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## Existential Inertia

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# Existential Inertia

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## 1. Introduction

Things seem to have existential inertia. That is, things seem to keep existing if undisturbed. My dining room table, being Stickle, will continue to exist as long as it isn't destroyed by the western New York climate, my two young boys, or any other force of nature. Now, we know some things degrade. A penny left outside will eventually rust away, but that's because of interactions with oxygen and so forth. A penny in my backyard, then, isn't really undisturbed. Alone in the void, perhaps it would last indefinitely. An organism, on the other hand, would not. Animals need oxygen and food to survive. But even an organism, it seems, wouldn't cease to exist without any causal activity. You or I wouldn't just blink out of existence in the void. Rather, certain internal processes that are adapted to keep us alive in our usual environs would do the opposite in a void.<sup>1</sup> So it still seems that the default is for undisturbed and inactive things to keep existing.

This is still a bit rough, but enough to ask the question that drives this essay, which is *why* things have existential inertia (or don't). In particular, I want to know what general metaphysical considerations might be relevant to existential inertia—whether by supporting it or by supporting its opposite, a tendency to expire. This is a wonderful and basic metaphysical issue, as basic as the question of how objects stand to their properties, or the question of the nature of time or change. And yet, unless I am badly mistaken, there is almost no discussion of this issue in contemporary metaphysics.<sup>2</sup> This is odd, considering its prominence in the history of philosophy.

Existential inertia might seem like a topic for physics rather than metaphysics. So before moving on, I want to say something about how I understand the relation between science and meta-

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<sup>1</sup> See Lewis 2004 for what happens to a human body in the void.

<sup>2</sup> The exceptions I know of are Beaudoin 2006 and Feser 2013. See also Vander Laan 2017 and the references therein.

physics. First, I think there is rarely if ever a quick route from scientific conclusions to metaphysical ones. It seems that there is almost always some assumption intervening between the scientific data and the metaphysical theses that are supposed to be impacted. Second, in many cases, scientific theories seem to imply nothing one way or the other about metaphysical questions. For example, physics seems neutral on the question of whether electrons are merely bundles of mass, charge, and spin, or whether they involve in addition some substratum that these properties attach to. As a result, a number of questions are left open even when we take certain scientific questions to be closed. Third, in some cases where a scientific theory does have a certain metaphysical consequence, that's because the theory builds in either that metaphysical thesis itself, or another one that entails it. And in such cases, I think there is bound to be an empirically equivalent theory with different metaphysical assumptions, one that doesn't have the relevant consequence. (This is related to the idea that any given body of data is consistent with a number of substantively different theories that would explain it.) And it's not clear that there could be any purely scientific, not at all metaphysical, reason to prefer any one of the empirically equivalent theories.<sup>3</sup>

It seems to me that for at least one of these reasons, we don't get a strong case for or against existential inertia from theories in the sciences. Still, I will discuss a few ways one might think certain broadly scientific ideas are relevant.

## 2. Making the Issue Precise

Let's return now to our central question, which is why things might have (or lack) existential inertia. I'll be particularly concerned with general metaphysical reasons for or against the following two theses:

*The Existential Inertia Thesis (EIT):*

Whatever exists is poised to continue to exist if undisturbed and inactive.

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<sup>3</sup> This depends on how theories are individuated, but if they are individuated in such a way that no two theories are empirically equivalent, then theories must be free of extra-empirical metaphysical content. In that case, it's hard to see how they could support metaphysical theses, at least extra-empirical ones. And I take it that existential inertia isn't observable.

*The Existential Expiration Thesis (EET):*

Whatever exists is poised to cease to exist if undisturbed and inactive.

I'll now clarify the topic by commenting on these theses.

First, these theses are contraries rather than contradictories. They could both be false if some things have existential inertia and other don't. (It seems correct to assume that the only way to lack a tendency to continue to exist is to have a tendency to cease to exist, and vice versa.) I will be examining considerations that apply very generally, to all material things, at least, if not to everything whatsoever. So I will set aside the live conceptual possibility that some but not all things have existential inertia.

Second, our theses say *whatever* exists. I make no restriction to natural rather than supernatural things (deities). Aquinas and Descartes seem to have thought that God alone had existential inertia. If they were right, then both the EIT and the EET are false. But there are still general reasons for existential inertia in play, such as possessing all the perfections and being perfectly simple. If we found both theses to be false, then, the next question would be what features underlie existential inertia. But we won't get that far now.

Third, I make no restriction to simple rather than complex things. ('Simple' here means devoid of parts.<sup>4</sup>) But we should set aside an apparent way of ceasing to exist that is possible only for complex objects. We usually say a complex object is destroyed when its parts cease to be arranged in the right way. If we tear all the pages out of a book, we say the book is destroyed. It's an interesting question whether or why complex things always tend to break apart. (Entropy is relevant here.) But that's not the question I'm interested in. I'm interested in the kind of annihilation that would occur if a thing just blinked out of existence, together with any parts it had and any stuff of which it was made. Even incineration doesn't bring about annihilation of this sort. And for all we know, such annihilation never happens (though this is different

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<sup>4</sup> I have in mind parts as van Inwagen (2011) conceives them, so that they have to be objects. On this usage, an immanent property would be a constituent but not a part of an object. See Paul 2002 for a broader conception of parthood. And see Audi forthcoming for an argument that properties are constituents of objects.

from saying it couldn't). One way to put my central question is to ask whether the possibility of such annihilation conflicts with (or for that matter follows from) any general metaphysical principles.

