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HOW TO ENDURE

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The terms 'endurance' and 'perdurance' are commonly thought to denote distinct ways for an object to persist, but it is surprisingly hard to say what these are. The common approach, defining them in terms of temporal parts, is mistaken, because it does not lead to two coherent philosophical alternatives: endurance so understood becomes conceptually incoherent, while perdurance becomes not just true but a conceptual truth. Instead, we propose a different way to articulate the distinction, in terms of identity rather than temporal parts: an object endures if its identity is determined at every moment at which it exists. We make precise what it means for the identity of an object to be determined at a moment. We also discuss what role the endurance/perdurance distinction, so understood, should play in the debates about time, material objects and personal identity.

I. THE DEBATE ABOUT PERSISTENCE

Philosophers disagree about how objects persist. According to one party in the debate, ordinary material objects are extended through time in a manner analogous to that in which they are extended through space. An object occupies an extended region of space by occupying all of the points within that region, but it occupies the region and its constituent points in two different senses of the verb.[1] The whole object occupies the region, but it occupies the points by having spatial parts that occupy them. Intuitively speaking, one might say that the object *fills* the region but *overflows* the points, each of which is filled by one of its spatial parts. The temporal analogue of regions of space are intervals of time, and an object can be conceived as persisting through time by occupying an interval, just as it extends through space by occupying a region. The analogy implies that the object occupies an extended interval of time by occupying all of its constituent moments, in a different sense of the verb. The whole object fills the interval but overflows the moments, each of which is filled by a *temporal part* of the object.

[1] Of course, a material object, which is mostly empty space, does not have parts occupying *all* of the points within what is ordinarily regarded as its region of space. But this complication has no bearing on the issues under discussion. Another complication we sideline here for the sake of simplicity and brevity is the effect which the special theory of relativity has for the formulation of some of the claims we make towards the end.

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The philosophical term generally attached to persistence conceived along these lines is *perdurance*. When an object is conceived as occupying an interval of time by having temporal parts that occupy its constituent moments, the object is said to *perdure*.

The concept of a temporal part does not belong to the common sense repertoire, but it is easy enough to define by analogy with the concept of a spatial part. Just as a material object can be divided into upper and lower portions, north and south portions, east and west portions, and just as each of these spatial parts can be further subdivided down to the level of individual points, so the object can be conceived as having a preceding portion and a succeeding portion, each further divisible in terms of precedence and succession. Of course, concepts like 'upper' and 'lower' depend on the concepts of the spatial sub-regions filled by the spatial parts so denominated: the upper portion of an object is that which fills a sub-region higher than that filled by the rest of the object. The concepts of 'preceding' and 'succeeding' are similarly dependent on the concepts of temporal intervals: the preceding portion of an object is that which fills a sub-interval earlier than the rest. Within each family of concepts, the members are interdependent, but the two families are mutually independent and analogous.

So much for one side of the debate. What need is there for an alternative? Why is the concept of perdurance not adequate for characterizing how objects persist through time?

Maybe the best way to explain why the concept of perdurance is thought by some to be inadequate is to apply the concept to oneself. The self may not be a material object, and so it may not be extended in space; but the self at least appears to be extended in time, and indeed to be so extended in the same sense as any material object. If objects persist through time by perduring, then the self too ought to perdure. Yet to think of oneself as perduring is to think that at any particular moment in one's life one is not 'all there'. All that exists at a moment in time is a temporal part of oneself, analogous to the tip of one's nose or the centre of one's navel. One certainly feels more complete than a nose or a navel, even at a single moment in time. One has the sense of filling each moment in time by occupying it with one's whole self, rather than overflowing it with parts that occupy other moments. The self therefore seems to persist by being wholly present, in its entirety, at each moment in one's life.[2]

The philosophical term generally attached to persistence conceived along these lines is *endurance*. When an object is conceived as occupying an interval

[2] The distinction between an enduring and perduring self is discussed in J.D. Velleman, 'So It Goes', published online as *The Amherst Lecture in Philosophy*, 1 (2006), pp. 1–22, at http://www.amherstlecture.org.

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of time by being wholly present in each constituent moment, the object is said to *endure*.[3] We believe that this conception of endurance is seriously flawed, and that intuitions of the coherence of endurance, if not simply erroneous, should be amenable to a different formulation. Our project in this paper is to offer one, but in order to show why it is needed, we shall first explain why the standard conception of endurance is flawed, in our view.

What is meant by the description of an entity as 'wholly present' at a moment in time? Proponents of persistence-as-endurance have traditionally explained that for a persisting entity to be wholly present at a single moment is just for it to have no proper temporal parts. A proper temporal part of an object would have to be that which fills a proper sub-interval of the object's existence. If what fills every sub-interval of the object's existence is the whole, then the object must have no corresponding parts, and so it must be temporally indivisible.

Unfortunately, this explanation strikes us as incoherent. What makes it incoherent is the interdependence, previously noted, between the concepts 'whole' and 'part' as applied to extended entities on the one hand and their temporal or spatial extents on the other. If one can conceive of an object's extent as divisible into sub-extents – that is, into sub-regions of space or sub-intervals of time – then one can conceive of the object itself as divisible into parts filling those sub-extents. Its being divisible in the latter sense is entailed by its filling a region of space that is divisible in height, width and depth.

