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Conservation, discontinuous time, and causal continuity

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Abstract: **William Vallicella poses a dilemma for continuous-creation accounts of conservation, which he attempts to solve by conjoining presentism and four-dimensionalism. I claim that presentist four-dimensionalism fails to appreciate the real problem behind continuous creation and persistence, which is a presumption of the discontinuity of time. I will argue that if we assume that time is discontinuous, then, (1) presentist four-dimensionalism cannot *alone* account for persistence, and (2) created entities are *also* not in clear need of conservation in Vallicella's solution. Lastly, I conclude by suggesting that the worry over persistence for continuous creation is a problem only if persistence requires causal continuity.**

In preserving God's continuous activity in sustaining the world, the doctrine of divine conservation is often construed as a recreation of each moment of an object's existence. Defenders of continuous creation are usually saddled with two worries: that continuous creation entails the denial of secondary causation and that it fails to accommodate identity over time. In a recent article, William Vallicella poses the following dilemma regarding diachronic identity and conservation: 'Either conservation is continuous re-creation with consequences inimical to diachronic identity, or conservation is an operation upon a pre-existent entity … [that] is in no clear need of conservation.'[1] His solution to the dilemma is to conjoin presentism and four-dimensionalism (he labels it 'presentist four-dimensionalism'), which he claims will retain the need for conservation but without the difficulties concerning persistence.

Although his proposal purports to avoid the dilemma, I believe that his solution fails to appreciate the real problem behind continuous creation and diachronic identity. I suggest that the underlying difficulty is due to an implicit assumption of the discontinuity of time that is presupposed in various accounts of continuous

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creation. Beginning with an explication of the dilemma and Vallicella's solution, I argue that given an implicit assumption of the discontinuity of time, then, (1) presentist four-dimensionalism cannot *alone* account for persistence, and (2) on his solution, created entities are *also* not in clear need of conservation. Lastly, I conclude that the worry over persistence for continuous creation is a problem only if persistence requires causal continuity.

Vallicella's dilemma and solution

Here's the dilemma. Either divine conservation is continuous creation or not. If divine conservation is continuous creation, then problems for diachronic identity arise. William Lane Craig states the problem nicely:

> If at every *t* God creates *ex nihilo*, is it really *x* which exists at successive instants rather than a series of simulacra? Since there is no patient subject on which the agent acts in creation, how is it that it is the identical subject which is recreated each instant out of nothing rather than a numerically distinct, but similar, subject?[2]

Although a continuous-creation account might bypass these worries by claiming that a single individual can be repeatedly created,[3] Vallicella takes this to be a decisive difficulty for construing conservation as continuous creation.

On the other hand, if conservation is not continuous creation, then what is it? Again relying on Craig, conservation can be posited as distinct from creation in that it presupposes an already existent object. That is, there must be a 'patient entity' for God to act upon in order to 'perpetuate its existence'.[4] Vallicella points out a puzzle in this account of conservation: if conservation presupposes an existent subject, then why must God act to perpetuate its existence?[5] To make his case, take a point in time *t* and a later point in time *t**. Supposing that *x* (the patient entity) exists at *t*, either *x* exists at *t** or it does not. If *x* exists at *t**, then God cannot conserve its existence for it already exists; it is 'too late' for God to conserve the entity since its existence is preserved, given that it exists at this later time. But if *x* does not exist at *t**, then God is unable to conserve *x* at *t** since there is no patient entity for God to act upon. Furthermore, Vallicella assumes that God acting upon *x* at *t* instead of acting upon *x* at *t** would not help either, for acting upon *x* at *t* also requires a patient entity. But if *x* already exists at *t*, then God does not need to conserve it; and if *x* does not exist at *t*, then God cannot be conserving *x*.

There is a problem with this objection to Craig's account, for Vallicella seems to be assuming that divine conservation is not applicable when an object already exists. But such an assumption is faulty, for it seems quite possible that God could act on *x* at *t* in such a way as to bestow *x* with self-sustaining capacities at *t*, which would allow *x* to persist to *t**. So *pace* Vallicella, it would help to say that God acts upon *x* at *t* instead of acting upon *x* at *t** since there is a patient entity at *t*, and

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God conserves x at t^* by his endowment of x with self-sustaining capacities at t. And for every t that God does not bestow x with such self-sustaining capacities, then x will fall out of existence. Since Vallicella does not provide us with any reason that God could not act in this way, it seems that we can reject the assumption that divine conservation only applies to objects that are not yet existent.[6] Nevertheless, even if Vallicella were to argue that his assumption is correct, I will argue later that it is still ineffective in dealing with the original dilemma in its application to diachronic identity.