Fourth, I say 'poised' where I might have said 'has an intrinsic disposition'.<sup>5</sup> Putting it the latter way wouldn't be wrong, but it might give the impression that existential inertia is some special *property* a thing has.<sup>6</sup> Then it would sound like continued existence were the product of some activity, just as solidity turns out to be the product of forces that atoms exert on each other. But on my understanding, to have existential inertia is for the default to be continued existence, so that no special activity is required to maintain existence. So we must make a distinction between passive and active existential inertia.<sup>7</sup> To illustrate, imagine a little particle that is poised to expire if nothing intervenes to save it. Now suppose that it happens to have the power to intervene on its own behalf.<sup>8</sup> So it's a little self-maintaining engine. Such a thing has existential inertia, but only the active kind. Passive existential inertia is what I'm asking about here.

Fifth, the relevant notions of disturbance and activity are causal. By 'undisturbed', I mean not being causally influenced by anything else. By 'inactive', I mean not undergoing internal causal processes. My thought is that existential inertia is a form of inertia, where inertia generically is unchangingness or a resistance to

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<sup>5</sup> An object is *poised* to do something provided it will actually do that thing in the right circumstances. (This use of 'actually' is contrasted with *potentially*, and does not sound right if taken to mean *in the actual world*.) A bit more formally, if  $x$  is poised to  $A$ , then there are circumstances  $C$  such that if  $x$  is in  $C$ ,  $x$  will  $A$ . Arguably, 'poised' and 'disposed' are synonyms in ordinary English, but philosophers are likely to associate 'disposed' with a certain kind of entity, a *disposition*. I choose 'poised' because it's free of such associations. See the next note.

<sup>6</sup> I argue in Audi MS1 that there are good reasons to deny that there are such properties as dispositions (partly because properties that are not dispositions—not individuated by a causal role—can account for why things are poised as they are). I am setting aside here various problems about the connection between counterfactuals and disposition-ascriptions. See Sullivan MS for a nice account of the connection.

<sup>7</sup> Thanks to Alison Peterman for suggesting this distinction, and for the idea of self-maintaining engines.

<sup>8</sup> An interesting question is how a simple thing could have such a power. Without parts, certainly, nothing could have one part breaking and the other part fixing it. So if simples could be self-maintaining, they'd have to keep themselves in existence by some other means. If we allow qualitative complexity, a simple could have some properties disposing it to expire, and others interfering to keep it in existence.

change. Causation is essentially tied to change. It always involves either producing change or suspending it. So active existential inertia can be secured causally, but passive existential inertia can't. If causal activity is required to suspend existential change, then—contra passive EI—its default is not to continue in existence. If it were, no causal interventions would be necessary.

From now on, when I speak of existential inertia, let it be understood that I mean passive existential inertia. Now we can proceed to ask what metaphysical considerations there are for or against such inertia.

### 3. Occam's Razor and Thermodynamics

There are three ideas worth discussing briefly, though I don't think any of them gets us very far in our inquiry. They are Occam's Razor, entropy, and the conservation laws.

To begin, Occam's Razor is the principle that simpler hypotheses are more likely to be true, other things equal. One question is what simplicity amounts to. In metaphysical contexts, simplicity is usually a matter of either number of particular entities, number of kinds of entity, or number or character of basic laws, mechanisms, or other relationships among entities. The Razor does strike me as putting the EIT slightly ahead, but it's by no means clear. Fortunately, we needn't get bogged down here because whichever way the Razor cuts, we won't be closer to answering the core question, which is about metaphysical reasons for or against existential inertia. Occam's Razor isn't a metaphysical principle; it's an epistemic one. It tells us that simplicity raises the probability that a hypothesis is true. So even if the Razor tells us that the EIT, say, is probable, it doesn't provide a metaphysical basis for it.

The next idea to consider is entropy. The second law of thermodynamics says that the entropy of an isolated system never decreases. Equivalently, it always takes work from outside to decrease the entropy of a system. The world as a whole can be thought of as a system. So then suppose that things' going out of existence would decrease the world's entropy. Doesn't it follow from the second law that things have existential inertia? There is a lot of detail that deserves to be sorted out here, but I'll just offer two reasons to doubt that entropy helps answer our driving question. First, we could render the second law consistent with expiration as long as whatever ceases to exist is appropriately replaced. Granted, new particles popping into existence—at just

the right times and with just the right features—would look miraculous without a special mechanism posited to explain why this happens. But whether that happens spontaneously or via some mechanism, it looks like Occam's Razor is violated, rather than the entropy law. Second, as with Occam's Razor, I think the most we get from entropy is a reason to think the EIT is true, but not an explanation of why. The second law is a law about systems, and unless we're willing to take systems to be ontologically prior to their constituents, it seems that no feature of a system could account for any features of its constituents. Indeed, the very notion of a system in the second law seems eliminable. Talk of systems is just a convenient way of generalizing about the behavior of individuals. That behavior is where all the action is. Finally, even if we do regard systems as entities in their own right, the question arises why they have existential inertia. I don't see any promising entropy-based line of support for the existential inertia of a world-system.

Is there a more direct route to existential inertia from the first law of thermodynamics, according to which the energy of an isolated system is constant? According to special relativity, energy is at least tightly bound with mass, if indeed they are even two quantities. So then doesn't the first law tell us that nothing with energy or mass could cease to exist? As with the second law, expirations are consistent with the first law as long as they're always compensated by an appropriate genesis. And again, the first law is a law about systems, leaving us with the problem of how to understand the relationship between the system and the individuals that make it up. And there is one more problem in this case, which is that the conservation law seems like a restricted version of the EIT. It seems equivalent to the principle that nothing with energy is ever destroyed. Suppose everything has energy. Then couldn't we argue that the EIT must be true because if anything ceased to exist, then energy wouldn't be conserved? This argument is valid, but it leaves me, at least, just as mystified as before. The claim that everything has energy, even if true, doesn't seem to be a sufficiently general metaphysical principle. *Must* everything have energy? And even if the answer is *Yes*, even if it turns out that energy is criterial of existence, the conservation law just becomes equivalent to the EIT and we're back with the question of why it's true in the first place. If the answer is *No*, the question is just why having energy protects things from destruction. Finally, note that an account consisting of some process by which energy protects things would be an account of active existential inertia, and so not what we're looking for.

