Perdurantism, Universalism, and Quantifiers

Achille C. Varzi
Department of Philosophy, Columbia University, New York

(Final version published in *Australasian Journal of Philosophy* 81:2 (2003), 208–215.)

Abstract. I argue that the conjunction of perdurantism (the view that objects are temporally extended) and universalism (the thesis that any old class of things has a mereological fusion) gives rise to undesired complications when combined with certain plausible assumptions concerning the semantics of tensed statements.

1. Introduction

Perdurantism is the view that objects are temporally extended. An object, on this view, has spatial as well as temporal parts, or stages, and to say of an object that it persists through time is to say that it has different parts that exist at different times.[1] Typically (though not necessarily) this view goes hand in hand with the principles of classical extensional mereology. In particular, perdurantism is usually associated with universalism, i.e., with the thesis that any old class of things has a mereological fusion—something composed of just those things.[2] This combination of perdurantism and universalism may strike some as absurd, for it yields all sorts of unheard-of gerrymandered things lacking any spatial or temporal cohesion. Others, however, find the combination appealing, among other reasons because perdurantism provides a straightforward solution to the puzzles of diachronic identity (for example) while universalism allows one to stay away from the sands of ontological indeterminacy (queerness comes in degrees, but existence doesn't). In fact, perdurantism *cum* universalism is the ideal recipe for a deflationist Quinean ontology. There is an object for each region of space-time—says the theory—never mind whether we are accustomed or willing to speak or think about it.[3]

I like this view, but there are complications. In the following I argue that one complication arises as soon as the view is combined with certain plausible assumptions concerning the semantics of tensed statements—specifically the semantics of statements involving quantifiers and other variable binders. The

complications are not irresolvable. But the solution—I am afraid—fails to meet the standards of Quinean straightforwardness that characterizes other aspects of the perdurantism-*cum*-universalism theory (henceforth: the PU-theory).

2. Perdurantist Semantics

Here are the plausible assumptions I have in mind concerning the semantics of tensed statements. First, on the PU-theory names and predicates are interpreted as usual, i.e., as objects and relations defined on a fixed universe of discourse. In particular, assuming for simplicity that the world we live in has three spatial dimensions, an ordinary name such as 'Pavarotti' will designate a four-dimensional worm and an ordinary predicate such as 'tenor' will pick out a class of such worms, or parts thereof (including lower-dimensional parts if these are admitted at all—e.g., instantaneous parts that do not literally *extend* over time or boundary parts that do not literally extend over all three spatial dimensions.[4]) If the copula is understood tenslessly, therefore, an atomic statement such as

(1) Pavarotti is a tenor

will presumably be false. For it would be true if and only if the referent of the name 'Pavarotti' were in the extension of the predicate 'tenor', which presumably is not the case. (Not *all* of Pavarotti is a tenor; only his later stages are.) This is not implausible, however, because in addition to this first general semantic assumption the PU-theory also relies on an important assumption about tensed statements. In fact, one advantage of the PU-theory is precisely that it can deal with such statements in a plausible and straightforward way, without any need to "go modal" or to relativize properties and relations to times.[5] This second assumption is that a tensed statement of the form

(2) *x* was/is/will be *P*.

is to be analyzed as:

(3) There is a past/present/future time *t* such that *x* is *P* at *t*.[6]

And for a perdurantist this amounts to the following:

(4) There is a past/present/future time *t* such that the *t*-part of *x* (exists and)[7] is *P*.

Once this second assumption is taken into account, a statement such as (1) can indeed be recognized as true, for it is true on a tensed reading of the copula:

(5) There is a present time *t* such that the *t*-part of Pavarotti is a tenor,

i.e., effectively:

(6) The present stage of Pavarotti is a tenor.

Likewise, tensed statements such as

(7) Pavarotti was a child
(8) Pavarotti was a turnip

will be true and false, respectively; for there exists some past temporal stage of Pavarotti that is (tenslessly) a child but there exists no such stage that is a turnip.

What about non-atomic statements? Truth-functional compounds pose no problems; but what about tensed statements involving quantifiers? Here is where a third plausible semantic assumption can be made. A statement of the form:

(9) Someone was/is/will be *P*

is the existential generalization of (2):

(10) For some *x*: *x* was/is/will be *P*.

Hence on the PU-theory such a statement is naturally analyzed as the generalization of (4):

(11) For some *x*: there is a past/present/future time *t* such that *x* is *P* at *t*,

i.e., effectively:

(12) For some *x*: there is a past/present/future time *t* such that the *t*-part of *x* is *P*.

Thus, for instance, the truth conditions of a tensed statement such as

(13) Someone was/is/will be a tenor

are given by

(14) For some *x*: there is a past/present/future time *t* such that the *t*-part of *x* is a tenor.