One source of the intuition that endurance is a coherent form of persistence, we suspect, is an image of persistence as a form of travel through time. On this conception of persistence, an object persists by travelling though time and occupying different moments in time in its temporal entirety. This is analogous to an object's travelling though space and occupying different parts of space in its spatial entirety. But the latter is coherent only because the object occupies different parts of space at different times. What makes it possible for an object to occupy different places in its spatial entirety is that there is another dimension, time, *along* which the object changes its position *in* space. But movement in time cannot be understood in this way, since the dimension *along* which the object changes position would be the same as the one *in* which its position is being changed. Persistence so understood appears coherent only because of the tendency to represent it spatially, say, by drawing it on a blackboard. But this spatial representation is misleading, because the two cases are not analogous.

[3] See D.K. Lewis, *On the Plurality of Worlds* (Oxford: Blackwell, 1986), pp. 202ff., for these ways to understand 'endurance' and 'perdurance'. K. Hawley, *How Things Persist* (Oxford UP, 2001), contains a detailed discussion of persistence and temporal parts. See also T. Sider, *Four-Dimensionalism* (Oxford UP, 2001), ch. 3.

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In our view, a temporally extended object must be divisible into temporal parts, and this is a conceptual truth. Its being temporally extended is entailed by its existing throughout (or occupying) an interval of time; its being divisible into temporal parts is entailed by the divisibility of the interval it occupies into earlier and later. Given that the object's temporal extent is divisible, one can divide the object into preceding and succeeding temporal parts corresponding to the earlier and later sub-extents that they fill. The object may not be decomposable into independently existing temporal parts, but it cannot fail to have temporal parts.

Although we take the case against the coherence of endurance to be compelling, the issue rests in the end on judgements about what concepts permit and what they prohibit. Thus we cannot hope that the above considerations will have much force for those who find endurance perfectly coherent. What we hope to do in the following, however, is to offer a more constructive account of the endurantist's intuitions, an account which, unlike the one outlined above, allows those intuitions to be preserved, albeit in altered form. We propose that there is a perfectly coherent distinction in the neighbourhood of the endurance/perdurance distinction as it is standardly drawn. This distinction yields two rival and coherent hypotheses about persistence, which we believe may frame a coherent debate. But first we should strengthen our case that endurance is conceptually incoherent.

II. AGAINST THE TEMPORAL-PARTS-BASED DISTINCTION

We hold that the temporal-parts-based way of drawing the distinction between endurance and perdurance is incoherent. We also hold that its incoherence gives rise to special methodological considerations about how to settle this issue. In this section we shall elaborate both of these claims.

It is common to think that the claims of endurantists and perdurantists assert two incompatible synthetic metaphysical hypotheses, hypotheses about the world which are not settled by what concepts require to be the case. To choose between them would then entail choosing between two large-scale pictures of temporal reality, something that can be done only by evaluating two coherent proposals about the world. We reject this picture of what one has to do when choosing between endurance and perdurance, understood as hypotheses about temporal parts. We hold that this choice is between a claim which is an analytic, or conceptual, truth, and one which is an analytic, or conceptual, falsehood. If this is correct, then the old debate about the distinction is simply pointless. There are not two coherent metaphysical hypotheses to be debated.

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Our claim that perdurance is a conceptual truth, and endurance conceptually incoherent, cannot be conclusively established, in our view. The same is true even for the most paradigmatic conceptual truths. We judge it to be a conceptual truth that a square has to have four sides, but some people might hold that a square might lose a side – by its being erased on a blackboard, say – while still being a square. They might therefore hold that their concept of a square allows for a square to lose a side. There is no argument which can be given to persuade them otherwise. All we can do is to encourage them to think again. Such a dispute may therefore end in stalemate, with both sides insisting on their conceptual judgements. The same is true about the debate over temporal parts.

Although we cannot hope to prove that perdurance is a conceptual truth, we can do two things. First, we can point to conceptual connections that seem to us to support this claim. Secondly, we can defuse some arguments which are widely held to support the thesis that perdurance cannot be a conceptual truth.

Our thesis that perdurance is a conceptual truth is based on three claims:

(a) Anything that is extended has parts, although these might not be separable from the whole; this applies to temporal extension just as much as to spatial extension
(b) To persist just is to be extended in time
(c) (a) and (b) are conceptual truths.

Claims (a) and (b) guarantee that anything that persists has temporal parts. Claim (c) guarantees that this is a conceptual truth. There is a conceptual connection between the concepts of a part and of an extension which guarantees (a), and there is a conceptual connection between the concepts of persistence and of being extended in time which guarantees (b). Thus to deny that a persisting thing has temporal parts is not simply to deny a true metaphysical thesis: it is rather to deny a conceptual truth, and it is thus conceptually incoherent.

In the following we discuss objections to claims (a), (b) and (c). Our replies should clarify these theses and why we hold them to be true.

On claim (a):

The claim that anything that is extended has parts might seem trivial, but it has been denied. To deny it is to claim that there can be extended simples, that is, things that are extended in space and/or time but do not have proper parts. They are simple when it comes to having parts.[4] Such a view is

[4] See, for example, N. Markosian, 'Simples', *Australasian Journal of Philosophy*, 76 (1998), pp. 213–26; K. McDaniel, 'Extended Simples', *Philosophical Studies*, 133 (2007), pp. 131–41.

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coherent with the proper understanding of what a part is, but not with the understanding which is relevant for the debate about persistence.

For example, given an object which is spatially extended, in order to deny coherently that it has parts, one must hold either that it does not have a left and right half, or that the left half and the right half are not parts of the object. The latter is perfectly coherent if by part we mean 'separable part'. The left half and the right half might be inseparable. It might be metaphysically impossible to separate them, or it might be nomologically impossible to separate them.

