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ORIGINAL RESEARCH

Four-dimensionalism, eternalism, and deprivationist accounts of the evil of death

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Abstract
Four-dimensionalists think that we persist over time by having different temporal parts at each of the times at which we exist. Eternalists think that all times are equally real. Deprivationists think that death is an evil for the one who dies because it deprives them of something. I argue that four-dimensionalist eternalism, conjoined with a standard deprivationist account of the evil of death, has surprising implications for what we should think about the evil of death. In particular, given these assumptions, we will lack any grounds for thinking that death is an evil for some individuals for whom we would antecedently expect it to be an evil, namely those individuals who cease to exist at death. Alternatively, we will only have some grounds for thinking that death is an evil for certain individuals for whom we might antecedently be more inclined to think death is not an evil, namely those individuals who survive death, in the sense that they continue to exist after death.

Keywords Death · Evil of death · Four-dimensionalism · Eternalism · Perdurantism · Stage theory

1 Introduction

According to four-dimensionalism, things which persist over time do so by having temporal parts at each of the times at which they exist. Four-dimensionalism is almost always conjoined with an eternalist temporal ontology, according to which past, present, and future things are equally real. Deprivationists think that death is an evil for the one who dies primarily because it deprives them of something (e.g., it deprives them of goods at times after they die).

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In this paper I argue that four-dimensionalist eternalism has surprising implications for how we should think about the evil of death. More specifically, given four-dimensionalist eternalism, and given a standard deprivationist account of the evil of death (more fully described below), we lack any grounds for thinking that death is an evil for some individuals for whom we would expect it to be an evil, especially those individuals who cease to exist at death. Alternatively, we may have grounds for thinking that death *is* an evil only for certain individuals for whom we might antecedently be more inclined to think death is *not* an evil, namely those individuals who survive death, in the sense that they continue to exist after death.

Other philosophers have written papers or books which note that the philosophy of time might have implications for how we should think about the evil of death.[1] None of these philosophers have argued for the claims for which I argue in this paper. What's more, the claims for which I argue in this paper are noteworthy, since four-dimensionalist eternalism is fairly popular among metaphysicians, and the conjunction of the assumption that death is an evil and the deprivationist account of the evil of death is, I take it, widely assumed among both philosophers and non-philosophers. If my arguments are correct, the conjunction of four-dimensionalist eternalism with a standard deprivationist account of the evil of death leads to surprising conclusions regarding *which* individuals are such that death is an evil for them.

Before I present my arguments, I'd like to make three brief points meant to clarify what it is I intend to accomplish in this paper.

First, throughout this paper when I write about "death" I am referring to biological death. Sometimes people talk of "death" in such a manner that it is built into the concept of death that we cease to exist at death. That is not how I am using the word "death." On my use of that word, it is an open question whether we cease to exist at death.

Second, obviously death causes a great deal of suffering for the loved ones of those who die. Similarly, a great deal of suffering may result from the anticipation of our own deaths, or from whatever causes our deaths (e.g., illnesses, acts of violence). I don't dispute either of these two obvious points. The subject under consideration in this paper regards the somewhat less obvious subject of what we should think about the evil of death for the one who dies.

Third, some of the main points I make in this paper are derived from an important assumption which is often accepted by four-dimensionalists, namely that four-dimensionalism brings with it diachronic universalism. Diachronic universalism is the thesis that any two or more non-overlapping[2] objects compose a further object, even if the two or more non-overlapping objects in question exist at different times. In Sect. 3 I argue that the implications of this assumption will be difficult for the four-dimensionalist to avoid.

Here's my plan for the remainder of the paper. In Sect. 2 I introduce eternalism and four-dimensionalism, and contrast them with their chief competitors: presentism, the growing block theory, and endurantism. In Sect. 3 I argue that, given four-dimensionalist eternalism, for individuals who cease to exist at or before death, we lack

[1] See, e.g., Silverstein (1980), Bradley (2010), Sider (2013), Mullins (2014) and Deng (2015a; 2015b).

[2] To say that "x overlaps y" is to say that there is some z such that z is a part of x and z is a part of y.

any grounds for thinking that death deprives those individuals of significant goods. It follows that we lack any grounds for thinking that death is an evil for those individuals, given a standard deprivationist account of the evil of death. For those individuals who exist at times after death, it is more plausible that death deprives those individuals of significant goods, and so it is more plausible that death is an evil for those individuals, given a standard deprivationist account of the evil of death. Section 4 concludes the paper.

2 Temporal ontology and persistence over time

I'll begin by saying a bit more about what I mean by "eternalism" and "four-dimensionalism."

According to eternalism, past, present, and future things all exist. If there were dinosaurs at some past time, then there are dinosaurs, although of course there are no dinosaurs at the *present* time. Similarly, if at some future time there are human colonies on Mars, then there are human colonies on Mars, full stop, although of course there are no human colonies on Mars at the present time. Eternalism is generally contrasted with such competing accounts of temporal ontology as presentism and the growing block theory. According to presentism only present things exist. According to the growing block theory only past and present things exist.[3]

Eternalism is often, although not always, conjoined with the B-theory of time, according to which all facts are tenseless. The observations I make in this paper regarding four-dimensionalist eternalism seem to me to be independent of whether or not one adopts the B-theory of time.