#### 4. A Thomistic Argument

An account of the very nature of being would certainly be general enough to explain our theses, whatever its other merits. Edward Feser has an argument for the expiration thesis that is based in Thomistic metaphysics. The driving idea is *hylomorphism*, the view that ordinary objects are compounds of *matter* and *form*. For our purposes, we can think of matter as that raw substance of which anything is made. Matter by its nature seems fungible—any bit is as good as any other, and could in principle be the matter of anything. To get something like an ordinary object, demarcated from the rest of the world as an individual, matter must take form. Form is the specific essence of a thing that makes it the kind of thing it is. These ideas are the basis for Feser’s argument,<sup>9</sup> which is this:

- (1) An ordinary object’s intrinsic nature is exhausted by matter and form.
- (2) Nothing can give what it doesn’t have.
- (3) Matter doesn’t have existential inertia.
- (4) Form doesn’t have existential inertia.
- ∴ (5) Neither matter nor form can give ordinary objects existential inertia.
- (6) Matter and form are objects’ only potential sources of existential inertia.
- ∴ (7) No ordinary object has existential inertia.

The Thomistic idea is to go on to show, in each of five ways, that the continued existence of ourselves and other ordinary objects depends on God. God is a different kind of entity altogether, one in which there is no distinction between matter and form. But we can set that part aside for now, and consider the strengths and weaknesses of this argument.

Let’s take the premises in turn. The main threat to (1) is that there are coherent alternatives. Hylomorphism is an attractive view, but whether it is correct depends in part on whether things have existential inertia in the first place. They do according to the Democritean view that the ultimate constituents of reality are all permanent, unchanging, indivisible particles. On this view, all

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<sup>9</sup> Compare Feser 2011, p. 258. I have reformulated his argument to focus on the aspects that most interest me.

apparent change, including creation and annihilation, is really just the rearrangement of particles. We speak as if a piece of paper ceases to exist when burned, but in fact, its constituent particles are simply dispersed. And even if, contra Democriteanism, there is some genuine annihilation, continued existence might still be the default. The EIT allows some things to cease to exist. Indeed, it allows everything to cease to exist. It denies only that ceasing to exist is the default.

As for (2), even if matter and form have no intrinsic tendency to persist, they might once joined. This would be a failure of the idea that nothing can give what it doesn't have.<sup>10</sup> The best we could say is that nothing can give what it doesn't have without help from something else. (Even that principle is suspect. Is emergentism, for example, truly incoherent?) We can allow that matter without form and form without matter are nothing, but go on to say that the matter-form union is perfectly stable. The stability doesn't have to be completely foreign from the intrinsic natures of matter and form. It's just that it takes the combination of those natures to sum to inertia. Compare an appropriate pair of right triangles. Neither is square intrinsically, but put them together and they form a square. They give what they didn't have by pooling their resources.

There's more to say about this argument, but there's a lot more I want to cover, so let's move on.

## 5. Two Spinozistic Arguments

Above, I cast doubt on the idea that systems are real, and I think that's the right stance if we're working with an ontology of particles. But how might our question appear given *monism*, the view that the universe is a single, unified entity? Monism and existential inertia were both defended by Spinoza, and indeed, he argued for existential inertia partly on the basis of monism. Specifically, he argued for his doctrine of *conatus* (striving), according to which "Each thing, as far as it can by its own power, strives to persevere in its being."<sup>11</sup> Here, I will discuss two arguments inspired by

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<sup>10</sup> It matters whether "giving" is causing or something more like grounding. It seems possible to me that an effect may have features completely unlike those of its cause. But that doesn't seem true of grounding. Still, as the triangle-square example in the text is supposed to illustrate, something may get from its many grounds what none of them has by itself.

<sup>11</sup> Spinoza, *Ethics* 3p6. The phrase 'quantum in se est', which Curley translates 'as far as it can by its own power', Garrett translates 'insofar as it is in itself'.

Spinoza. The core of each is Spinoza's idea that things can't be destroyed by their own essence.<sup>12</sup> The first argument applies this idea specifically to The One.

- (1) The essence of The One encompasses all things.
- (2) The One cannot be destroyed, even in part, by anything in its essence.
- (3) If anything were self-destructive, then it would in part destroy The One.
- ∴ (4) So nothing can be self-destructive.
- (5) The complement of self-destructiveness is existential inertia.
- ∴ (6) Everything has existential inertia.

How persuasive should we find this argument? For now, let's grant monism and treat the universe as a unit that is ontologically prior to any of its parts. And let's grant (2), which is just the application to The One of the idea that nothing can be destroyed by its own essence. Finally, let's assume that there's nothing wrong with the appeal to essences, though certainly many philosophers have worried about such appeals.

There's still the question of why The One can't lose any of its parts. It's one thing to accept The One, but another to regard its essence as extending to all its parts, per (1). In ordinary contexts, we're often happy to grant that a composite object can lose a part without being destroyed. So even if we grant the idea that a thing can't be destroyed by anything essential to it, there's room to allow parts of The One to be destroyed. Why can't some isolated particle simply cease to exist without any grave consequences for The One? Why isn't this analogous to a tiny gouge on the underside of a table, which leaves the table intact and functioning as before?<sup>13</sup> On Spinoza's view, I gather, what we think of as the destruction of a particle isn't actually destruction at all, but rather qualitative change

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Interestingly, this Latin phrase occurs in what are perhaps the two earliest expressions of the concept of general inertia, Descartes *Principles* and Newton's *Principia*. See Cohen 1964.

<sup>12</sup> Cf. *Ethics* 3p4, "Nothing can be destroyed except through an external cause." The argument for this is based on what can coherently be in a thing's definition.

