Lecture 4
Persistence

1. Introduction

Recall from the first lecture that McTaggart argued there can be no time without change. On the basis of this, he argued the B-series cannot be all there is to time, since there can be no change on the B-series. But is it really the case that the possibility of change is contingent on a particular metaphysical account of time? There are some accounts of change that are consistent with the B-Theory (for instance, perdurance views). If these are successful, then it may be that, by McTaggart's own lights (i.e. by the lights of the position that change is necessary for time) the B-theory is a viable theory of time.

Now, this lecture is going to focus on the question of *persistence*: how is it that objects in time can survive change? How is this related to the previous question? Well, many argue that competing views of persistence entail distinct theories of the metaphysics of time. In this lecture, we'll examine different accounts of persistence through change, and in doing so will examine whether it is indeed the case that different theories of persistence entail different theories of time.

2. The Puzzle

Let's begin by setting up the problem. What is it about persistence through change that calls for philosophical explanation? Intuitively, when an object changes, it loses a property it once had and gains a distinct property, but is the same object throughout. It survives the change. So, for instance, my coffee goes cold, the substance—the coffee—loses the property of being hot, and gains the property of being cold, but it is the still the same coffee. Hence, we seem to accept the following (I'll follow Haslanger (2003: 317) in the label for this and subsequent assumptions):

Persistence condition: Objects persist through change.

It also seems to be the case that, when something changes, it gains a property inconsistent with the one it lost. My coffee, for instance, couldn't be both hot and cold at the same time. Similarly, a building couldn't be different heights at the same time. Hence, we accept both of the following as well:

Incompatibility condition: The properties involved in change are incompatible.

Law of non-contradiction: Nothing can have incompatible properties.

Haslanger argues that these do not yet generate a contradiction. In order to get a contradiction, further assumptions have to be made explicit. One such assumption concerns our idea of **persistence**. We commonly think that when something persists through a change that the object post-change is **identical** with the object pre-change. We don't, for instance, think it's the case that once cooled, the coffee in my mug is numerically distinct from the coffee that was there before. And what's more, we think that the thing that *is* numerically identical through the change is the **subject** of that change. *It* is the thing that changes. Hence we assume both of the following:

> **Identity condition**: If an object persists through a change, then the object existing before the change is one and the same object as the one existing after the change.
>
> **Proper subject condition**: The object undergoing the change is itself the proper subject of the properties involved in the change.

Together with the earlier three assumptions, these work to entail a contradiction. The argument about my coffee (to continue with that example) would go like this:

P1. The coffee can persist through the change from hot to cold. (Persistence condition)
P2. The coffee at t_1 is identical to the coffee at t_2. (Identity condition)
P3. The properties involved in the change are hotness and coldness; and these properties are incompatible. (Incompatibility condition)
P4. The coffee possesses (is the proper subject of) hotness and coldness. (Proper subject condition)
P5. The coffee cannot possess incompatible properties. (Law of non-contradiction)
C1. Therefore, the coffee cannot possess hotness and possess coldness. (From P3 and P5)
C2. CONTRADICTION. (From P4 and C1)

3. Some Candidate Solutions

There are three main proposed solutions to the problem of persistence:

(a) **Endurantism**
(b) **Perdurantism**
(c) **Stage Theory**

Endurantism

On the endurantist view of persistence through change, *objects exist wholly at each moment of their life*. In other words, objects are **three-dimensional** (hence these theories are sometimes called *three-dimensionalist*). There are different versions of endurantism:

Time-Indexed Properties

On this view, the contradiction is avoided by rejecting P4 of the argument from above. That is, this view rejects the **Incompatibility condition**. Proponents of this view argue that, in the case of my coffee, the properties involved in the change are *not* hotness and coldness simpliciter. Instead they are *hotness-at-t_1* and *coldness-at-t_2*. And these properties are not incompatible.

In general, the strategy is to deny that change involves the gaining and losing of incompatible properties. Instead we gain time-indexed properties (or alternatively, as van Inwagen (1990) suggests, we bear a time-indexed relation to a non-indexed property).

One objection to this view is that it renders ostensibly intrinsic properties *extrinsic*. (This is known as the **Problem of Temporary Intrinsics**.) No longer is the temperature of my coffee an intrinsic property of my coffee; it is a property my coffee possesses by standing in a relation to a particular time and some temperature property.