By "four-dimensionalism" I mean either perdurantism or stage theory (although four-dimensionalists are generally perdurantists). According to perdurantism, temporally located objects persist over time by having different temporal parts at different times. Think, for example, of a rock. The rock is extended in space, of course, but according to perdurantism the rock is temporally extended as well (assuming the rock exists for more than an instant), and has various temporal proper parts—that is, parts of the rock whose temporal extents are smaller than the temporal extent of the rock, and which, at each time at which they exist, overlap all of the proper parts of the rock which exist at that time. Think of the temporally extended rock as a spacetime "worm," in light of its elongated temporal dimension. The worm has different properties at different times in virtue of the fact that its temporal parts have different properties. So, for example, suppose the worm weighs 10 kg at time t_1, and 9 kg at time t_2. According to perdurantism, the rock weighs 10 kg at the first time and 9 kg at the second time because it has a temporal part which only exists at t_1 and weighs 10 kg, and it has a different temporal part which only exists at t_2 and weighs 9 kg.

Stage theory resembles perdurantism insofar as it analyzes change in terms of different temporal parts instantiating distinct properties at distinct times. Stage theory and perdurantism differ, however, insofar as stage theorists do not identify everyday

[3] For a defense of eternalism see Sider (2001), especially Ch.2. For defenses of presentism see Markosian (2004) and Bourne (2006). For a defense of the growing block theory see Tooley (1997).

material objects with the temporally extended spacetime "worms" posited by perdurantists. The stage theorist typically believes in spacetime worms,[4] especially if they accept diachronic universalism (which I'll discuss further below). But the stage theorist claims that, when we refer to, say, a temporally persisting rock, we generally only succeed in referring to a temporally instantaneous rock *stage*. We may nevertheless regard instantaneous stages as persisting objects, if those stages are appropriately related to stages at other times (i.e., related by what Sider calls a "temporal counterpart relation").[5]

Another variant (or relative) of four-dimensionalism is Josh Parson's view,[6] according to which objects are temporally extended, but not in virtue of having temporal (proper) parts. Parson's view is less widely endorsed than the versions of four-dimensionalism discussed above, and so I don't discuss it further in this paper. It is worth mentioning here, however, since it may avoid some of what I'll claim are implications of four-dimensionalist eternalism for how we should think about the evil of death.

The most prominent alternative account of persistence over time is endurantism. According to endurantism, objects persist over time by being wholly present at every instant of time at which they exist. For example, a rock persists from time t_1 to time t_3 by first being wholly located at t_1, then being wholly located at t_2, and finally being wholly located at t_3.[7]

One noteworthy implication of four-dimensionalism is the fact that it seems to commit us to the existence of various strange objects which we might not normally think about.

According to four-dimensionalism there are, in addition to temporally extended "worms," countless temporal parts of those worms, temporal parts which overlap those worms at some times but not others. Consider, for example, some human being (call him Bob) who is temporally extended from time t_1 to time t_5. There are going to be worms which exist from, say, t_1 to t_2, or t_3 to t_5, or t_2 to t_4, and overlap with all of Bob's proper parts which exist at those times. Similarly, there are going to be stages which exist at t_1, t_2, t_3, t_4, and t_5, and which overlap with all of Bob's proper parts which exist at those times. There may also be worms which overlap with all of Bob's proper parts which exist at some time, but which have proper parts which do not overlap with Bob. Consider, for example, some spacetime worm which overlaps with all of Bob's proper parts which exist at t_1, and overlaps with Paul McCartney at t_2. These relatively gerrymandered spacetime worms are possible because we will assume, as most four-dimensionalist eternalists do, that diachronic universalism is correct. According to diachronic universalism, any two or more non-overlapping objects compose a further object, even if the two or more objects in question exist at different times. (Below I'll discuss whether four-dimensionalists might drop their assumption that universalism is correct.)

[4] Cf. Sider (2001, p. 191).

[5] For defenses of four-dimensionalism see Lewis (1986, pp. 202–204) and Heller (1990). For defenses of stage theory in particular see Sider (2001, Ch.5.8) and Hawley (2001).

[6] Parsons (2000).

[7] For a defense of endurantism see Thomson (1983).

These gerrymandered and short-lived worms and stages are often discussed in order to press a skeptical worry: how do we know whether *we* are among these gerrymandered or short-lived individuals?[8] Perhaps only some spacetime worms are "people" or "human beings," if "people" or "human beings" must instantiate the right sorts of causal, psychological, or biological continuity over time.[9] And so perhaps we can know that there are no gerrymandered four-dimensional people or human beings of the sort cited above, since they wouldn't instantiate the relevant sorts of causal or psychological relations between their temporal parts, and perhaps we can say something similar about stages or very short-lived spacetime worms. But what grounds could one have for thinking that one was a person or a human being, rather than a gerrymandered or short-lived spacetime worm or stage?