<sup>13</sup> Below, I'll discuss the standard argument, from Leibniz's Law, that ordinary complex objects don't survive any changes, including loss of parts. I don't find the argument very plausible.

(since the so-called particle is really only a mode of The One). But is that how it *has* to work, even given monism?

Leaving monism aside, I think Spinoza is right that it would be odd for a thing to be destroyed by something in its essence, but still, I don't find the idea unintelligible. Why can't some things just be essentially unstable? This seems to be how it is with a Uranium-238 isotope. To qualify as an entity of that kind, an isotope has to have a certain subatomic structure, and yet it seems to be a law that things with that structure are disposed to decay—as far as we know, without intervention by external forces. But, importantly, Uranium isotopes are composite objects. So it's open that the reason for Uranium decay lies in some sort of conflict between separate parts.

Is The One a composite object? I think this is how Jonathan Schaffer conceives monism, but Spinoza's talk of modes suggests a different view.<sup>14</sup> On that view, the universe is a vast extended simple, with no discrete parts, properly speaking. We can of course, in thought, carve it up into various regions, but these regions don't contain particular objects (except for the big region that contains The One). The One can have different features at different regions, and this gives the (illusory) appearance of particular objects. The One can change qualitatively at any of these regions, giving rise to the (again illusory) appearance of the creation and annihilation of various things. But The One never in fact loses (or gains) any parts on this view; it merely changes.

This is an interesting picture that deserves careful consideration. One question is how much qualitative variation there can be within the confines of a single object. Is it coherent to suppose that all the richness we find in our universe belongs to a single thing? It seems possible for a single object (extended or not) to be qualitatively complex, thanks to objects' capacity to have many properties.<sup>15</sup> So if there is a problem, it arises from the particular kind of qualitative complexity that would be required of The One. I think the worst trouble comes from trying to fit ourselves into this picture. It's very hard to get my head around the idea that a person like you or me is merely a mode of another object, rather than a particular object in its own right.<sup>16</sup>

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<sup>14</sup> Schaffer 2010.

<sup>15</sup> As I argue in Audi forthcoming.

<sup>16</sup> Kyle Blanchette makes important points to the contrary in his dissertation.

As I mentioned, Spinoza's ideas about essence push toward existential inertia without help from monism. So we can sidestep these questions about monism for now. Let's turn to an argument (suggested to me by Alison Peterman) that draws on *Ethics* 3p4: "Nothing can be destroyed except through an external cause."

- (1) Ceasing to exist is a change.
- (2) Every change requires a cause.
- ∴ (3) Ceasing to exist requires a cause.
- (4) When something changes, the cause is either itself or something else.
- (5) Nothing can cause itself to cease to exist. (Cf. 3p4)
- ∴ (6) Nothing will cease to exist unless something else causes it.

And (6) entails the EIT. (The difference is that the EIT allows things to destroy themselves by their own activity, whereas (6) rules that out.)

Let's go through the premises. (1) seems undeniable, though it could matter in some contexts that ceasing to exist isn't a qualitative change. And (4) seems right, as long as the disjunction is understood to be inclusive. (A change could be brought about by both internal and external causes, cooperatively or independently.) But (2) seems deniable. Why couldn't there be spontaneous (i.e., uncaused) changes? Isn't one form of our driving question just why things don't spontaneously expire? One way to argue against spontaneous expiration is to argue against spontaneous change, that is, for inertia more generally. I'll look at general considerations about change below.

For now, let's look at the principle that things can't cause their own destruction. If we count a composite object's coming apart as destruction, then (5) seems false. Radioactive decay seems to be a counterexample. I said early on, though, that I wanted to set aside that kind of destruction, and consider only cases in which a thing is destroyed along with whatever it's made of. This sort of destruction can't happen unless the simplest parts of a thing are destroyed. So perhaps we can argue for existential inertia by restricting the principle about self-destruction to simple things:

- (5\*) No simple thing can cause itself to go out of existence.

This, along with (1)-(4), entails

(6\*) No simple thing will cease to exist unless something else causes it.

So, again, a complex thing can cease to exist, perhaps, by having warring parts. But there's something odd about self-conflict where the conflicting features can't be distributed among different parts. So (5\*) seems more plausible than (5).

But perhaps even (5\*) can be questioned along the same lines. Although a simple thing can't have two parts that conflict, it might have two properties that conflict. Granted, it's hard to think of any plausible example. I'll close this section with two questions. The first is whether there could be such a case. The second is whether we should construe simplicity as the complete absence of structure, so that a simple thing lacks not only parts but properties as well. (The traditional doctrine of divine simplicity takes God to be simple in this more restrictive sense.)

## 6. A Cartesian Argument

Where Spinoza argues for existential inertia, Descartes denies that any created thing has it. In both the *Principles* and the *Meditations*, he very briefly suggests an argument for the expiration thesis in the context of an argument for God's existence. It goes roughly like this. We exist continually, yet have no power to keep ourselves continuing in existence. The only thing that can account for our continuing existence is something with no need of continual preservation, namely God.<sup>17</sup> So far, our tendency to expire is assumed rather than supported, but Descartes does suggest a reason why we couldn't have the power to keep ourselves in existence, to wit, that the contents of any pair of times are completely independent. He does not say, as far as I can tell, in precisely what sense the "parts of time" (*Principles*) or parts of a "life-span" (*Meditations*) are independent, but he does say that it is a consequence of this independence that the existence of one does not entail the existence of the other. This hearkens to the Humean idea that there are no necessary connections between distinct existences. But the distinctness of times doesn't entail the distinctness of what's in them. It's still open that two times be occupied by the same persisting object. (That's how persistence works according to

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<sup>17</sup> *Principles*: I.21; *Meditation* III.