The same result can be obtained from a conception of parts on which every part of a material object must itself be a material object, when this conception of parts is combined with a conception of material objects which excludes some things in space. On a conception of a material object which stipulates that every material object must be separable from other things that are attached to it, the left half of a material object might not itself be a material object. When this conception of a material object is combined with a conception of parts on which parts have to be material objects themselves, the result is that not everything extended has to have parts.

But on an innocent notion of a part, carrying no metaphysical baggage like separability, we hold that it is a conceptual truth that everything that is extended has parts. Suppose there is a cylinder with a diameter of one inch and a length of one metre orientated horizontally in front of me, which I call 'Fred'. Then the following all seem to be true:

(A) Half of Fred is to my left, and half is to my right
(B) Fred's left half is to my left, and its right half to my right
(C) Fred has a left half and a right half.

Believers in extended simples must hold one of two things: either Fred does not have a left and right half, or if it does, then these halves are not parts of Fred. We take the second option to be conceptually incoherent. It is a conceptual truth that the left half of an object is a part of the object, in the metaphysically innocent sense. Thus (C) implies that Fred has parts, and a defender of extended simples therefore must hold that Fred, if it is to be an extended simple, has neither a right nor a left half.[5]

Defenders of extended simples describe the situation differently. Whereas we would say that Fred's left half is to my left, they would say that half of Fred is to my left. Of course, we could attempt to argue that this gives rise to

[5] The argument from left and right halves can be found in Descartes' *Principles* II §20, and various contemporary authors, i.e., Markosian; McDaniel; D. Zimmerman, 'Could Extended Objects Be Made Out of Simple Parts?', *Philosophy and Phenomenological Research*, 56 (1996), pp. 3–29, which points to the Descartes reference.

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expressive limitations on their part, but they can simply argue that there is nothing to express where we think there is something to express. This effectively leads to argumentative stalemate. Even though we hold that the notion of extended simples is conceptually incoherent, we cannot refute those who endorse it. But of course the same goes for those who hold that a square can have three sides, as discussed above.

On claim (b):

To persist, in the sense to be discussed, is to exist over an interval of time, that is, to exist at each moment in an interval of time. It is certainly possible that objects persist by coming into and going out of existence, and thus existing at two times but not at all times in between the two. In the following, however, we restrict our attention to normal cases, which are of persistence over an interval of time without interruption. This restriction is not essential for any of the arguments to come, but we simply focus on interval persistence in the presentation of these arguments. We hold that it is a conceptual truth that to persist is to be extended in time.

Although we take this to be a conceptual truth, several philosophers have denied it. They provide two main reasons, as far as we can tell. The first is that to claim that anything is extended in time turns time into a dimension in which things can be extended, and thus makes time too much like space, the paradigm of a dimension. But according to various metaphysical conceptions of time, time is not a dimension, and thus nothing can be extended in time.[6]

Yet the claim that things are extended in time implies that time is a dimension only in the metaphysically innocent sense that events can be ordered in it. Time might still be unlike space in many other ways.

A second, not unrelated, argument against extension in time is based on presentism. If presentism is true, then there is only one moment of time, the present. Since there is only one moment of time, nothing can be extended in time. But presentism has no problem in claiming that objects persist. Thus if presentism is conceptually coherent, then it cannot be a conceptual truth that to persist is to be extended in time.[7]

This argument is also mistaken. Even a presentist has to acknowledge that time is a dimension in the innocent sense that events are ordered along this dimension: for example, some were the case while others will be the

[6] An argument like this can be found, for example, in E.J. Lowe, *The Possibility of Metaphysics* (Oxford UP, 1998), ch. 4.

[7] The *locus classicus* for the argument that nothing is temporally extended is Augustine, *Confessions* XI. His argument, in brief, is that anything temporally extended (and this includes the present) has a part which has already happened, and thus is not any more, and a part which has not happened yet, and thus is not yet. Thus all there is is not temporally extended.

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case. To acknowledge that time is a dimension in this innocent sense, and that persisting objects are extended in time in this innocent sense, is not to endorse anything about the metaphysical status of the past or the future. Presentists differ from their antagonists in how they see the metaphysical status of the past and the future, but this is not relevant for the innocent sense in which persisting objects are extended in time.

Finally, some philosophers have argued that it is coherent for an object to persist without being extended in time. They hold that it is coherent for an object to be fully located at more than one time, by analogy with a saint's being fully located in more than one place. On this proposal, an object can exist at each moment in an interval of time in the sense that the object is located at that moment, although it is not located at any extended region. The location relation, these philosophers hold, is a many–one relation. One object, the whole object, has this very relation to many moments in time, but does not have it to any extended region of time. Thus, they argue, the object persists, since it is located at each moment of an interval, but is not extended, since it is not located at any extended region. It is only located at each of the points of the interval.[8]

Although there is a coherent version of multi-location, to be discussed below, the above account of persistence without extension is not coherent. On an ordinary notion of extension there is no getting around the fact that if you are located everywhere along a spatial dimension where a yardstick is located, then you are extended at least one yard in that dimension. If you are located at every moment between 1 pm and 2 pm then you are extended at least one hour. The underlying metaphysics of material objects is not relevant for this. Recent proponents of the coherence of multi-location in fact concede this. They formulate their proposals not in terms of ordinary, everyday notions but in terms of a primitive 'location' relation L. It is then stipulated that L can either be a one–one relation between regions and objects, or a many–one relation. This is done in basically the same way by Gilmore and by Sattig. For example, Gilmore (p. 200) introduces the term 'exact occupation' as one of his primitives, and notes 'Importantly, the relation is intended to be such that there is nothing contradictory or *obviously* impossible about a single thing's exactly occupying each of two or more regions'. Furthermore (p. 201), he assumes that 'It is not obviously impossible for a multi-located entity to fail to exactly occupy the union of its locations'. With this notion one can then define the extent of an object as the extent of the region(s) it exactly occupies. With the above stipulations, it

[8] For such proposals, see C. Gilmore, 'Where in the Relativistic World Are We?', in J. Hawthorne (ed.), *Philosophical Perspectives*, 20: *Metaphysics* (Malden: Blackwell, 2006), pp. 199–236; T. Sattig, *The Language and Reality of Time* (Oxford UP, 2006).

