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The Endurance/Perdurance Controversy is No Storm in a Teacup

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Abstract

Several philosophers have maintained in recent years that the endurance/perdurance debate is merely verbal: these prima facie distinct theories of objects' persistence are in fact metaphysically equivalent, they claim. The present paper challenges this view. Three proposed translation schemes (those set forth by Miller in *Erkenntnis* 62: 91-117, 2005, McCall and Lowe in *Noûs* 40: 570-578, 2006, and Hirsch in *Metametaphysics – New Essays on the Foundations of Ontology*, Oxford University Press, Oxford, 2009) are examined; all are shown to be faulty. In the process, constructive reasons for regarding the debate as a substantive one are provided. It is also suggested that the theories may have differing practical implications.

Keywords: deflationism; endurance; metaphysical equivalence; perdurance; persistence; verbal dispute

1. Introduction

The issue of how objects persist through time has received much attention by philosophers over the last few decades. In the technical terminology introduced by Lewis (1986) and Johnston (1987), the key question has been whether objects "endure" or "perdure" through time. Roughly, objects are said to endure if they are wholly present at distinct times as numerically the same three-dimensional (3D) entity, and to perdure if they have proper temporal parts at distinct times (i.e. if they are four-dimensional (4D) space-time worms composed of proper temporal parts).[1]

[1] A third alternative discussed in the literature is the idea that objects exdure through time (Hawley 2001; Sider 2001; Haslanger 2003), i.e. are 3D entities that merely have temporal counterparts at distinct times. This theory presupposes the endurance/perdurance distinction, however: the standard formulation of exdurance relies on there being perduring but no enduring entities (Sider 2001: 196). I will therefore not discuss this theory here. For critical evaluation of exdurantism (often called "stage theory"), see my (2008). It should also be noted that some philosophers hold that objects can be temporally extended (i.e. be 4D space-time worms) without having any proper temporal parts (e.g. Parsons 2007). I am not convinced that this is a genuine possibility, however. (Parsons does not in his (2007) put forth positive arguments for the claim that temporally extended objects can lack proper temporal parts; he says merely that he can *conceive*

Defenders of the endurance theory have tended to defend their position on the basis that it is, allegedly, in line with common sense, and on the further grounds that it allows us to distinguish between objects (continuants) and events/processes (occurrents), and between stationary and rotating homogenous discs. Advocates of perdurance theory, by contrast, often claim that their view is supported by science (in particular, by the special theory of relativity) and is able to support superior explanations of phenomena such as change, fission/fusion, and co-location. The literature on the subject is now vast,[2] and it is generally taken for granted by those involved that they are engaged in a substantive debate the two parties to which cannot both be correct.

Some have rejected this assumption, however. In a succession of publications Miller (2005), McCall and Lowe (2006), and Hirsch (2009) have argued that, contrary to first appearances, the debate is merely verbal: the endurance and perdurance theories are intertranslatable, describing the same underlying metaphysics, these theorists suggest; they are, as it is sometimes put, metaphysically equivalent.

In this paper I challenge this "verbalist" perspective. I argue that the proposed translation schemes fail, and I set out constructive reasons for deeming the debate to be genuine. I also suggest that the theories have differing practical implications.

2. Preliminaries

Before examining the proposed translation schemes we need to look at the way the terms "endure" and "perdure" were defined and used by David Lewis and Mark Johnston. It is reasonable to assume that if a claim of translatability is to be of real interest it ought to engage with Lewis's and Johnston's positions, since much of the discussion in this area is anchored in their work.[3]

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of such states of affairs. Moreover, the arguments presented in his older (2000) seem to involve multi-location in the strict sense discussed e.g. in McDaniel (2008, see especially p. 134); but multi-location is incompatible with the Functionality principle defended in Parsons's (2007). Also, I have argued elsewhere (Hansson Wahlberg 2009b) that multi-location does not generate extension – multi-location and extension should be kept apart (cf. Gilmore 2013).) Consequently, in what follows I will presume that a 4D object is a perduring object.

[2] For some recent overviews, see Gallois (2011) and Effingham (2012). Some of the essential readings are collected in Haslanger and Kurtz (2006).

[3] See, for example, the Introduction and articles in Haslanger and Kurtz (2006). I should say, though, that the prima facie *conceptual* distinction marked by the technical terms "perdure" and "endure" introduced by Lewis and Johnston has been around a long time (see e.g. Johnson 1924; cf. Hume 1739-40/1978).

This is how Lewis defines the terms in *On the Plurality of Worlds*:

> Let us say that something *persists* iff, somehow or other, it exists at various times; this is the neutral word. Something *perdures* iff it persists by having different temporal parts, or stages, at different times, though no one part of it is wholly present at more than one time; whereas it *endures* iff it persists by being wholly present at more than one time. Perdurance corresponds to the way a road persists through space; part of it is here and part of it is there, and no part is wholly present at two different places. Endurance corresponds to the way a universal, if there are such things, would be wholly present wherever and whenever it is instantiated. Endurance involves overlap: the content of two different times has the enduring thing as a common part. Perdurance does not. (Lewis 1986: 202)

Lewis clearly presupposes that the endurance and perdurance conceptions of persistence are incompatible: a single object cannot both endure and perdure over a stretch of time. According to Lewis, endurance involves overlap, perdurance does not. Moreover, he goes on to argue (ibid.: 202-4) that only the perdurance theory can satisfactorily resolve the problem of intrinsic change: the problem how a persisting object can have incompatible intrinsic properties at different times. According to Lewis, intrinsic change is possible only if distinct temporal parts of the object instantiate the incompatible intrinsic properties. Hence, Lewis himself evidently does not think of the theories as metaphysically equivalent.[4] (Of course, this alone does not establish that they are distinct theories; here I am merely reporting Lewis's definitions and his apparent view of the matter.)

Moreover, I do not mean to suggest that Lewis's and Johnston's definitions and usages cannot be improved upon. I do think, however, that any relevant attempt at showing the endurance and perdurance terminologies to be intertranslatable should at least pay heed, and do justice, to the core ideas which Lewis and Johnston are trying to express with the help of these vocabularies, and which subsequent writers take themselves to be examining.

[4] See also his (1976/1983), in which he argues that temporal parts metaphysics handles cases of fission better than the "wholly present" alternative; see also the postscript to the article. In these earlier texts he did not use the term "perdure" however. Lewis's solution to the problem of temporary intrinsics is generalized to handle extrinsic change in his (1988).