I'm not going to press this skeptical worry here. The important point to note for our purposes is just that given four-dimensionalist eternalism there exist all these gerrymandered or short-lived worms or stages which we might not normally think about, and it seems sensible to ask whether death is an evil for these individuals. (Indeed, if we really *can't* tell whether we are among the short-lived or gerrymandered individuals, and we should care very much whether death is an evil for *us*, then we should care very much whether death is an evil for short-lived and gerrymandered individuals.)

3 Death and deprivation

I'll now discuss some implications of four-dimensionalist eternalism for how we should think about the evil of death.

Why is death an evil for the one who dies? It is generally thought that death is an evil because it deprives us of something. The general deprivationist thesis is that death is an evil because it results in our total history consisting of fewer goods than it otherwise would have, if, for example, death deprives us of goods we would have otherwise obtained if it weren't for our death.[10]

Some philosophers have noted that one particular variant of deprivationism conflicts in a fairly straightforward way with eternalism (assuming, of course, that death is in fact an evil for the one who dies). Luper–Foy contends that death is an evil at least in part because death results in our annihilation, in the sense, not just that we do not exist at times after our deaths, but that death results in our totally ceasing to exist.[11] On this account death is an evil because it deprives us of existence. But death arguably does not deprive us of existence, given eternalism. Le Poidevin,[12] Sorabji,[13] and Leslie[14]

[8] Cf. Merricks (2003: p. 99), Olson (2007, pp. 120–121).

[9] Cf. Olson (2007, pp. 116–117).

[10] See, for example, Nagel (1979), Brueckner and Fischer (1986) and Feldman (1991).

[11] See, e.g., Luper-Foy (1987, pp. 235, 237).

[12] (1996, pp. 145–146).

[13] (2006, pp. 332–334)

[14] (2007, p. 60)

all note that, given eternalism, there is a sense in which death does not result in our ceasing to exist, since we still exist at times prior to our deaths.[15]

So, if death is an evil only insofar as it results in our total annihilation, then, given four-dimensionalist eternalism, death is not an evil. That idea isn't new. But among philosophers who endorse the idea that death is an evil because it deprives us of something, it is usually thought that death is an evil, not because it deprives us of existence *full stop*, but rather because it deprives us of something else. So in the subsequent discussion of deprivationism I have in mind deprivationism of one of these other more prominent sorts. For example, one view of this sort holds that death is an evil because after one's death one can no longer engage in any projects or have any experiences, and in particular one can no longer engage in projects or have experiences at times at which, absent one's death, one *would* have engaged in projects or had experiences. There are more complex variants of this sort of view. For example, some philosophers[16] contend that death deprives us of goods at times after our deaths, and the extent to which one's being deprived of goods at times after one's death is an evil is determined, in part, by whether one would have been psychologically continuous with oneself at those times.

Again, the basic deprivationist idea is that death is an evil because death deprives us of goods we would otherwise obtain absent our death. I make no assumptions about *when* death is an evil for the one who dies, given a deprivationist account of the evil of death.

One concern you might have at this point is that I have misrepresented the deprivationist thesis. The deprivationist thesis is that death is an evil for the *person* or *human being* who dies because it deprives them of something. But I present deprivationism as the more general thesis that death is an evil for *us* because it deprives *us* of something, where, importantly, "us" might include worms and stages. So, the objection goes, the sort of deprivationism I discuss in this paper—a form of deprivationism applicable to worms and stages—is not the deprivationism many philosophers endorse, which is deprivationism as applied to *persons* or *human beings*.[17] But this objection rests on a confusion. Given four-dimensionalist eternalism all persons and human beings *are* worms or stages, even if not all worms or stages are persons or human beings. So, my discussion of whether, given four-dimensionalist eternalism, death deprives any given worm or stage of anything is relevant to the question of whether death deprives any given *person* or *human being* of anything.

Given the general deprivationist framework for thinking about the evil of death, it turns out that, given four-dimensionalist eternalism, some worms or stages will be such that we lack any grounds for thinking that death is an evil for them, while some other worms or stages are such that death is more likely to be an evil for them. What's surprising about this is that many of the worms or stages in the first group are precisely those worms or stages for which we would expect death to be an evil, and those worms

[15] Robson (2014) makes the same point about the growing block theory of time. McTaggart (1927: p. 186) makes a similar point, on the assumption that time is unreal.

[16] E.g., McMahan (1988, pp. 56–57).

[17] Thanks to an anonymous referee for suggesting I address this concern.

or stages in the second group are those worms or stages we would antecedently be *less* likely to suppose are victimized by death.

I'll proceed by way of a discussion of three sorts of worms and stages: (1) those worms and stages which are such that their temporally latest temporal parts exist prior to the death of (one or more of) the human being(s) with which they overlap; (2) those worms and stages which are such that their temporally latest temporal parts exist at the point of death; (3) those worms and stages which are such that their temporally latest temporal parts exist at times after the death of (one or more of) the human being(s) with which they overlap. Throughout the discussion I use "human human" to denote those four-dimensional objects which track the biological histories we normally associate with human beings. "Human beings" in this sense have relatively coherent and unified biological histories, and are not gerrymandered or short-lived.[18] While all human beings undergo biological death, I remain neutral on the question of whether human beings cease to exist at biological death.

