

Comments on Varzi

Fabrice CORREIA[†]

According to Varzi, three-dimensionalists have an advantage over their four-dimensionalist rivals, in that the formers' view fits with common sense while the latter's view does not – or at least in that the three-dimensionalist view departs less from common sense than the rival four-dimensionalist view. Yet, Varzi claims, Sider's 'argument from vagueness' in favor of four-dimensionalism seriously challenges this advantage. For, he argues, each serious answer to Sider's argument involves accepting a view which departs from common sense, and whether this view departs less from common sense than four-dimensionalism does remains to be settled.

According to Varzi, one such answer a three-dimensionalist has at his disposal is to accept *universalism*. And the problem with this move, he argues, is that the combination of three-dimensionalism and universalism commits one either to contingent identity or to a certain kind of massive co-location, and that both commitments strongly depart from common sense – such departures being by no means *obviously* weaker than the one involved by the four-dimensionalist's view. In this commentary, I will focus on this latter point.

Three-dimensionalism is a thesis about a certain class of concrete objects. There may be disagreement among three-dimensionalists on which class of objects their thesis applies to. Some may take it that the class includes living organism while others may hold that it does not, for instance. So there are various versions of three-dimensionalism, differing on what class of concrete objects the thesis applies to. For the sake of definiteness, we shall work with one version of three-dimensionalism and take it to be the one which applies to a certain class of objects (which may contain people and bananas, say), and we shall assume that some members of this class persist through time, i.e. exist for more than one time instant. From now on, I will call the members of this class simply 'objects'.

Varzi makes two crucial claims about the three-dimensionalist view. The first is that according to the view, no object has proper temporal parts. The second claim is that the view denies that objects have a temporal dimension. This suggests two characterizations of three-dimensionalism: on the first, three-dimensionalism is the view that no object (in particular no persisting object) has proper temporal

[†] Programa Ramon y Cajal, Universitat Rovira i Virgili, Tarragona (Spain), and LOGOS group, University of Barcelona, Barcelona (Spain). E-mail: fabrice.correia@urv.net

parts, and on the second, it is the view that no object (in particular no persisting object) has a temporal dimension. Call the first view '3D1' and the second '3D2'. To these two characterizations of three-dimensionalism correspond two ways of defining four-dimensionalism: on the first, four-dimensionalism is the view that all persisting objects have proper temporal parts, and on the second it is the view that all objects (persisting or not) have a temporal dimension. Call the first view '4D1' and the second '4D2'.

I will first argue that under the first characterization, and at any rate if Varzi's first claim is true, three-dimensionalism is not compatible with universalism, so that going universalist in order to escape Sider's argument is not even an option for the three-dimensionalist. I will then argue that three-dimensionalism as characterized in the second way is compatible with universalism, that its combination with universalism does not run into the difficulties Varzi describes, and finally that it is a view which is closer to common sense than its four-dimensionalist rival.

I.

As I have just stressed, Varzi assumes that three-dimensionalism is committed to the view that no object has proper temporal parts. He also claims that three-dimensionalism is compatible with universalism, i.e. the view that:

Given a class of time instants I and a function f assigning a non-empty class of objects $f(t)$ to each t in I , there is an object that exists exactly at the times in I and that at each such time t is composed exactly by the objects in $f(t)$.

I claim that under a certain conception of temporal parthood,

(T) If three-dimensionalism is committed to the view that no object has proper temporal parts, then three-dimensionalism is not compatible with universalism.

The conception of temporal parthood I have in mind is Sider's (see Sider 2001, 59; my formulation is slightly different from his, but this has no bearing on the discussion). On that conception:

(tp) An object x is an instantaneous temporal part of an object y at time t iff
(i) x exists only at time t , and (ii) x coincides at t with y ,

where:

(coi) An object coincides with another at a time iff whatever overlaps one at that time overlaps the other at that time.

On that conception, an instantaneous temporal part of a given object is a proper temporal part of it iff the latter object exists at more than one time instant, i.e. iff it persists.

So on that conception of temporal parthood, I claim, (T) holds. And this is because on that conception, if universalism is true, then everything has an instantaneous temporal part at each time of its existence. This last point has actually been argued for by Sider himself (see Sider 2001, 138).

Here is the argument. Assume universalism, let a be a (persisting) banana and t any time at which it exists. Let then f be the function defined on $\{t\}$ which assigns the singleton $\{a\}$ to t . Then by universalism, there is an instantaneous object, b , which exists just at t and is composed exactly by a at t . Composition may be characterized as follows:

(com) An object x is composed by the members of some class of objects at time t iff whatever overlaps x at t overlaps some member of the class at t , and *vice versa* whatever overlaps some member of the class at t overlaps x at t .

So our object b coincides with a at t . By (tp), b is an instantaneous temporal part of a at t . Since a persists, it follows that a has proper temporal parts.