What about Johnston? In his influential 1987 article "Is there a Problem about Persistence?" Johnston notices that Lewis's terminology is taken from his own dissertation (1987: 112-3).[5] Johnston does not reproduce his original statement of the intuitive contrast, but instead chooses to quote Lewis's formulation of it, observing that Lewis "states the issue with the usual exemplary clarity" (ibid.: 111), so he seems to be more satisfied with Lewis's account than he is with his own, original one. More importantly, Johnston, too, appears to take the contrast to have metaphysical import (but like Lewis, he uses "persist" in a neutral sense). For example, he raises objections to the perdurance view (117-23), and he defends the endurance theory against Lewis's criticism of it by advancing an adverbial account of reports of intrinsic change (127-9). I take it, then, that for Johnston, as for Lewis, the endurance/perdurance distinction is a substantive one.

Johnston's adverbial account of intrinsic change (1987: 128) is of special interest to us, since it has a bearing on Kristie Miller's translation scheme, as we shall see in Section 3. Briefly, in this account temporal qualifiers in reports of change are typically treated as adverbs which modify the copula of predication rather than the subject expression or the predicate (Johnston 1987: 128).[6] Thus, a report saying that object *O* is, say, straight at *t* and bent at *t´*, should on the adverbial view be parsed as *O* is-at-*t* straight and is-at-*t´* bent – or, as Johnston prefers to put it, *O* is straight in a *t*ly way and bent in *t´*ly way. The importance of this lies in the fact that it allows the adverbial theorist to resist the view that such reports express time-indexed properties, or relations, that objects bear to times (*O* is straight-at-*t* and is bent-at-*t´*), which would render the prima facie intrinsic properties extrinsic. Nor, on the adverbial account, need it be conceded that these reports refer to temporal parts, as is strongly suggested when we parse them as *O*-at-*t* is straight and *O*-at-*t´* is bent.[7] So, adverbialism allows us to interpret reports of intrinsic change as referring to enduring entities instantiating distinct intrinsic properties at distinct times.

[5] As is acknowledged by Lewis in a footnote (1986: 202, n. 4).

[6] Similar adverbial analyses are defended by Lowe (1988), Haslanger (1989) and myself (Hansson Wahlberg 2010).

[7] I say "strongly suggested" because I do not think that an expression such as "*O*-at-*t*" *has* to refer to a temporal part, if it refers. It may pick out an enduring object (see my 2007, 2010). But the usage of such a term does indeed strongly suggest to the hearer that the user *intends* to talk about a temporal part that exists at the time indicated only.

Given Lewis's and Johnston's analyses it appears that both the endurance theory and the perdurance theory can account for intrinsic change in a consistent way. This shared strength may arouse the suspicion, however, that the theories are metaphysically equivalent, saying the same thing with different terminologies. Indeed this seems to be one of the motivating thoughts in the work of Miller (2005: 94-5, 106 ff.) and McCall and Lowe (2006: 574-6). I will argue that this suspicion is incorrect, however.

Before I proceed I want to make one more preliminary comment. It is sometimes suggested that the contrast between endurance and perdurance is substantive on the grounds that perdurance theory is incompatible with presentism (roughly, the view that only what is present exists) but compatible with eternalism (roughly, the view that past, present and future times and their contents are ontologically on a par), while the reverse is the case for the endurance theory (e.g. Carter and Hestevold 1994; Merricks 1995). Elsewhere (2009b, 2009c) I have argued at length that this contrast between the persistence theories is false: *neither* theory seems to be compatible with presentism (essentially because persistence requires cross-temporal relations, cf. Lewis 1986: 204) and *both* seem to be compatible with eternalism (endurance combined with eternalism entails multi-location alright, but multi-location is not a paradoxical phenomenon, *pace* Barker and Dowe 2003; nor does multi-location entail that objects are universals, *pace* Carter and Hestevold 1994). If I am right about this, the case for a deflationist stance is fortified, admittedly. If I am wrong the deflationist position has already been refuted. Thus, by holding that both theories of persistence are compatible with – indeed, require – eternalism, I am actually stacking the deck against myself. However, in the following sections I will endeavour to show that the proposed translation schemes nevertheless cannot be sustained. If I can show that the translation schemes should be rejected under the assumption of eternalism, then I will have shown that they should be rejected *simpliciter* (that is, irrespective of what view of time one is inclined to prefer). This is because two metaphysically equivalent theories must agree about the truth value of their sentences across all possible situations. As Kristie Miller puts it:

> […] two theories *x* and *y* are metaphysically equivalent just in case:

(i) the set of worlds in which x is false is identical to the set of worlds in which y is false and

(ii) the set of worlds in which x is true is identical to set of worlds in which y is true and

(iii) in every worlds w in which x is true, the part of w in virtue of which x is true, is identical to the part of w in virtue of which y is true and

(iv) in every world w_1 in which x is false, the part of w_1 in virtue of which x is false, is identical to the part of w_1 in virtue of which y is false. (Miller 2005: 92)

Thus, if it can be shown that the translation schemes cannot be sustained assuming eternalism (i.e. in that subset of worlds), it will be redundant examining the schemes within a presentist framework too.

Consequently, I will proceed on an eternalist basis. This means that the expression "exists at time t" should be read as meaning "is present at time t", and that an object O may be quantified over at times at which O is not present. For example, a current token of "$\exists x\ \exists t(x$ = Plato & x exists at t & t = 399 B.C.)" will be taken to be true, not false – in opposition to the view of presentists.[8]

3. Miller's Translation Scheme

With the purpose of showing that endurance and perdurance talk are metaphysically equivalent, Miller (2005) starts off by defining "endures" and "perdures" in the following

[8] I take it that when eternalists and presentists discuss the truth value of such sentences, they agree that "$\exists$" expresses *unrestricted* existential quantification, or existential quantification *simpliciter*. That is, I here presume that presentists in such contexts do not read the existential quantifier as expressing what the following disjunction expresses: "either P($\exists x$) or ($\exists x$) or F($\exists x$)", where each sub-$\exists$ is read as being in present tense, "P" means "it was the case that", and "F" means "it will be the case that". There are many reasons (discussed in my 2009c: 36-8) why presentists ought not to adopt the latter reading, one being the deflection of accusations that eternalism and presentism are intertranslatable theories of time (cf. Markosian 2004).