It will prove convenient to begin with a discussion of the worms and stages described under (3), followed by a discussion of the worms and stages described under (1), and then (2).

So, consider spacetime worms or stages whose final temporal parts occur after the death of (one or more of) the human being(s) with which they overlap. A worm of this sort would overlap with some living human being at one or more times before that human being's death, and overlap with something at one or more times after the death of the human being. (This is compatible with the worm in question overlapping with *the human being* after their death, as long as the human being continues to exist after their death. In fact, the worm in question might *be* the human being—again, as long as the human being continues to exist after their death.) So, just to give some concrete examples, worms of the sort I have in mind would include: a worm which shares a temporal part with Abraham Lincoln prior to his death, but whose final temporal part is shared with Barack Obama in 2021; a worm which shares a temporal part with Abraham Lincoln prior to his death, but whose final temporal part is shared with the Taj Mahal in 2021; a worm which shares a temporal part with Abraham Lincoln prior to his death, and which shares temporal parts with the corpse of Abraham Lincoln for some length of time after Lincoln's death. We can also think of stages which exist in some sense after death, but this won't amount to their having earlier temporal parts which overlap with any human being before their death. To say that a stage exists after death is presumably to say that they have earlier temporal counterpart stages which overlap with a human being before their death.

We might be tempted to say that worms or stages of these sorts would not be deprived of anything by death, since they continue to exist at times after the death of the human being(s) with which they overlap, and so presumably they are free to enjoy goods at times after that death. But this would be too quick. The worms and stages in question plausibly can be deprived of something by death if the death of the human being(s) with which the worms and stages overlap results in fewer goods accrued to the worms and stages in question. For example, presumably some such worms would

[18] At any rate, they are not so short-lived as to fail to have coherent and unified biological histories. A human being may die at a very young age, and so in that sense be "short-lived." But no human being, as I am using the term "human being," will persist for only a millionth of a second.

have had more *living* temporal parts (and so more goods associated with the life of those temporal parts) if it weren't for the death of the human being(s) with which the worms overlaps. One possible example of this sort was mentioned above: a worm which shares a temporal part with Abraham Lincoln prior to his death, and which shares temporal parts with the corpse of Abraham Lincoln for some length of time after Lincoln's death. This worm may be such that, had Lincoln not died, the worm would have shared temporal parts with a living Lincoln for some time after Lincoln's death. Similarly, presumably a stage with an earlier living counterpart would have enjoyed more goods if it weren't for the death of the human being(s) with which its earlier temporal counterparts overlap: if the death had not occurred then the stage would be alive rather than dead, and so would enjoy the goods associated with life.

Below I will argue that other worms and stages, namely those worms and stages which do *not* have temporal parts after the death of the human being(s) with which they overlap, are such that we lack any reason to think that death is an evil for them. That makes my conclusion in the paragraph prior to this one (that death plausibly can be an evil for worms and stages which exist after the death of the human being(s) with which they overlap) all the more surprising, since it entails that we only have reason to think that death is an evil for someone if they survive death, in the sense that they continue to exist after their death (or, more carefully, after the death of the human being(s) with which they overlap). This conclusion is surprising because many people are pre-theoretically inclined to take the opposite approach, that death is more likely to be an evil for someone if they fail to survive death.

Now consider worms which overlap with some living human being(s) at one or more times before that human being's death, but do not overlap with anything after some time t, where t is temporally prior to the death of every human being with which these worms overlap. Death plausibly does not deprive these worms of anything, since these worms do not undergo death—their temporal parts all exist at times prior to the death of the human being(s) with which they overlap. We can say the same thing about stages which exist prior to the death of the human being(s) with which they overlap.

These conclusions are not very surprising. If an individual does not die—which in the present context follows from the fact that they only exist at times prior to the death of the human being(s) with which they overlap—then it is unsurprising that death deprives them of nothing.

Now, consider the final sort of worm or stage, which is such that its final temporal part is at the point of biological death.[19] Four-dimensionalist eternalism seems to me to have the most surprising implications for how we should think about the evil of death for these worms or stages, and so those implications will command our attention for the remainder of this paper. Beyond the fact that they are surprising, these implications are especially noteworthy since many (although of course not all) people simply assume that if four-dimensionalism is correct, then we are each such that our final temporal parts occur at the point of death.

[19] I assume for the sake of simplicity that there is some specifiable moment of time at which biological death occurs. But, of course, death occurs over an extended period of time, rather than at an instant. When I write of the "moment" or "point" of death I really have in mind any moment during the temporal interval during which death occurs. It may nevertheless be vague which exact temporal interval marks the interval at which some death occurs. This is a subject I discuss further below, in the main body of the paper.