To move back to Vallicella's proposal, he takes the purported failure of Craig's account to be instructive in coming up with an adequate solution. Conservation requires God to act upon an individual subject that has a tendency to lapse into nonexistence (otherwise there would be no need for conservation).[7] Given that some entity x has this tendency, Vallicella goes on to claim that x cannot be a continuant in the sense of being an entity that endures (as opposed to perduring).[8] He appeals to the fact that endurantism admits of a *whole* substance existing at a time, and that it does not make sense for the whole substance to lapse into nonexistence. However, given that conservation requires a patient entity, x must be a continuant in order to have a subject for God to act upon. Thus, x is both a continuant and not a continuant. Craig's account, then, not only has no room for conservation, but it cannot even admit conservation on pains of incoherence.

In order to avoid the original dilemma, Vallicella proposes presentist four-dimensionalism as a third way out. The label of 'presentist four-dimensionalism' is clearly an odd title since the two are usually taken to be in opposition. Michael Rea, for instance, defines four-dimensionalism as the view that presentism is false.[9] Four-dimensionalism is sometimes interchanged with notions of perdurantism or a doctrine of temporal parts, though it could be argued that four-dimensionalism and perdurantism are distinct theories. However four-dimensionalism is understood, Vallicella's solution depends on a presentist construal of time and a temporal parts construal of diachronic identity. Given presentism, the theory of time that only the present exists, there is a clear need for conservation since any object that exists at a time will cease to exist when that time has passed.

Moreover, the worry over diachronic identity is supposed to be eliminated since the doctrine of temporal parts states that the individual object is the whole of all its temporal parts. Vallicella assumes that an endurantist model cannot make sense of the tendency of subjects to lapse into nonexistence; for enduring entities exist at each moment as a whole, and if they are existent then they are not threatened by non-existence. He states: 'For only if an individual is composed of temporal parts does it make sense to think of its existence as subject to an existential lapsus moment by moment, and thus as requiring conservation moment by moment.'[10]

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This claim seems blatantly false, for a subject, even taken as a whole, might be such that it lacks the power of self-sustenance.[11] It is not difficult to imagine an enduring entity existing at one moment in time and at a later moment in time not existing; and it this picture of lapsing into nonexistence that is worrisome. Thus, it does not seem to matter whether the object (i.e. patient entity) is an enduring whole or a temporal part, for both are subject to lapsing out of existence without the conserving activity of God. Nevertheless, Vallicella claims that adopting a temporal parts theory along with presentism allows for an existence that is prone to cessation, thereby requiring conservation and mitigating worries about diachronic identity, for the individual subject is not each indexed temporal part but rather the whole. So persistence over time is no longer threatened since the persisting entity just is the whole of its temporal parts. Thus, presentism conjoined with a doctrine of temporal parts allegedly avoids the dilemma of continuous creation.

Discontinuous time and continuous creation

I believe that presentist four-dimensionalism fails as an adequate solution to the dilemma, for it fails to appreciate the underlying assumption regarding continuous creation and persistence, namely the discontinuity of time.[12] The assumption of discontinuous time is the claim that any object that exists at some time is independent of any and every other moment of that object's existence. That such an assumption is employed in continuous-creation accounts (including Vallicella's account) is apparent since these accounts aver that nothing about an object's existence at some earlier time can preserve its own existence; thus, God is posited in order to bring about the next moment of the object's existence. After all, one of the motivations for positing continuous creation as an account of divine conservation arises from the supposed fact that an object at some moment will lapse into nonexistence. But continuous creation is more than just the cessation of past moments, for it is the doctrine that at each moment, God creates everything anew. Thus, everything that exists at a moment in time is independent of everything else that exists at a later moment in time, even if some objects between the two times are the 'same'.

Now I grant that there could be an understanding of temporal discontinuity that may not require such a strong construal. Nevertheless, the discontinuous time that I am bringing up arises from the presupposed temporal independence of an object's existence at some moment that motivates the need for conservation understood as continuous creation. Given the independence of an object's existence at some time from other moments of its existence, each object at a discrete moment of time is causally isolated from all the other moments of its existence. Thus, there is no guarantee that an object at one moment of time will exist in the following moment without the activity of God to bring it about.