Whether quantification over times, or talk about objects being present or located at times, commits one to a substantival, as opposed to relational, theory of time (see Earman 1989) is an interesting question (for some relevant discussion, see Mellor 1998: 34; Hawthorne and Sider 2002; Parsons 2007); however, I think this issue is orthogonal to the question of persistence deflationism. Hence, I will not be addressing it here.

way (at this stage I leave out some of her clarificatory remarks, but I will return to these later):

> (E) An object endures iff it is wholly present at each moment at which it exists, where an object is "wholly present" at a time just in case all of its parts are present at that time […].
> (P) An object *O* perdures iff it is the mereological fusion of temporal parts […]. (Miller 2005: 94, 96)

She concludes, after several pages of intricate argumentation:

> So an object *O* has all of its parts at a time t_1 in the endurantist sense, iff *O* has a temporal part present at t_1 in the perdurantist sense. Hence we can interdefine "*O* is wholly present at *t*" with "*O* has a temporal part present at *t*." [9] (Miller 1995: 101)

In what follows I want to focus on the starting point of Miller's argumentation – her definition of "endurance", and more specifically her definition of "wholly present". This is because the rest of her argument hinges on that definition (as Miller agrees, ibid.: 96), and because I think the definition should be rejected.

Miller states that an object is "wholly present" at a time just in case all its parts are present at that time. I have not found any support for this definition of "wholly present" in the work of Lewis, Johnston and others writing on endurance,[10] and the

[9] She continues: "Then it follows that '*O* is wholly present at every time it exists' translates into '*O* has a temporal part present at every time at which it exists.' Thus we translate '*O* is wholly present at every time at which it exists' to '*O* is the mereological fusion of temporal parts'. And this, of course, is definition P of perdurance" (Miller 1995:101).

[10] Lewis, for example, seems to take "wholly present" to be a primitive term – at least, he does not explicitly define it. He appears to be suggesting, though, that if you grasp the difference between a road extending in space and a universal being multiply located at a time, then you *already* have an understanding of the kind of phenomenon that the expression is meant to signify. You should then merely try to apply it to concrete objects across the time dimension. Of course, in the end he denies that this phenomenon *is* realized in such a way. Theodore Sider (2001: 64) considers definitions similar to the one advanced by Miller, but he is quick to reject them.

definition is in any case not one an endurantist committed to eternalism (i.e. the theory of time adopted in this paper and by Lewis, Johnston, and Miller herself) *ought* to accept.

To begin with, an endurantist committed to eternalism will want to say that an enduring object is *multiply located* in time (see my 2009b; Gilmour 2013), since past and future times are just as real as the present moment, given eternalism. An object which is multiply located in time, and which changes its parts over time, will have (tenseless "have") parts that might fail to be present at all of the times at which the object is present. At one time the object *O* may be composed of proper spatial parts *A*, *B* and *C*, and at another time *O* may be composed of proper spatial parts *A*, *B*, and *D*. So if, at some arbitrary time, we quantify unrestrictedly over *all* of *O*'s parts, it will not necessarily be the case that all of *O*'s parts are *present* at the time in question (*C* or *D* might be absent).[11] To obtain the result that all of the object's parts are present the quantification must be *restricted* to the present moment (i.e. to the time of the quantification).

And in fact this is precisely how Miller's definition of "wholly present" is to be understood: the quantification over the object's parts is restricted to the present moment. In a clarifying clause appended to the definition Miller writes: "…and where '*P* is part of *O*' is true at any time *t* iff at *t*, *P* is part_{mb} of *O* *t*ly" (ibid.: 94). Here Miller adopts Johnston's adverbialism and applies it to the having of parts.[12] Parts which are had in a *t*ly manner (for any time *t*) are called *metaphysically basic* parts, or "parts_{mb}" for short. Assuming eternalism an enduring object will have many parts_{mb} in non-present manner, Miller agrees. But, granting her definition of "is part of", it turns out that parts_{mb} which are had in a non-present manner do not really count as *parts* – at least, not *ordinary* parts. For "*P* is part of *O*" to be true, "*P*" must refer to a part_{mb} which is had in a *present*

[11] Thus, taken in this unqualified manner, Miller's definition of "endurance" delivers an unacceptable result for endurantists: by definition, enduring objects turn out to be incapable of changing their parts over time. All of the object's parts must be present at *t* (and, I take it, be had by the object at the time in question) in order for the object to be wholly present at *t*. But all endurantists except mereological essentialists hold that objects can endure through change of their parts (and mereological essentialists do not deny this on simple definitional grounds). Thus, if the definitions of "endures" and "wholly present" are read along these unqualified lines (i.e. with unrestricted quantification over parts), the definitions will be rejected out of hand by endurantists (cf. Sider 2001: 64).

[12] As far as I can see, the first time clause following the bi-conditional is redundant. I will ignore it in the following discussion. Moreover, notice that since presentists tend to hold that, fundamentally, objects have their properties and parts *simpliciter*, i.e. not relative to times (cf. Merricks 1994, 1999), adverbialism (understood as a fundamental account) arguably presupposes eternalism, the view of time adopted in this paper.

manner. That is, the time modifying the having of the $part_{mb}$ must be the same time as the time of the utterance of "*P* is part of *O*". Thus, only present $parts_{mb}$ are counted as "parts" on Miller's scheme of things. The result is that, in the definition of "wholly present", we are to quantify over, not $parts_{mb}$ in general, but only *parts*, i.e. $parts_{mb}$ that are had in a present manner.

In short, Miller's definition of "wholly present" is all but tautologous: an object is "wholly present" at a time just in case all of its parts – i.e. all the $parts_{mb}$ which are had in a present manner – are present. Miller's notion of a part *requires* parts to be present, so how could the parts fail to be present?

The definition is, therefore, quite empty when read in the manner suggested. A perduring object will also turn out to be "wholly present" at every time at which it exists. As I argue in detail in my (2010), a perduring object, *taken as a four-dimensional whole*, can also be described as having intrinsic properties and spatial parts in a *t*ly manner. (Thus, it is a mistake to think that the adverbialist solution to the problem of temporary intrinsics is confined to endurantists only.) As a consequence, a spatially changing perduring object will have $parts_{mb}$ in Miller's technical terminology. The $parts_{mb}$ it has in a present manner will be its *parts*, in Miller's strict jargon, and they will *all be present*. It follows that the perduring object will be wholly present at every time at which it exists; hence it will endure through time. (Of course, this is precisely what Miller is after, although she does not argue for the conclusion in this direct way. I have run the thinking through a short cut in order to bring out that fact that Miller's definition of "wholly present" is quite empty and intolerable by non-deflationist lights.)

Consequently, I think that non-deflationist endurantists and perdurantists should reject Miller's definition of "wholly present" (because of the restricted notion of part which it involves) and therefore her definition of "endures". But why does Miller impose this restrictive definition of "part" in the context of the endurance theory? Does she have an independent reason for doing so, apart from deriving the metaphysical equivalence of endurance and perdurance talk?

