

Framing the Debate over Persistence

1 Introduction

*E*ndurantism is often said to be the thesis that persisting objects are, in some sense, ‘wholly present’ throughout their careers. David Lewis, for example, writes:

Let us say something...*endures* iff it persists by being wholly present at more than one time. (1986, p.202)¹

But this is a rather poor way to characterize the doctrine of endurantism, for it only invites the following question: what is it for an object to be wholly present at a time? As recent discussions have made clear, it is exceedingly difficult to provide an illuminating answer to this question.² In fact, Trenton Merricks (1999) has gone so far as to argue that the endurantist can only provide an answer to this question at the cost of accepting *presentism*, the doctrine that only the present is real. This is a rather startling conclusion, for I take that many theorists would like to both accept endurantism and reject presentism.

The goal of this paper is to provide a way of thinking about endurantism that does not rely on the mysterious notion of an object being ‘wholly present’ at a time. This will absolve the doctrine of endurantism from charges of obscurity or incoherence. It will also make clear that the endurantist is not committed to any controversial theses like the doctrine of presentism.

The outline of the paper is as follows. In sections 2-5, I consider a variety of views that one might have about the relation between temporal

¹ Similar characterizations of endurantism are given by Dau (1986: 464), Graham (1977: 309), Lombard (1986: 69-70), Markosian (1994: 244), Mellor (1981: 104), Rea (1998: 225) and Simons (1987: 175).

² See Hawley (2001), Hudson (2001), Markosian (1994) and Zimmerman (1996).

extension and temporal parts. This discussion will lead to a precise characterization of endurantism (and the rival doctrine of perdurantism) in section 6. Finally, in section 7, I consider the question of whether my discussion provides the resources required to define ‘wholly present’.

2 Strong perdurantism

To facilitate our discussion, I will first need to introduce some terminology.³

I take two notions as undefined: ‘ x is a part of y at t ’ and ‘ x exists at time (or temporal interval) t ’. Let me say a bit about how I will be using this second primitive. Suppose t is the temporal interval corresponding to the career of some persisting object o . Then o exists at t , o exists at every sub-interval of t and o exists at every temporal interval that has t as a sub-interval. But o do *not* exist at any interval wholly distinct from t .

I next offer the following definitions:

- (D1) x overlaps y at $t =_{\text{df}}$ there is some z such that z is a part of x at t and z is a part of y at t .⁴
- (D2) x exactly occupies temporal interval $t =_{\text{df}}$ (i) x exists at t , (ii) x exists at every sub-interval of t , and (iii) x does not exist at any interval wholly distinct from t .
- (D3) x is a temporal part of y at $t =_{\text{df}}$ (i) x is a part of y at t , (ii) x exactly occupies t , and (iii) x overlaps at t everything that is a part of y at t .
- (D4) x is a proper temporal part of y at $t =_{\text{df}}$ x is a temporal part of y at t and $x \neq y$.

With these definitions in hand, we can state the doctrine of *strong perdurantism*:

³ The terminology and definitions suggested here owe much to Sider (1997, 2001).

⁴ In these definitions (and the commentary that follows) I restrict my attention to instants and, thus, I speak of z being a part of y at t . But all of these definitions can be easily amended so as to include talk of temporal intervals. One can say, for example, that x overlaps y at *or during* t just in case there is some z such that z is a part of x at *or during* t and z is a part of y at *or during* t .

Strong Perdurantism: For any object x , if t is the temporal interval exactly occupied by x then, for every sub-interval of t , t -, x has a proper temporal part at t -⁵.

The strong perdurantist is a *strong* perdurantist in that he accepts the existence of *arbitrary* undetached temporal parts. The strong perdurantist claims that for *any* persisting object o and for *any* sub-interval t of the temporal interval exactly occupied by o , there exists some object that is a proper temporal part of o at t . And this will be the case no matter how discontinuous and gerrymandered that sub-interval may be.

