ON PERSISTENCE THROUGH TIME: A FURTHER LOOK AT THE ENDURANCE VS. PERDURANCE DEBATE

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ABSTRACT

From the title of his paper, "Endurance and Time Travel," one would presume that Jiri Benovsky is concerned with, at least to some extent, the possibility of time travel. This is what the majority of 20th century time travel literature focused on. However, Benovsky's interest lies in a different metaphysical issue—the issue of identity over time. He addresses the question of how objects persist through time, and he particularly focuses on the endurantism versus perdurantism controversy. In "Endurance and Time Travel," Benovsky creates a thought experiment and shows that endurantism leads to strange and unpalatable consequences. He does not defeat endurantism to simultaneously support its opponent, perdurantism, either, but he only makes the claim that "endurantism, as typically opposed to perdurantism, is supposed to be the more commonsensical view (at least that's what defenders of endurantism often claim)."[1] He does not offer any positive theory of an object's identity through time. In other works of his, Benovsky actually argues that the endurantist and perdurantist views are quite similar.[2] In this paper, I will provide some background and summarize Benovsky's case against the endurantist's position. I will then analyze his argument, accepting his conclusions about endurantism, and I will pick up where he left off by looking at endurantism's opponent, perdurantism. Using his thought experiment, I will first show that perdurantism and endurantism are not similar at all. Ultimately, in light of scientific discoveries, I will make an even stronger claim that perdurantism, contrary to what Benovsky avows, is the more sensible view. At last, I propose that we may need to look beyond our intuition when developing a theory of persistence.

INTRODUCTION AND PART ONE

Leibniz's Law says that if x is identical to y, then x and y have exactly the same properties. Identity over time is a controversial issue because time entails change. Things, specifically their properties, change. Objects seem to change their properties over time. Problems regarding identity through change have been discussed since Heraclitus in 500 B.C.. Heraclitus argued that one could not step into the same river twice because new waters are always flowing through it.[3] Today, the idea that objects *do* persist through time is rarely debated. *How* something actually persists through time is the point of controversy. Over the years, several theories of persistence have developed. A popular debate among this issue of metaphysics is that of endurance versus perdurance. Endurantists, also known as three-dimensionalists, argue that when a material object exists at different times, it is wholly present at those times, and so, things persist by *enduring*. As typically contrasted with perdurantism, endurantists hold that objects have spatial parts but no temporal parts and that they persist wholly through time. Peter Simons writes: "At any time at which it exists, a continuant is wholly present."[4] Perdurantism, also called "four-dimensionalism," is the view that objects have both spatial *and* temporal parts. Perdurantists maintain that a material object persists by having temporal parts. Much of the debate in the past has been about personal identity, but the identity of other kinds of things has also attracted attention. In this paper, I focus exclusively on material objects.

BENOVSKY'S CRITIQUE OF ENDURANTISM

In his article, Benovsky delivers an original objection to endurantism. His aim is to show that endurantists must endorse a strange consequence of their view. Benovsky uses a *reductio ad absurdum:* he gives our basic intuition, assumes endurantism, and then reveals how endurantism contradicts our basic intuition. He asks, "Is there an entity such that it can be in two places at once?"[5] Basic intuition says that two objects can share the same property but that the objects themselves are not shareable—objects are not universals. The claim of Benovsky's paper is that *endurantism* says the opposite: objects will turn out to be universals while properties will turn out to be particulars.

To deliver such a claim, he sets up a thought experiment. Suppose that a man, Cyrano, at age 69, gets surgery on his big nose, but he wishes he had done it earlier. So, 70-year-old Cyrano builds a time machine and travels into the past to meet his 10-year-old self and make him undergo plastic surgery. Under endurantism, Cyrano exists at a time t_1 and exists there wholly—he has no temporal parts. At t_1, Cyrano has a big nose, and at t_5, Cyrano has a small nose. Endurantism says that one and the same—numerically identical—person exists at t_1 and t_5 and has the two contradicting properties of having a big nose and having a small nose. Well, Benovsky notes that endurantism comes in two forms that try to prevent the above contradiction: indexicalism and adverbialism. Under indexicalism, Cyrano does not have incompatible properties, because he always and only has *time-indexed* properties like "having-a-big-nose-at-t_1." At any time during the interval t_1 – t_3, Cyrano has to lose all of his properties and gain new ones, which in itself seems counterintuitive. But when he goes back in time he still has the contradicting properties 'having-big-nose-in-1951' and 'having-small-nose-in-1951.' Indexicalist-endurantist try to solve the problem by adding space as an element; they can say that all properties are always *space*-time-indexed, and the properties "having-a-big-nose-at-l_1-in-1951" and "having-a-small-nose-at-l_2-in-1951" are not contradictory. These space-time-indexed properties are tropes—properties that can only exist in one location at one time. So endurantists claim that properties are not multiply locatable. Benovsky asserts that to claim that properties are tropes is a stretch, but it is at least *prima facie* acceptable. But in the case of the indexicalist-endurantist, Benovsky argues that things go too far: they are also forced to claim that objects are universals, which is much more revisionary and counterintuitive. Following endurantism, the 10-year-old Cyrano with a big nose is numerically identical to the elder Cyrano with a small nose. When Cyrano goes back in time, he is multiply located—he's in two places at once. So, objects, like Cyrano, are universals, while properties have to be space-time-bound and are particulars.[6]