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is also, by stipulation, possible for an object to be 'located' at many unextended regions, but not also at an extended region. Thus a persisting object can be unextended.

One can of course define a notion by stipulation, and one can give it the name 'location'; what one cannot do by stipulation, however, is make that notion resemble the ordinary notion of location, which expresses where the object is. On the ordinary conception of location an object that is located at every moment of an interval is located at all of the interval. Similarly, on the ordinary notion of extension an object is at least as extended as any interval which is such that the object is located at all of the interval. In this sense it should be beyond dispute that a persisting object is extended in time. On other notions of 'extension' this might well be disputed.[9]

On claim (c):

Even if it is true that everything that is temporally extended has temporal parts, there are some powerful arguments that this cannot be, as we claim it is, a conceptual truth.[10] We shall discuss three such arguments, all of which we reject.

(i) The ontological argument:

The following thesis

EXT. Everything extended has parts

is an ontological thesis. It claims that for every thing which is extended, there exists something which is its part. Ontological theses are theses about what the world is made of, and it is widely accepted that such theses cannot be conceptual truths.[11] So (EXT), and thus our (a), cannot be a conceptual truth. But if it is not a conceptual truth, then there can be a substantial and coherent metaphysical project to determine whether indeed it is true.

To answer this objection, let us distinguish absolute from conditional ontological claims. An absolute ontological claim is a statement like

1. *a* exists.

[9] Different readings of the ordinary location relation are distinguished in J. Parsons, 'Theories of Location', *Oxford Studies in Metaphysics*, Vol. III (Oxford UP, 2007), pp. 201–37. The above remarks are to be taken not in the sense of location in which Paris is in France, but in a sense in which no part of the region is completely free of the object.

[10] This argument was pressed upon us independently by Ted Sider, Ryan Wasserman and Dean Zimmerman.

[11] Not everyone agrees with this, of course, even outside our debate. Well known examples of philosophers who held that statements that affirm the existence of certain things can be conceptual truths are Frege (for the case of numbers) and Anselm (for the case of God). A well known critic of any such claim is Kant. As will be made clear shortly, we do not have to take sides in the debate between these philosophers.

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A conditional ontological claim is a statement like

2. If *x* exists then *y* exists.

We can grant for the sake of the argument that absolute ontological claims cannot be conceptual truths. We merely hold the much more modest claim that conditional ontological claims can be conceptual truths. (EXT) is a conditional ontological claim. If we replace '*x*' and '*y*' in (2) with complex singular terms, then there can be a conceptual tie between the concepts associated with these singular terms that is sufficient to establish a conditional ontological claim involving these concepts. This is in fact quite apparent from examples:

3. If a married couple exists then both spouses exist
4. If {Socrates} exists then Socrates exists
5. If a (non-empty) set *S* exists then the members of *S* exist.

A similar connection obtains in (EXT). There is a conceptual connection between 'an extended thing' and 'part of that extended thing', and there is an ontological dependence between the extended thing and its parts, a connection which is itself a conceptual truth. Thus the conditional ontological claim that an extended thing has parts is a conceptual truth.

This situation is not symmetric. An opposite of (5) is

6. If certain things exist then there is a set of just those things.

(6) is not a conceptual truth, and may not even be a truth. It is conceptually coherent, we take it, to deny that there are any sets at all. In particular, if there is no universal set, then even if there are sets, there is no set containing just the sets. So (6) is most probably not true even if there are sets. But if there are sets, then they exist only if their members exist, and this is a conceptual truth. Similarly for parts and wholes. It is a conceptual truth that if something extended exists then it has parts, but it is not a conceptual truth that if some things exist then there is also something which has just these things as parts. Unrestricted composition is not a conceptual truth, since it is coherent that there is nothing complex at all. But if there is something extended then it has parts, and this is a conceptual truth. In particular, and in contrast with the doctrine of unrestricted composition, the doctrine of arbitrary undetached parts is not only true, but a conceptual truth.[12]

(ii) The combinatorial argument:

Some have argued for the possibility of extended simples by using a combinatorial approach to possibility. According to this approach, what is

[12] See P. van Inwagen, 'The Doctrine of Arbitrary Undetached Parts', in his *Ontology, Identity, and Modality* (Cambridge UP, 2001), pp. 75–94. Van Inwagen rejects the doctrine.