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Descartes, who has sometimes been considered an advocate of continuous re-creation, made the following claim:

> A lifespan can be divided into countless parts, each completely independent of the others, so that it does not follow from the fact that I existed a little while ago that I must exist now, unless there is some cause which as it were creates me afresh at this moment … [f]or it is quite clear to anyone who attentively considers the nature of time that the same power and action are needed to preserve anything at each individual moment of its duration as would be required to create that thing anew if it were not yet in existence.[13]

Commenting on Descartes's commitment to continuous re-creation, Andrew Pavelich states that 'Descartes is relying on the notion that time is naturally discontinuous, and this is what requires God to bridge the gaps.'[14]

Given the implicit assumption of the discontinuity of time by both Vallicella and those who endorse continuous creation, my first claim is that temporal parts with presentism does not alone account for the persistence of an object. It is the doctrine of temporal parts that is supposed to allay the worry of maintaining diachronic identity. The problem is that merely stipulating that an object just is the whole of all its temporal parts presupposes persistence instead of explaining it.[15] For the question remains, what is it that makes the temporal parts constituents of the whole object? If time is discontinuous such that God must re-create the world in order for it to continue to exist, it is possible to suppose that God might create a replacement or a qualitatively identical temporal part that is not a part of the original object. The problem is that merely stipulating temporal parts does not explain the preservation of temporal parts as being a part of the same whole. Rather, it presupposes that each part is. More must be said in order to maintain genuine persistence.[16]

It could be the case that a doctrine of temporal parts is the best way to understand diachronic identity. However, those who argue for genuine identity through time have been at pains to arrive at something more substantial than merely presupposing the claim that every temporal part belongs to the same individual. And the problem seems much more dire in a continuous-creation theory, for it is God who is creating every temporal part at a later moment *anew*. Thus, there can be some legitimate sceptical worry about whether or not the next created temporal part really is a part of the same whole.

To make this point, suppose that x at t is a temporal part of some object, say Jones, and x^* at t^* is a distinct temporal part of Jones. If entities at some moment have the tendency to lapse into nonexistence, then when x at t is present, then at some infinitesimal point after, x at t will have lapsed into nonexistence (given Vallicella's commitment to presentism), and God conserves Jones by bringing about x^* at t^*. However, given that x at t has gone out of existence and that x at t has no direct causal relation with x^* at t^* due to the discontinuity of time, then there is no guarantee that x^* at t^* is a part of Jones and not a part of some other

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entity, say simulacra-Jones. That is, without any additional claim aside from presentism and temporal parts, persistence is threatened if God decides to make an x^* at t^* that is a part of simulacra-Jones instead of Jones. Vallicella is merely presupposing the fact that x^* at t^* is a part of Jones; thus, he is presupposing persistence. However, the doctrine of temporal parts was supposed to alleviate our worries regarding diachronic identity. Instead of explaining or solving it, he simply takes the solution for granted.[17]

My second claim is that presentist four-dimensionalism is also an account that is in no clear need of conservation. That is, *tu quoque*, Vallicella's criticism of Craig's account backfires. Remember that his critique was that if an enduring object continues to exist, then it is in no need of conservation; and if it does not exist, then there is no patient entity and so no conservation. The problem in Vallicella's account again focuses on the doctrine of temporal parts. Taking the earlier example, either x^* at t^* (as a temporal part of Jones) exists or it does not exist. If it does exist, then there is no need for conservation. If it does not exist, then conservation is not possible since there is no temporal part at t^* for God to act upon.

Vallicella might object by claiming that God does not act upon x^* at t^* but acts on Jones, i.e. the patient entity that is the whole of the temporal parts and not each discrete temporal part. This objection won't work, however, since there is no Jones for God to act upon. Given Vallicella's commitment to presentism, the totality of Jones does not exist in some timeless state or in some space–time block. Rather Jones is the totality of parts, some of which are not yet existent. Given that only a part of Jones exists or has existed, then God cannot be acting upon Jones since there is no Jones to act upon.

Disregarding this oddity, the objection also fails to deal with the underlying assumption of the discontinuity of time. If time is discontinuous (and presentism is true), then each temporal moment of an object's existence must be conserved by being re-created. It is not merely Jones as a whole that is lapsing into non-existence, but each temporal part also lapses out of existence; and the subsequent temporal part is brought about by God. So conservation, for Vallicella, must be an act upon each temporal part (and not just on Jones as a whole), for each temporal part has a tendency to lapse into nonexistence. Thus, God must act upon x^* (the temporal part) at t^* in order for it to be conserved. But then we fall back upon the same dilemma and conservation is no longer necessary. Vallicella's own proposal, therefore, is subject to his own criticism.