Presumably the implicit idea is that in ordinary, day-to-day utterances of the form "*P* is part of *O*" the copula is in the present tense. (That the copula should be understood as present-tensed is indicated by Miller's insistence that different propositions are

expressed when the sentence is uttered on different occasions by an endurantist of the common sense variety; see Miller 2005: 94-5.) However, there is no reason why an endurantist committed to *eternalism* should not take the copula in "*P* is part of *O*" to be *tenseless* (as was initially done above), i.e. as roughly equivalent to the disjunction "was, is or will be", at least when *he* uses it, for example, in a philosophical context.[13] Again, the eternalist believes that times other than the present one are real, and he may want to speak of what is the case in general, across the time dimension, from an "impartial view from nowhen" as it were (cf. Price 1996: 4). For him, that would be the natural way to speak. Such an unrestricted utterance of "*P* is a part of *O*" will, in Miller's terminology, be true if *P* is part_{mb} in a *t*ly manner for *some t*, not just for the present *t*. On this semantics, then, *all* of *O*'s parts_{mb} – non-presently had or presently had – turn out to be its parts. The distinction between parts and parts_{mb} collapses: the extensions of the expressions "part" and "part_{mb}" are the same.[14] Consequently, the eternalist endurantist can reasonably choose to use only the word "part", letting tenses and/or time clauses indicate whether he is talking about present ones or not.

I suggest, then, that Miller's distinction between parts and parts_{mb} should be rejected by endurantist eternalists – for reasons independent of trying to avoid the equivalence threat. But even if the distinction were accepted, I would still maintain that Miller's definition of "wholly present" (and so "endures") should be discarded, for the reasons given above: it is tautologous in nature and out of line with philosophical usage of the term. And, in my view, because Miller's argument for the metaphysical equivalence of the endurance and the perdurance theory is based on a flawed definition of

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[13] Miller allows that *perdurantists* may understand "*P* is part of *O*" in a timeless or tenseless way (Miller 2005: 95). But no reason is given for denying endurantist eternalists such a reading of the copula in technical contexts. Moreover, notice that a perdurantist must also allow that when "*P* is part of *O*" is uttered by the man on the street the copula is to be taken as present-tensed. There is, accordingly, no difference between endurantists and perdurantists in this regard, i.e. in relation to interpreting *ordinary language utterances.* Likewise, both endurantists and perdurantists can take the copula to be tenseless in *technical contexts* – there is no difference between endurantists and perdurantists in this regard either.

The observant reader may have noted that I hold that the tenseless *copula* in certain contexts may be read as being equivalent to a disjunction of tensed copulas, although I maintain that the tenseless, unrestricted existential *quantifier* should not be understood analogously as consisting of a disjunction of present-tensed quantifiers with various tense-operators attached to them (cf. note 8). This is a perfectly consistent position, however. I explain in detail why I endorse it in my (2009c and 2010).

[14] Indeed, Miller introduces the term "part_{mb}" with the help of the expression "part" (Miller 2005: 95), roughly in the way I did above. So she seems to presuppose that even an endurantist can understand "part" in an *extended* way, i.e. as denoting non-present parts/parts_{mb}.

"wholly present", it is redundant to assess the rest of her complex argument; we can move on to the other proposed translation schemes.

4. McCall and Lowe's Translation Scheme

Already in his (1994: 206-17) Storrs McCall had stated that the endurance/perdurance terminologies are intertranslatable; he did not, however, substantiate this claim by presenting an explicit translation scheme. The provision of such a scheme is the task of his and E. J. Lowe's joint paper "The 3D/4D Controversy: A Storm in a Teacup" (2006).[15]

McCall and Lowe begin their paper by expressing a degree of dissatisfaction with David Lewis's definitions of the terms "persist" and "endure". While conceding that the definition of perdurance is "perfectly clear", they suggest the definition of endurance is defective since it involves the notion of being "wholly present". They complain: "'Wholly present' normally excludes 'partially present', but since it is totally unclear what *this* means, the word 'wholly' adds nothing but confusion" (ibid.: 571).[16] Instead, McCall and Lowe suggest that the relevant terms should be redefined as follows:

> A more rational approach is to drop "persist" as a neutral term and say that to perdure is to have temporal parts. 3D objects, not being extended in time, have no

[15] They declare: "We argue that the 3D and the 4D descriptions of the world are equivalent in the sense of being intertranslatable without remainder, and take the position that there is no 'fact of the matter' as to whether we live in a 3D or 4D world. Instead, one can freely choose whether to describe it in 3D or 4D terms. Either way, it's the same world." (ibid.: 570) The title of their paper and this quotation may suggest that they are about to discuss an equivalence thesis with respect to time, since the presentism/eternalism distinction is sometimes presented in 3D/4D terms; but the rest of the paper makes it clear that they are concerned with the *persistence* of individual objects. However, they do defend an equivalence thesis with respect to time in their (2003). Again, my position is that presentism and eternalism are distinct theories of time, for reasons explained in my (2009c).

[16] However, when one looks carefully at the way McCall and Lowe themselves characterize Lewis's "perfectly clear" notion of perdurance, one sees that they deploy the notion that an object is *partly present* (or "partly existent", which I take to be equivalent) at different locations. Borrowing Lewis's analogy of a road extending in space, they write: "The road from Montreal to Ottawa exists partly in Quebec and partly in Ontario, and similarly the Eiffel Tower, considered as a 4D object, exists partly in the 19th, partly in the 20th, and partly in the 21st century" (ibid.). Given their rejection of the notion of being partially or partly present above, this portrayal of perdurance should be deemed no clearer than Lewis's definition of "endurance". On the other hand, if they, after all, find "partly present" an acceptable notion, why not simply define "wholly present" as the negation of partly present (adding as a requirement that the relevant object exists at the time in question)? Also, notice that Lewis actually defines perdurance in terms of the notion of being wholly present – perdurance can, however, be defined without that concept (see e.g. Sider 2001: Ch. 3.2).