So, the worms or stages in question have their final temporal parts at the point of biological death. I claim that, given four-dimensionalist eternalism, we don't have any reason to think that these worms have their final temporal parts at biological death *because* death prevents the worms from having temporal parts at later times. Rather, the worms' having their final temporal parts at the point of death simply seems to be a result of the fact that, given diachronic universalism, any combination of (non-overlapping) stages and worm segments will form a four-dimensional worm, including sets of stages and worm segments which are such that their temporally latest member is undergoing biological death. Similarly, given diachronic universalism, there will also be many spacetime worms which have their final temporal parts at some time at which they go to sleep, or some time at which they open a door, or some time at which they sneeze, etc. Nobody should say in these cases that any of these events thereby *prevents* the worms or stages in question from existing at times after the events in question. For example, simply because a worm's final temporal part occurs at some time at which they sneeze, it doesn't thereby follow that sneezing prevents them from existing at later times. We should say the same thing about death, given four-dimensionalist eternalism.

I suppose that despite all that it is conceivable that, for some worm which has its final temporal part at the point of biological death, the worm is such that had that death not occurred the worm would have had later temporal parts. But it is difficult to see what motivation we would have for supposing that there are any worms for which this sort of counterfactual is true. The only motivation I am aware of is that, since the worm's final temporal part occurs at the point of biological death, the biological death plausibly explains why that worm fails to have any later temporal parts. But, again, given diachronic universalism we know that, whether or not death prevents any worm from having temporal parts at times after death, there will be worms which are such that their final temporal parts occur at the point of biological death. The fact that there are such worms, then, does not provide any evidence that death prevents those worms from having temporal parts at times after their deaths.

Let me be clear: the point I am making is not that worms which have their final temporal parts at the moment of death have their temporal extents essentially, or essentially have their final temporal parts at the times at which they actually have their final temporal parts. I remain entirely neutral on those metaphysical points. I am rather making a point regarding whether we are justified in *believing* that some worm whose final temporal part occurs at the point of death is such that death prevents it from having further temporal parts. It seems to me that our only grounds for thinking that death prevents any such worm from having further temporal parts is because its final temporal part occurs at the point of death. But given four-dimensionalist eternalism, we can see that there will be many such worms which have their final temporal parts at the point of biological death whether or not death *prevents* those worms from having further temporal parts, and whether or not the worms in question would have had further temporal parts had death not occurred. So, the existence of worms whose final temporal parts occur at the point of death provides no evidence that death prevents those worms from having further temporal parts, since the existence of the worms in question is just as probable on the supposition that death does *not* prevent the worms in question from having further temporal parts.

The point I am making here relies on a basic result of the probability calculus: where "T" denotes some theory, and "E" denotes some putative evidence for the theory, if $P(E \mid T) = P(E \mid not - T)$ then $P(T \mid E) = P(T \mid not - E)$, and so conditionalizing on E does not raise the probability of T. In other words, if some evidence is to be expected to the same degree given the truth of some theory as it is given the falsity of that theory, then the evidence does not raise the probability of the theory. Now let "E" denote our purported evidence that death prevents some worms from having further temporal parts, namely that those worms have their final temporal parts at the point of death. Let "T" denote the proposition that the worms in question are such that their deaths prevent them from having further temporal parts. Given four-dimensionalist eternalism, we are just as likely to find worms whose final temporal parts occur at death given the supposition that death prevents those worms from having further temporal parts as we are given the supposition that death does not prevent the worms from having further temporal parts. So, the fact that those worms' final temporal parts occur at the point of death does not make it any more probable that death prevents the worms in question from having further temporal parts. But since, again, as far as I can see, we lack any *other* grounds for thinking that death prevents any worms from having further temporal parts, we lack any grounds for thinking that death prevents any worms from having further temporal parts.

Contrast this line of reasoning with what we should say if we are endurantists. An endurantist might reasonably say that death does prevent us from existing at later times, by ensuring that we are not wholly located at any times after our deaths. Our evidence for thinking that death prevents us from being wholly located at times after our deaths is that we invariably find that those who die cease to be wholly located at times after their deaths.[20] This piece of evidence, that those who die invariably fail to be wholly located at times after their deaths, is much more probable given the supposition that death prevents us from being wholly located at times after our deaths than it is given the supposition that death does *not* prevent us from being wholly located at times after our deaths. To suppose otherwise is to suppose that by sheer coincidence those who die invariably fail to be wholly located at times after their deaths. The four-dimensionalist eternalist cannot endorse this line of reasoning, since 1.they cannot maintain that those who die invariably fail to exist at times after their deaths (since they maintain that there are many worms which overlap with a living human being, and yet have temporal parts after the death of that human being), and 2.given their commitment to diachronic universalism, they should maintain that we will find that there are many individuals who fail to exist at times after their deaths, whether or not death prevents those individuals from existing at times after their deaths.