Note that, as I have characterized it, one can accept the doctrine of strong perdurantism and, at the same time, deny that there are any temporally extended objects. So, for example, it is open for the strong perdurantist to deny the existence of temporally extended objects like the Eiffel Tower and Woodrow Wilson. Note also that one can accept the doctrine of strong perdurantism and, at the same time, deny that composition is unrestricted.⁶ So, for example, the strong perdurantist can accept the existence of temporally extended objects like the Eiffel Tower and Woodrow Wilson without admitting that there is a mereological sum of such objects. Finally, note that strong perdurantism, as I have characterized it, is very similar to Theodore Sider's (2001) *Thesis of Temporal Non-Locality* and Peter van Inwagen's (1981) *Doctrine of Arbitrary Undetached Temporal Parts*. Both Sider and van Inwagen take their respective theses to characterize the doctrine of perdurantism. I will argue below (section 4) that this is a mistake – one that has led to an incorrect view about the relation between perdurantism and counterpart theory.⁷

⁵ Strong perdurantists include Heller (1990), Hudson (2001), Lewis (1986), Quine (1960), and Sider (2001). Note that, in addition to accepting the doctrine of strong perdurantism, the perdurantist may claim that the doctrine in question is a necessary truth. This, I suppose, would make one a *super strong* perdurantist.

⁶ On the thesis of unrestricted composition, see Lewis (1986: 212-13) and van Inwagen (1990: 74-80).

⁷ Sider, at least, is aware that there are weaker versions of perdurantism available (1997: 204-5). Sider is also clear about the connection between these various versions of perdurantism and the counterpart theoretic analysis of *de re* modality (2001: 221-2).

3 Strong endurantism

Strong perdurantism is the thesis that *every* persisting object has a proper temporal part at *every* sub-interval of the temporal interval that it exactly occupies. Strong *endurantism*, on the other hand, is the thesis that *no* persisting object has a proper temporal part at *any* of the sub-intervals of the temporal interval that it exactly occupies:

Strong Endurantism: For any object x , if t is the temporal interval exactly occupied by x then there is no sub-interval of t , $t-$, such that x has a proper temporal part at $t-$.⁸

Here it may be enlightening to discuss a possible analogy between temporal extension and spatial extension. One question concerning the relation between parthood and spatial extension is this: are there (or could there be) any *spatially extended simples*?⁹ A spatially extended simple would be an object that occupies an extended region of space (or, at least, a non-point-sized region of space) at some time while lacking any proper parts at that time. Such objects would seem to be quite bizarre, but this has not stopped some thinkers from finding a place for them in their ontology.¹⁰ The point I would like to make is that, on the strong endurantist's way of looking at things, persisting objects are fundamentally analogous to spatially extended simples – such objects are what we may call *temporally extended simples*. A temporally extended simple would be an object that exactly occupies an extended temporal interval while lacking any proper temporal parts. This is exactly how the strong endurantist describes the persisting objects around us.¹¹

⁸ Strong endurantists include van Inwagen (1990), Rea (1998), Merricks (1999) and Zimmerman (1996).

⁹ For a nice introduction to mereological simples and related issues, see Markosian (1998).

¹⁰ It seems as if Epicurus and Newton, for example, both held that the fundamental objects of our world enjoy spatial extension. And, more recently, David Lewis (personal correspondence), Ned Markosian (1998) and Mark Scala (2002) have all endorsed the possibility of such objects. So it looks as if we have some reason to take the possibility of spatially extended simples seriously.

4 Moderate perdurantism

Between the two extremes of strong perdurantism and strong endurantism we have a variety of more moderate views about temporal extension and temporal parts. One way of marking the relevant distinctions here is to think about what these various views say about temporal extension and *decomposition*. Here it will be helpful to have a definition of ‘decomposition’ on hand:

- (D5) T is a decomposition of x =_{df} (i) every member of T is a proper temporal part of x at some time, (ii) no members of T overlap at any time and (iii) the temporal interval exactly occupied by x = the temporal interval jointly exactly occupied by the members of T .¹²

The notion of ‘joint exact occupancy’ is to be defined as follows:

- (D6) The x s jointly exactly occupy interval t =_{df} t is the union of all the intervals exactly occupied by one of the x s.

So, to say that a persisting object is subject to decomposition is to say that the object can be divided up, without remainder, into proper temporal parts.

The *moderate perdurantist* rejects the doctrine of strong perdurantism, but claims that there is a decomposition for every persisting object:

Moderate Perdurantism: Strong Perdurantism is false but, for every persisting object x , there is some T such that T is a decomposition of x .

So, while the moderate perdurantist agrees with the strong perdurantist in claiming that every persisting object is subject to decomposition, he breaks with the strong perdurantist in denying that every persisting object is subject to *arbitrary* decomposition.