> temporal parts and consequently cannot perdure. For such an object to endure, we shall say, is simply for it to *exist at more than one time*. […] We may also speak of such an object as persisting, but for clarity it would be best to avoid describing a 4D object as persisting. […] These definitions are simple yet precise, and rest on no dubious ideas of something being "wholly present". (ibid.: 571-2)

Thus, McCall and Lowe define both "endure" and "persist" solely in terms of a 3D object existing at more than one time, and "perdure" in terms of temporal parts. Unlike Kristie Miller, however, McCall and Lowe do not in my view present a translation scheme that hinges on their, to some extent, idiosyncratic definitions. For convenience, I will continue to use "persist" in the standard, neutral sense (so I do not have to write "perdures or endures" all the time) and occasionally I will also make use of "wholly present", where McCall and Lowe would prefer some other locution; nothing of importance will turn on this.[17]

Now, on to the proposed translation scheme. McCall and Lowe introduce their discussion in endurantist terminology. They point out that an enduring, macroscopic, physical entity, such as a cat, may lose and/or gain (enduring) particles over time while retaining its identity. At one time the enduring object may be constituted by one set of particles; at another time it may be constituted by another set. They then argue:

> The reader will have noticed that there is a close similarity between the set of 3D particles which constitute an enduring object *O* at a time *t*, and the instantaneous 4D temporal part of *O* at *t*. This fact provides for a simple translation scheme between the 4D temporal parts ontology and the 3D particle ontology. Let *T*(*O*, *t*) be the instantaneous 4D temporal part of *O* at *t*, and let <*O*, *t*> be the

[17] Hofweber and Velleman (2011) have recently argued that the notion of an object being "wholly present" at a time can be defined in terms of the identity of the object being intrinsic to that time (endurance is then defined in the ordinary way). This is a promising line of thought, I think (but see Giberman, forthcoming, for criticism). However, I reject their claim that enduring objects nevertheless are extended in time and have temporal parts. Their argument for the latter conclusion seems to me to suffer from the same kind of defects as Barker and Dowe's (2003) argument against multi-location (see my 2009c). Moreover, such statements seem to me to confuse the issue and to encourage the view that endurantism and perdurantism are metaphysically equivalent doctrines, although Hofweber and Velleman deny that they are. In my view, Lewisian primitivism about the concept of being wholly present remains a live option. Primitivism does not preclude that the notion can be elucidated in various ways (cf. note 10).

> instantaneous 3D sum of the particles which constitute *O* at *t*. In 4D ontology, *O* is the mereological fusion of all its temporal parts *T*(*O*, *t*), one for each moment at which *O* exists. In 3D ontology, *O* is the set of particles which successively constitute it at each moment *O* exists, a set which "changes", i.e. is replaced by a new set, each time *O* gains a new particle or loses an old one. To translate from the 4D to the 3D description of *O*, reduce *O* to its temporal parts, and replace each temporal part *T*(*O*, *t*) by the momentary sum <*O*, *t*> of particles which constitute *O* at *t*. The collection of all such momentary sums <*O*, *t*>, for every time at which *O* exists, yields the set of sets of 3D particles which successively constitute *O*. Conversely, to translate from the 3D to the 4D description of *O*, first reduce *O* to the momentary sums of particles which constitute it, then replace each <*O*, *t*> by the corresponding temporal part *T*(*O*, *t*), then reconstruct *O* as the fusion of its temporal parts. (ibid.: 573-4)

McCall and Lowe appear to be claiming here that when an object *O* persists through time, from *t* to *t´*, and occupies place *p* at *t* and place *p´* at *t´* (where *p* may be identical with *p´*), there will be an instantaneous entity *E* located at *p* at *t* (and likewise there will be an instantaneous entity *E´* located at *p´* at *t´*). This instantaneous entity *E* can be described in endurantist language as a sum of particles which constitutes *O* at *t* (denoted by "<*O*, *t*>"), or, using a perdurantist language, as a temporal part of *O* located at *t* (denoted by "*T*(*O*, *t*)").[18] In either case, we are talking about the same entity, *E*. Since both "<*O*, *t*>" and "*T*(*O*, *t*)" in fact refer to *E* we have <*O*, *t*> = *T*(*O*, *t*) = *E*. Endurantists and perdurantists are simply using different linguistic resources to talk about one and the same entity, *E*. This (alleged) fact is the basis for the suggested translation scheme.

The fatal flaw in McCall's and Lowe's approach is the assumption that an instantaneous entity (*E*, *E´*, ...) will be present at *each* of the various places a persisting object is located.[19] This will indeed be the case if perdurantism is the correct theory of persistence, but it will in general *not* be the case if endurantism is correct. Consider, what

[18] Notice that when *E* is described as a temporal part, McCall and Lowe say that the entity is 4D. This is an oddity, given that *E* is an instantaneous entity.

[19] A similar idea is also invoked by Miller (2005: 98, 103). Her proposal involving instantaneous "synchronic fusions" suffers from the same kind difficulty as the one discussed in the text.

does "<*O*, *t*>" denote, given endurantism? In endurantist terminology McCall and Lowe variously describe the supposed referent here as the *sum*, and sometimes as the *set*, of particles that constitute *O* at *t*. I will here assume that what they are after is the *mereological sum* of particles that constitute *O* at *t*, since a set is an abstract, atemporal entity, unable to constitute a concrete entity in time. But why should the mereological sum of particles that constitute *O* at *t* be an *instantaneous* entity, as McCall and Lowe assume? Supposing that we are concerned with an enduring entity *O* none of whose particles change between *t* and *t´*, then, given endurantism, <*O*, *t*> = <*O*, *t´*>. That is, *O* will be constituted by the same sum of particles at both times; the sum of particles will have endured from *t* to *t´*. A perdurantist, on the other hand, will insist, using his preferred terminology, that *T*(*O*, *t*) ≠ *T*(*O*, *t´*). He will agree that the temporal part that exists at *t* is not a persisting entity but an instantaneous one. But if this is correct, it cannot be that <*O*, *t*> = *T*(*O*, *t*), because the transitivity of identity fails in this situation: we have <*O*, *t*> = <*O*, *t´*> (assuming endurantism), but *T*(*O*, *t*) ≠ <*O*, *t´*> (assuming perdurantism).

Thus, in cases where, according to the endurantist, the constitution base remains the same over time the translation scheme cannot be sustained. The endurantist will insist that <*O*, *t*> = <*O*, *t´*> and the perdurantist will insist *T*(*O*, *t*) ≠ *T*(*O*, *t´*).[20] These claims cannot both be true if, as McCall and Lowe suggest, the expressions "<*O*, *t*>" and "*T*(*O*, *t*)", and "<*O*, *t´*>" and "*T*(*O*, *t´*)", respectively, are co-referential.[21]

[20] Will all perdurantists insist that *T*(*O*, *t*) ≠ *T*(*O*, *t´*)? Well, at least those who accept Lewis´s assertion that "something *perdures* iff it persists by having different temporal parts, or stages, at different times, though *no one part of it is wholly present at more than one time*" (Lewis 1986: 202, my emphasis; see also Lewis 1988; Hawley 2001: 48-50; Sider 2001: 59-60). Suppose, however, that some perdurantists think that the temporal parts of a perduring object can *endure* for some time, for example because the object does not lose or gain any particles during the relevant intervals. Then, obviously, McCall and Lowe's translation scheme is inapplicable to those intervals, since it relies on there being a changing constitution base generating "proper temporal parts". Consequently, the unorthodox claim that the relevant temporal parts endure for some time cannot be translated into a sentence saying that they perdure over those intervals. And then the equivalence thesis must be given up. Thus, I have charitably assumed that perdurantists agree with Lewis's contention (and that it applies across possible worlds even, see Miller's characterization of metaphysical equivalence in Sect. 2). My point in the text is that the translation scheme is doomed even under this proviso.