A second objection applies specifically to the version of time-indexing where it is the *relation* that is time-indexed. This view is that it is vulnerable to Bradley's Regress. If my coffee *is-at-t_1* hot, there seem to be two relata—the object and the property—that stand in the *is-at-t_1* relation. But in virtue of what do they stand in that relation? If a further relation is needed to explain this, then infinitely many relations will be needed. But if no further relation is needed to explain this, it is ad hoc to say that the *is-at-t_1* is necessary for an object's bearing a property, but no further relation is necessary for that object's bearing other relational properties like *is-at-t_1*.

Adverbialism

One way to avoid Bradley's Regress is to deny that there is a *relation* involved in some object's bearing a particular property at a time. Instead, on this account, there are *adverbial modifiers* that do the work of making the possession of the relevant properties compatible. An adverbialist would say that my coffee is *at-t_1-ly* hot, and *at-t_2-ly* cold. You can understand this by analogy with the modifiers 'possibly' and 'actually'.

One objection you may have to this view is that the adverbial modifiers are unanalysed. What does it mean for an object to have a property in a particular (temporal) way? Merely stating that the adverbial modifiers are not relational does not make it so. If it is not relational, then the adverbialist owes an explanation for what it is for my coffee to be hot *at-t_1-ly*. And it is not an option for them to say that it is to be hot at t_1, since this amounts to the relational view.

Perdurantism

On the perdurantist view, objects only partially exist at a given moment. They are instead extended along the fourth dimension as well. Hence this position is sometimes referred to as **four-demensionalism**. One way to understand the contrast between this view and endurantism is as follows: where the endurantist 'temporalised' the properties involved in change, the perdurantist temporalises the *object* involved in the relevant change (from Benovsky (2011)).

On perdurantism, the objects we see are, in fact, only parts of those objects; they are *time-slices* of the whole four-dimensional entity—the latter are sometimes called '*spacetime worms*'. As such, the perdurantist rejects assumption that the possessor—or *proper subject*—of the properties involved in change is the entire object. That is, they reject the **Proper subject condition**. Thus, my coffee doesn't possess the properties hotness and coldness; its temporal parts do. The coffee-at-t_1 part has the property of being hot, and the coffee-at-t_2 has the property of being cold. On this view, when I use the phrase 'the coffee' I am referring to the entire four-dimensional worm; and when I say 'the coffee was hot, but is now cold' what I am in fact saying (when I'm interpreted as speaking truly) is that the coffee has a past temporal part that was hot, and a present temporal part this is cold.

One advantage of this approach is that it preserves the intrinsicality of intuitively intrinsic properties. The temporal parts of my coffee have the property of hotness or coldness *only* in virtue of the internal properties of that part of the coffee. However, opponents object that this result is secured at the expense of the possibility of change altogether. Objects never lose their properties—instead, different temporal parts of the object bear their properties forever. That is, with respect to any time t_n, the t_1 part of my coffee has the property hotness.

Stage Theory

This theory is sometimes called **exdurantism**. On this view, objects change in virtue of having non-identical 'temporal counterparts' that bear distinct properties. These are often referred to as object-stages. Sometimes this view is categorised as a kind of perdurantist view and sometimes not. They both involve four-dimensionalism of a

sort. However, the stage theorist argues that when we refer to objects, we are referring to some temporal stage, rather than to a spacetime worm. On the stage theorist's view, objects are **not** spacetime worms. Instead, each of the objects we see is a temporal stage that is related to distinct stages by a counterpart relation. Thus, when I refer to my coffee I am only referring to the coffee-at-t_1 stage, and that stage *does not* stand in a parthood relation to any further whole (the way that temporal parts do). And it is in virtue of standing in a counterpart relation to the distinct coffee-at-t_2 stage (which is cold) that it is true to say of the coffee-at-t_2 stage that it *was* hot.

4. Implications for the Metaphysics of Time

We said earlier that some take each of these views of persistence to entail particular theories of the metaphysics of time. Consider the analogy with the modal case. There, two prominent theories of the semantics of de re modal claims (Transworld Identity and Counterpart Theory) are commonly taken to entail abstract modal realism and concrete modal realism respectively. However, it turned out that the two pairs of theories cut across one another. In the case of persistence and time, the same is true. While, at first blush, it may seem as though endurantism entails the A-Theory and perdurantism and stage theory entail the B-Theory, in fact these theories also cut across one another.