*endurantism*, which seems coherent.<sup>18</sup>) Furthermore, if the independence Descartes means is just the possibility of existing one without the other, then we still have no deep account of why we can't keep ourselves existing from moment to moment. We can see that it has something to do with time, and more specifically with the fact that the moments of time are separate, but I don't see any reason yet why the separateness of times precludes a thing from keeping itself in existence. (I also wonder whether the expiration thesis is being assumed from the beginning; if the default were inertia, why worry about reconciling some mechanism of continuance with the divisibility of time?)

I do think we can come up with a reason why, given the separateness of times, things can't keep themselves in existence. I offer the following argument (without any claim that it was in the background of Descartes' thought).

- (1) The contents of each time are entirely separate, with no overlap or contact.
- (2) There can be no causal interaction between entirely separate things.
- ∴ (3) The contents of different times never causally interact.
- (4) To be responsible for the existence of something requires causal interaction.
- ∴ (5) A thing at one time can't be responsible for its existence at another time.

Then the idea is that whatever else existential inertia is, it's responsibility for one's own continued existence, and so by (5) there is no such thing. As formulated, the argument seems to imply that no inhabitants of time can be responsible for their own existence, so that even God would have to be outside time to conserve the time-bound creations. This leaves us with the problem of how God could do this from outside time, since causal interaction requires contact or the like. We might restrict the relevant principles to natural things, but what difference would naturalness make?

I'm intrigued by this argument, but not persuaded. (1) is not implausible, but also not uncontroversial (once we're careful to

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<sup>18</sup> According to one version of *endurantism*, persisting objects change temporal locations, that is, move through time. According to another, they are present—permanently and in their entirety—at each moment through which they persist. I prefer the change-of-location version to the multiple location version.

distinguish times from their contents). It seems to require a perdurantist picture of how things occupy time, whereas it's still open that our persistence through time is not a matter of extension through time but something more like traveling through it (bringing our parts along with us). As for (2), it's a principle at home in a mechanistic worldview, but one we now tend to question (given the apparent coherence of quantum non-locality, etc.). Furthermore, as I've pointed out, it's not clear that we should think, per (4), of a thing's persistence as a causal process of any kind. Again, the distinctness of times is one thing and the distinctness of their contents another. If we have the very same thing at two moments, it's not clear that its existence at the later one has to be an effect of its existence at the earlier one. Finally, this seems to be at most an argument against active existential inertia.

## 7. Time

Still, it is clear that we have to look more closely at time. My Descartes-inspired argument blended considerations about time with ones about causation, but one might think that something about time alone explains existential inertia. For example, if time doesn't really pass, then one might think things can't possibly pass away. Perhaps this is right, but when we say how time *does* work, we may find that there's a good-enough analogue of expiration, even if it isn't literally *cessation* of being. I'll begin with two specific positive views of time and how they might be thought to support inertia.

The first is *four-dimensionalism*, which I shall understand here as the view that the basic building blocks of reality are point-sized material occupants of locations in four-dimensional spacetime.<sup>19</sup> Note that to be point-sized along the fourth dimension is just to be instantaneous. Now we can argue as follows:

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<sup>19</sup> Orthodox four-dimensionalism combines eternalism, perdurantism, and the B-theory. *Eternalism* is the view that all times are equally real, and hence all times are candidates to be occupied by real things. (Equivalently, eternalism is the view that time is extended and so the things in time can be extended in time.) *Perdurantism* is the view that things persist through times by having temporal parts at those times, where those parts are ontologically prior to the wholes they compose and really distinct from one another. The *B-theory* of time is the view that time does not pass, so that there is no ontologically special status of being present, still less one that belongs to different times progressively.

- (1) All the basic building blocks of reality are instantaneous.
- (2) Nothing instantaneous is a candidate to perish.
- ∴ (3) The basic building blocks of reality are not candidates to perish.

Complex things then inherit existential inertia from their parts.

Now, if (3) is true, then the EET must be false, since it assumes that things are candidates to perish. But I've conveniently left out of (2) and (3) any recognition that instantaneous things are equally not candidates to *persist*. So I think the way to take this argument is as seeking to show that the way we normally think about continuing and ceasing to exist is mistaken. Still, it might seem that the victory ultimately lies with inertia. For while spacetime points never exist at two times and hence don't survive from one time to another, it seems to be part of standard four-dimensionalism to assume that if a given spacetime point is matter-occupied, then it is permanently so.<sup>20</sup> It's assumed in other words, that regions of spacetime never change with respect to how matter is distributed throughout them.

But now we find the weak spot in this argument. I think it's true that this last point is a standard assumption of four-dimensionalism, and indeed that it represents a kind of existential inertia thesis. But so far it is just built into four-dimensionalism. We've seen no argument for it. Nor indeed will the standard arguments for four-dimensionalism establish this inertial component. For example, the perdurantist account of coincidence—a popular selling-point—relies just on temporal extension. Perdurantism could still be put to work in the perfectly coherent version of four-dimensionalism that results from abandoning existential inertia. Even the argument for four-dimensionalism from relativity seems to require only temporal extension, not inertia. If there is no absolute simultaneity, then things need to be spread out in time as they are in space (lest it be observer-dependent what exists). But it's a further question whether spacetime regions can change with respect to material occupancy.

This leads us to a different reason one might give for thinking that the nature of time guarantees inertia. Again, the idea is that something about time renders it impossible—incoherent, even—for things to go out of existence. Regular four-dimensionalism, I showed, leaves it open that things might vanish from their space-

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<sup>20</sup> *Permanent* here means *unchanging*, not *for all times*.

time locations. But this makes no sense according to *supersubstantialism*, the view that there is no distinction between regions of spacetime and their occupants. From this view, we get the following argument:

- (1) There is no distinction between a region of spacetime and what is in it.
- ∴ (2) So there is no such thing as an object's vanishing from its location.
- (3) Ceasing to exist would be vanishing from a location.
- ∴ (4) Nothing can cease to exist.