Benovsky argues that the same consequence applies to adverbialism. Under adverbialism, the property is not temporally modified, but instead, the *having* of it is temporally modified. For the sake of brevity, I will not examine adverbialism here, but I will just note that Benovsky shows that neither can adverbialists avoid the consequence that objects, like Cyrano, are universals. So, the same objections for indexicalism apply here. Therefore, according to endurantism, Cyrano is a universal while his properties are particulars; properties cannot be multiply located while objects, like people, can. This counters our intuition, which says that properties can be in two places at once, but that objects cannot. Benovsky argues that the result is an unpalatable consequence of endurantism. He writes, "Some endurantists might be ready to bite the bullet. I think that the cost of such a total departure from our intuitions about central features of objects and properties is too big a bullet to bite."[7] I now turn to examine whether or not this argument can stand against objection.

OBJECTIONS TO BENOVSKY'S ARGUMENT

Some might object by claiming that his argument is a *reductio* against the possibility of time travel, rather than endurantism. Benovsky can only produce his result by admitting the possibility of time travel, so endurantists can argue that the absurd conclusion just provides another problem with the logical possibility of time travel. But this objection seems to beg the question since the only reason to reject time travel would be to keep endurantism. So, endurantists need autonomous reasons for rejecting the possibility of time travel.

Second, the three-dimensionalist, or perdurantist, could opt to regard properties in terms

of personal time, rather than external time. David Lewis proposed that for a time traveler, the separation in time between departure and arrival does not equal the external duration of the journey, while for non-time travelers, personal time and external time are in step.[8] Whether or not admitting personal time will save endurantism is of no concern here. The aim of this paper is to show that, contrary to what Benovsky claims, perdurantism is more commonsensical than endurantism. Bringing personal times into our ontology may redeem endurantism, but regardless, personal time is a strange notion, and it is certainly does not help endurantism seem obviously sensible.

Lastly, some endurantists might just "bite the bullet." Some may be willing to accept Benovsky's conclusion. Endurantists may argue that his conclusion—that endurantism contradicts basic intuition—is not a defeat of their view. Benovsky seems to hint at the hidden premise that our basic intuition is correct, at least to some extent. So, if endurantism contradicts basic intuition, then we can conclude ~endurantism. He assumes endurantism and reveals that it contradicts our basic intuition, yet endurantists may disagree with the premise that relies on the trustworthiness of our intuition. While this is a valid argument, it is not necessarily sound. Some may just claim that our intuition is plainly wrong. Yet, this would make the view seem unreasonable. The purpose of my paper is to show that perdurantism is a more reasonable view than endurantism, and so, while some may continue to accept endurantism, they cannot do so without admitting an apparently irrational conclusion. We cannot conclude that endurantism is wrong, but we can make an educated guess by assuming that our intuition is at least somewhat reliable