[21] Suppose that presentism is true and that that the present moment *t´´* is such that our unrestricted quantifiers fail to range over McCall and Lowe's times *t* and *t´* and object *O*. (In terms of eternalism, let, for example, *t´´* be later than *t* and *t´*, and later than the latest time at which *O* is present.) Then, arguably, "*t*", "*t´*", "*O*", "*E*", "*E´*", "*T*(*O*, *t*)", "*T*(*O*, *t´*)", "<*O*, *t*>" and "<*O*, *t´*>" are empty names, and the sentences "*T*(*O*, *t*) ≠ *T*(*O*, *t´*)" , "<*O*, *t*> = <*O*, *t´*>", "<*O*, *t*> = *T*(*O*, *t*)" and "<*O*, *t´*> = *T*(*O*, *t´*)" lack truth value. Thus,

Moreover, a typical endurantist will want to reject the idea that an enduring object can be *reduced* "to the momentary sums of particles which constitute it", if reducing here means identifying. Constitution is not identity, as Lowe himself has repeatedly argued (Lowe 1998: Ch. 9; 2009: Ch. 6; see also Wiggins 1968; Johnston 1992). Thus a typical endurantist will empathetically reject the idea that "*O is* the set [sum] of particles which successively constitute it at each moment *O* exists" (my emphasis) if the copula is understood as expressing identity. In any case, such an idea seems plainly contradictory, since we are explicitly concerned with successive, i.e. numerically distinct, sums, if the object changes. If McCall and Lowe are saying that the object is identical rather with a sum of successive sums, then they are in effect saying that the object has temporal parts – which is precisely what endurantists explicitly deny.[22] Instead endurantists of the standard variety hold that objects may be successively *constituted* by distinct sums.

On the other hand, if reduction is explained in terms of constitution, it becomes a *further fact* that there is an object constituted by these successive sums at the times in question – the object is something over and above each sum. But then it becomes implausible to hold that endurance/perdurance theories are metaphysically equivalent. The theories disagree about how many entities there are at each time. The perdurantist will deny that there is an object (wholly, or non-partly, present) over and above the sum/temporal part at the time in question. The standard endurantist will affirm that there is an object (wholly, or non-partly, present) over and above the sum at the time in question. The proposed translation scheme brushes over this crucial difference between endurantists and perdurantists.[23]

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it appears that we have to presume eternalism in order to make sense of, and be able to evaluate, McCall and Lowe's translation scheme (cf. Section 2).

[22] An exception, though, is Hofweber and Velleman (2011); see note 17.

[23] Admittedly, if "*x* is wholly, or non-partly, present at *t*" could be credibly translated as "*x* has a temporal part located at *t*", then the perdurantists and endurantists should agree (even if they in fact do not) about the number of objects "wholly, or non-partly, present" at *t*. But the crucial question is whether the sentences can be translated in this way. We have rejected Miller's motivation for such a translation, roughly because it makes use of an artefactual distinction between parts and parts_{mb}. McCall and Lowe hold that endurance/perdurance terminologies are intertranslatable because they think there is an instantaneous sum of particles co-located with every "enduring" macroscopic object at every time. But, given the truth of endurantism, the latter is false, I have argued. So, perdurantists and endurantists ought to reject the proposed translation schemes and persist in disagreeing about the number of objects wholly, or non-partly, present at times – with a good conscience.

Finally, but importantly, the translation scheme McCall and Lowe propose does not work for the particles themselves, taken as spatial mereological simples – assuming here that there is a fundamental level of decomposition (cf. Lowe 1987: 153-4). In such particles there is no change in any constituents or spatial parts over time at all, and so the apparatus McCall and Lowe deploy, of a changing constitution base, is not applicable to such cases. Endurantists will say that particle *P* is wholly present at the times it exists at, and perdurantists will say that it is only partly present at those times. (In McCall-Lowe terminology, endurantists will say that *P* is 3D and exists at various times, and perdurantists that *P* is 4D and has temporal parts at these times.) McCall and Lowe provide no translation scheme which reconciles these prima facie incompatible claims about the particles.

Since McCall and Lowe do not provide a translation scheme for the micro-level, and since their translation scheme for the macro-level is flawed, I conclude that they have failed to establish the metaphysical equivalence of the perdurance and endurance theories.

Let me wind up this section by describing, very briefly, what I take to be the bearing of an earlier paper by Lowe (2005) on the equivalence issue. In that paper, which dealt primarily with problems of vague endurance, Lowe defended the equivalence thesis without relying on instantaneous sums. He also accepted that constitution is not identity. He stated: "the translation scheme between the two accounts involves the following *equivalence principle*: <*S*, *t*> is the [proper] temporal part of O_p at *t* if and only if O_e is constituted by *S* at *t*" (Lowe 2005: 110).[24] Here *S* is a (persisting) sum of particles, <*S*, *t*> is an ordered pair (of *S* and time *t*) representing an instantaneous temporal part, while "O_p" and "O_e" are to be read as "*O* conceived as a perduring object" and "*O* conceived as an enduring object", respectively. The fundamental ontology of the paper is 3D, and Lowe regards temporal parts as "an ontological 'free lunch'" with a "flimsy" nature (ibid.). There is, in my view, no need to respond to this paper in detail here. The 2006 article co-authored by Lowe and McCall offers a canonical statement of the equivalence thesis. It is obviously the later of the two publications, and it also addresses the

[24] Miller (2005: 101) suggests that the endurantist's "*x* and *y* are related by constitution at *t*" should be translated by perdurantists as "*x* and *y* share a temporal part present at *t*". However, she does not say how the *asymmetrical* "*x* is constituted by *y*" should be translated by perdurantists.

equivalence thesis in a completely general manner rather than from the standpoint of a specific issue. However, in passing I do wish to point out a problem with the equivalence principle as stated above. A perdurantist will insist (using Lowe's 2005 symbolism) that $<O, t> = <S, t>$.[25] Hence s/he could say "$<O, t>$ is the proper temporal part of O_p at t". But the typical endurantist will deny that constitution is reflexive; that is, s/he will deny that O_e is constituted by itself at t. Again, consider the case of the piece of clay C which is subsequently (at t) formed into a statue O. A perdurantist will insist that $<O, t>$ ($= <C, t>$) is the proper temporal part of C_p at t (e.g. Lewis 1986: 253; Sider 2001: 152-3). But endurantists will deny that C_e is constituted by O at t. Endurantists hold quite the opposite: O_e is constituted by C_e at t (e.g. Lowe 1998: 198-9).