Expiration is impossible, so existential inertia is guaranteed.

So says this argument, but I still don't think we have a very strong case for existential inertia. (3) might not be the right account of what it is to cease to exist. Given supersubstantialism, the phenomenon of ceasing to exist—something we're arguably acquainted with—might be the alteration of a location rather than the disappearance of matter from it. What looks to us like matter vanishing might just be the "thinning" of a region. So while nothing literally ceases to exist, on this view, what we call houses and human bodies can take on all the features of what we call empty space—and that's close enough.

And even if we work with the more literal understanding of ceasing to exist, I don't see why supersubstantialism makes ceasing to exist impossible. Supersubstantialism is a form of substantialism, the view that spacetime is a thing. But why think it's a necessary or indestructible thing? Why can't it cease to exist? It might seem incoherent to suppose that a hole could form in spacetime, so that suddenly there's less intervening space between two locations than there was before. (Even this depends on the geometry of spacetime, I take it.) But even if this is incoherent, the most that would show is that locations can't vanish piecemeal. This problem doesn't arise if the whole spacetime plenum ceases to exist. And I just don't see why that's impossible. Even those who argue that it's impossible for there to be nothing whatsoever will typically allow that there might be nothing material or spatio-temporal.<sup>21</sup> Maybe what seems impossible is that something be first somewhere and then nowhere. But according to supersubstan-

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<sup>21</sup> See, e.g., van Inwagen 1996.

tivalism, locations are not themselves located, so they're never somewhere. Or maybe what seems impossible is that locations themselves should vanish. But I think our intuition is that *mere* locations can't cease to exist, since they are mere containers for being rather than beings themselves. But that's precisely what supersubstantivalism denies; it accords to locations the status of beings. So they ought to be candidates to perish after all.

At this stage, an important objection needs our attention. I asked why a spacetime point can't cease being matter-occupied, and I asked why the whole of spacetime can't cease to exist. One might respond that both states of affairs are incoherent, because both involve a *time's* changing. But changes happen *in* time, not *to* time. This is related to a famous argument by the British Idealist J. M. E. McTaggart, which we'll examine below. For now, let's get this consideration in clear focus. Imagine the situation I described above, where we have some region in spacetime whose material occupant ceases to exist—not just in the sense that it has no existence in future times, but in the sense that it disappears from spacetime altogether. So then a change has occurred in spacetime. But if something changes, that's to say it's one way at one time and another way at another time. How can we say this of spacetime itself? Wouldn't we need a fifth temporal dimension, *supertime*, so that we could say the 4d block contained a certain bit of matter at one moment of supertime but not at the next moment of supertime?

I find something very fishy about this argument. It seeks to establish that four-dimensionalism implies existential inertia, at least for spacetime points and their material occupants. So even if we granted it, it would be open to object to existential inertia by objecting to four-dimensionalism. (That said, four-dimensionalism is a very attractive view, though I do have doubts about it.) But I want to resist the idea that any change in the 4d block would require supertime. Particularly if the whole 4d block goes away, why couldn't we just grant that time vanished with it? If it does, then there isn't strictly speaking a time at which it doesn't exist. Nor is there strictly speaking a time at which it did exist, since the existence of the block itself isn't the existence of something located in the block. All this is just to say that it seems perfectly coherent that this block could cease to exist, or could cease to be matter-occupied. Looking at it a different way, how could these bits of matter, just by being located in a 4d spacetime, be exempt from the possibility of ceasing to exist? Four-dimensionalists typically em-

phasize a tight analogy between space and time. We feel no pull toward saying that matter can't coherently vanish from space, so if time is like space, why should it be incoherent for matter to vanish from time? Or rather, how does adding another dimension to space suddenly make it incoherent for things to cease occupying it? I can't see any good answer.

I'll consider one last argument from time, again related to McTaggart's ideas. It's this:

- (1) Ceasing to exist is a kind of change.
- (2) Change requires time.
- (3) Time is incoherent.
- ∴ (4) Change is incoherent.
- ∴ (5) Ceasing to exist is incoherent.

And (5) entails that everything has existential inertia. As before, if this argument succeeds, *continuing* to exist also goes out the window. But existing is fine, as long as it isn't construed as something done in time. The conclusion allows that there might be a static world of existing things, where all is permanent, and hence nothing ever ceases to be. If all this is right, the victory lies with inertia.

It is hard to wrap one's head around what it means for time to be unreal. As I understand McTaggart, a prominent defender of time's unreality, the idea is that time's appearance of *flowing* is illusory.<sup>22</sup> But the account of how the illusion works requires a fourth dimension which has at least some of the features of time, though nothing we could call flowing. So McTaggart's argument is typically not thought to show that the 4d block is incoherent. McTaggart would just say that we're wrong to label its fourth dimension a temporal one.

More on that in a moment, but first, let's consider McTaggart's case for (3), which goes like this. It's essential to time to "flow," and flowing is a kind of change. Change generally requires that there be a special metaphysical status of being present that moments can have, that each moment has successively, and that shifts forward from moment to moment inexorably. But, McTaggart argues, it is incoherent for times to change in whether or not they are present. So time ultimately rests on an incoherent kind of change, and thus is itself incoherent. So there's no such thing.

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<sup>22</sup> McTaggart 1908.