In the past and present tenses, this statement is clearly true, for instance owing to Pavarotti's past and present temporal parts. And in the future tense the statement might still be true, owing either to Pavarotti's future parts or to those of some other individual. The case of the universal quantifier is similar.

3. The Many Tenors

Now enter universalism. A universalist draws no ontological distinction between acceptable and unacceptable mereological fusions: some fusions may seem uniform and homogeneous while others may seem awfully odd and gerrymandered, but for a universalist such differences are not relevant when it comes to existence. Any fusion of a class of things is itself an existing thing. Thus, in particular, a perdurantist universalist draws no ontological distinction between homogeneous, temporally continuous wholes and scattered fusions of arbitrarily selected temporal parts. If the parts exist, they constitute a whole, for the whole is nothing over and above the parts. ("They just are it; it just is them."[8]) When combined with the above semantics, however, this yields troubles.

Consider the statements

(15) Some tenor was a child.
(16) Some tenor was a turnip.

Intuitively we take (15) to be true and (16) false, as with (7) and (8). Yet inspection shows that both statements are true on the PU-theory. For both have the form:

(17) Some *P* was *Q*

which gets analyzed as:

(18) For some *x*: the present part of *x* is *P* and there is a past time *t* such that the *t*-part of *x* is *Q*.

And if universalism indeed holds, statements of this form are true whenever the extension of '*P*' includes some present stages and the extension of '*Q*' in-

cludes some past stages, i.e., things whose temporal extent lies entirely in the past of the time of utterance. It does not matter how disparate such stages are. If there is at least one present stage x_1 that falls into the extension of '*P*' and at least one past stage x_2 that falls into the extension of '*Q*', then the mereological fusion of x_1 and x_2 is sure to be an *x* that satisfies both conjuncts in (18):

(19) The present part of *x* is *P*.
(20) There is a past time *t* such that the *t*-part of *x* is *Q*.

Hence such a fusion is a *P* that was *Q*. In particular, since there are in fact present stages falling into the extension of 'tenor' (Pavarotti's is a case in point) and there are past stages falling into the extension of 'child' as well as past stages falling into the extension of 'turnip', universalism implies the existence of a tenor that was a child as well as the existence of a tenor that was a turnip.

This outcome is, of course, unpalatable. Pavarotti has never been a turnip. Domingo has never been a turnip. None of the tenors we can think of has ever been a turnip, so in a way every reasonable substitution instance of (16) is false. Yet (16) is true. It is true by virtue of things that have no place in our ordinary picture of the world and for which we have no names, but which the PU-theory countenances nonetheless—tenor-turnips. And a theory that makes (16) true under such circumstances—it could be objected—is hardly acceptable. (Notice that there is no immediate spatial analogue of this problem. The mereological fusion of the present stage of Pavarotti and the present stage of your favorite turnip exists and you may call it a tenor-turnip, if you will.[9] But *it* is neither a tenor nor a turnip. For such predicates can truly be predicated of a temporal part only if they apply to the corresponding spatial whole; they can be predicated of a certain temporal stage only if they apply to it in its entirety.[10])

The outcome is especially unpalatable insofar as it metastasizes rapidly. If existential statements that are intuitively false come out true because of some unheard-of tenor-turnip, then universal statements that are intuitively true will come out false—as with

(21) Every tenor was a child.

In fact, every variable binder is going to behave wildly. For instance, because all existentials of the form (17) are true as long as there are present *P*s and past *Q*s, it is clear that definite descriptions are going to violate the relevant unique-

ness conditions even when they intuitively satisfy them. So, suppose that Pavarotti was once transformed, for a short period of time, into a tomato. Then we might want to refer to him by the description 'The tenor who was a tomato' or 'the tenor-tomato'. Yet these descriptions would certainly be inadequate, as Pavarotti would only be one tenor-tomato among very many others (defined along the lines illustrated above).[11]

4. Ways Out

There are, as far as I can see, two main ways out available to the PU-theorist. The first way out exploits a revisionist strategy. The predicate 'tenor' in (16), it might be said, is operating in more than just a predicative role. Being a tenor requires more than simply having a temporal tenor part (just as it implies more than simply having a spatial tenor part—consider again the mereological fusion of Pavarotti and your favorite turnip). So the logical form of a statement such as (16)—it might be said—is not (17) but rather something along the lines of

(22) Some person that is *P* was *Q*.

This would force the satisfier of (19) and (20) to be an *x* that falls into the extension of 'person', and plausibly there is no such *x* when *P* is 'tenor' and *Q* is 'turnip'. More generally, every statement that *prima facie* has the form (17) would have to be re-interpreted as involving sortal restrictions of some sort:

(23) Some *R* that is *P* was *Q*.

Likewise for the other quantificational phrases. If this is properly done, then the existence of tenor-turnips becomes irrelevant. Such entities exist—the PU-theorist can say—but they are not the ones we are talking about when we make statements such as (16) and the like.