The previous argument presupposes a certain definition of temporal parthood and of composition. But similar arguments could be provided on the basis of alternative definitions as well.

2.

So (T) is true and thus 3D1 is not compatible with universalism. What about 3D2?

3D2 says that objects fail to have a temporal dimension. What is it to have a temporal dimension? On one understanding of ‘to have a spatial dimension’, to say that a thing has a spatial dimension is to say that the thing is a spatial thing, that it occupies or is spread out in space; and such a thing may be (spatially) three-dimensional (e.g. ball-like), two-dimensional (e.g. sphere-like), one-dimensional (e.g. line-like) or zero-dimensional (e.g. point-like). The view I am pointing to understands ‘to have a temporal dimension’ in a similar way: to say that a thing has a temporal dimension is to say that the thing is a temporal thing, that it occupies or is spread out in time; and such a thing may be (temporally) one-dimensional (e.g. occupying a continuous time interval) or zero-dimensional (e.g. instantaneous). From now on let us understand the expression that way, and let us say that a thing is temporally extended iff it persists has a temporal dimension.

As we saw, if universalism is true, then persisting objects have proper temporal parts. So the combination of 3D2 and universalism has it that some objects persist, are not temporally extended, and have such parts. Is that possible? The idea that things lacking temporal dimension may have temporal parts might look weird to some people. But I think it is not so weird. It is an ordinary, pre-theoretical view, it seems to me, to consider a butterfly and the caterpillar it came from to be distinct things, one existing after the other, and at the same time to

consider that they make up a single organism.¹ On the ordinary view, this organism is not temporally extended, no more than the caterpillar or the butterfly: the three entities are just 3D objects lacking temporal dimension, unlike, say, football matches or wars. And still on the ordinary view, both the caterpillar and the butterfly have a life strictly shorter than the life of the organism, and at each time at which any one of them exists, it coincides with the organism. So if I am right, on the ordinary view both the caterpillar and the butterfly are proper temporal parts of the organism. Whether or not I am right about common sense on that point, anyway, I will assume that the combination of 3D2 and universalism (3D2-universalism, for short) is viable.²

Is it then true that 3D2-universalism runs into the difficulties described by Varzi? I do not think so. Varzi makes his point by means of the example of two assignments f and g defined at times t_1 and t_2 , such that $f(t_1) = g(t_1) =$ the class of his body cells which exist at t_1 , and $f(t_2) =$ the class of his body cells which exist at t_2 , and $g(t_2) =$ the class of Ted's body cells which exist at t_2 (we assume these cells to be objects). By universalism, there exists an object a which at t_1 is composed by Varzi's body cells at t_1 and at t_2 is composed by Varzi's body cells at t_2 , and there exists an object b which at t_1 is composed by Varzi's body cells at t_1 and at t_2 is composed by Ted's body cells at t_2 .

Varzi claims that there is nothing special about this situation on the four-dimensionalist view: on that view, he says, we have two 4D worms which share a temporal part at t_1 , just like the two branches of a Y-shaped thing share a spatial part. But on the three-dimensionalist view, he claims, no such story can be told, because on that view a and b have no temporal parts.

It is true that a 3D2-universalist would deny that a or b are 4D worms, because she denies that they are temporally extended, so that she cannot accept the four-dimensionalist story Varzi describes in all details. But she can still say that a and b are distinct objects which share a temporal part at t_1 but have non-overlapping temporal parts at t_2 . And if there is nothing special about the situation as described by Varzi's four-dimensionalist, there should also be nothing special about the case as described by the 3D2-universalist – or so it seems to me.

3.

Let me close this commentary with the issue of proximity with common sense. We have two positions to compare: 3D2-universalism and 4D2-universalism (4D1-universalism is equivalent to universalism).

¹ The example was suggested to me by Jonathan Barnes.

² I defend the view that there may be things having proper temporal parts but no temporal extension in Correia forthcoming.

The two positions agree with each other on the *mereological structure* of objects: both take e.g. bananas to be composed of infinitely many banana-slices. On that point, they disagree with common sense to the same degree.

But 3D2-universalism and 4D2-universalism do not reduce to claims about mereological structure. Both are the combination of a claim about the mereological structure of objects and a claim about which *ontological category* they belong to: 4D2-universalism takes them to have a temporal dimension while 3D2-universalism denies it. This is a big difference, and on this point the 3D2 view is, I think, clearly on the side of common sense.

So 3D2-universalism and its 4D rival are two versions of universalism which disagree on one point, and on my view the 3D version, but not its 4D counterpart, agrees with common sense on that point. That is why I take the 3D view to be closer to common sense than 4D2-universalism.

REFERENCES

- CORREIA, F. forthcoming, 'Deux manières de perdurer', *Proceedings of the SOPHA 2003 colloquium*.
SIDER, T. 2001, *Four-Dimensionalism: An Ontology of Persistence and Time*, New York: Oxford University Press.