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possible is determined by all the different ways in which the fundamental properties and relations can be instantiated and co-instantiated. Where something is located is a fundamental relation. The combinatorial principle would allow the relation of location to hold between a simple object and several points in space, and thus for the object to be extended. So extended simples are possible.[13] But this argument would not show that extended simples are possible. It shows that something which is in fact simple might have been located at more than one point, but it does not show that this thing would still be simple if it were located at more than one point; this is of course what is at issue. One might try to apply the argument to the parthood relation as well, by asserting the possibility of something which bears the location relation to several points or regions but the parthood relation only to itself. This argument would have to assume that parthood and location are both fundamental relations, with no conceptual ties between them. But this is just what is at issue, since those who hold that extended simples are conceptually incoherent hold precisely that there are conceptual ties between the notions of being a part and being located at an extended region. There is thus no non-question-begging combinatorial argument for the possibility of extended simples.

(iii) The definition arguments:

Several philosophers in the recent literature have attempted to define endurance and perdurance.[14] They use notions like 'being located at', 'being a part of', and so on, to define what it is for an object to be wholly located at more than one time. However, definitions of endurance in terms of other notions do not show that endurance is coherent, even if the other notions are coherent. After all, being round and being square are each conceptually coherent, while being a round square is not. Are there any arguments to the effect that the coherence of extended simples, or of endurance, can be established by definitions using location relations? Even those who propose these definitions do not argue for their coherence. For example, Parsons (p. 211): 'I have little to say by way of argument here: simply that I can conceive of an object being extended without having any proper parts'. In a later article, however, he does offer an argument for the coherence of extended simples.[15]

[13] See, for example, Sider, 'Parthood', *Philosophical Review*, 116 (2007), pp. 51–91. The argument is sketched on p. 52.

[14] Examples include H. Hudson, *The Metaphysics of Hyperspace* (Oxford UP, 2005); Gilmore, 'Where in the Relativistic World Are We?'; Parsons, 'Theories of Location'. These authors use in their definitions various location or occupation relations which were earlier discussed by R. Casati and A. Varzi, *Parts and Places* (MIT Press, 1999).

[15] Parsons, 'Hudson on Location', *Philosophy and Phenomenological Research*, 76 (2008), pp. 427–35, at p. 430.

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He says that extended simples are coherent because the notion can be defined in innocent terms and it can be shown that the existence of extended simples is formally consistent with the principles of mereology. But that something is formally consistent does not in the least show that it is conceptually coherent. After all, a consistent formal theory of objects can be augmented with the new predicates 'round' and 'square'. If the conceptual connections between the concepts expressed with these predicates are not incorporated into the augmented theory, then it is formally consistent with the theory that some things are both round and square. Formal consistency alone means little.[16]

Whether or not extended simples are conceptually coherent is a question which comes down to judgements about what ordinary concepts allow or forbid. A judgement that they are coherent or incoherent should be taken as defeasible evidence that this is so. So both sides should try to understand why people on the other side make these judgements. Those who firmly hold that extended simples are coherent even after taking into account everything we have put forward cannot be refuted by any further arguments. The disagreement between them and ourselves has reached bottom. What is left for us to do is to try to explain away their intuition of coherence. Maybe there is something coherent in the neighbourhood, something which can account for their intuitions. There does seem to be a clear difference between an object's persisting by being 'all there' and its persisting by being 'spread out'. We now try to explain this difference without using the incoherent notion of an object's being 'all there' in the sense of lacking temporal parts.

III. RECONFIGURING THE DEBATE

The intuitive objections that arose to the notion that the self has temporal parts were these. One has the sense, we said, of being all there, or wholly present, at each moment of one's life. This conception of oneself as enduring comes in two different versions. One version involves the incoherent notion of endurance; the other involves a coherent notion which we propose to put in its place.[17]

[16] It is worth pointing out that if we are correct and it is a conceptual truth that the parts of an object are tied to the subregions of the region that the object occupies, then there is little hope of a coherent account of endurance and perdurance which is distinctly tied to occupation relations and not to temporal parts, as for example Sattig and Gilmore suggest.

[17] The following discussion of personal persistence draws on Velleman, 'Self to Self', *Philosophical Review*, 105 (1996), pp. 39–76, and 'Persons in Prospect', *Philosophy and Public Affairs*, 36 (2008), pp. 222–88, part I.

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When I remember a past experience, I remember the world as experienced from the perspective of a past subject – a temporal part of me, which is often called a person-stage. My memory has an egocentric representational scheme, centred on the person-stage who originally had the experience from which the memory is derived. His standpoint lies at a spatiotemporal distance from the standpoint I occupy while entertaining the memory, which is the standpoint of a present person-stage. But the mind is not especially scrupulous about the distinction between the momentary subjects occupying these distinct points of view. Remembering a past experience, I tend to feel that I am (as one says) reliving it, that I am back there again, while also occupying the here and now.

In fact, I am not back there again, in the remembered experience; I am here, remembering it now. But the structure of memory leads me to conflate my remembering self with the self of the experience remembered. The 'I' of the experience and I who remember it are not sufficiently distinguished from each other, so that a single self appears to be present in both.

The selves conflated in this appearance are two momentary person-stages: I in my present capacity as the subject of memory, existing just in the moment of remembering; and the 'I' of the remembered experience, who existed just in the moment of the experience. In either case, I am conceived as entirely present at a single point in time, either as me-here-and-now, entertaining the memory, or as 'me'-there-and-then, having the experience. Conflating one of these momentary person-stages with the other yields the illusion that they are numerically identical – that the subject whose existence is complete in the moment of remembering is one and the same as the subject whose existence was complete in the moment of the experience remembered. Memory does not present me with the outright contradictory thought that the same self occupies two different moments at the same time. When I sit on the sofa and remember skydiving, I do not seem to be skydiving and sitting on the sofa simultaneously. Memory rather presents me with the more subtly contradictory thought that the very same momentary self was skydiving then and is also remembering it now, because these two momentary selves are conflated.