Why is this dynamic present alleged to be incoherent? McTaggart suggests two reasons, both stemming from the idea that time consists of a series of moments, where each moment starts out being a future moment, then becomes present, then becomes past. The first problem is a threat of contradiction. No moment can be both present and past. Against this, we want to say that no moment can be present and past *at once*, but there should be no problem about a change in temporal status. This leads to the second problem, which is a regress problem. McTaggart says that we want to say that a given moment (say one hour from now) is presently future but futurely present. But it is also futurely past. So we have to add that it is presently futurely present but futurely futurely past. Now, these adverbs are imprecise, and as a result, some apparent conflicts are not genuine. For example, one hour ago is both pastly present and pastly future. If we interpret ‘pastly’ as *one hour ago*, then one hour ago is pastly present. But if we interpret it as *two hours ago*, then one hour ago is pastly future. I’m not sure we get any problem at all for precise adverbs like ‘13 Planck times ago’. I think if there is any problem left, it is the problem about changes having to occur in time, so that changes to times have to occur in some temporal framework that times themselves are in, supertime. But, first, it’s not clear that this is impossible, and second, it’s not clear that it’s necessary.

I have always had the sense that this argument just doesn’t take change seriously. It’s part of the dynamic conception of time that moments are present and then not. Can’t this be a brute fact? Qualitative change conforms to the following principle: if  $x$  changes from being  $F$  to not being  $F$ , then there are times  $t$  and  $t'$  such that  $x$  is  $F$  at  $t$  and  $x$  is not  $F$  at  $t'$ . Why can’t we deny that temporal change behaves this way? Granted, it comes naturally to characterize temporal change in temporal terms (e.g., a moment is never past and present *at once*). But we can say at least some of what we want just using conditionals. For example, if a moment is present, then it is not future or past. (And maybe we can introduce new ways of speaking to help us say more.)

We’re a long way from a complete answer to McTaggart, but I hope I’ve given the sense that his objections to the dynamic conception of time may be soluble. I want to close this section by suggesting that even if we grant that time is unreal, that still doesn’t preclude cessation of existence. For one thing, we could grant that four-dimensionalism is an anti-realist view of time, and go for one of the alternative conceptions of expiration (e.g., the “thinning” of

a region). More generally, whatever is left in time's place, it may yet be hospitable to expiration. But that remains to be seen, after we have concrete proposals on the table. Briefly, here are three promising possibilities. First, we might understand the rejection of time as a kind of idealism, as the view that temporal order or temporal change is a product of how we conceive things. That seems consistent with expiration. At most, when, but not whether, things expire would be a product of how we conceive things. Second, we might understand the rejection of time as the view that there's no *sui generis* temporality in the universe, and the appearance of time is owed to some other kind of ontological posit. One possibility is certain relations (e.g., distance relations in the 4d block). Whatever there is on this view, though, may still be apt to expire. Third, we could take change as primitive and argue that time is an abstraction from change. If change is allowed, then existential change should be possible. I see no need to construe inertia or expiration in temporal terms, especially if change is taken to be independent of time, as according to this last view.

So far, then, we've seen no very tight argument from the nature of time to existential inertia (or expiration).

## 8. Change

I'll now discuss one last potential basis for existential inertia, which is inertia in general, that is, is unchangingness or a tendency to resist change. Existential inertia is just one species. So if change in general is metaphysically suspect, existential change is too. At the extreme, if change is impossible, then so is cessation of existence. Existential inertia follows from general inertia. In this section, I'll consider arguments for existential inertia based on metaphysical problems about change in general.

There are various reasons to think that change is impossible, and I'll spend the most time on those. But briefly, note that if inertia in general is the default, it would follow that the special case of existential inertia is the default. Are there metaphysical reasons to treat inertia as the default? It's tempting once again to appeal to Occam's Razor, but as I said above, it isn't a metaphysical principle. I also said that I find myself thinking that existential inertia is the default. I have the same inclination toward general inertia, but again, I don't, on reflection, see a very good reason for it. Suppose we say, for example, that inertia is the default because changes require work, and so unless something comes along to do the work,

things won't change. On reflection, I think this doesn't get us anywhere. The principle that changes require work seems to presuppose that inertia is the default. If things were by default on course to change, then it would be holding them steady that required intervention.

There are a number of philosophical problems about change, and some even purport to show that it is impossible. We've seen one, which is that change requires time. I will discuss two others, the first of which appeals to a principle called Leibniz's Law. The most general formulation of that principle is this:

(LL) If  $x$  is the same thing as  $y$ , then anything true of  $x$  is true of  $y$ .

This is equivalent to saying that nothing is both true and not true of a single thing. (Sameness, here, is numerical identity; not only being alike, but being the very same particular entity.) Sometimes the name 'Leibniz's Law' is given to a consequence of (LL), that if  $x=y$ , then  $x$  has all and only the properties  $y$  has. But the broader principle is necessary here so we can avoid questions about exactly what counts as a property. (LL) then forms the basis of this argument:

- (1) If  $x$  ceases to be, then for some times  $t$  and  $t'$ ,  $x$  exists at  $t$ , but  $x$  doesn't at  $t'$ .
- (2) If  $x$  exists at  $t$ , but not at  $t'$ , then  $x$  exists and  $x$  doesn't exist.
- ∴ (3) If  $x$  ceases to be, then  $x$  exists and  $x$  doesn't exist.
- (4) But nothing can both exist and not exist (from (LL)).
- ∴ (5) Nothing can cease to be.

Premise (2) is the source of trouble. It takes us from something that sounds perfectly ordinary (a thing's existing at one time but not at another) to something impossible (a thing's both existing and not). The problem is the slide from including the qualification about *when* the thing exists or doesn't to speaking timelessly. Could there be any metaphysical justification for this transition?

Perhaps (2) is entailed by any static conception of reality—any view, that is, that rejects the possibility of change. But the question before us is why change is impossible, so simply asserting the static conception at this point doesn't get us anywhere. What considerations support a static conception?

Arguments like this one based on (LL) are supposed to force the static conception on us by showing change to be incoherent.

(Similarly for McTaggart's argument.) But I think that we have to assume the static conception in order for (2) to look at all plausible. If we take change seriously, then a thing can exist and not exist without contradiction by changing. Creation and annihilation are both coherent, made so by the possibility of change. So I think at best, the static conception of reality entails existential inertia. But nothing so far makes us adopt the static conception.