So, given four-dimensionalist eternalism, we lack any good grounds for thinking that death prevents worms whose final temporal parts occur at the moment of death from having later temporal parts. It follows that we lack any grounds for thinking

[20] Of course, we might question the assumption that none of us are wholly located at times after our deaths, if, say, we are justified in believing there is an afterlife, or that we exist as corpses after our deaths. My point in the main body of the text is simply that, assuming that we *do* cease to exist at death, the endurantist has grounds for thinking that death prevents us from existing at times after our deaths, while the four-dimensionalist will lack those grounds for thinking that death prevents us from existing at times after our deaths.

that death deprives the worms in question of goods in virtue of its depriving them of temporal parts at times after death. But more generally, it seems as if we lack any grounds for thinking that death deprives the worms in question of *any* significant goods. We have already seen that we lack good grounds for thinking that the histories of the worms in question are cut short by death. But we also lack any reason to think that death makes the overall histories of the worms in question worse off. While death will undoubtedly prevent certain goods from obtaining (by, for example, resulting in fewer living individuals and more dead individuals), those goods were already not going to be enjoyed by worms or stages whose final temporal parts occur at the moment of biological death. This is because death will prevent the goods from obtaining at times *after* the death in question, and the worms or stages under consideration do not exist at those times—the total distribution of goods in the histories of the worms or stages in question are not impacted by the distribution of goods and evils at times after the history of those worms or stages. An analogy: a source of pollution might pollute a river, but only those portions of the river downstream of the source of pollution. Death might "pollute" those times causally downstream of death, and so temporally later than death. But the worms or stages we are considering do not exist after the death of the human being(s) with which they overlap, and so are not causally downstream of that death. Again, if death somehow *prevented* the worms or stages from existing at times after death, then death might prevent the worms or stages from enjoying goods at those later times. But, to reiterate, given four-dimensionalist eternalism we lack any good grounds for thinking that death *does* prevent the worms or stages in question from existing at times after death.

The most promising sort of objection to the arguments I've just presented contends that death does in fact prevent worms or stages from enjoying those goods which are causally downstream of the death of the human being(s) with which they overlap, in virtue of the fact that death prevents the worms or stages under consideration from existing at times after death. For the remainder of this section I'll address the three most promising ways of developing this sort of objection.

Objection 1: Personal pronoun revisionism.

I've said that, given four-dimensionalist eternalism, there will be very many gerrymandered and short-lived spacetime worms and stages. One response to the fact that four-dimensionalist eternalism leads to the existence of all these gerrymandered and short-lived individuals is what Olson[21] calls "personal pronoun revisionism." The most prominent version of personal pronoun revisionism contends that our first-person pronouns invariably refer to people, so that, in response to questions such as "am I a person (rather than, say, a gerrymandered four-dimensional worm)?" the correct answer will always be "yes."[22] What is "revisionary" about this view is that it entails that many uses of first-person pronouns will refer to people, even when the first-person pronouns in question are used by non-people. Suppose, for example, that Bob is a gerrymandered or short-lived worm, one which is *so* gerrymandered or short-lived that Bob does not qualify as a person. Let's suppose also that Bob overlaps with a human being, a human being which does qualify as a person (say, in virtue of having suffi-

[21] (2007: p. 38).

[22] See (Noonan 1998 and Kovacs 2016).

ciently long-lived, developed, and coherent psychological histories). Given personal pronoun revisionism, Bob's use of first-person pronouns such as "I" will not refer to Bob, but will rather refer to the person with which Bob overlaps at the time at which Bob uses the pronoun.

Zimmerman has recently developed a version of personal pronoun revisionism which deserves special mention.[23] Zimmerman thinks that, given four-dimensionalism, we are to a large extent in control of what four-dimensional objects our first-person pronouns refer to. For example, we can control whether our first-person pronouns refer or fail to refer to objects which exist after our deaths. It follows, he claims, that we are to a large extent in control of whether we survive death, since there is a sense in which we survive death if our first-person pronouns refer to individuals who exist after our deaths.

Given personal pronoun revisionism (of either the standard variety, or of the sort developed by Zimmerman), we might reasonably think that death prevents our first-person pronouns from referring to individuals at times after our deaths. If, on the standard sort of revisionism, death prevents a *person* from existing at times after the death of that person, then death would explain why our first-person pronouns do not refer to anyone at times after our deaths. Given Zimmerman's version of revisionism, perhaps we engage in whatever practices are sufficient to ensure that our first-person pronouns do not refer to individuals who exist at times after our deaths, precisely *because* those individuals exist at times after our deaths. In that case our deaths would explain why our first-person pronouns fail to refer to anyone at times after our deaths.

My response: If first-person pronouns never refer to individuals at times after the deaths of those using the first-person pronouns, this would not show that death prevents anyone from existing at times after their deaths, or that death prevents anyone from having conscious experiences at times after their deaths. Given personal pronoun revisionism, whether first-person pronouns refer or fail to refer to individuals at times after the deaths of those using the pronouns tells us nothing about whether the ones using the pronouns exist at times after their deaths, or whether they have any sorts of experiences at times after their deaths. This is because, given personal pronoun revisionism, whether some individual's use of a first-person pronoun refers to someone at a time after their death is clearly a separate matter from whether *that individual* exists at some time after their death. So, even granting that death prevents first-person pronouns from referring to anyone at times after the deaths of those using the pronouns, this wouldn't show that death deprives anyone of goods at times after their deaths, since it wouldn't show that death prevents the users of the first-person pronouns from existing at times after their deaths, or that death prevents them from having conscious experiences at times after their deaths.

More generally, personal pronoun revisionism of the sort under consideration doesn't seem to entail that death deprives anyone of any significant goods. At most it would show us that death deprives us of something which strikes me as axiologically neutral, namely the ability to use first-person pronouns to refer to someone existing at times after our deaths (whether or not one is numerically identical with that someone).