¹¹ To clarify: a temporally extended simple may not be mereologically simple in that it may have various *spatial* parts at different times. An object qualifies as a temporally extended simple just in case it lacks proper *temporal* parts.

¹² Compare with Zimmerman (1995: 62).

Once again, it may be helpful to think about the analogy to spatial extension. Let us suppose that the physical world is, at any time, completely decomposable into point-sized material simples. And let us add to this the claim that composition does not always occur. For illustrative purposes, let us follow Peter van Inwagen (1990: 81-97) and suppose that there exists a y such that the x s compose y at t if and only if the activity of the x s at t constitutes a life (or there is only one of the x s at t). On the picture suggested by van Inwagen, physical reality consists of material simples and certain fusions of those simples. The members of a particular class of simples have a fusion just in case their activity constitutes a life. The notion of what it is to ‘constitute a life’ is somewhat vague, but it is clear that the ontology suggested by van Inwagen includes things like persons, dogs and trees. In particular, I (currently) exist on this picture. So there is some set of simples, S , such that the members of that set (currently) compose me and there is some region, r , such that I (currently) exactly occupy that region. Consider now the sub-set of S , S_- , whose members jointly exactly occupy the sub-region of r , r_- , which we would normally take to be filled by my right arm. The activity of the members of S_- does not constitute a life. On the picture currently under consideration, it follows that the members of that set do not have a fusion. In other words, it follows that I do not currently have a proper part at r_- (strictly speaking, there is no such thing as my right arm).

The moderate perdurantist will say something very similar when it comes to temporal extension. Since the moderate perdurantist is committed to the claim that *every* persisting object is subject to decomposition, they will say that I, for example, am completely decomposable into instantaneous temporal parts.¹³ That is, they will say that there is some set T that is a decomposition of me and is such that all of its members are instantaneous temporal parts. But the moderate perdurantist will also deny the existence of arbitrary temporal decompositions. As in the spatial case, this will be due to a restriction on composition. So, for example, suppose that there are some members of $T - o_1, o_2, \dots, o_n$ – that do not have a fusion. Let t be the temporal interval jointly occupied by these objects. Given that the objects in question do not have a fusion, I do not have a proper temporal part

¹³ Assuming that (i) time itself is ultimately decomposable into instants and (ii) objects are not ‘temporally gunky’.

at t . Since I lack proper temporal part at one of the sub-intervals of the interval that I exactly occupy, strong perdurantism is false.

The foregoing discussion helps to bring out an important role for moderate perdurantism in the debate over the nature of persistence. One of the most familiar arguments against perdurantism, due to Peter van Inwagen (1981), begins with the claim that the perdurantist is committed to a counterpart-theoretic analysis of *de re* modality. The objector goes on to claim that counterpart theory is incorrect, so that perdurantism must be rejected. Here is van Inwagen:

Take Descartes, for example. Let L be the temporal part of Descartes that occupied the last year of Descartes's existence. Let D-minus be the temporal part of Descartes that occupied the interval from Descartes's birth (or conception or whenever it was he began to exist) to the moment exactly one year before Descartes ceased to exist... In that case, obviously, D-minus and Descartes were not identical. But suppose, as seems possible, that Descartes had ceased to exist exactly one year earlier than he in fact did; or, if you like, suppose, as seems possible, that D-minus had not been "attached to L" or "continuous with L" (or however one should put it). What then would have been the relationship that held between D-minus and Descartes? What could it have been but identity? To suppose otherwise is to suppose that a thing might have had two improper temporal parts. But if D-minus and Descartes could have been identical, then there are two things that could have been one thing. (134-5)

As van Inwagen argues, the perdurantist who believes in the actual existence of D-minus is committed to the claim that that object could have been Descartes. But then one is committed to (something like) the counterpart-theoretic analysis of *de re* modality. Since van Inwagen rejects such an analysis, he concludes that perdurantism, in general, is unacceptable. The problem with this argument is obvious: the perdurantist need not be a *strong* perdurantist, so he need not believe in the actual existence of arbitrary temporal parts like D-minus or L. In other words, the idea that perdurantism entails counterpart theory results from ignoring the moderate perdurantist position and equating strong perdurantism with perdurantism *simpliciter*.¹⁴

¹⁴ For a related discussion, see Heller (1993).