PART TWO

Thus, Benovsky's argument against endurantism stands up against objection, and we see that endurantists face an unreasonable consequence to their view. One might assume that Benovsky undermines the endurantist view to make another view, perhaps perdurantism, seem more attractive. However, even after criticizing endurantism, Benovsky does not adopt perdurantism. He briefly compares endurantism to perdurantism, but he does not give an opinion about perdurantism in this paper. He writes: "endurantism, as typically opposed to perdurantism, is supposed to be the more commonsensical view."[9] Not only does he not adopt perdurantism as the more reasonable view, but also, in another article, Benovsky tries to show that the perdurantist worm view and the various endurantist theories are actually very similar. He argues that neither of them can say that Cyrano, for instance, has a big nose or a small nose *simpliciter*. David Lewis argued that endurantism should be rejected because it does not allow for Cyrano's possession of a big nose *simpliciter*.[10] But Benovsky contends that perdurantism does not offer this either: under the perdurantist worm view, Cyrano is a spatiotemporally extended worm, and intrinsic change over time is viewed in terms of the possession of different temporal parts at different times. As a consequence, neither endurantism nor the perdurantist worm view, Benovsky argues, can defend the claim that Cyrano has his temporary intrinsic properties *simpliciter*. I will discuss the perdurantist worm view in detail below. Benovsky points out that both theories appeal to a temporalizing device—either "to be a t_n-part of" or "at-t_n"—in order to be able to say that Cyrano has a big nose or a small nose. He also goes on to try to show that both theories can respond to the "no-change objection," which is often just used against perdurantism.[11]

This is my point of conflict with Benovsky. After developing the perdurance theory further, I will use Benovsky's thought experiment to show first, that perdurantism and endurantism are not similar at all. Then I will make the even stronger claim that perdurantism is the more favorable view. First, while neither endurantism nor the perdurantist worm view can say that Cyrano has a big nose or a small nose *simpliciter*, the worm view can say that *something*—each of his temporal parts—has a big nose or a small nose *simpliciter*. Also, while both views use a temporalizing device, perdurantists temporalize *objects*, while endurantists temporalize *properties*. Also, the whole ontology of these views differ: perdurantists claim that objects persist through time by having temporal parts, whereas endurantists claim that objects persist through time by being wholly present and numerically identical at different time. Lastly, and most importantly

for this paper, when substituting perdurantism into Benovksy's theoretical situation regarding Cyrano and his younger self, perdurantism does not generate the same consequences as endurantism.

ON TO PERDURANTISM

I will use the term four-dimensionalism and perdurantism interchangeably.[12] Four-dimensionalism, holds that time is a fourth dimension. It also says something stronger than this for everyone would agree that objects persist through this fourth dimension, time; what is controversial is how they do so. According to four-dimensionalism, or perdurantism, material objects persist by having *temporal parts*. Accordingly, persisting objects have four dimensions: they are four-dimensional "worms" in space-time. Persistence is much like spatial extension, they say. Things are temporally extended and persist over time like rivers and roads persist through space. Ted Sider writes:

> Persistence through time is much like extension through space. A road has spatial parts in the subregions of the region of space it occupies; likewise, an object that exists in time has temporal parts in the various subregions of the total region it occupies.[13]

So, perdurantists claim that time is like space with respect to parts. Just as things can be spatially long or short, they can also have a long or brief duration. The perdurantist argues that time is analogous to space, and since all things extend by having different spatial parts, all things persist through time by having different parts at different times. Time is also like space in regards to the reality of distant objects. For instance, just because the sun is far away does not mean that it is any less real. Every spatiotemporal object has a temporal part at every instance at which it exists, and each of these temporal parts has its properties. The object is the aggregate, or sum, of all its temporal parts, or time slices. Below I provide arguments as to why perdurantism should be favored over endurantism.

1. Josh Parsons asserts that four-dimensionalism is supported by its utility in solving several puzzles about time by simply appealing to the analogous spatial cases.[14] Just as David Lewis' theory of modal realism is serviceable in solving many metaphysical puzzles, a temporal parts theory also enables us to solve puzzles and construct arguments about time, and this weighs in its favor.[15]

2. More convincingly, consider the case of the time travelling, small-nosed Cyrano who encounters his big-nosed, younger self at time *t*. The four-dimensionalist can easily satisfy this scenario. He or she says that there are two different three-dimensional parts of the same four-dimensional entity. There are two temporal slices of Cyrano: one temporal part of him is "big-nosed" and another is "small-nosed." Two temporal parts exist simultaneously. But, as I mentioned above, under endurantism, both young Cyrano and old Cyrano are wholly present at the same time, which seems counterintuitive. Looking at Heraclitus' river, perdurantists maintain that it has different three-dimensional time-slices of itself and yet remains numerically identical to itself across time. One can step into the same four-dimensional river twice, but can never step into the same river time-slice twice.