5. Hirsch's Translation Scheme

Eli Hirsch argues in his (2009) for the following simple translation scheme (for an early formulation of the idea, see Hirsch (1982: 188-92)). Endurantists should translate a typical perdurantist sentence of the form "*O* has at time *t* a temporal part that is *F*" as "*O* is *F* at time *t*" (where *F* is a term that applies to an object at a time in virtue of the way the object is at that time).[26] Hirsch maintains that this example, perhaps supplemented with a few others, will suffice for "any reasonably intelligent" speaker of ordinary English to translate sentences uttered by perdurantist into ordinary English (2009: 245). According to Hirsch, ordinary English, in eschewing temporal parts, is committed to endurantism, and to mark this Hirsch calls it "E-English" (ibid.: 240). Perdurantists should be taken by endurantists to be speaking "P-English", a language which, although it makes use of terms such as "temporal parts", has the kind of truth conditions indicated above in E-English (233-4, 240). Perdurantists, for their part, should interpret the endurantist refusal to acknowledge the existence of temporal parts in E-English as a

[25] Remember, Lowe holds that such ordered pairs *represent* temporal parts; he denies that they are identical with them (Lowe 2005: 109). Thus, the perdurantist statement should be understood as being about identical temporal parts represented by distinct ordered pairs.

[26] Again, it seems to me that such sentences make little sense if presentism is true, at least if "*t*" stands for a non-present time.

disinclination stemming from their use of restricted quantifiers[27] ranging over objects but not temporal parts of objects (234).[28]

By translating in this way, Hirsh maintains, each party will agree that the other party speaks the truth: "endurantists will agree that perdurantists speak the truth in P-English, and perdurantists will agree that endurantists speak the truth in E-English" (ibid.: 240).

Now, why should endurantists and perdurantists accept the proposed translation schemes? Hirsch answers:

> Central to what I take to be the correct view of linguistic interpretation is an appeal to "use", but it must be understood that the only way to understand that appeal is in terms of what has been called the "principle of charity". […] Central to linguistic interpretation is the presumption that the correct interpretation is the one that makes people's use of language as reasonable as possible. […] Now, let's imagine a community of people who "talk like perdurantists" […] charity to use requires us to interpret them as speaking P-English, in which these sentences are true. An analogous point evidently holds for those who "talk like endurantists". Their language, as indicated by charity to use, is E-English. (ibid.)

Suppose we go along with the invocation of the principle of charity. The question then is: do the proposed translation schemes really render the linguistic decisions of the people involved as reasonable as possible? The answer will depend, of course, on what "reasonable" means – on what kind of reasonableness the principle of charity enjoins and promotes.

[27] Notice that the claim is merely that the quantifiers should be taken to be *restricted*. Hirsch is not invoking his thesis of quantifier *variance* here (cf. Hirsch 2002: 64). For some discussion, see Balcerak Jackson (2013). For a general but critical discussion of the thesis of quantifier variance, see Sider (2009).

[28] It seems to me, however, that the notion that endurantists' quantifiers do not range over temporal parts does not suffice to explain to the perdurantist why endurantists say that persisting objects are 3D rather than 4D (cf. Effingham 2012). The perdurantist's objects are 4D and endurantists are allowed to quantify over *them*, on Hirsch's translation scheme. If one rejects temporal parts just because one is using restricted quantifiers (in contrast with thinking that there are no temporal parts to quantify over unrestrictedly) then there is no reason to hold that objects are 3D.

The principle of charity is sometimes taken, as Donald Davidson puts it, to demand the following: "prefer theories of interpretation that minimize disagreement" (Davidson 2001: xix). On this reading, interpreters should, as far as possible, take others to be speaking the *truth* – or more specifically what *the interpreter* takes to be the truth. What the interpreted speaker says then becomes reasonable by the interpreter's *own* lights. However, as Davidson goes on to point out: "But minimizing disagreement, or maximizing agreement, is a confused ideal. The aim of interpretation is not agreement but understanding" (ibid.).

For my part, I want to *understand* what perdurantists and endurantists are really trying to say.[29] And from what I know of the debate (having taken part in it: see e.g. my 2007; 2009a; 2009b; 2009c; 2010; 2011) I think it is quite unreasonable, if the aim is to acquire understanding, to interpret perdurantists as speaking P-English and endurantists as speaking E-English.[30] The participants themselves are clearly not out to maximize agreement. They are metaphysicians who, first and foremost, are trying to figure out what the world is fundamentally like (in a speculative manner, to be sure). They take themselves to *disagree* with one another on the issue of the nature of persistence. Why else would they be debating at conferences, and publishing articles that ostensibly criticize others' positions? All this would be quite irrational if the metaphysicians were really agreeing with one another. So, if we take the debaters to be *rational* and *intelligent* beings, I think the most reasonable thing to conclude is that they do *in fact* disagree with one another. Thus, I would take the verdict of the principle of charity to be that Hirsch's translation schemes must be false. By invoking the schemes we do not gain an accurate *understanding* of what the debate is about, because those schemes render the linguistic behaviour of the people involved quite unreasonable. (Perhaps I should also draw attention to the obvious fact that many philosophers participating in the persistence debate have not taken sides: they are merely analyzing the issues, as in this paper. Hirsch characterizes the discussion as if it were taking place between people that are either self-

[29] I should perhaps make it clear that I am running with the Davidsonian remark here in order to meet Hirsch's point. Actually, I do not feel comfortable with Davidson's theory of interpretation and his semantics. For one thing, along with Quine, Davidson defends the thesis that reference is "inscrutable" (see his 2001: Ch. 16). I reject that thesis, for reasons similar to those expressed in Searle (1987). I take it that there often is a fact of the matter regarding what the interpreted person really means and refers to. There may, of course, be an epistemological difficulty discovering what these semantic facts are.

[30] At any rate, if the latter means that the quantifiers are restricted: more about this later (see p. 21).

professed endurantists or self-professed perdurantists; he then goes on to suggest how *they* should interpret each other so as to make the other side as reasonable as possible. This is obviously a simplified characterization of the debate.)