The same effect is produced by experiential anticipation, in which I prefigure a future experience from the perspective that I expect to occupy in it. A single self appears to have its full existence both now and later, because I who anticipate the experience and the 'I' of the anticipated experience are not sufficiently distinguished from each other.

In both memory and anticipation, the self appears to *be* a momentary person-stage that exists at more than one moment – one and the same temporal part existing at more than one time, which is no more possible

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than a spatial part existing in two places at once. This appearance may explain the temptation to speak of enduring objects as 'wholly present' at a moment, as if all of their temporal parts were co-present. I tend to think that all of my temporal parts are present at a single point in time because I tend to think of myself as my present self – a momentary subject whose existence is indeed complete in the here and now. I am tempted to say that I nevertheless persist through time because I tend to think of this self, complete in the moment, as nevertheless existing at other moments. The structure of memory thus naturally leads to taking an incoherent description of one's own persistence to be coherent. This might be part of the explanation of why philosophers have taken the incoherent form of endurance to be coherent. But this conclusion is based on a mistaken interpretation of what is presented in memory. There is a much more revealing and coherent interpretation available as well, which we hope to articulate in the following.

Once this illusion is dispelled, I no longer have the sense that my entire temporal extension is present at a single moment: my childhood, or childhood self, is not present in middle age, nor was my middle-aged self present in childhood. Yet I still have a sense of being 'all there' at each moment in my life. Even after realizing that I have temporal parts – that I am not a temporally extended simple – I conceive of myself as wholly present. But what now can 'wholly present' mean?

What it means, we suggest, has to do with personal identity. What there is of oneself at a single moment is sufficient to constitute a momentary part of oneself – a part of the particular person one is – independently of what there may or may not be of oneself at other moments. At a particular moment, one is not the entirety of one's temporally extended self, but one is entirely oneself, possessed of a personal identity fully determined within the moment.

In this sense, our ordinary notion of the self is like our notion of material objects, and it is correlatively unlike our notion of events and processes. A process such as writing a cheque is a temporally extended process, with temporal parts consisting in the laying down of each successive drop of ink. What there is of this process at a particular moment – the laying down of a particular drop – is not sufficient to determine that a cheque is being written, and so it is not sufficient to determine which particular process is taking place. That particular drop of ink could have been deposited at that moment, just as it actually was, without other drops' being deposited at other moments in such a way as to constitute the same process. Not only, then, is the process not present in its temporal entirety within the confines of the moment: it is not fully determined by the events of the moment to be the process that it is. Within the moment, it is not all there and it is not fully itself.

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One's intuitive resistance to the notion of oneself as perduring is not the sense that one is all there at any particular moment – not, at least, if 'all there' means 'present in one's temporal entirety'. One's intuitive resistance to the notion of oneself as perduring is rather the sense that at any particular moment, one is fully oneself. The target of this resistance is therefore best represented not by the standard theory of perdurance for material objects, but rather by a standard theory of personal identity, namely, the theory expounded by Locke.[18] According to Locke, whether the person who writes a cheque to repay a loan is the same person as the one who borrowed it depends on connections of memory between payer and borrower. Those connections depend in turn on events that span the interval between the two events. Hence whether the cheque-writer is the same person as the borrower is not fully determined by events at the time of the cheque's being written. This identity depends on a connection between the borrowing and the cheque-writing. If that connection is lacking, then the cheque-writer would be distinct from the borrower. Thus who the cheque-writer is depends on more than the events that occur at the time the cheque is being written. According to Locke's theory of personal identity, the cheque-writer is not fully himself within the moment of writing his cheque, just as his activity is not fully that of writing a cheque within the moment of his laying down any particular drop of ink. Here the vernacular locution 'not fully himself' expresses the fact that the cheque-writer's identity is partially indeterminate in the context.

In our view, the intuitive notion that some philosophers have tried to articulate with the technical concept of endurance is a notion opposed to Locke's conception of personal identity: it is the notion of an object whose identity is fully determined within the context of each moment of its existence. This notion does not depend on controversial intuitions about extensionless time or extended simples, and so it does not lead to an irresoluble clash of intuitions with the corresponding notion of perdurance.

In spelling out precisely the idea which is behind the endurance/perdurance distinction, we face a dilemma: we must either reject this terminology and the baggage that comes with it, or stick with it, thereby possibly alienating those who want to reserve it for a way of articulating it which we claim is incoherent. Although either option is not unreasonable, we have decided to adopt the latter. The distinction between endurance and perdurance is first and foremost an intuitive one, between an object's being 'all there' and not being 'all there' at a moment. Once philosophers tried to

[18] The theory we attribute to Locke is best articulated in Lewis, 'Survival and Identity', in his *Philosophical Papers*, Vol. 1 (Cambridge UP, 1983), pp. 55–77. It differs from the neo-Lockean theory of Derek Parfit in that Parfit denies it to be a theory of personal *identity* at all.

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articulate the distinction in more detail, they attempted to do this with the use of temporal parts. We propose to make the underlying idea precise in a different, and coherent, way. Thus at the risk of using terms that others want to keep for themselves, we shall use the terminology of endurance and perdurance for the distinction as we understand it.