5 Moderate endurantism

So the moderate perdurantist denies the existence of arbitrary temporal parts while claiming that every temporally extended object is subject to decomposition. The moderate *endurantist*, on the other hand, rejects even this weaker claim:

Moderate Endurantism: Strong Endurantism is false and it is also false that, for every persisting object x , there is some T such that T is a decomposition of x .

To illustrate one way in which the doctrine of moderate endurantism might be developed, let us focus on those theorists known, alternatively, as ‘co-locationists’, ‘coincident entities theorists’ and ‘defenders of the standard account’.¹⁵ To see why theorists of this sort are to be classified as *moderate* endurantists, let us consider a familiar puzzle of material constitution. Suppose that we have a lump of clay – hereby named ‘Lump’ – whose career begins at t_1 . Suppose that at a later time, t_2 , Lump is sculpted into the likeness of the biblical king David, giving us a statue – hereby named ‘David’. And finally, let us suppose that Lump and David are simultaneously destroyed at some later time, t_3 . We can now ask the following question: what is the relation between Lump and David? According to standard account, Lump and David are not identical since they differ in their *de re* temporal properties, *de re* modal properties and so on. But it is also part of the standard account that, during the interval from t_2 to t_3 , Lump and David materially coincide.¹⁶ In other words, David is a part of Lump during this interval and David overlaps during this interval everything that is a part of Lump during this interval. Moreover, David exactly occupies the interval from t_2 to t_3 . It follows from (D3) that David is a temporal part of Lump during the interval in question. Since, on the standard account, Lump and David are distinct, (D4) tells us that David is a *proper* temporal part of Lump during this interval. So Lump has at least

¹⁵ Advocates of this view include Lynne Rudder Baker (2000), Judith Jarvis Thomson (1998), and David Wiggins (1980).

¹⁶ x materially coincides with y at t just in case every part of x at t is a part of y at t and every part of y at t is a part of x at t . It should be admitted that certain defenders of the standard account deny the claim that Lump and David, for example, share parts in this way. See, for example, Baker (2000).

one proper temporal part. Since the defender of the standard account claims that there are at least some proper temporal parts, they are committed to the denial of strong endurantism. But defenders of the standard account will also claim that Lump is not completely decomposable into proper temporal parts, for they will deny that Lump has a proper temporal part during the interval from t_1 to t_2 . Since the defender of the standard account claims that there are at least some temporally extended objects that are not subject to decomposition, they are committed to the denial of moderate perdurantism. Hence, the defender of the standard account is a moderate endurantist.

6 Endurantism and perdurantism

At this point we have identified four different views concerning the relation between temporal extension and temporal parts: strong perdurantism, strong endurantism, moderate perdurantism and moderate endurantism. How ought we to think about the general debate between endurantists and perdurantists? The answer, I take it, is fairly obvious: the perdurantist asserts, and the endurantist denies, that every temporally extended object is decomposable into proper temporal parts. In claiming that there is a decomposition for every persisting object, the perdurantist asserts that temporal extension requires temporal parts. In rejecting the claim in question, the endurantist severs the link between parthood and extension – the moderate and the strong endurantists both claim that certain objects in our world enjoy temporal extension without the benefit of temporal parts. So we have:

Perdurantism: For every persisting object x , there is some T such that T is a decomposition of x .

Endurantism: It is false that, for every persisting object x , there is some T such that T is a decomposition of x .

I believe that this method of characterizing the debate over persistence has several nice features to recommend it. First, if we frame the debate over persistence in the way that I have recommended, we do not have to invoke the problematic notion of an object being ‘wholly present’ at a time. The only two primitives required are these: ‘ x is a part of y at t ’ and ‘ x exists at t ’. Since both parties to the debate require primitives of this sort, endurantism is no longer open to charges of obscurity or confusion.

Second, it should be obvious that my way of characterizing endurantism does not commit the endurantist to presentism, the doctrine that only the present is real. This is obviously a mark in favor of my proposal, since many theorists would like to both accept endurantism and reject presentism. Finally, it should also be clear that my way of characterizing perdurantism does not commit the perdurantist to a counterpart-theoretic analysis of *de re* modality. As argued in section 4, moderate perdurantism is consistent with the denial of counterpart theory and, obviously, moderate perdurantism is also consistent with my characterization of perdurantism *simpliciter*. All of this speaks in favor of the current proposal.