[23] See Zimmerman (2013: pp. 114–130) and Kovacs (2020) defends a similar sort of personal pronoun revisionism.

Objection 2: Restricted diachronic composition.

This seems to me to be a more promising objection. Perhaps we should reject diachronic universalism, and instead accept some principle governing diachronic composition which is such that spacetime worms like us invariably have their last temporal parts at biological death. What's more, the principle of diachronic composition in question would also ensure that there are no people (or other conscious beings) who are such that there is some time at which they overlap with all of our proper parts which exist at that time, who do not also have their last temporal parts at our biological deaths. Death is special, then, because it marks the temporal limit of diachronic composition. Death deprives us of goods we would have otherwise enjoyed absent our deaths because death, in virtue of its role in marking the temporal limits of diachronic composition, prevents us from having later temporal parts.

There are at least four objections to the thesis that diachronic composition tracks biological death in the manner just described. The first objection (discussed below) contends that the four-dimensionalist has some reason to accept unrestricted composition. But the other three objections do not require that the four-dimensionalist accept unrestricted composition, but rather merely contend that the four-dimensionalist should not accept a restriction on diachronic composition which tracks biological death in the relevant sense. So, if these latter three objections are on the right track, then even if you reject diachronic universalism, if you are a four-dimensionalist eternalist you will still be hard pressed to come up with an account of diachronic composition which entails that death prevents us from having temporal parts at times after death, since you will be hard pressed to come up with an account of diachronic composition according to which diachronic composition tracks biological death in the relevant sense. Here are my four objections.

First, one of the most prominent arguments for four-dimensionalism, the argument from vagueness, requires that we accept unrestricted composition.[24] So, for a four-dimensionalist to accept restricted diachronic composition they would have to undermine one of the most prominent arguments for four-dimensionalism, threatening to leave four-dimensionalism unmotivated, or at any rate less well motivated than it otherwise could be.

Second, the thesis that diachronic composition tracks biological death in the relevant sense seems objectionably anthropocentric (or, perhaps, objectionably biocentric). Biological death may be of great interest to *us*, but why should we think it would be of any interest, so to speak, to the laws governing diachronic composition? Death is the cessation of a very particular sort of complex homeostatic chemical reaction, one which, as far as we can tell, didn't occur for much of the Universe's history, and which, at most, occurs in certain relatively minuscule and isolated portions of space. Why, then, would the metaphysical laws governing diachronic composition be disposed to monitor *this* particular sort of physical process? Absent a good answer to that question, the thesis that diachronic composition tracks biological death in the manner described above seems unmotivated.

[24] See Sider (2001: pp. 120–139).

Organicists think some *x*s compose a *y* iff the activities of the *x*s constitute a life.[25] Organicists already think composition tracks biological life and death, and so to them there would be nothing odd in supposing that diachronic composition in particular tracks biological life and death. But very few philosophers are organicists, perhaps in part because organicism seems objectionably anthropocentric (but also because it will require objectionable ontic vagueness, which I will discuss momentarily). In any case, the only prominent organicist I am aware of, van Inwagen, rejects four-dimensionalism.[26]

Third, it is a vague matter when biological death occurs. The metabolic processes involved in the maintenance of a life are big, complex, messy events, and it is often a vague matter when some such processes have definitively ceased. It is also a vague matter when *enough* such processes have ceased (or enough particularly important processes have ceased) for the organism in question to qualify as dead. This is all assuming that we can even specify which biological processes are such that the cessation of those processes will result in death. But in fact it is a matter of some controversy which biological processes are such that their cessation should be regarded as a sufficient condition for death, or even whether death should be analyzed solely in terms of the cessation of certain biological processes.[27] I don't mean simply that we have trouble deciding which such criteria are the correct criteria. Rather, the fact that we have these competing criteria points to either there being multiple concepts of biological death, or to the one concept of death's being vague.

Accordingly, if diachronic composition tracks biological death in the manner described above, then it would be vague what objects enter into proper parthood relations with spacetime worms which undergo biological death. But this sort of ontic vagueness is widely, and correctly, seen as objectionable.[28] What's more, an aversion to this sort of vagueness is a key motivation lying behind the major argument for four-dimensionalism mentioned above, the argument from vagueness,[29] and so by accepting this sort of vagueness the four-dimensionalist undermines a major plank in the case for four-dimensionalism. So, we should reject the idea that diachronic composition tracks biological death in the way described above.

Fourth, the relevant restriction on diachronic composition will only apply to living objects. If a television persists over time, its temporal limit is not marked by its biological death. So, those who endorse this restriction on diachronic composition will either have to say that non-living things do not persist over time, or they will have to introduce extra laws or principles to govern the manner in which diachronic composition works for non-living things. The first option will strike many people as implausible (my television won't exist for more than a moment? I want a refund!). The second option will complicate our total theory, since we will now have to posit distinct metaphysical principles governing diachronic composition for living and for non-living things. Complex theories should be avoided if possible. Diachronic universalism, by contrast,

[25] See van Inwagen (1990b).

[26] See van Inwagen (1990a).

[27] Cf. Feldman (1992).