I would add that certain practical, non-linguistic behaviours and attitudes that those involved in this debate might well display become hard to explain if the participants are taken to hold the same view (apart from their writing papers and sending them off to journals). For example, a committed perdurantist who, unlike Parfit (1971), thinks that identity is what matters in survival may be less concerned about his future than a committed endurantist with the same view of survival (*pace* Lewis 1976/1983); this is because the perdurantist takes his thinking to be conducted, fundamentally, by short-lived temporal parts with no future of their own (cf. Zimmerman 2003: 502-3; Stone 2007).[31] Again, committed endurantists and perdurantists might very well disagree whether it is morally right to punish a person for crimes he or she committed in the past. A perdurantist may think it is morally wrong, since fundamentally it involves punishing a temporal part for what *another* temporal part did at an earlier time; the endurantist will have no such qualms (cf. Mellor 1981: 106). For similar reasons endurantists and perdurantists may clash over abortion and even murder.[32]

Differing attitudes and behaviours such as these are extremely hard to explain if perdurantists and endurantists actually hold the same view. The situation is in this respect analogous to the case, discussed by Hirsch, of Jews and Christians translating each other's utterances so as to make them true. In that case Hirsch concludes that even if they could invent such translation schemes they should be rejected as absurd. His reason is this: "Why exactly is it absurd? The most obvious answer, perhaps, is that Jews and Christians don't just differ over what sentences they assert, but also over their *non-*

[31] The perdurantist holds that, fundamentally, it is his temporal parts that do the thinking for him. Temporal parts have only momentary existence, so they have no future of their own to be concerned about (assuming here that it is identity that matters). Hence, if a perduring person owes his thoughts over time to those of his temporal parts, and the temporal parts realize that they have only a fleeting existence, he may very well turn out to be little concerned about his future (as a direct result of his temporal parts not caring about his future.) This contrasts with the situation of an enduring person who does his thinking at various times non-derivatively.

[32] There will be further pressure in this direction if the perdurantist thinks, with van Inwagen (1990) and Heller (1990), that perduring objects could not have persisted for a longer/shorter period of time than they actually do (see also my 2009a). For more on the connection between persistence and ethics, see Shoemaker (2008).

linguistic behavior and attitudes associated with these sentences" (Hirsch 2009: 238, n. 11; my emphasis). Reasoning by parity, we should conclude that the translation schemes proposed for endurantists and perdurantists are absurd. Again, I would say that the verdict of the principle of charity is that perdurantists and endurantists hold different views about persistence.

In fact, I think we misconstrue the debate if we take endurantists and perdurantists to be talking different languages. Reading the literature, one simply cannot escape the conclusion that both camps use a common language. This shared language is essentially an enlargement of English, sometimes supplemented by formal apparatus. To be sure, it contains esoteric expressions such as "temporal part" and "perdure", together with some old words, such as "endure", that are used in a technical (often tenseless) sense. But both sides use these technical words. (Again, many authors do not even take sides.) And both appear to be using them in ways originally taught by Lewis and Johnston.[33] Both camps also seem to use *unrestricted* quantifiers. Otherwise the endurantists' rejection of temporal parts would be trivial – and they do not take themselves to be saying trivialities, but to hold a substantial metaphysical thesis: objects do not have temporal parts; there are no temporal parts to quantify over (unrestrictedly). Even if it is not always explicitly said by endurantists that the quantifiers are to be read as unrestricted, that can very easily be done, so as to avoid Hirsch's allegation.

So it seems to me that when Lewis introduced terms such as "perdure" and "endure" he did not create different languages he then switched between. Rather he enlarged English by introducing an extra vocabulary, and then he went on to argue that some statements in this vocabulary (those affirming that objects perdure) are true, and some (those saying that objects endure) are false. Others, the endurantists, disagree about the truth values of those statements, and they have pressed into service arguments for their view, as Lewis did for his. This argumentation has been conducted in the same language.[34]

[33] Exception for those (e.g. Parsons 2007) who think that objects can be temporally extended without having proper temporal parts.

[34] I readily admit that the philosophers engaged in this debate sometimes adopt different primitives. But I deny that such decisions necessarily result in different languages.

Actually, it seems to me that Hirsch himself incoherently presupposes that people like Lewis do *not* speak (or, at any rate, think in) P-English. The reason is this. As we have noted, Hirsch maintains that a perdurantist should take endurantists to be using *restricted* quantifiers: the endurantists' quantifiers do not range over temporal parts, according to the perdurantist. The idea, then, is that, according to the perdurantist, the endurantists' quantifiers fail to range over genuinely existent entities. (This explains the sense in which they are restricted.) But what are the entities that the perdurantist takes the endurantist's quantifiers to exclude? Perdurantists speak P-English according to Hirsh, and when P-English is translated to E-English it turns out that perdurantists *deny* the reality of temporal parts. So in E-English – i.e. ordinary English, and by his own account the language used by Hirsh himself – what is it that perdurantists maintain the endurantists' quantifiers miss out? *Given the proposed translation scheme, there can be nothing they miss, since perdurantists deny the reality of temporal parts in E-English.* Nevertheless Hirsch holds (in E-English) that perdurantists should regard the endurantists' quantifiers as restricted. Why? It can only be because Hirsch tacitly presupposes that *in fact* perdurantists do *not* speak (or at least think in) P-English. What perdurantists really believe and are trying to state cannot be translated in the manner suggested, because they are committed to the reality of temporal parts, not enduring objects. This commitment is hidden by the proposed translation scheme, which depicts them as being, in effect, non-standard endurantists who are merely using a weird and misleading terminology, i.e. who are speaking P-English.

I conclude that Hirsh translation scheme should be rejected, along with Miller's, and McCall and Lowe's.

6. Final Remarks

Let me conclude by posing a question to deflationists. No one, not even the deflationists themselves, it seems, would be tempted to say that a theory which says of a road that its left lane is identical with its right line is metaphysically equivalent to a theory which says they are distinct. The temptation is apparently there in the temporal case. Why this difference? Why should the question of identity not be a substantive one just because it is posed for entities along the time dimension? What is it about time that makes the

question empty, or illusory, in the temporal case? Surprisingly, the deflationists have not addressed this important question, although they apparently are committed to such a dualism. (Certainly they will *deny* that the left and right lanes are numerically the same lane, multiply located in space). I find the dual position strange. Endurantists and perdurantists can surely agree on the reference of two singular expressions "*A*" and "*B*", even if the referent of "*A*" is located at some time *t* and the referent of "*B*" at some distinct time *t´*.[35] (The contrast, obviously, is with the case where the referents are located in distinct spatial positions.) They can also, presumably, agree on a univocal meaning of "=", letting it express absolute numerical identity, and on a univocal the meaning of "≠", letting it express the denial of that identity. No reason has been provided for thinking that the endurantist's utterance of "*A* = *B*" makes the same statement as the perdurantist's utterance of "*A* ≠ *B*" *just because* they are concerned with a diachronic scenario rather than a synchronic one. Prima facie the cases are parallel. And the failure of the proposed translation schemes, displayed above, indicates that indeed they are.

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[35] A concrete example would be "*O*-at-*t*" and "*O*-at-*t´*".

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