7 Defining ‘Wholly Present’

My proposed characterization of endurantism does not rely on the notion of an object being ‘wholly present’ at a time. But one might wonder whether the foregoing survey can, in turn, shed any light on this concept. The purpose of this final section is to address that question.

Here is an initial idea suggested by our earlier discussion:

(D7) x is wholly present at $t =_{df}$ x exactly occupies t .

All parties to the debate should agree that (D7) captures one natural idea of what it is to be wholly present during a particular temporal interval. For, if an object exactly occupies a temporal interval, it exists at every sub-interval of that interval while not existing at any other time not in that interval. Nonetheless, (D7) will obviously not serve the endurantist’s purposes since objects are not wholly present in this sense at *every* moment during their careers.

Here is a second definition of ‘wholly present’ that is suggested by our discussion thus far:

(D8) x is wholly present at $t =_{df}$ x exists at t and x does not have a proper temporal part at t .

If an object has a proper temporal part during an interval, then there is a clear sense in which it is only *partly* present at that interval. The intuitive idea behind (D8) is that *wholly* present is the converse of *partly* present – an object is wholly present at a temporal interval where it exists if and only if it is not partly present at that interval. Given (D8), the strong perdurantist will say that there is a single temporal interval where a given ob-

ject is wholly present, the temporal interval corresponding to that object's entire career. Conversely, the strong endurantist will say that persisting objects are wholly present in this sense at *every* moment throughout their careers.

Unfortunately, (D8) yields the incorrect results for the moderate perdurantist. Suppose, with the moderate perdurantist, that I have some instantaneous temporal parts that do not have a fusion. Let t be the temporal interval jointly occupied by these objects. Given that the objects in question do not have a fusion, I do not have a proper temporal part at t . But I do exist at t . So, given (D8), it follows that I am wholly present at t . This, I take it, is an unwelcome result since the moderate perdurantist will want to say that I am wholly present at only one temporal interval – the temporal interval corresponding to my entire career.¹⁷

We can, however, easily amend (D8) so as to get around these kinds of problems:

- (D9) x is wholly present at $t \text{ =}_{df}$ x exists at t and x does not have a proper temporal part at any time other than t .¹⁸

Recalling our earlier example, the moderate perdurantist denies that I have a proper temporal part during t , the temporal interval that is jointly occupied by the instantaneous temporal parts o_1, o_2, \dots, o_n . But the moderate perdurantist does admit that I have proper temporal parts at times other than t . So (D9), unlike (D8), does not commit the moderate perdurantist to the claim that I am wholly present at t .¹⁹

¹⁷ A further problem for (D8) arises in connection with the analogy between spatial and temporal extension that I have appealed to throughout this paper. Just as objects can be wholly present at a time, they can be wholly present at a place. Indeed, it does not seem as if we have two distinct relations here: there is but one relation – the relation of *being wholly present* – that relates objects to both times and places. If this is correct, and if we accept (D8), we should also accept something like the following: x is wholly present at region r just in case x exists at r and x does not have a proper part at r . But suppose, with van Inwagen, that the material simples that jointly exactly occupy the region we would normally associate with my right arm do not have a mereological sum. It follows that I do not have a proper spatial part at that region. But I do exist at that region. Given the spatial analogue of (D8), it follows that I am wholly present at that region. This is absurd, for I am not *wholly* present at the arm-shaped region in question.

¹⁸ See Markosian (1994: 247).

Unfortunately, (D9) also fails as a perfectly general definition of ‘wholly present’, since it yields the intuitively incorrect results for the moderate *endurantist*. Consider once again the treatment of the Lump/David case offered by the defender of the standard account. According to such a theorist, David is a proper temporal part of Lump during the interval from t_1 to t_2 . Thus, given (D9), Lump is not wholly present during the interval from t_2 to t_3 .²⁰ But I have suggested that the standard account is to be classified as an *endurantist* view, a view on which Lump is wholly present throughout its career.

Where does this leave us? First of all, we have arrived at a definition of ‘wholly present’ that can be embraced by the strong perdurantist, the moderate perdurantist and the strong endurantist alike. For such theorists, (D9) yields the desired conclusion that an enduring object is wholly present at every time within its careers and that a perduring object is wholly present at only one temporal interval – the temporal interval corresponding to that object’s entire career. But we have also seen that (D9) is not a perfectly general definition of ‘wholly present’, since it does not fit well with the picture defended by the moderate endurantist. This is a rather disappointing result, but I prefer to put a positive spin on things: our failure at finding a perfectly general definition of ‘wholly present’ only underscores the advantages of doing without that problematic notion. That is, our failure here only serves to make more plausible the characterization of endurantism that was suggested in the previous section.²¹

¹⁹ Similar reasoning applies, of course, to the spatial case.

