$  that is a proper part of  $y$  and such that  $z \neq$  the One.

<sup>39</sup>Thanks to an anonymous referee here.

<sup>40</sup>For roughly the same point with regard to those views according to which the famed Lump and Goliath coincide, see Sider [2001].

Clearly enough, the conjunction of this thesis and MERELOGICAL MONISM implies that you and my hamster share all the same qualitative properties, and that's false.

On the other hand, here's a supervenience thesis that seems to be perfectly consistent with MERELOGICAL MONISM:

GLOBAL SUPERVENIENCE ON THE COMPOSERS: For any two possible worlds  $w_1$  and  $w_2$ , any isomorphism from all the simples in  $w_1$  to all the simples in  $w_2$  that preserves intrinsic properties and relations preserves all qualitative properties and relations period.

This thesis says that once you settle, in any world, how all the simples are in themselves and how they stand (intrinsically) with respect to each other, you settle all the qualitative facts about that world.<sup>41</sup> This is consistent with MERELOGICAL MONISM for all we know, since for all we know any possible world in which there is some simple concretum that is part of every concretum but which differs in some qualitative way from the actual world also differs with respect to the nature of that simple that is part of every concretum.

So there is indeed a cost of accepting MERELOGICAL MONISM, which is that you can't accept LOCAL SUPERVENIENCE ON THE COMPOSERS; but you can still accept GLOBAL SUPERVENIENCE ON THE COMPOSERS, which might be all we are justified in believing anyway.

### 5.3 PHYSICALIST COST

The third and final objection I will consider to the null individual is based on a widely held doctrine (among philosophers at least) about the denizens of our world. Many philosophers are physicalists: they hold that everything is a physical thing. It's hard to spell out what 'physical thing' means exactly, but however one does so, there seems to be no physical thing that could meet the job description of the One, let alone the null individual. So on the face of it, a cost of accepting MERELOGICAL MONISM is that one can't consistently accept physicalism.

But maybe that's just on the face of it. It is certainly true that there is no *material* thing that is part of everything concrete (let alone everything, period), at least not if current physics is right about the material furniture of the world. But what about *immaterial* physical concreta? Spacetime regions, if such there be, seem to be physical concreta - or at least physicalistically kosher - even if they are not material concreta. So, could a spacetime region be the One?

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<sup>41</sup>Note two things: (a) this is much stronger than the thesis that I said in §3 was obvious, namely that the intrinsic properties and relations of **all the concreta** settle all the qualitative facts period, since the subvenience base of this thesis includes facts that are intuitively only about the simples; and (b) a more general version of this thesis, which has non-vacuous application to possible worlds (if such there be) in which there are no simples, could be formulated and would also be consistent with MERELOGICAL MONISM; but it'd be more complicated.

Here's how we might motivate that idea: if spacetime exists, a natural question arises. What is the relationship between spacetime and its material inhabitants? Many answer *a fundamental relation of occupation* - spacetime is a vast immaterial thing and parts of it (regions) are *occupied* by material objects. Others (Sider [2001], Schaffer [2009]) answer *identity* - spacetime is a vast thing, much of which is immaterial, but some parts of which (regions) just *are* material objects. Josh Parsons [2007] has suggested a third answer: *proper parthood* - spacetime is a vast immaterial thing and parts of it (regions) are *proper parts* of ordinary material objects; in particular, a material object has its location as a proper part. Now, consider the following addendum to Parsons' suggestion: there is just one spacetime region. (If there are point-sized material objects, the sole spacetime region will have to be point-sized, at least if one can't have a proper part larger than oneself.) If we accept Parson's answer together with my addendum, then the single spacetime region might just be a physicalistically kosher candidate for the role of the One (although playing the role of the null individual seems a more difficult task for a spacetime region, at least if there are abstracta).<sup>42</sup>

Unfortunately, motivated or not, the view that there is some spacetime region that is the One - i.e., it is part of every concretum - is either obviously false, extremely misleading, or incoherent. The proponent of such a view faces the following question: is there more than one spacetime region and the One (spacetime region) is part of all of them, or is the One the only spacetime region there is? Suppose she says "the One is the only spacetime region there is" (as would be the case if Parson's suggestion with my addendum is true). Then we might wonder: how do my desk and chair get to be differently located? It is a fact, isn't it, that my chair is over here and my desk is over there? If there were more than one region, we could simply answer that they get to be differently located by having different regions as proper parts (or being identical with different regions, or occupying different regions). But we are supposing that there is just one region, so that answer is unavailable. The only available answers, as far as I can tell, are to deny that my desk and chair are differently located or to say that it's just a brute and inexplicable fact that my desk and chair are differently located, not to be explained further in terms of their relations to the single region. The first disjunct is obviously false. The second one makes what she says extremely misleading: why call the thing a 'region' when none of the location facts seem to involve the existence of that thing? I cry foul. The physicalist seems to be allowing something