Persistence and causal continuity

I conclude by voicing what I think is the real issue behind continuous creation and persistence. Even apart from the doctrine of conservation, accounting for persistence is a vexed topic. Lynn Rudder Baker argues that

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diachronic identity (for persons) requires only a first-person perspective,[18] whereas Trenton Merricks claims that identity admits of no informative conditions,[19] what Dean Zimmerman labels 'identity mystics'.[20] However, there seems to be good reason to suggest that genuine persistence requires causal continuity between the distinct temporal moments of an object. Peter van Inwagen states the criterion as follows:

> There would seem to be no way round the following requirement: if I am a material thing, then, if a man who lives at some time in the future is to be I, there will have to be some sort of material and *causal continuity* between this matter that composes me now and that matter that will then compose that man [italics mine].[21]

Zimmerman expounds on this causal continuity as *immanent causation*, which states that the later existence of some entity is at least in part causally dependent on an earlier state of that entity.[22] The causal continuity in immanent causation is such that an earlier state of an object is the 'partial cause' of the existence of the later state, not as a voluntary act but in the sense of being a necessary condition for there being a later state of that object that is numerically identical with the earlier state of that object. The partial cause is explicated as having a causal continuity of the right sort (I take that to mean something like Van Inwagen's self-maintaining processes of biological life). The point is, given a materialist construal of objects, a mere reassembly of all the particles is not adequate for persistence; causal connections of the right sort must be maintained between the stages. This is why the Resurrection and *Star Trek*-style teleporters are posed as difficulties for materialist accounts of persons.[23]

But the problem is much worse for continuous creation. Since continuous-creation accounts assume that time is discontinuous, each object at some time is causally isolated from every other object at another time, including the object that is designated to be the 'same' object. That is, Jones at time t is causally isolated from everything else at t^*, including the object that we would call 'Jones' at t^*. This is not to say that causal continuity is the same thing as temporal continuity. The worry is that temporal discontinuity admits of temporal 'gappyness', which is a worry for materialist accounts of diachronic identity because it follows that there is no causal connection of the right sort. I think this intuition is a natural one, which is why philosophers such as Van Inwagen are at pains to maintain temporal continuity, which might at least be a necessary condition for genuine causal continuity. Even if we grant that an entity can be created more than once, each temporal moment of that being's existence is causally cut off from every other moment. And the worry plagues more than just materialist accounts, for even a dualist must worry that each moment of a soul's existence is causally discontinuous from every other moment of that soul's existence.

Therefore, the real worry regarding persistence and continuous creation cannot be solved by positing presentism conjoined with a doctrine of temporal parts.

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If genuine persistence requires causal continuity, then persistence is threatened by continuous creation, not because of its commitment to endurantism but because of its commitment to the discontinuity of time. If each object at a time ceases to be (and is utterly destroyed), and if God conserves the world by re-creating every object in the next moment of time, then the temporal discontinuity is tantamount to causal discontinuity. And it is the latter discontinuity that bears on problems in accounting for persistence. Perhaps, as Merricks and Baker suggest, persistence does not require causal continuity. If so, then persistence is a problem independent of divine conservation. But if persistence requires causal continuity, then an incompatibility with continuous creation arises.[24]