²⁰ This objection is due to Ted Sider.

²¹ An earlier version of this paper was presented at the 2002 Pacific Division meeting of the American Philosophical Association. I thank my commentator on that occasion, Gabriel Uzquiano. Thanks also to John Hawthorne, Kris McDaniel, Mark Scala, Ted Sider and Dean Zimmerman for helpful discussion.

ABSTRACT

Endurantism is often said to be the thesis that persisting objects are ‘wholly present’ whenever they exist. This invites the question of what it is for an object to be wholly present at a time. As recent discussions have made clear, it is exceedingly difficult to provide an illuminating answer to this question. In fact, Trenton Merricks (1999) has gone so far as to argue that the endurantist can only provide an answer to this question at the cost of accepting *presentism*. The goal of this paper is to provide a way thinking about endurantism that avoids mysterious primitives and unwanted ontological commitments.

REFERENCES

- Baker, Lynne. (2000) *Persons and Bodies: A Constitution View* (Cambridge: Cambridge University Press).
- Dau, Paolo. (1986) “Part-Time Objects,” in P.French, T. Uehling, and H Wettstein (eds.), *Midwest Studies in Philosophy II* (Minneapolis: University of Minnesota Press).
- Graham, George. (1977) “Persons and Time,” *Southern Journal of Philosophy* 15: 308-15.
- Hawley, Katherine. (2001) *How Things Persist* (Oxford: Clarendon Press).
- Heller, Mark. (1990) *The Ontology of Physical Objects: Four Dimensional Hunks of Matter* (Cambridge: Cambridge University Press).
- Heller, Mark. (1993) “Varieties of Four Dimensionalism,” *Australasian Journal of Philosophy* 71: 47-59.
- Hudson, Hud. (2001) *A Materialist Metaphysic of the Human Person* (Ithaca: Cornell University Press).
- Lewis, David. (1986) *On the Plurality of Worlds*. (Oxford: Basil Blackwell).
- Lombard, Lawrence. (1999) “On the Alleged Incompatibility of Presentism and Temporal Parts,” *Philosophia* 27: 253-60.
- Marksosian, Ned. (1994) “The 3D/4D Controversy and Non-Present Objects,” *Philosophical Papers* 23: 243-249.
- Marksosian, Ned. (1998) “Simples,” *Australasian Journal of Philosophy* 76: 213-226.

- Mellor, D.H. (1981) *Real Time* (Cambridge: Cambridge University Press).
- Merricks, Trenton. (1999) "Persistence, Parts and Presentism," *Nous* 33: 421-438.
- Quine, W.V.O. (1960) *Word and Object* (Cambridge, MA: MIT Press).
- Rea, Michael. (1998) "Temporal Parts Unmotivated," *Philosophical Review* 107: 225-260.
- Scala, Mark. (2002) "Homogeneous Simples," *Philosophy and Phenomenological Research* 64: 393-397.
- Sider, Theodore. (1997) "Four-Dimensionalism," *Philosophical Review* 106:197-231.
- Sider, Theodore. (2001) *Four-Dimensionalism: An Ontology of Persistence and Time* (Oxford: Clarendon Press).
- Simons, Peter. (1987) *Parts: A Study in Ontology* (Oxford: Oxford University Press).
- Thomson, Judith. (1998) "The Statue and the Clay," *Nous* 32: 149-173.
- van Inwagen, Peter. (1981) "The Doctrine of Arbitrary Undetached Parts," *Pacific Philosophical Quarterly* 62: 123-137.
- van Inwagen, Peter. (1990) *Material Beings*. (Ithaca: Cornell University Press).
- Wiggins, David. (1980) *Sameness and Substance* (Cambridge, MA: MIT Press).
- Zimmerman, Dean (1995) "Theories of Masses and Problems of Constitution," *Philosophical Review* 104: 53-110.
- Zimmerman, Dean. (1996) "Persistence and Presentism," *Philosophical Papers* 25: 115-126.