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<sup>42</sup>I am ignoring the further difficulty of accommodating the One in a physicalistically kosher environment assuming the truth of (VWSP); the difficulty is apparent: if (VWSP) is true, then for any concretum  $x$  other than the One, there is something  $y$  that is a proper part of  $x$  and distinct from the One; if physicalism is true, then  $y$  will have to be a physical object. So consider an ostensibly simple physical object, like a quark: not only will it have the sole spacetime region as a part, it will have to have a vast number of other physicalistically kosher objects as proper parts as well. But the physicalist has a hard enough time as it is accommodating the One, so I will not make it any harder by assuming the truth of (VWSP).

into her ontology that is not physicalistically kosher, and trying to get it to pass inspection by labelling it with the innocuous ‘spacetime region’.

So what if the proponent of the view answers that there is more than one spacetime region, and the One (itself a spacetime region) is part of all of them? I’m not sure I even understand the suggestion, and I’m tempted to simply say the suggestion is incoherent, and leave it that. But I’ll try to do better and show that it’s incoherent. The following all seem to be facts about the *location* relation, where by that I mean the relation something bears to a region when the region “is not free” of the thing<sup>43</sup> :

1. For anything  $x$  and any region  $R$ , if  $x$  has a part located at  $R$ , then  $x$  is located at  $R$ .
2. For anything  $x$  and any region  $R$ , if  $x$  is located at a part of  $R$ , then  $x$  is located at  $R$ .
3. For any region  $R$ , it is located at itself.

But from these three facts, together with the claim that there is more than spacetime region of which the One (itself a spacetime region) is a part, some very peculiar facts follow.

First: every region is located at every region: that is, for any regions  $R_1$  and  $R_2$ ,  $R_1$  is located at  $R_2$ .<sup>44</sup>

Second: every region is *entirely located* at every region, where  $x$  is entirely located at  $R =_{df}$   $x$  is located at  $R$ , and every region at which  $x$  is located overlaps  $R$  (Parsons [2007]). Since every region is located at every region (the first fact), and every two regions overlap, that one is entirely located at the other straightforwardly follows.

Third: every region *pervades* every region, where  $x$  pervades  $R =_{df}$   $x$  is located at every region that  $R$  overlaps (Parsons [2007], i.e., no subregion of  $R$  is free of  $x$ ). Since every region is located at every region, it is of course located at every region that satisfies some further condition.

Fourth and trivially: every region is *exactly located* at every region (where *being exactly located* is just the conjunction of *being entirely located* and *pervading*). But, assuming there is more than one region, this is incoherent. How could one region be exactly located at a *distinct* region? This makes hash of our talk of location and regions. (I might add that if every region is exactly located at every other region, then we still have no answer to the question how it is that my chair and desk are differently located.<sup>45</sup>)

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<sup>43</sup>This is what Parsons [2007] expresses with the term ‘weakly located’.

<sup>44</sup>For any regions  $R_1$  and  $R_2$ ,  $R_1$  has a region, the One, as a part, which (by (3)) is located at the One; so  $R_1$  is located at the One (by (1)); but the One is a part of  $R_2$ , so  $R_1$  is located at  $R_2$  (by (2)).

<sup>45</sup>Suppose my chair is located at  $R_1$ ; I assume my desk is exactly located somewhere, say  $R_2$ . But

Alas, I do not think the One can be a spacetime region. And I'm all out of ideas for physical candidates for the One. At the end of the day, and not just on the face of it, a cost of accepting MERELOGICAL MONISM is that one can't consistently accept physicalism. Indeed, in virtue of accepting MERELOGICAL MONISM one is committed to the existence of something that is radically unlike all the physical concreta with which we are familiar: it is a non-physical concrete simple – and it is the *only* concrete simple since every other concretum has it as a proper part – and as Hudson [2006] says about the null individual, “in virtue of being a part of every point in spacetime, it has a straightforward (albeit nonstandard) claim to be (v) eternal and (vi) omnipresent.” (650) For some, I realize, that is a prohibitive cost.