IV. SPELLING OUT THE IDENTITY-BASED ACCOUNT

We have proposed that the intuitive difference between what is called endurance and what is called perdurance should be understood not in terms of temporal parts but in terms of whether or not an object's identity is determined at every time at which it exists. This proposal needs to be spelt out in more detail before it can provide a coherent account of the distinction. After all, at every time an object exists, it exists, and so its identity is a fact at that time. But this does not mean that the object's identity is fully determined at that time. We can intuitively capture this idea by saying that the facts that are intrinsic to a time have to determine the identity of the object in order for its identity to be fully determined at that time. This notion of something's being intrinsic to a time will also need to be spelt out, but if we can make it clear, it will give us what we want. If the identity of an object is intrinsic to a time, then what is happening at that time alone is sufficient to determine that this particular object exists. In other words, it guarantees the identity of the object that exists at that time.

IV.1. *Local properties*

But how should something's being intrinsic to a time be understood? One can think of it as the limiting case of something's being local to a region of spacetime. This notion could be made precise using facts, properties or propositions as the relevant category; we use properties. Thus we can say as a first approximation that

LOC. A property *p* is local to a region *r* of spacetime iff some object *o* in *r* has *p* and *o* would still have *p* as long as everything in *r* were the same, even if things were different outside *r*.

For example, that the dollar bill in someone's wallet is a dollar bill depends on many complicated facts. But not all of the universe is relevant to its being a dollar bill. It would still be a dollar bill as long as, say, everything within the solar system were the same over time, even if there were some differences outside the solar system. Thus the solar system, as it is, is sufficient to determine that someone's dollar bill has the property of being a dollar bill.

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But some regions are clearly not sufficient. The property of being a dollar bill is not local to the owner's wallet over the time span of last week. Being a dollar bill is not local to any region smaller than one that contains the US Treasury, some bank, or the like. How much precisely is needed is of course hard to say, but there seem to be clear cases of regions to which this property is local and others to which it is not local.

IV.2. *A circularity?*

The above approximation of a local property is intuitive, but it needs to be clarified. First and foremost there is a worry about circularity. We said that a property is local to *r* if something has it in *r* and would still have it as long as everything in *r* were the same, even if things were different outside *r*. But what does it mean for everything inside *r* to be the same? After all, if things change outside *r* then things change inside *r* in certain respects. What was the second largest thing in the universe can become the largest, if the one that was larger was outside *r* and gets smaller. Intuitively, when we speak of things' being the same inside *r*, we mean that things have the same properties local to *r*; we allow for the possibility that they might change their properties which are not local to *r*. But this definition of locality is circular.

The circularity is reminiscent of the circularity encountered in trying to spell out what it is to be an intrinsic property. Intuitively, an intrinsic property is one that an object can have no matter what properties other objects have. But of course another object might have the property of being the only round thing, and so a thing's being round cannot be independent of all the properties had by other things. The idea, however, was to think of an intrinsic property as one that a thing can have no matter what intrinsic properties other things have. Although this revised definition seems right, it is also circular.

In the case of an intrinsic property, this circularity is widely believed not to be vicious, although no definition of the notion in non-circular terms has found much acceptance. The notion of a local property can be defined explicitly from the notion of an intrinsic property. The definition can go as follows:

LOC*. A property *p* is local to a region *r* iff some thing *o* in *r* has *p*, and *o* would still have *p* as long as all things within *r* have the same intrinsic properties, even if things outside *r* had different intrinsic properties.

Thus one can accept the notion of a local property directly, and hold that the circularity noted above is not vicious. Or one can take it to be explicitly defined from the notion of an intrinsic property, if the latter notion seems more acceptable.

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IV.3. *Identity and local properties*

For a first approximation to what really interests us, suppose a region *r* is big enough to include all of an object *o*. That is, *r* is temporally extended to include at least all times at which *o* exists, and spatially extended to include at least all spatial regions at which *o* exists. Is the property of being *o* local to *r*? If it is, then all the properties local to *r* are sufficient to determine the identity of *o*. Since all properties local to *r* include the property of being *o*, assuming it is local to *r*, this result is rather trivial. But whether the property of being *o* is local to *r* depends in particular on what property it is. This can be made vivid by considering the predicate 'is *o*', which expresses the property of being *o*, and which contains '*o*' as a proper name of *o*. If a certain descriptive theory of names is correct, and this predicate expresses the property of being the (one and only) F, then this property does not have to be local to *r*. It might well be that the world is the same inside *r* but changes outside it in such a way that there is another F somewhere outside *r*. In that case the thing in *r* would no longer have the property of being the (one and only) F, since there is now another F. Thus if a description theory of names is correct, then the property of being *o* might not be local to *r*.

But this description theory does not have much going for it. If instead it is held that the property of being *o* is an object-dependent property, and if '*o*', the proper name that refers to *o*, has the function of contributing its referent to the propositions and properties expressed by sentences or predicates in which it occurs, then the situation is different. In that case the property of being *o* is trivially a property local to a region *r* that contains every part of *o*. This result follows directly from the definition of a local property. *o* has the property of being *o*, and it would still have it as long as everything in *r* were the same. After all, the property of being *o* is just the property of being that very object, and *o* still is that very object no matter what happens outside *r*. To consider what happens when the world is different outside *r* is to fix *o* and wonder what properties it would have. It might not be the one and only F any more, but it is still identical with the very thing it is. This might sound trivial, and if the property of being *o* is an object-dependent property, it really is trivial. So if *r* is big enough to include all of *o*, and if an implausible theory is rejected of what properties like the property of being *o* are, then the property of being *o* is local to *r*. This of course can be generalized to any object and any region large enough to include every part of the object, temporal or spatial. Thus the identity of an object is local to any region that includes all of it. Things get trickier when the regions get smaller.[19]

[19] For more on the issues in the previous three subsections, see Hofweber, 'Supervenience and Object-Dependent Properties', *Journal of Philosophy*, 102 (2005), pp. 5–32.