Still, we've found one general metaphysical idea—the rejection of change altogether—that supports existential inertia. I'd be more impressed by this if I didn't find the static conception of reality unworkable. Some changes might be illusory, but I think even the illusion of change involves some genuine change. The banana changes from green to yellow, or so we say. But really, we're told, there's a permanently green banana-stage, and a permanently yellow one. The green one is before us at one time, the yellow at another. Fine, but isn't this a genuine change? I have one thing in my visual field at one time, and something else in it later. Ah, but I'm but a series of stages, too (comes the reply). So this supposed change is just a matter of two static, permanent facts: my  $t$ -stage looking at the green banana-stage, and my  $t'$ -stage looking at the yellow one. But now how do we explain the illusion that the occurrent conscious states of only one of my stages is the one that seems present to me now? Isn't there a change in which temporal stage of consciousness is the one before my mind? Why does my experience seem to hop from stage to stage in such an orderly fashion? I know of no satisfactory account in purely static terms of this very ordinary fact about our experience. Even if we grant that there's no ontologically special present, if there aren't any changes in my own mind, we can't explain even the illusion of change. So I consider myself well justified in sticking with a dynamic conception of reality.

I'll briefly discuss one last puzzle about change. This time, the conflict is between the analysis of change as property-switching and the intimacy of the relationship between a thing and its properties.

- (1) For something to change would be for it to lose a property.
- (2) There is no separation between a thing and its properties.
- ∴ (3) For something to change would be for it to lose itself.
- (4) Nothing can lose itself.
- ∴ (5) Change is impossible.

The idea is that (3) follows from (1) given (2) because (2) entails that things are identical (or near-enough identical) with their properties. Many theorists will for that reason reject any no-separation account of property-having. Peter van Inwagen, for example, argues that the idea of one thing's being identical with many is incoherent.<sup>23</sup> For him, property instantiation must be robustly relational.<sup>24</sup> So (2) is false, and with it (1); “losing” a property is really just changing one's relation to it. I, however, think properties must be immanent in their bearers, so that something like (2) is correct.<sup>25</sup> So I hold out hope for a way of understanding instantiation without many-one identity.<sup>26</sup>

Fortunately, there are two other things wrong with this argument. First, I hold that (1) represents the wrong account of change. Because properties overlap their bearers, when an object changes, a property changes too. It may sound like a category mistake to say that properties change, but I think the underlying metaphysics is perfectly coherent and comes with a number of advantages—though it does constitute a significant departure from the standard conception of properties.<sup>27</sup> Anyway, I just want to indicate that denying (1) is among the options.

But even if we grant (1) and (2), (3) should be read as saying that no intrinsic change is possible *without destruction of the thing in question*. So the argument seems consistent with expiration. Its conclusion rules out qualitative change, but not existential change. We could grant that properties are too intimately attached to their bearers to allow any changes in intrinsic character. Total annihilation is still safe, and so the question still arises why things aren't intrinsically disposed to it.

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<sup>23</sup> van Inwagen 1994.

<sup>24</sup> van Inwagen 2011.

<sup>25</sup> Audi forthcoming.

<sup>26</sup> As I discuss in Audi MS2, a trope bundle theory is one good option, though I prefer a substratum account.

<sup>27</sup> On the trope theory described in Audi MS2, properties are loci of change, the subdivisions within objects that make partial resemblance and piecemeal change possible.

## 9. Concluding Thoughts

I've been mainly negative in this paper, arguing against this or that attempt to support or cast doubt on existential inertia. The clearest line of support for it, if I'm right, comes from the view that there is no change of any kind. But as I said, I find that view impossible to believe. So where does this leave us?

I think we need a lot more work on this topic before we draw any dramatic conclusions. As I mentioned early on, there is very little work on it in contemporary philosophy. I hope I've shown the topic to be an interesting one, and connected to a number of independently interesting metaphysical questions (about time, change, essence, and so on).

But suppose it turns out that neither existential inertia nor its complement is well supported by any other general metaphysical theory or principle. What would that tell us? I think it would tell us that the question of existential inertia is among the very most basic in metaphysics. If so, that explains why very broad metaphysical positions seem to build in the assumption of inertia (as in the case of orthodox four-dimensionalism) or to build in its failure (as in the case of Thomistic hylomorphism). One view is that such positions are to be justified as whole packages, partly by their fit with what we observe (where that includes fit with reigning scientific theories) and partly by their advantages vis-à-vis rival theories.<sup>28</sup> There's certainly something right about that view, though it is very hard to say how philosophical theories are justified. Some may doubt they ever are, but even if that were true, there'd still be value in cataloguing the way things could be. (After all, one of those ways is the truth.) If nothing else, I hope this piece is at least a worthy entry into that catalogue.<sup>29</sup>

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<sup>28</sup> For a statement of this sort of view, see Daly 2010.

<sup>29</sup> First, I thank my father, Robert Audi, for comments on an earlier draft, but especially for bringing this issue up while we were eating lunch one October day in 2018. I had never really thought about this issue, and I found myself suddenly fascinated by it. And I'm extremely grateful to Alison Peterman for enormously helpful comments on an earlier draft, and for pointing me toward and explaining the early modern treatments of this issue, especially by Spinoza. Thanks to Ty Goldschmidt and Jon Tresan for helpful metaphysical discussion, and to Francis Pellegrino for a helpful discussion about entropy. And hearty thanks to the audience at my presentation of this paper, especially Kelley Annesley, Zachary Barber, Georges Dicker, Yansel Garcia, Kathleen Harbin, John Komdat, Joe Long, Jacob Morris, and Rafael Perez. I am of course very grateful to the Center for Philosophic Exchange, and to Joe Long in particular, for inviting me to give a paper.

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