The second way out invokes pragmatic ambiguity. The PU-theorist can say that the conflict of intuitions caused by statements such as (15) and (16) hinges on an underlying conflict between a restricted and an unrestricted interpretation of the quantifiers. When speaking with the quantifiers wide open we must admit that there is beer; but we might want to restrict our quantifiers and say that there is no beer, meaning that there is no beer in the refrigerator. Likewise, when speaking with the quantifiers wide open the PU-theorist recognizes the existence of all sorts of unheard-of things, including trout-turkeys and

tenor-turnips. These may not be any sort of entities that we are willing to pick out by means of a name, a demonstrative, or a definite description. They may not even be entities about which we are willing to say anything at all. But if the PU-theory holds then such entities exist. Hence the strict truth of (16) must be recognized along with that of (15). On the other hand, this need not be a problem because the PU-theorist is happy to acknowledge our natural inclination to quantify subject to restrictions. She is happy to acknowledge that we may want to talk about some things while ignoring others—that we might want to talk only about ordinary, much-heard-of things such as Pavarotti while ignoring queer, unheard-of things such as tenor-turnips. In this sense, the PU-theorist will recognize the falsity of (16) against the truth of (15). But this opposition is eminently pragmatic. Context supplies the relevant clues and context supplies the relevant criteria for distinguishing between things to be considered and things to be ignored—hence between quantificational statements to be taken at face value and statements to be taken restrictedly. Ontologically, however, (15) and (16) are on a par.

5. Warm Beer

Are these options good? The first way out would be good if it could be properly carried out. Yet a proper implementation of this strategy presupposes a full semantic network to be available which specifies, for each predicate *P*, the sortal *R* that operates the necessary selection of candidates. This may be readily available in some cases, as when *P* is the predicate 'tenor'. But it seems unwarranted to assume that there is a sortal available for *every* predicate. And why should a PU-theorist build such presumptions into the analysis of natural language statements? Why should one make logical form depend on lexical semantics or meaning postulates? Besides, there seems to be a difficulty in identifying a ground level of analysis here. For doesn't our problem crop up with the sortal predicates themselves? Consider:

(24) Some person was a turnip.

On the face of it, (24) would seem to be true for the same reasons as (16). So we would have to analyze (24) along the same lines:

(25) Some person that is a person was a turnip.

And this seems to give rise to an obvious regress problem. (Perhaps *this* difficulty could be avoided if 'person' were construed as a maximal concept, so that no person could have persons—let alone turnips—as proper temporal parts.[12] But note that this assumption would have to be made for *every* sortal predicate *R* involved in the analysis displayed in (23). And it would call for further, controversial semantic details—for instance to explain the truth conditions of statements of the form '*x* is *R* at *t*' when *x* is temporally extended, *R* expresses a maximal concept, and *t* is an instant or a period of time properly included in the temporal extent of *x*.)

The second way out is safer. We can definitely say that our conflict of intuitions in cases such as these hinges on an underlying conflict between restricted and unrestricted interpretations of the quantifiers. But this is not quite a comfortable position, either. For it makes the semantics of quantified statements depend heavily on local context and unprincipled intuitions. We are used to appealing to context when it comes to the semantics of predicates and singular terms involving vagueness, ambiguity, multiplicity of reference. We may even appeal to it when it comes to some quantificational phrases, as when we ask for some beer. But it is odd that the logical business of variable binding should *always* require a similar treatment, and as a matter of necessity.

It might be thought that perhaps one could combine the two strategies by putting the burden of the restriction on the predicates rather than on the quantifiers. One might insist that, for certain *P* and *Q*, nothing satisfying a formula such as (19) can also satisfy (20)—for instance, nothing that was once a turnip can now be a tenor, for only temporal parts *of persons* can be tenors. However, for a PU-theorist such an option is not available—even assuming the complication mentioned *ad* (24) to be solved. For the perdurantist wants to say that temporal parts allow us to stick to ordinary predication. This was the gist of the semantics outlined in Section 2. If a thing *x* has a property *P* at a time *t* it is because it has a certain temporal part—its *t*-part—that has *P simpliciter*. Pavarotti is a tenor now but was not a tenor when he was a child. So there must be a proper temporal part of Pavarotti that is a tenor *simpliciter*, just as there must be a proper temporal part that is a child *simpliciter*. And if we have got such parts, universalism allows us to combine them with anything else, whether or not the outcome is a person. For a PU-theorist there is no way to implement the intuition that only temporal parts *of persons* can be tenors, since whatever is a temporal part of a person is *ipso facto* a temporal part of a congeries of unheard-of

things which overlap that person—including some whose temporal parts include turnips.[13]

The only option for the PU-theorist, then, is to put the burden of the restriction on the quantifiers, and to construe it as a context-dependent pragmatic phenomenon. Normally—the PU-theory must say—when we assert that no tenor has ever been a turnip we are not speaking with our quantifiers wide open. Really there have been and there are such tenors. But they are not the tenors that would first come to mind. They are not the ones we call by name. They are tenors that we normally tend to ignore—like the warm beer that nobody cares about.[14]

Notes

[1] The term 'perdurantism' is from Lewis [4, p. 202]. Other defenders of the view include Quine [8], Heller [1], Jubien [3], Hudson [2], and Sider [10]. The contrary ("received") view, according to which objects persist by existing wholly and completely at each of several times, is termed 'endurantism'.