Notes

1. William Vallicella 'The creation-conservation dilemma and presentist four-dimensionalism', *Religious Studies*, **38** (2002), 187–200, 188.
2. William Lane Craig 'Creation and conservation once more', *Religious Studies*, **34** (1998), 177–188, 184.
3. Philip Quinn has argued for this, claiming that a single individual cannot be introduced more than once, though it can be created (even with temporal gaps) repeatedly. See Philip Quinn 'Divine conservation, continuous creation, and human action', in A. Freddoso (ed.) *The Existence and Nature of God* (Notre Dame IN: University of Notre Dame Press, 1983).
4. Craig 'Creation and conservation', 183.
5. Vallicella 'The creation-conservation dilemma', 190.
6. Vallicella's objection might also be criticized on the basis that it rules out God's atemporal activity. If God exists outside of time, then it seems reasonable to suggest that God could conserve objects without acting at particular times. I thank an anonymous reader for this journal for this point.
7. Jonathan Kvanvig & Hugh McCann make a similar point that entities lack the power to sustain themselves over time in 'Divine conservation and the persistence of the world' in T. Morris (ed.) *Divine and Human Action: Essays in the Metaphysics of Theism* (Ithaca NY and London: Cornell University Press, 1988), 37–42.
8. I'm not really sure about Vallicella's point here. It seems possible that an enduring object could also have a tendency to go out of existence; enduring wholes at a time can easily lapse into nonexistence if there is no temporal continuity such that the next moment in time is one where the subject no longer exists. I will claim later that this picture of lapsing into nonexistence is not an issue between perdurantism and endurantism but one of temporal and causal continuity.
9. Michael Rea 'Four dimensionalism', in Michael J. Loux & Dean W. Zimmerman (eds) *The Oxford Handbook for Metaphysics* (Oxford: Oxford University Press, 2003). However, Vallicella seems to be borrowing the phrase from Berit Brogaard 'Presentist four-dimensionalism', *The Monist*, **83** (2000), 341–356.
10. Vallicella 'The creation-conservation dilemma', 194.
11. Kvanvig and McCann argue that subjects lack self-sustaining power, and it does not matter whether these subjects are enduring wholes or temporal parts. The problem is that an entity at some time lacks 'temporal inertia' such that they will not persist through time without divine help.
12. Andrew Pavelich makes a similar point in 'On the idea that God is continuously re-creating the universe', *Sophia*, **27** (2007), 7–20. However, he argues for a different conclusion, that continuous recreation is tantamount to the nonexistence of time.
13. René Descartes *Selected Philosophical Writings*, tr. John Cottingham, Robert Stoothoff, & Dugald Murdoch (Cambridge: Cambridge University Press, 1988), 96.
14. Pavelich 'On the idea that God', 11.
15. This is not a general problem for the doctrine of temporal parts. This is a problem for any account that assumes the discontinuity of time, for each entity (whether a whole or a temporal part) is temporally isolated from every other entity at a distinct moment of time, even if that entity is the same object (as in an enduring whole) or a distinct one (as in a temporal part).

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16. David Vander Laan is at pains to come up with several options as to what it might be that can maintain genuine persistence, whether it is an immanent-causation of character, divine-fiat theory, or a no-account theory. See David Vander Laan 'Persistence and divine conservation', *Religious Studies*, **42** (2006), 159–176.
17. I will grant that it is odd to say 'some infinitesimal point after', for it is odd to imagine how we splice time up into its parts anyway. However, I think the argument is effective to those accounts that assume that each moment of an object's existence is recreated by God and so discontinuous from every other moment. Given the independence and isolation of every moment of an object's existence, I suppose that it is possible to say that God could recreate some object even if the moments of an object's existence were split far apart. However, given that we experience a flow of time that has no breaks, it helps to imagine that when God recreates the world at each time, it happens at such an infinitesimally small gap that no one notices (though clearly this is *not* how God really has to do it).
18. Lynne Rudder Baker *Persons and Bodies: A Constitution View* (Cambridge: Cambridge University Press, 2000). Personal identity, for Baker, requires both a mereological sum of the same type and a first-person perspective or reference to that mereological sum.
19. Trenton Merricks 'There are no criteria of identity over time', *Nous*, **32** (1998), 106–124.
20. Dean Zimmerman 'Criteria of identity and the ''identity mystics''', *Erkenntnis*, **28** (1998), 281–301.
21. Peter van Inwagen 'Dualism and materialism: Athens and Jerusalem', *Faith and Philosophy*, **12** (1995), 486.
22. Dean Zimmerman 'The compatibility of materialism and survival: the ''falling elevator'' model', *Faith and Philosophy*, **16** (1999), 194–212. He explicates immanent-causation and partial-cause in detail in Dean Zimmerman 'Immanent causation', *Philosophical Perspectives*, **11** (1997), 433–471. David Vander Laan also uses the notion of immanent-causation in 'Persistence and divine conservation'.
23. Zimmerman 'Compatibility of materialism and survival', 198.
24. I am thankful for the comments and criticisms from those who attended a presentation of an earlier draft at the 41st meeting of the North Texas Philosophical Association, in particular Andrew Pavelich for many helpful comments. For their comments, I would also like to thank the Editor and an anonymous referee for *Religious Studies*. I am indebted to Neal Judisch for many discussions on the topic and for helpful suggestions on an earlier draft.

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