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IV.4. *Identity intrinsic to a time*

Our proposal about how to understand the difference between endurance and perdurance is that the difference should be understood in terms of an object's identity. An object is 'wholly present' at a time if its identity is determined at that time, that is, if which object it is is determined at that time. This sense of determination can be captured as follows: the identity of an object is determined at a time if it supervenes on all the properties that are intrinsic to that time (the relevant notion of 'supervenience' can simply be one of the familiar versions of property supervenience). These properties have to include all the properties intrinsic to the time, including the object-dependent ones. What it means for a property to be intrinsic *to a time* (as opposed to being simply an intrinsic property) can now be spelt out using the notion of a property's being local to a region, as defined above. A property is intrinsic to a time iff it is local to the maximal region that contains the time but is temporally unextended. Or in other words, a property is intrinsic to a time iff it is local to the maximal temporally unextended region containing that time. Thus we can say

WHO. An object *o* is *wholly present* at a time iff the identity of *o* is intrinsic to that time

END. An object *o endures* over an interval *I* iff it is wholly present at each moment in *I*

PER. An object *o perdures* over an interval *I* iff it exists at each moment in *I*, but does not endure over *I*.

Understood in this way, 'being wholly present' makes perfect sense, and the debate about persistence has two coherent sides. Furthermore, it gives rise to a coherent version of bi-location and multi-location. An object can be wholly present in more than one time or place in the sense that what is present at that time or place can fully determine which object is present at that time or place.

V. HOW TO PERDURE

Defining a coherent notion of endurance may not suffice to reframe a debate about persistence, of course, if it has the effect of rendering perdurance incoherent. What if an object cannot fail to have an identity which is determined by properties local to each moment of its existence? In that case, an object could not fail to endure, under our identity-based notion of endurance. But this is not so. In this section we discuss a condition which is

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sufficient for an object to perdure. Perdurance is coherent, just as endurance is. What remains is the question whether certain objects endure or perdure.

One way for an object to lack endurance is by requiring spatiotemporal or causal continuity for its persistence. If an object's numerical sameness from one moment of its existence to another depends on its continuity between those moments, then it must be a perduring rather than an enduring object.

For suppose the object is endurant. In that case, its numerical sameness between two moments of its existence depends entirely on properties local to these two moments, such properties being sufficient to determine the object's identity at each moment and hence its numerical sameness between the two. Continuities between the object's temporal parts would be unnecessary to their being parts of one and the same object, since being a temporal part of that particular object would be a temporally local matter for each part.

If an object's persistence depends on spatiotemporal or causal continuity, however, then its temporal parts do not belong to one and the same object merely by virtue of their temporally local properties, as they would if these properties fully determined the identity of the object to which each part belonged. If such an object persists, it must do so by perduring rather than enduring.

We conclude that there can be a coherent debate about endurance and perdurance, but it should not be a debate about whether objects, as such, endure or perdure. Rather it should be a debate about which things endure, and which things perdure. It might well be that persons perdure but their bodies endure. It might well also be that artefacts like statues perdure but the material they are made from endures. Whether a particular thing endures or perdures, in our sense, is the hard question. We do not aim to settle it here, but we hope to make the case that this is what the debate should be about.

It should be noted, finally, that the reconfigured debate no longer bears implications for the debate between presentism and eternalism about time.[20] Because it is coherent that some objects perdure while others endure, the mere existence of an enduring thing cannot imply presentism, and the mere existence of a perduring thing cannot imply eternalism. There is thus no connection between the debate about endurance and perdurance, properly understood, and the large-scale debates in the philosophy of time.

[20] For a survey of this discussion, and some good arguments that this association is to be rejected even in the old debate, see S. Haslanger, 'Persistence Through Time', in M.J. Loux and D. Zimmerman (eds), *Oxford Handbook of Metaphysics* (Oxford UP, 2005), pp. 315–54.

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VI. CONCLUSION

We have argued that the old endurance/perdurance distinction should be replaced by a new endurance/perdurance distinction. This new distinction takes enduring objects to be the ones whose identity is determined by the properties local to every moment at which they exist, and perduring objects to be the ones which persist but whose identity is not local to each moment at which they exist. This distinction makes sense; it can be made precise; and to make it so, one needs no notions more controversial than that of an intrinsic property. Understood in this way, the debate about endurance or perdurance is not one about material objects as such, but about cases, and it loses its alleged close connection with the debates about the metaphysics of material objects and the philosophy of time.[21] However, it maintains a close connection with the debate about the persistence of the self. A Lockean theory of how the self persists is committed to the perdurance of the self, whereas a substance theory presumably holds that the self endures. The case of the self illustrates that the question whether or not a thing perdures or endures is an important philosophical question. It is not a question about material objects as such, but about cases. Still, many of these cases are important philosophical cases, and thus the next question is which things endure and which perdure.[22]

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[21] How the endurance/perdurance distinction understood as one about identity relates to the problem of change is discussed in Hofweber, 'The Meta-Problem of Change', *Noûs*, 43 (2009), pp. 286–314.

[22] We are indebted to Jason Bowers, Andrew Johnson, Ted Sider, Ryan Wasserman and Dean Zimmerman for helpful discussions or comments on earlier drafts. Our thanks also to two anonymous referees for many good suggestions.

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