3. What is most compelling is that perdurantism, unlike endurantism, matches our current scientific understanding of the world. While our original intuition may favor endurantism, I argue that if we consider *a posteriori* facts about the world, then perdurantism will begin to appear the more reasonable theory of persistence. Josh Parsons writes: "Since . . . it is an empirical matter whether any given object has spatial parts, we should likewise think it an empirical matter whether any given object has temporal parts."[16] Perdurantism may seem less intuitive than endurantism, but if empirical facts are admitted, the former view gains support in its favor. There are certain *a posteriori* reasons to prefer perdurantism to endurantism, particularly Einstein's theory of special relativity. In a world governed by special relativity, perdurantism seems to be the more reasonable view. Without developing the whole theory, here are the important aspects of it that will be relevant in this discussion: there is an intrinsic connection between time and space, and this connection does not allow events to occur

simultaneously. The theory holds that time and space cannot be defined without one another; they are linked in a single continuum, space-time. Mathematician Hermann Minowski represented Einstein's theory of special relativity geometrically by using the four dimensions: three space dimensions and one time dimension. In contrast to Euclidean space, space-time has an additional time-like dimension. The intrinsic relation between spatial and temporal extension supports the perdurantist's claim that time and space are analogous and that objects do not endure.[17]

The theory has also denied absolute time and calls for time that is dependent on reference frame and spatial position. There is no absolute fact of the matter as to which events happen first or whether they are simultaneous. So, whether two spatially separated events occur at the same time is not absolute; it depends on the reference frame of the observer. This weighs heavily against the theory of presentism, which claims that only present events exist. Endurantists often look to presentism to explain how an object can have different properties at different times. If special relativity rules out presentism, we have yet another reason to reject any form of endurantism that adopts presentism. Perhaps endurantism can be made consistent with the theory of special relativity, but it will certainly not be commonsensical to arrive at this conclusion. On the contrary, perdurantism, from the start, matches the world's physical facts. The empirical fact that space and time cannot be separated provides support to the perdurantist's argument that things have temporal parts.

A DIFFERENT LOOK AT PERDURANTISM

Some reject the perdurance theory described above, which is often labeled the "worm view" and instead argue for the "stage" version of four-dimensionalism. Stage theorists accept the ontology of perdurance theory, but they alter its semantics. According to the stage view, no ordinary object exists at more than one instance. Contrary to the worm view, stage theory argues that objects do not temporally extend; rather, they are instantaneous stages. So, technically, an object only exists for an instantaneous period of time. However, there are temporal parts at other times that the object is related to. Objects are short-lived and persist by bearing temporal counterpart relations to other stages. All of the stages added together make up the persisting object.[18] According to stage theory, Cyrano exists only at one instance; he persists through time by having different temporal counterparts at other times. Stage theorists claim that when we speak of ordinary objects, we actually talk about brief temporal "stages" of the object, but because of counterpart relations, identity is preserved at the level of ordinary speech. Under the stage view, Cyrano at t_1 with a big nose is a numerically different entity than the Cyrano at t_5 with a small nose. Stage theory may seem like a very counterintuitive theory. Then again, Benovsky shows that endurantism produces unreasonable results as well. I am not arguing over which, if any, of the perdurantist views is correct, but rather, I am claiming that they are just more reasonable to adopt than endurantism. To use Benovsky's terminology, they are just as commonsensical, if not more, than endurantism. Whether the stage view is better theory than the worm view or not is not my present concern; my intent is to show that adopting any kind of four-dimensionalism is a more sensible approach than adopting three-dimensionalism, or endurantism.

Some may object by claiming that the perdurantist view speaks of different objects that have different properties, and so, the view does not explain how things change. Also, objectors will note that what is true of a given temporal part is always true. Peter Simons, for instance, claims that "[four-dimensionalism] is not an explanation of change but an elimination of it, since nothing survives the change which has the contrary properties."[19] Objectors charge perdurantists with embracing a "static" ontology, and this is far from rational. Four-dimensionalists reply by claiming that change is the difference between consecutive temporal parts. Worm theorists say that while Cyrano at t_1 is numerically distinct from Cyrano at t_2, they are both temporal parts of a single space-time entity. Stage theorists give a somewhat different response to this no-change objection: they say that the current short-lived object has a causal relation to other instantaneous objects in the past and the future. Cyrano changes in what relations he bears.