[2] See e.g. Lewis [4, pp. 211f], Heller [1, pp. 49f], Hudson [2, pp. 105ff], Sider [10, pp. 121ff]. The term 'universalism' is from Van Inwagen [13, p. 74]. Lewis speaks of 'unrestricted composition' and Heller of the 'fusion principle'; other authors still prefer 'conjunctivism' [12] or 'general sum principle' [11].

[3] See e.g. [9, p. 171].

[4] I shall not consider issues relating to such options here. Similarly, below I shall speak of "times" generically, covering both instants and extended periods.

[5] See [7] for a recent articulation of this point.

[6] By 'a present time' I mean any interval of time that overlaps the time of utterance, including the present instant if instants are admitted at all.

[7] Henceforth, I shall drop this qualification as I shall assume definite descriptions such as 'the *t*-part of ...' to be analyzed in Russellian fashion.

[8] Strictly speaking this is a further assumption to the effect that mereology is extensional. But the idea that the fusion is nothing "over and above" the parts is one of the guiding motivations for universalism (see [14]).

[9] This is the sense in which Lewis [5, p. 80] speaks of trout-turkeys.

[10] And the problem seems to arise only with respect to such predicates (as opposed to predicates such as 'stained' or 'scratched', which can be true of a whole object even if they apply only to some of its parts). For the same reason, the problem exemplified by (16) does not arise on the endurantist view, even in the presence of universalism. Construed as a (discontinuous) enduring entity, the mereological fusion of a 19th century turnip and a 20th century tenor is neither a turnip nor a tenor.

[11] More generally, the problem concerns the semantics of numerical statements, such as 'There are *n* tenors' or 'At most *n* tenors are Italian'.

[12] See e.g. [2, p. 117].

[13] A related complication, familiar from Quine [8, pp. 622f], is that the PU-theorist has no obvious way of accounting for how it is that different speakers ever manage to be thinking of (or to refer to) the same four-dimensional worm when many suitable candidates are available. This complication, however, may be construed as an instance the more general problem of semantic (or pragmatic) indeterminacy, for which a supervaluational semantics suggests itself (as in [1] or [6]).

[14] Thanks to Andrea Borghini, Hud Hudson, Matthew Slater, and the referees for the *Australasian Journal of Philosophy* for helpful discussion and comments on earlier drafts.

References

[1] Heller, M., The *Ontology of Physical Objects: Four Dimensional Hunks of Matter* (Cambridge: Cambridge University Press, 1990).

[2] Hudson, H., *A Materialist Metaphysics of the Human Person* (Ithaca: Cornell University Press, 2001).

[3] Jubien, M., *Ontology, Modality, and the Fallacy of Reference* (Cambridge: Cambridge University Press, 1993).

[4] Lewis, D. K., *On the Plurality of Worlds* (Oxford: Blackwell, 1986).

[5] Lewis, D. K., *Parts of Classes* (Oxford: Blackwell, 1991).

[6] Lewis, D. K., 'Many, but Almost One', in J. Bacon, K. Campbell, and L. Reinhardt, eds., *Ontology, Causality, and Mind: Essays in Honor of D. M. Armstrong* (Cambridge, Cambridge University Press, 1993), pp. 23–38.

[7] Lewis, D. K., 'Tensing the Copula', *Mind* 111 (2002), 1–13.

[8] Quine, W. V. O., 'Identity, Ostension, and Hypostasis', *Journal of Philosophy* 47 (1950), 621–633.

[9] Quine, W. V. O., *Word and Object* (Cambridge, MA: MIT Press, 1960).

[10] Sider, T., *Four-Dimensionalism. An Ontology of Persistence and Time* (New York: Oxford University Press, 2001).

[11] Simons, P., *Parts. A Study in Ontology* (Oxford: Clarendon Press, 1987).

[12] Van Cleve, J., 'Mereological Essentialism, Mereological Conjunctivism, and Identity Through Time', *Midwest Studies in Philosophy* 11 (1986), 141–156.

[13] Van Inwagen, P., *Material Beings* (Ithaca: Cornell University Press, 1990).

[14] Varzi, A. C., 'Mereological Commitments', *Dialectica* 54 (2000), 283–305.