A-Theory – Presentism

Recall that *presentism* is the view that there is a distinguished, moving now, and that distinguished, moving now is the *only* thing that exists. Neither events in the past nor the future exist.

Presentist Endurantism

It is clear how a presentist could consistently be an endurantist. The endurantist takes it that objects are wholly present at each moment, and the presentist argues that only the present moment exists. They therefore also avoid the contradiction arising from the argument earlier since the coffee in the present does not have the property of being hot, and so there are no inconsistent properties possessed by that coffee.

Presentist Perdurantism

Anyone committed to this combination of views would have to be committed to the possibility of objects having non-existent parts. Since the perdurantist thinks that objects have temporal parts, but the presentist thinks that only the present exists, the past and future parts of objects must be non-existent, and yet still parts of the relevant spacetime worm. Haslanger argues that there is no contradiction is this. She argues that it true to say things like 'my great-great-great-grandfather is a part of my family'; but if this is true, then it must

be that someone who does not exist is a part of a whole, some of which *does* exist. Haslanger argues that a presentist has to be able to account for the truth of claims like this. And if they can, then they also have the resources to account for the claim that objects have non-existence parts.

Presentist Stage Theory

On this combination of views, the presentist can avoid the peculiar commitment to non-existent (temporal) parts of objects, since temporal counterparts (on stage theory) do not stand in a parthood relation to a four-dimensional whole. This kind of presentist would have to be committed to claim that temporal stages can stand in counterpart relations to non-existent stages; but this seems far less problematic than the analogous claim about parthood relations.

A-Theory – Growing Block Theory

The growing-block theorist disagrees with the presentist to the extent that they think the past exists in addition to the present. However they agree with the presentist that future events do not exist. On this view, there is privileged moving now that makes up the 'front face' of the four-dimensional block of events.

Growing-Block Endurantism

On this combination of views, proponents are committed to the claim that objects exist wholly at each moment in time, and also to the claim that some of those moments exist eternally. This entails that objects are multiply located in time. If all of t_1-t_n exist, and an object endures from t_1-t_n, then that object wholly exists at *each of* t_1-t_n. Some have argued that this is incoherent. However, others have argued (Benovsky 2011) that this results from an overreliance on the spatial analogy for extension in time. Another worry is that, even if it is possible to be multiply located in time, this would still be vulnerable to the problem of change. However, an appeal to adverbialism or time-indexed properties (i.e. a rejection of the Incompatibility condition) would resolve this.

Growing-Block Perdurantism

It is clearer how the growing block theory would be consistent with perdurantism. The former takes the past and present to exist, and the latter takes objects to have temporal parts. The growing-block theorist would still be committed to there being non-existent *future* parts of objects, however. Though they could explain this in the same way that the presentist perdurantist could.

Growing-Block Stage Theory

On this combination of views, some temporal stages would exist (namely past and present ones) and others (future ones) would not. As long as it's the case that both existent and non-existent stages can stand in counterpart relations—something to which the presentist was also committed—then this is a viable position. And there is nothing about the counterpart relation that precludes this possibility.

B-Theory – Eternalism

B-theory is sometimes referred to as *eternalism* since, for all moments in time, it is the case that all other moments in time exist. Thus, if you like, all moments in time exist eternally. And so too the entities that exist in time.

Eternalist Endurantism

This view, like growing-block endurantism, would involve a commitment to objects being wholly located at each moment in time; the difference is that the eternalist would be committed to this for *every moment* through which the object endures (rather than just to those past and present moments through which it endures). However, the explanation for why growing-block endurantism was viable also applies here, since there was nothing about that argument that turned on only past and present moments existing.

Eternalist Perdurantism

This is sometimes seen as the 'natural home' of perdurantism. On this combination of views, the entire spacetime worm exists—they do not have any non-existent parts.

Eternalist Stage Theory

This view is not unlike the growing-block stage theory, except insofar as objects' future temporal counterparts exist as much as their past temporal counterparts do.