CONCLUSION

While these are adequate replies to the no-change objection, they certainly reveal how counterintuitive any theory of persistence can be. Perhaps no theory of persistence is compatible with our intuition. Some argue that the most reasonable position to hold is that there are no criteria of identity over time for any object.[20] I have not argued that perdurantism provides a set of necessary and sufficient conditions for identity. Rather, I have argued that it is just as commonsensical, if not more, than endurantism. Yet, David Lewis remarks: "It would be better not to impute such surprising commitments to common sense, but only the plain commitment that things do somehow persist, never mind exactly how they do it."[21] I agree with Lewis that it would be better not to attribute any theory of how exactly things persist to our commonsense and to just keep the fact that things do persist for our intuition. If no theory of persistence corresponds with our intuition, perhaps we ought to seek other means in finding an appropriate theory. In light of recent scientific discoveries, I argue that one may combine their *a priori* beliefs and their *a posteriori* beliefs to arrive at the conclusion that perdurantism is to be preferred over endurantism. We can look beyond our intuition and find that perdurantism, to use Benovsky's terminology, is just as commonsensical, if not more, than endurantism, especially if one takes note that it fits with our knowledge of physics. For common sense tells us to listen to the facts. Benovsky shows that endurantism must face nonsensical consequences. While perdurantism may not seem as intuitive as endurantism, its apparently counterintuitive features are supported by scientific findings, and thus, it becomes more reasonable to adopt than endurantism. Perdurantism fits our modern scientific understanding of the universe. My intent in this paper is not to prove a certain theory of persistence to be correct. Rather, I have tried to show that if one were to adopt a theory, perdurantism would be no less commonsensical to adopt than endurantism. In fact, in consideration of modern science, specifically the special theory of relativity, perdurantism is the more reasonable theory to adopt.

NOTES

1 Benovsky, Jiri (2011). "Endurance and Time Travel." Kriterion 24: 65-72.

2 Benovsky, Jiri (2011). "Endurance, Perdurance and Metaontology." *SATS*, Vol. 12, 159–177.

3 Plato (1997). "Cratylus." *Plato: Complete Works*. Eds. John M. Cooper and D.S. Hutchinson. Indianapolis: Hackett Publishing Company, Inc., 402a.

4 Simons, Peter (1987). *Parts: A Study in Ontology*. Oxford: Clarendon.

5 Benovsky, "Endurance and Time Travel," 66.

6 Benovsky, "Endurance and Time Travel," 67-69.

7 Benovsky, "Endurance and Time Travel," 71.

8 Lewis, David (1976). "The paradoxes of time travel," *American Philosophical Quarterly*, Vol. 13: 145–152.

9 Benovsky, "Endurance and Time Travel," 71.

10 Lewis, David (1986). *On the Plurality of Worlds*. Oxford: Blackwell Publishers. 202

11 Benovsky, "Endurance, Perdurance and Metaontology." 164–165.

12 Some philosophers use the term four-dimensionalism to refer to perdurantism. See Sider, Ted (2001). *Four-Dimensionalism: An Ontology of Persistence and Time*. Oxford University Press. Some philosophers use the term exclusively for the view that presentism is false, without referring to perdurantism. See Rea, Michael C. (2003). "Four-dimensionalism." In Michael J. Loux & Dean W. Zimmerman (eds.), *The Oxford Handbook of Metaphysics*. Oxford University Press. pp. 246-280.

13 Sider, T. (1997) "Four-dimensionalism." Philosophical Review 106 Vol. 2, 197.

14 Parsons, Josh (2000). "Must a Four-Dimensionalist Believe in Temporal Parts?" *Monist*, Vol. 83: 399–418.

15 Lewis, David (1986). *On the Plurality of Worlds*. Oxford: Blackwell Publishers.

16 Parsons, "Must a Four-Dimensionalist…," 415.

17 Disalle, Robert (1995). "Spacetime Theory as Physical Geometry." *Erkenntnis* Vol. 42, No. 3: pp. 317-337.

18 Haslanger, Sally (2003). "Persistence through time." In Michael J. Loux & Dean W. Zimmerman (eds.), *The Oxford Handbook of Metaphysics*. Oxford University Press. 315-354.

19 Simons, Peter (2000). "How to exist at a time when you have no temporal parts?" *Monist* 83: 64.

20 Merricks, Trenton (1998). "There are no criteria of identity over time." *Noûs* 32, Vol. 1: 106-124.

21 Lewis, David (1988). "Rearrangement of particles: Reply to Lowe." *Analysis* 48 Vol. 2: 67.

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