## 6 Third Escape Route: Reject Simple

One last option for the Causal Essentialist is to reject SIMPLE. Despite the consensus of physicists, the faithful, and a fair number of philosophical giants, the Causal Essentialist might best be served by saying that although there is universal mereological overlap between concreta, MERELOGICAL MONISM is nevertheless false, because everything, or at least everything concrete, has a proper part. The following might be thought a point in favor of taking this route over accepting MERELOGICAL MONISM: if one were to accept MERELOGICAL MONISM instead, then one would be forced to hold that the physicists and philosophical giants are wrong on this score anyway. Presumably, no quarks, leptons, or souls would be mereological simples if MERELOGICAL MONISM were true. (And certainly no more than one of them!) So their claims cannot be good grounds for inferring MERELOGICAL MONISM from universal overlap. Anyone who did make that inference on those grounds would be cutting off the branch they were sitting on.

Well, I'm not sure it's right that the claims of the physicists and philosophical giants cannot be good grounds for inferring MERELOGICAL MONISM from universal overlap. Consider the following case: one reliable source sincerely reports that there was a teal-colored elephant in the backyard and another reliable source sincerely reports that there was an olive-green-colored elephant in the backyard. On the basis of these two reports I form the justified belief that there was an elephant in the backyard. An infallible oracle then informs me that if there was an elephant in the backyard, it was navy-blue-colored. It is by no means obvious to me that I don't now have good grounds for inferring that there was a navy-blue-

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$R_2$  is entirely located at  $R_1$ . So every region at which  $R_2$  is located overlaps  $R_1$ . But  $R_2$  is a region at which  $R_2$  is located (by (3)), so  $R_2$  overlaps  $R_1$ . But since my desk is exactly located at  $R_2$ , it is located at every region that overlaps  $R_2$ . So my desk is located at  $R_1$ . Thus, wherever my chair is located, my desk is located. And of course one can show analogously that wherever my desk is located, my chair is located. One can't keep them apart.

colored elephant in the backyard, even though if that's true, neither of the non-oracular reports I received, on the basis of which I came to believe that there was an elephant in the backyard in the first place, was *true*: they seem to have been *onto something true*. Analogously, the physicists report that there are concrete physical objects that are mereological simples, and some philosophers report that there are concrete non-physical objects – souls of human beings – that are mereological simples. On the basis of these two reports I form the justified belief that there are concrete mereological simples. I (supposing I'm a Causal Essentialist) then learn that if there are concrete mereological simples, then there is exactly one concrete mereological simple that is a part of all concreta. It is by no means obvious to me that I don't now have good grounds for inferring that there is exactly one concrete mereological simple that is a part of all concreta, even though if that's true, neither the report of the physicist nor the report of the philosopher, on the basis of which I came to believe that there were concrete mereological simples in the first place, was *true*: they seem (at least in some moods) to have been *onto something true*.

This raises knotty epistemological questions, and I've gone on long enough as it is. So let me just say the following: even if it's right that the claims of the physicists and the philosophers cannot be good grounds for inferring MEREOLOGICAL MONISM from universal overlap, two replies are in order. First, it doesn't follow from that fact that taking the route of denying SIMPLE is any *better* than taking the route of accepting MEREOLOGICAL MONISM; indeed, the Conceptual and Physicalist costs associated with accepting MEREOLOGICAL MONISM are associated with accepting universal overlap just the same. Second, if a Causal Essentialist finds herself among the faithful – if she believes in the God of classical theism – then she might well thereby have perfectly good grounds for inferring MEREOLOGICAL MONISM from universal overlap: as Hudson [2006, 2009] argues, the God of classical theism, being simple, non-physical, concrete, eternal, and omnipresent, seems to be an excellent candidate for the role of the null individual, and *a fortiori* for the role of the One. She may be out on a limb, but at least she won't be cutting it off.

## 7 Conclusion

So concludes my enumeration of the costs. Naturally, different Causal Essentialists will reckon the costs differently. If the past is a good guide to the future, most will happily pay the price of rejecting PATCHWORK. But perhaps some Causal Essentialists will think that the price of rejecting PATCHWORK is too steep, and that MEREOLOGICAL MONISM isn't so costly after all. If it isn't obvious already, I think they'd be right.

**Acknowledgements** I would like to thank Alvin Plantinga, Jonathan Schaffer, Peter van Inwagen, and an anonymous referee for very helpful comments on earlier drafts. Work on this project was supported in part by the Analytic Theology Summer Stipend Program, sponsored by the John Templeton Foundation and the Center for Philosophy of Religion at the University of Notre Dame. I am very grateful for their support.

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