[28] Cf. Lewis (1986: pp. 212–213).

[29] Sider (2001: pp. 120–139).

gives us a single relatively simple principle to govern diachronic composition: any two or more non-overlapping objects compose a further object, whether or not they exist at the same time.[30]

Objection 3: Additional principles of diachronic composition.

My argument only establishes that there are many worms or stages which are such that they cease to exist at death, and which are such that we lack any reason for thinking that death deprives them of anything. But it is compatible with all that that *some* worms or stages are such that death *does* deprive them of significant goods. For example, it is often thought that personal identity over time requires certain sorts of psychological and/or physical connections between oneself at one time and oneself at later times. But death will sever these sorts of psychological and physical connections. Since death severs these psychological and physical connections, death may prevent some worms from having temporal parts at times after death. Death is an evil for those worms because death prevents those worms from enjoying goods associated with those later times.[31]

My response: This objection proposes that, in addition to diachronic universalism, there is this other principle governing diachronic composition: sometimes stages compose temporally extended worms because those stages are psychologically and/or physically related in the right way. Diachronic universalism is certainly compatible with this other principle of diachronic composition, since the latter principle is compatible with all non-overlapping objects composing further objects. The new principle of diachronic composition just says that some temporally extended worms are such that the stages which compose them compose them *because* those stages are psychologically and/or physically connected in the right way. Absent those psychological and/or physical connections, the stages will still, per universalism, compose temporally extended worms, but they will not compose the particular worms they *would* compose if the stages in question were psychologically and/or physically connected in the right way.

One problem with the objection is that by introducing this principle of diachronic composition *in addition* to the universalist principle of diachronic composition we introduce gratuitous complexity into our total theory. This is the same complaint I had above about the suggestion that there are different principles of diachronic composition governing living things than there are governing non-living things. An additional concern is that this new principle of diachronic composition will presumably be vague, given that it would presumably often be a vague matter whether some stages have enough psychological or physical continuity for the principle of diachronic composition to "kick in" and ensure that the stages compose a temporally extended worm in virtue of their psychological and/or physical connections. As I note above, this sort of vagueness is objectionable. What's more, as I also note above, an aversion to this sort of vagueness is a key motivation lying behind a major argument for four-dimensionalism.

[30] For a discussion of the relationship between principles governing the circumstances in which composition occurs, theoretical simplicity, and theory choice, see Brenner (2015, ms).

[31] Thanks to an anonymous referee for this objection.

4 Conclusion

To recap: Given four-dimensionalist eternalism, as well as a standard deprivationist account of the evil of death, we can derive two surprising conclusions. First, we only have reason to think that death is an evil for those individuals who we would be antecedently inclined to regard as least likely to be victimized by death, namely those individuals who survive their deaths, in the sense that they continue to exist after death. Second, we lack any grounds for thinking that death is an evil for those individuals we would be antecedently most inclined to think are victimized by death, namely those individuals who cease to exist at death. Along the way I have also briefly discussed and endorsed a less surprising conclusion, that death is probably not an evil for those individuals who do not undergo death, in the sense that all of their temporal parts exist at times prior to the death of the human being(s) with which they overlap.

Some of my conclusions are derived with the aid of the assumption that four-dimensionalist eternalism brings with it diachronic universalism, the thesis that any two or more non-overlapping objects compose a further object, even if the two or more objects in question exist at different times. This is an assumption which many four-dimensionalist eternalists accept, but it is also an assumption which they probably *should* accept, since the assumption is required for a prominent argument for four-dimensionalism, the argument from vagueness. But even if the four-dimensionalist eternalist rejects diachronic universalism, my conclusions regarding the evil of death will only be undermined if the four-dimensionalist eternalist accepts some other account of the circumstances under which composition occurs which tracks biological death in a certain way. But I've argued that that sort of alternative account of the circumstances under which composition occurs faces some serious objections.

I would like to make one final point of clarification regarding what I have and haven't tried to do in this paper. It has been suggested to me[32] that the thesis of this paper is implausible, because it conflicts with a Moorean fact – for example, the Moorean fact that being blown up deprives you of something, and in particular that it deprives you of something *because it kills you*. Leave aside the fact that some of the worms discussed in this paper (namely, those worms with temporal parts which exist after the death of the human being(s) with which the worms overlap) might very well be deprived of significant goods if they are killed in an explosion. Perhaps the objection is that *even for individuals who cease to exist at death*, it is just obviously true that those individuals are harmed if they are killed in an explosion. In response, I would note that I have only aimed to establish that four-dimensionalist eternalism, conjoined with diachronic universalism, has certain surprising *implications* regarding which individuals are such that death is an evil for them. I have not assumed that four-dimensionalist eternalism is *true*, since I don't think that four-dimensionalism *is* true, and I also don't think that diachronic universalism is true. If you think that the surprising implications discussed in this paper conflict with so-called "Moorean facts," you might very well regard the arguments presented in this paper as *reductios* of four-dimensionalist eternalism, or the conjunction of four-dimensionalism, eternalism, and diachronic universalism. Here I

[32] By an anonymous referee.

take no stance on whether this is the appropriate response to take toward the arguments I've presented.

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